

Supplementary Online Content

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This supplementary material has been provided by the authors to give readers additional information about their work.

eBox. Overview of Allocation Strategy for Vaccines Registered on Parent's Identification Number	
Priority	Allocation mechanisms
1	Only match: If the adult who are registered with the vaccination only have one child the vaccination is assigned to that child.
2	Age interval: If more than one child is linked to the same vaccine through the parents then the child who falls in the age interval around the scheduled age for that type and dose of vaccine is allocated to that vaccine. (The age intervals begin from half a month to one month prior to the scheduled vaccination age to 9 months after the scheduled vaccination age)
3	Only one lacking the vaccine: If more children still are linked to the same vaccine and only one child is lacking any dose of a particular vaccine then that child is assigned to the vaccine.
4	Time gap: If still more than one child is linked to the same vaccine then the child, which is closest in age to the scheduled age of that vaccination is allocated to the vaccine.
Special issues	
Twins etc.	They follow the same principles as the other children, but two vaccines of the same type should be registered on the same date, before twins can be assigned to the vaccine. If only one vaccine is registered for a twin pair then it is noted that it is uncertain which twin received that vaccine. (Same principle for triplets and quadruplets)
Extra vaccinations	If no children are lacking a vaccine under priority 3, then this vaccine is not assigned to any children.

eTable 1. Overview of the ICD-10 Codes Used to Define Admission Due to Infections		
Subgroups of infections	Diagnoses	ICD10-codes
Upper respiratory infections	Abscessus peritonsillaris	J36.0–J36.9
	Infections in the ear	H65.0–H67.9; H68.0; H70.0–H70.9
	Laryngitis	J37.0; A36.2; J04.0–J05.9
	Nasopharyngitis	A36.1; J00.0–J00.9
	Pharyngitis	J02.0–J02.9
	Sinusitis	J32.0–J32.9; J01.0–J01.1; J01.3–J01.9
	Ethmoiditis	J01.2
	Tonsillitis	J35.0; A36.0; J03.0–J03.9
	Other	A36.8–A36.9; J06.0–J06.9
Lower respiratory infections	Influenza	J09.0–J11.9
	Pneumonia	A48.1; A70.0–A70.9; J12.0–J18.9
	Other acute lower respiratory infections	A37.0–A37.9; A42.0; J20.0–J22.9; J85.0–J86.9
Gastrointestinal infections		A00.0–A02.0; A02.2–A09.9; A42.1
Other infections	Acute lymphadenitis	L04.0–L04.9
	Cellulitis and abscess	H60.0–H60.1; L02.0–L03.9
	Dermatophytosis and other superficial mycoses	B35.0–B36.9
	Erysipelas	A46.0–A46.9
	Viral warts	B07.0–B07.9
	Other local infections of skin and subcutaneous tissue	A36.3; H60.2–H60.4; H60.8–H60.9; L00.0–L01.1; L08.0–L08.9; L30.3
	Certain bacterial diseases	A20.0–A32.0; A32.8–A35.9; A38.0–A38.9; A39.1; A39.3–A39.9; A42.2–A44.9; A48.0; A48.2–A49.9; A50.0–A53.9; A54.0–A54.9; A55.0–A56.9; A57.0–A57.9; A74.8–A74.9
	Cystitis	N30.0
	Hepatitis	B15.0–B19.9
	Infections of the circulatory system	I00.0–I01.9; I30.0–I30.9; I33.0–I33.9; I38.0–I38.9; I39.8–I40.9
	Infections of the eye	A71.0–A74.0; H00.0–H01.0; H01.8–H01.9; H03.0–H03.1; H06.1; H10.0; H10.2–H10.3; H10.5–H10.8
	Infections of the musculoskeletal system and connective tissue	M00.0–M01.9; M60.0; M86.3–M86.6
	Infections of the nervous system	G04.0–G07.9
	Infections of the urinary system	N34.0–N34.1; N34.3
	Meningitis	A32.1; A39.0; A87.0–A87.9; B00.3–B00.4; B01.0–B01.1; B02.0–B02.1; B05.0–B05.1; B06.0; B26.1–B26.2; G00.0–G03.9

eTable 1. Overview of the ICD-10 Codes Used to Define Admission Due to Infections (continued)

Subgroups of infections	Diagnoses	ICD10–codes
Other infections	Mycoses	B37.0–B37.6; B37.8–B49.9
	Nephritis	N08.0
	Osteomyelitis	M46.2; M46.5; M86.0–M86.2
	Protozoal diseases, helminthiases, pediculosis, acariasis and other infestations	A59.0–A59.9; B50.0–B89.9
	Pyelonephritis	N10.9
	Rickettsiosis	A75.0–A79.9
	Sepsis	A02.1; A32.7; A39.2; A40.0–A41.9; B37.7
	Spirochaetal disease	A65.0–A69.9
	Tuberculosis	A15.0–A19.9; K93.0
	Unspecified infections	B99.0–B99.9
	Viral infections	A58.0–A58.9; A60.0–A60.9; A63.0; A80.0–A86.9; A88.0–A99.9; B00.0–B00.2; B00.5–B00.9; B01.2–B01.9; B02.2–B04.9; B05.2–B05.9; B06.1–B06.9; B08.0–B09.9; B20.0–B26.0 B26.3–B34.9
	Other	A63.8–A64.9

eTable 2. Number of Included Children and Most Recent Vaccination According to Age

At age	Number of included children (%) ^a	Included children in the recommended-schedule-cohort according to the most recent vaccine		Included children in the reversed-schedule-cohort according to the most recent vaccine	
		DTaP-IPV-Hib3 most recent vaccine N (%) ^b	MMR most recent vaccine N (%) ^b	MMR most recent vaccine N (%) ^c	DTaP-IPV-Hib3 most recent vaccine N (%) ^c
11 months	5214 (1.1%)	5052 (100.0%)	2 (0.0%)	158 (98.8%)	2 (1.2%)
12 months	66,059 (13.9%)	65,712 (100.0%)	20 (0.0%)	301 (92.0%)	26 (8.0%)
13 months	327,900 (69.0%)	326,869 (99.9%)	225 (0.1%)	666 (82.6%)	140 (17.4%)
14 months	400,662 (84.3%)	398,271 (99.7%)	1288 (0.3%)	841 (76.2%)	262 (23.8%)
15 months	426,379 (89.7%)	380,144 (89.8%)	43,335 (10.2%)	2529 (87.2%)	371 (12.8%)
16 months	441,783 (93.0%)	216,987 (50.2%)	215,226 (49.8%)	9000 (94.0%)	570 (6.0%)
17 months	448,431 (94.4%)	145,682 (33.4%)	289,861 (66.6%)	12,036 (93.4%)	852 (6.6%)
18 months	451,683 (95.0%)	108,940 (24.9%)	328,020 (75.1%)	13,600 (92.4%)	1123 (7.6%)
19 months	453,885 (95.5%)	87,628 (20.0%)	350,299 (80.0%)	14,619 (91.6%)	1339 (8.4%)
20 months	455,198 (95.8%)	74,507 (17.0%)	363,969 (83.0%)	15,235 (91.1%)	1487 (8.9%)
21 months	456,017 (96.0%)	65,785 (15.0%)	372,992 (85.0%)	15,643 (90.7%)	1597 (9.3%)
22 months	456,656 (96.1%)	59,698 (13.6%)	379,296 (86.4%)	15,981 (90.5%)	1681 (9.5%)
23 months	456,577 (96.1%)	55,211 (12.6%)	383,449 (87.4%)	16,161 (90.2%)	1756 (9.8%)

a: Percentages of all 475,262 children included in the study at one point in time (456,043 of these children was included in the recommended-schedule-cohort and 19,219 was included in the reversed-schedule-cohort).

b: Percentages of children included in the recommended-schedule-cohort at the specified age according to most recent vaccination.

c: Percentages of children included in the reversed-schedule-cohort at the specified age according to most recent vaccination.

eTable 3. Characteristics of the Recommended-Schedule Cohort and the Reversed-Schedule Cohort According to Most Recent Vaccination at 16 Months of Age

		Recommended-schedule-cohort				Reversed-schedule-cohort			
		DTaP-IPV-Hib3 most recent vaccine at 16 months of age N (%) ^b	MMR most recent vaccine at 16 months of age N (%) ^b	Risk ratio ^a (95% CI)	P Value	MMR most recent vaccine at 16 months of age N (%) ^b	DTaP-IPV-Hib3 most recent vaccine at 16 months of age N (%) ^b	Risk ratio ^b (95% CI)	P Value
Sex									
	Male	111,753 (50.7%)	108,457 (49.3%)	1 (ref)		4670 (94.1%)	291 (5.9%)	1 (ref)	
	Female	105,234 (49.6%)	106,769 (50.4%)	1.02 (1.01-1.02)	<0.001	4330 (93.9%)	279 (6.1%)	1.07 (0.91-1.25)	0.42
Mother smoking during pregnancy									
	No	176,162 (49.5%)	179,449 (50.5%)	1 (ref)		7487 (93.9%)	487 (6.1%)	1 (ref)	
	Yes	40,825 (53.3%)	35,777 (46.7%)	0.94 (0.93-0.95)	<0.001	1513 (94.8%)	83 (5.2%)	0.88 (0.69-1.11)	0.28
Birth weight, gram									
	≤2000	4299 (56.7%)	3283 (43.3%)	0.93 (0.90-0.95)		127 (95.5%)	6 (4.5%)	0.66 (0.27-1.58)	
	2001-2500	7091 (51.1%)	6776 (48.9%)	1.02 (1.00-1.04)		271 (93.8%)	18 (6.2%)	0.91 (0.54-1.55)	
	2501-3000	25,563 (49.1%)	26,524 (50.9%)	1.02 (1.01-1.03)		1125 (95.3%)	55 (4.7%)	0.78 (0.58-1.06)	
	3001-3500	67,764 (49.7%)	68,637 (50.3%)	1 (ref)	<0.001	2878 (94.2%)	178 (5.8%)	1 (ref)	0.33
	3501-4000	72,815 (50.2%)	72,359 (49.8%)	1.00 (0.99-1.01)		2997 (93.8%)	199 (6.2%)	1.08 (0.88-1.31)	
	4001-4500	31,868 (51.2%)	30,425 (48.8%)	1.00 (0.99-1.01)		1302 (93.3%)	94 (6.7%)	1.18 (0.93-1.51)	
	>4500	7587 (51.2%)	7222 (48.8%)	1.01 (0.99-1.03)		300 (93.8%)	20 (6.2%)	1.14 (0.73-1.79)	
Gestational age, weeks									
	<37	13,677 (53.0%)	12,143 (47.0%)	0.97 (0.95-0.98)	<0.001	8503 (94.1%)	535 (5.9%)	1.38 (0.91-2.08)	0.13
	≥37	203,310 (50.0%)	203,083 (50.0%)	1 (ref)		497 (93.4%)	35 (6.6%)	1 (ref)	
Caesarean section									
	No	178,900 (50.2%)	177,508 (49.8%)	1 (ref)		7366 (94.0%)	473 (6.0%)	1 (ref)	
	Yes	38,087 (50.2%)	37,718 (49.8%)	1.00 (0.99-1.01)	0.91	1634 (94.4%)	97 (5.6%)	0.93 (0.75-1.15)	0.50

Abbreviations: MMR, vaccination against measles, mumps, and rubella; DTaP-IPV-Hib3, vaccination with the third dose against diphtheria, tetanus, pertussis (acellular), polio, and haemophilus influenzae type b; CI, confidence interval; n.a., not available.

^a Generalized linear model for the binomial family with log-link for risk ratio of being MMR-vaccinated at 16 months of age adjusted for all variables in the table.

^b Generalized linear model for the binomial family with log-link for risk ratio of being DTaP-IPV-Hib3-vaccinated at 16 months of age adjusted for all variables in the table.

eTable 3. Characteristics of the Recommended-Schedule Cohort and the Reversed-Schedule Cohort According to Most Recent Vaccination at 16 Months of Age (continued)

		Recommended-schedule-cohort				Reversed-schedule-cohort			
		DTaP-IPV-Hib3 most recent vaccine at 16 months of age N (%) ^b	MMR most recent vaccine at 16 months of age N (%) ^b	Risk ratio ^a (95% CI)	P Value	MMR most recent vaccine at 16 months of age N (%) ^b	DTaP-IPV-Hib3 most recent vaccine at 16 months of age N (%) ^b	Risk ratio ^b (95% CI)	P Value
Chronic diseases									
	No	210,029 (50.1%)	209,435 (49.9%)	1 (ref)		8722 (94.0%)	559 (6.0%)	1 (ref)	
	Yes	6958 (54.6%)	5791 (45.4%)	0.94 (0.92-0.95)	<0.001	278 (96.2%)	11 (3.8%)	0.64 (0.36-1.15)	0.14
Number of admissions due to infections before 11 months of age									
	None	195,641 (49.8%)	197,296 (50.2%)	1 (ref)		8174 (94.1%)	515 (5.9%)	1 (ref)	
	One	18,685 (53.9%)	15,989 (46.1%)	0.96 (0.95-0.97)		737 (93.8%)	49 (6.2%)	1.06 (0.80-1.41)	
	Two	2207 (57.1%)	1657 (42.9%)	0.92 (0.89-0.96)	<0.001	72 (93.5%)	5 (6.5%)	1.18 (0.50-2.76)	0.96
	Three or more	454 (61.5%)	284 (38.5%)	0.86 (0.79-0.95)		17 (94.4%)	1 (5.6%)	0.95 (0.14-6.58)	
Admitted to hospital for any cause within the last month									
	No	211,780 (50.0%)	211,846 (50.0%)	1 (ref)		8825 (94.0%)	560 (6.0%)	1 (ref)	
	Yes	5207 (60.6%)	3380 (39.4%)	0.80 (0.78-0.82)	<0.001	175 (94.6%)	10 (5.4%)	0.85 (0.46-1.58)	0.62
Maternal age at birth of the child, years									
	<=19	2980 (52.6%)	2684 (47.4%)	0.92 (0.89-0.95)		154 (92.8%)	12 (7.2%)	1.17 (0.64-2.14)	
	20-24	24,020 (47.6%)	26,445 (52.4%)	1.00 (0.99-1.01)		1091 (95.1%)	56 (4.9%)	0.85 (0.62-1.17)	
	25-29	74,528 (47.8%)	81,280 (52.2%)	1.02 (1.01-1.02)		3250 (94.3%)	197 (5.7%)	1.00 (0.82-1.22)	
	30-34	79,427 (51.7%)	74,297 (48.3%)	1 (ref)	<0.001	3177 (94.0%)	201 (6.0%)	1 (ref)	0.30
	35-39	31,464 (54.2%)	26,625 (45.8%)	0.98 (0.97-0.99)		1171 (92.6%)	94 (7.4%)	1.25 (0.99-1.59)	
	>=40	4568 (54.0%)	3895 (46.0%)	0.98 (0.96-1.00)		157 (94.0%)	10 (6.0%)	1.02 (0.55-1.88)	

Abbreviations: MMR, vaccination against measles, mumps, and rubella; DTaP-IPV-Hib3, vaccination with the third dose against diphtheria, tetanus, pertussis (acellular), polio, and haemophilus influenzae type b; CI, confidence interval; n.a., not available.

^a Generalized linear model for the binomial family with log-link for risk ratio of being MMR-vaccinated at 16 months of age adjusted for all variables in the table.

^b Generalized linear model for the binomial family with log-link for risk ratio of being DTaP-IPV-Hib3-vaccinated at 16 months of age adjusted for all variables in the table.

eTable 3. Characteristics of the Recommended-Schedule Cohort and the Reversed-Schedule Cohort According to Most Recent Vaccination at 16 Months of Age(continued)

	Recommended-schedule-cohort				Reversed-schedule-cohort			
	DTaP-IPV-Hib3 most recent vaccine at 16 months of age N (%) ^b	MMR most recent vaccine at 16 months of age N (%) ^b	Risk ratio ^a (95% CI)	P Value	MMR most recent vaccine at 16 months of age N (%) ^b	DTaP-IPV-Hib3 most recent vaccine at 16 months of age N (%) ^b	Risk ratio ^b (95% CI)	P Value
Highest educational level for the female adult in the household								
Primary school	44,268 (52.7%)	39,718 (47.3%)	0.96 (0.95-0.97)		1758 (93.9%)	114 (6.1%)	1.07 (0.83-1.38)	
High school examination	21,871 (50.0%)	21,841 (50.0%)	0.95 (0.94-0.96)		912 (94.6%)	52 (5.4%)	0.86 (0.64-1.17)	
Vocational training	72,184 (48.2%)	77,517 (51.8%)	1 (ref)	<0.001	3143 (94.3%)	191 (5.7%)	1 (ref)	0.69
Bachelor or academy profession	60,771 (51.1%)	58,231 (48.9%)	0.94 (0.93-0.94)		2372 (94.1%)	149 (5.9%)	0.91 (0.74-1.13)	
Master's degree or higher	17,893 (50.0%)	17,919 (50.0%)	0.95 (0.94-0.97)		815 (92.7%)	64 (7.3%)	0.97 (0.72-1.30)	
Parental place of birth								
Denmark	180,649 (49.9%)	181,676 (50.1%)	1 (ref)		7468 (94.2%)	460 (5.8%)	1 (ref)	
Denmark and foreign	19,562 (51.7%)	18,279 (48.3%)	0.98 (0.97-0.99)	<0.001	806 (92.8%)	63 (7.2%)	1.13 (0.87-1.46)	0.36
Foreign	16,776 (52.3%)	15,271 (47.7%)	1.03 (1.02-1.05)		726 (93.9%)	47 (6.1%)	0.86 (0.62-1.18)	
Adult composition of the household								
Two adults	203,016 (49.9%)	204,142 (50.1%)	1 (ref)		8433 (94.1%)	530 (5.9%)	1 (ref)	
Single parent	13,925 (55.8%)	11,035 (44.2%)	0.92 (0.90-0.93)	<0.001	566 (93.4%)	40 (6.6%)	1.01 (0.73-1.42)	0.99
No parents	46 (48.4%)	49 (51.6%)	1.03 (0.85-1.26)		1 (100%)	0 (0.0%)	n.a.	
Income quintiles for the household								
1st (lowest)	42,359 (54.8%)	34,935 (45.2%)	0.92 (0.91-0.94)		1708 (93.4%)	121 (6.6%)	1.08 (0.81-1.45)	
2nd	44,584 (51.2%)	42,456 (48.8%)	0.98 (0.97-0.99)		1757 (94.4%)	105 (5.6%)	0.97 (0.74-1.27)	
3rd	45,730 (49.8%)	46,132 (50.2%)	1.00 (0.99-1.01)	<0.001	1966 (95.4%)	94 (4.6%)	0.77 (0.59-1.02)	0.13
4th	43,696 (48.1%)	47,095 (51.9%)	1.00 (0.99-1.01)		1778 (93.6%)	121 (6.4%)	1.05 (0.82-1.35)	
5 th (highest)	40,618 (47.7%)	44,608 (52.4%)	1 (ref)		1791 (93.3%)	129 (6.7%)	1 (ref)	

eTable 3. Characteristics of the Recommended-Schedule Cohort and the Reversed-Schedule Cohort According to Most Recent Vaccination at 16 Months of Age (continued)

		Recommended-schedule-cohort				Reversed-schedule-cohort			
		DTaP-IPV-Hib3 most recent vaccine at 16 months of age N (%) ^b	MMR most recent vaccine at 16 months of age N (%) ^b	Risk ratio ^a (95% CI)	P Value	MMR most recent vaccine at 16 months of age N (%) ^b	DTaP-IPV-Hib3 most recent vaccine at 16 months of age N (%) ^b	Risk ratio ^b (95% CI)	P Value
Other children in the household									
	No	78,837 (42.5%)	106,564 (57.5%)	1 (ref)		4252 (94.0%)	270 (6.0%)	1 (ref)	
	Yes	138,150 (56.0%)	108,662 (44.0%)	0.77 (0.76-0.77)	<0.001	4748 (94.1%)	300 (5.9%)	0.97 (0.81-1.16)	0.76
Population density, inhabitants per km²									
	<50	15,831 (54.2%)	13,366 (45.8%)	1 (ref)		572 (95.5%)	27 (4.5%)	1 (ref)	
	50-499	126,168 (49.7%)	127,779 (50.3%)	1.09 (1.08-1.11)		5542 (95.0%)	292 (5.0%)	1.10 (0.75-1.62)	
	500-1999	39,394 (49.2%)	40,680 (50.8%)	1.10 (1.08-1.11)	<0.001	1563 (92.8%)	121 (7.2%)	1.55 (1.03-2.34)	<0.001
	2000-4999	9875 (51.5%)	9317 (48.5%)	1.05 (1.03-1.07)		366 (90.6%)	38 (9.4%)	1.97 (1.22-3.19)	
	>=5000	25,719 (51.6%)	24,084(48.4%)	1.02 (1.00-1.04)		957 (91.2%)	92 (8.8%)	1.89 (1.23-2.90)	

Abbreviations: MMR, vaccination against measles, mumps, and rubella; DTaP-IPV-Hib3, vaccination with the third dose against diphtheria, tetanus, pertussis (acellular), polio, and haemophilus influenzae type b; CI, confidence interval; n.a., not available.

^a Generalized linear model for the binomial family with log-link for risk ratio of being MMR-vaccinated at 16 months of age adjusted for all variables in the table.

^b Generalized linear model for the binomial family with log-link for risk ratio of being DTaP-IPV-Hib3-vaccinated at 16 months of age adjusted for all variables in the table.

eTable 4. Incidence Rate of Hospital Admissions Due to Infections According to Age and Most Recent Vaccine in the Recommended-Schedule Cohort and the Reversed-Schedule Cohort

	Admissions per 100 person-years (95% CI) [Admissions/Person-years]					
	12-13 months	14-15 months	16-17 months	18-19 months	20-21 months	22-23 months
Recommended-schedule-cohort: Most recent vaccine						
DTaP-IPV-Hib3	12.9 (12.5-13.2) [6357/49,435]	12.6 (12.4-12.9) [7212/57,035]	13.3 (12.8-13.7) [3303/24,896]	11.9 (11.3-12.5) [1747/14,690]	10.8 (10.2-11.4) [1179/10,952]	8.9 (8.3-9.6) [817/9151]
MMR	5.0 (1.6-15.5) [3/60]	11.1 (10.5-11.7) [1405/12,702]	10.4 (10.1-10.7) [4854/46,633]	9.6 (9.3-9.8) [5469/57,033]	8.5 (8.2-8.7) [5146/60,857]	7.1 (6.9-7.3) [4434/62,358]
Reversed-schedule-cohort: Most recent vaccine						
MMR	17.2 (10.9-27.3) [18/105]	12.0 (9.6-15.0) [75/626]	12.3 (10.9-14.0) [242/1964]	9.3 (8.2-10.6) [225/2416]	10.1 (8.9-11.4) [262/2595]	7.5 (6.5-8.6) [200/2677]
DTaP-IPV-Hib3	8.3 (2.1-33.3) [2/24]	9.4 (4.2-20.8) [6/64]	13.5 (8.6-21.2) [19/141]	18.2 (13.4-24.9) [40/219]	11.0 (7.7-15.9) [29/262]	11.0 (7.8-15.6) [32/290]
Abbreviations: DTaP-IPV-Hib, vaccination against diphtheria, tetanus, pertussis (acellular), polio, and <i>Haemophilus influenzae</i> type b; MMR, vaccination against measles, mumps, and rubella; CI, confidence interval.						

eTable 5. Incidence and Incidence Rate Ratios of Infectious Disease Hospital Admissions According to Most Recent Vaccination and Other Covariates

Characteristic	Recommended-schedule-cohort ^a					Reversed-schedule-cohort ^d				
	Admissions per 100 person-years (Admissions/ Person-years)	Unadjusted IRR ^b (95% CI)	P Value	Adjusted IRR ^c (95% CI)	P Value	Admissions per 100 person-years (Admissions/ Person-years)	Unadjusted IRR ^b (95% CI)	P Value	Adjusted IRR ^c (95% CI)	P Value
Most recent vaccination										
DTaP-IPV-Hib3	12.4 (20,743/167,693)	1(ref)		1(ref)		12.8 (128/1001)	1.71 (1.37-2.12)		1.62 (1.28-2.05)	
MMR	8.9 (21,311/239,642)	0.81 (0.79-0.84)	<0.001	0.86 (0.84-0.88)	<0.001	9.9 (1025/10,400)	1(ref)	<0.001	1(ref)	<0.001
Mother smoking during pregnancy										
No	9.8 (32,713/334,772)	1(ref)		1(ref)		9.7 (911/9417)	1(ref)		1(ref)	
Yes	12.9 (9341/72,563)	1.35 (1.32-1.38)	<0.001	1.17 (1.14-1.20)	<0.001	12.2 (242/1984)	1.32 (1.12-1.56)	0.001	1.04 (0.85-1.25)	0.73
Sex										
Male	11.7 (24,258/207,335)	1(ref)		1(ref)		11.7 (690/5888)	1(ref)		1(ref)	
Female	8.9 (17,796/200,000)	0.76 (0.75-0.77)	<0.001	0.80 (0.78-0.81)	<0.001	8.4 (463/5513)	0.75 (0.65-0.86)	<0.001	0.76 (0.66-0.88)	<0.001
Birth weight, gram										
<=2000	22.1 (1564/7074)	2.14 (2.03-2.25)		1.21 (1.13-1.30)		15.9 (28/176)	1.70 (1.06-2.72)		1.12 (0.61-2.05)	
2001-2500	14.9 (1945/13,039)	1.43 (1.36-1.50)		1.12 (1.06-1.18)		14.7 (50/341)	1.48 (1.05-2.10)		1.32 (0.87-1.99)	
2501-3000	12.1 (5951/49,093)	1.17 (1.14-1.21)		1.07 (1.04-1.11)		12.3 (168/1364)	1.35 (1.09-1.67)		1.25 (0.99-1.59)	
3001-3500	10.4 (13,315/128,482)	1(ref)	<0.001	1(ref)	<0.001	9.3 (339/3649)	1(ref)	0.006	1(ref)	0.36
3501-4000	9.4 (12,926/136,891)	0.91 (0.89-0.93)		0.95 (0.93-0.98)		10.2 (388/3822)	1.06 (0.90-1.25)		1.10 (0.92-1.31)	
4001-4500	8.7 (5107/58,771)	0.84 (0.81-0.87)		0.89 (0.86-0.92)		9.0 (148/1648)	1.06 (0.85-1.32)		1.09 (0.86-1.38)	
>4500	8.9 (1246/13,985)	0.86 (0.81-0.91)		0.90 (0.85-0.96)		8.0 (32/402)	0.77 (0.51-1.15)		0.79 (0.51-1.22)	
Gestational age, weeks										
<37	17.2 (4155/24,196)	1.73 (1.67-1.79)	<0.001	1.19 (1.14-1.24)	<0.001	14.1 (91/647)	1.41 (1.08-1.82)	0.01	1.10 (0.77-1.59)	0.59
>=37	9.9 (37,899/383,139)	1(ref)		1(ref)		9.9 (1062/10,754)	1(ref)		1(ref)	
Caesarean section										
No	9.7 (32,677/336,078)	1(ref)		1(ref)		9.8 (913/9334)	1(ref)		1(ref)	
Yes	13.2 (9377/71,258)	1.34 (1.31-1.37)	<0.001	1.17 (1.14-1.20)	<0.001	11.6 (240/2067)	1.15 (0.97-1.35)	0.10	1.12 (0.94-1.35)	0.21

Abbreviations: DTaP-IPV-Hib3, vaccination with the third dose against diphtheria, tetanus, pertussis (acellular), polio, and *Haemophilus influenzae* type b; MMR, vaccination against measles, mumps, and rubella; IRR, incidence rate ratio; CI, confidence interval; n.a., not available.

^a The recommended-schedule-cohort included 456,043 children who received DTaP-IPV-Hib3 after DTaP-IPV-Hib2. They contribute with 42,054 infectious disease admissions during 407,335 person-years at risk.

^b Cox proportional hazards model with age as underlying time and stratified by date of birth thereby controlling for season.

^c Cox proportional hazards model with age as underlying time, stratified by date of birth and adjusted for all variables in the table.

^d The reversed-schedule-cohort included 19,219 children who received MMR after DTaP-IPV-Hib2. They contribute with 1153 infectious disease admissions during 11,401 person-years at risk.

eTable 5. Incidence and Incidence Rate Ratios of Infectious Disease Hospital Admissions According to Most Recent Vaccination and Other Covariates (continued)

Characteristics	Recommended-schedule-cohort ^a					Reversed-schedule-cohort ^d						
	Admissions per 100 person-years (Admissions/ Person-years)	Unadjusted IRR ^b (95% CI)	P Value	Adjusted IRR ^c (95% CI)	P Value	Admissions per 100 person-years (Admissions/ Person-years)	Unadjusted IRR ^b (95% CI)	P Value	Adjusted IRR ^c (95% CI)	P Value		
Chronic diseases												
No	9.7	(38,213/395,304)	1(ref)	1(ref)		9.6	(1058/11,060)	1(ref)	1(ref)			
Yes	31.9	(3841/12,031)	3.31 (3.21-3.43)	<0.001	2.02 (1.95-2.10)	<0.001	27.9	(95/341)	3.34 (2.53-4.39)	<0.001	1.98 (1.44-2.73)	<0.001
Number of infectious disease admissions before 11 months of age												
None	9.0	(33,282/370,581)	1(ref)	1(ref)		8.5	(871/10,279)	1(ref)	1(ref)			
One	20.0	(6506/32,490)	2.23 (2.17-2.29)		1.92 (1.87-1.98)		19.6	(194/992)	2.31 (1.90-2.81)		2.05 (1.67-2.52)	
Two	43.5	(1565/3597)	4.86 (4.61-5.11)	<0.001	3.31 (3.14-3.50)	<0.001	56.7	(63/111)	6.21 (4.28-9.00)	<0.001	4.20 (2.79-6.33)	<0.001
Three or more	105.1	(701/667)	11.8 (11.0-12.8)		5.83 (5.37-6.34)		131.6	(25/19)	30.4 (12.1-76.1)		19.5 (7.40-51.3)	
Admitted to hospital for any cause within the last 30 days												
No	9.6	(38,731/402,284)	1(ref)	1(ref)		9.3	(1043/11,262)	1(ref)	1(ref)			
Yes	65.8	(3323/5051)	6.40 (6.17-6.64)	<0.001	4.42 (4.26-4.59)	<0.001	79.0	(110/139)	8.72 (6.31-12.1)	<0.001	6.57 (4.67-9.25)	<0.001
Maternal age at birth of the child, years												
<=19	13.8	(735/5342)	1.48 (1.37-1.59)		1.13 (1.04-1.22)		8.4	(16/190)	1.19 (0.68-2.10)		0.91 (0.48-1.70)	
20-24	12.6	(6036/47,743)	1.34 (1.30-1.38)		1.14 (1.10-1.18)		12.3	(168/1365)	1.48 (1.20-1.83)		1.41 (1.09-1.81)	
25-29	10.4	(15,310/147,059)	1.09 (1.07-1.12)		1.05 (1.02-1.07)		10.8	(435/4044)	1.13 (0.97-1.33)		1.14 (0.95-1.35)	
30-34	9.6	(13,879/144,594)	1(ref)	<0.001	1(ref)	<0.001	9.1	(366/4038)	1(ref)	0.005	1(ref)	0.06
35-39	9.7	(5315/54,627)	1.01 (0.98-1.04)		0.99 (0.96-1.02)		9.2	(143/1558)	0.99 (0.79-1.23)		0.96 (0.76-1.21)	
>=40	9.8	(779/7971)	1.01 (0.94-1.09)		0.96 (0.90-1.04)		12.1	(25/207)	1.51 (0.93-2.45)		1.49 (0.89-2.49)	

Abbreviations: DTaP-IPV-Hib3, vaccination with the third dose against diphtheria, tetanus, pertussis (acellular), polio, and *Haemophilus influenzae* type b; MMR, vaccination against measles, mumps, and rubella; IRR, incidence rate ratio; CI, confidence interval; n.a., not available.

^a The recommended-schedule-cohort included 456,043 children who received DTaP-IPV-Hib3 after DTaP-IPV-Hib2. They contribute with 42,054 infectious disease admissions during 407,335 person-years at risk.

^b Cox proportional hazards model with age as underlying time and stratified by date of birth thereby controlling for season.

^c Cox proportional hazards model with age as underlying time, stratified by date of birth and adjusted for all variables in the table.

^d The reversed-schedule-cohort included 19,219 children who received MMR after DTaP-IPV-Hib2. They contribute with 1153 infectious disease admissions during 11,401 person-years at risk.

eTable 5. Incidence and Incidence Rate Ratios of Infectious Disease Hospital Admissions According to Most Recent Vaccination and Other Covariates (continued)

Characteristics	Recommended-schedule-cohort ^a					Reversed-schedule-cohort ^d				
	Admissions per 100 person-years (Admissions/Person-years)	Unadjusted IRR ^b (95% CI)	P Value	Adjusted IRR ^c (95% CI)	P Value	Admissions per 100 person-years (Admissions/Person-years)	Unadjusted IRR ^b (95% CI)	P Value	Adjusted IRR ^c (95% CI)	P Value
Highest educational level for the female adult in the household										
Primary school	12.3 (9753/79,361)	1.18 (1.15-1.21)		1.03 (1.00-1.06)		13.3 (308/2309)	1.31 (1.09-1.57)		1.30 (1.05-1.60)	
High school examination	9.7 (3989/41,179)	0.92 (0.89-0.95)		0.90 (0.86-0.93)		10.4 (120/1150)	0.93 (0.74-1.18)		0.93 (0.72-1.20)	
Vocational training	10.6 (14,946/141,387)	1(ref)	<0.001	1(ref)	<0.001	9.9 (381/3848)	1(ref)	<0.001	1(ref)	0.02
Bachelor or academy profession	9.3 (10,397/111,867)	0.86 (0.84-0.89)		0.90 (0.88-0.92)		8.8 (269/3057)	0.82 (0.69-0.98)		0.90 (0.74-1.10)	
Master's degree or higher	8.9 (2969/33,541)	0.82 (0.79-0.85)		0.82 (0.79-0.86)		7.2 (75/1038)	0.71 (0.54-0.93)		0.87 (0.64-1.19)	
Parental place of birth										
Denmark	10.2 (35,028/341,866)	1(ref)		1(ref)		10.2 (956/9391)	1(ref)		1(ref)	
Denmark and foreign	10.3 (3679/35,550)	1.00 (0.97-1.04)	<0.001	0.95 (0.92-0.98)	0.02	8.3 (87/1054)	0.86 (0.67-1.10)	0.40	0.92 (0.71-1.20)	0.84
Foreign	11.2 (3347/29,920)	1.10 (1.06-1.14)		0.99 (0.95-1.03)		11.5 (110/956)	1.06 (0.84-1.34)		0.99 (0.75-1.31)	
Adult composition of the household										
Two adults	10.0 (38,533/383,714)	1(ref)		1(ref)		9.9 (1052/10,629)	1(ref)		1(ref)	
Single parent	14.9 (3511/23,532)	1.49 (1.43-1.54)	<0.001	1.21 (1.16-1.26)	<0.001	13.1 (101/769)	1.40 (1.10-1.78)	0.02	1.23 (0.92-1.63)	0.38
No parents	11.1 (10/90)	1.13 (0.61-2.10)		1.03 (0.55-1.92)		0.0 (0/3)	n.a.		n.a.	

Abbreviations: DTaP-IPV-Hib3, vaccination with the third dose against diphtheria, tetanus, pertussis (acellular), polio, and *Haemophilus influenzae* type b; MMR, vaccination against measles, mumps, and rubella; IRR, incidence rate ratio; CI, confidence interval; n.a., not available.

^a The recommended-schedule-cohort included 456,043 children who received DTaP-IPV-Hib3 after DTaP-IPV-Hib2. They contribute with 42,054 infectious disease admissions during 407,335 person-years at risk.

^b Cox proportional hazards model with age as underlying time and stratified by date of birth thereby controlling for season.

^c Cox proportional hazards model with age as underlying time, stratified by date of birth and adjusted for all variables in the table.

^d The reversed-schedule-cohort included 19,219 children who received MMR after DTaP-IPV-Hib2. They contribute with 1153 infectious disease admissions during 11,401 person-years at risk.

eTable 5. Incidence and Incidence Rate Ratios of Infectious Disease Hospital Admissions According to Most Recent Vaccination and Other Covariates (continued)

Characteristics	Recommended-schedule-cohort ^a					Reversed-schedule-cohort ^d				
	Admissions per 100 person-years (Admissions/ Person-years)	Unadjusted IRR ^b (95% CI)	P Value	Adjusted IRR ^c (95% CI)	P Value	Admissions per 100 person-years (Admissions/ Person-years)	Unadjusted IRR ^b (95% CI)	P Value	Adjusted IRR ^c (95% CI)	P Value
Income quintiles for the household										
1st (lowest)	11.0 (8038/72,842)	1.12 (1.09-1.16)		0.93 (0.90-0.97)		9.5 (216/2277)	1.11 (0.89-1.38)		0.82 (0.62-1.09)	
2nd	10.7 (8770/82,132)	1.09 (1.05-1.12)		0.99 (0.95-1.02)		11.6 (261/2254)	1.31 (1.06-1.62)		1.15 (0.90-1.47)	
3rd	10.3 (8924/86,701)	1.04 (1.01-1.08)	<0.001	1.02 (0.99-1.05)	<0.001	10.4 (249/2403)	1.26 (1.01-1.56)	0.10	1.08 (0.85-1.38)	0.07
4th	9.9 (8482/85,510)	1.01 (0.98-1.04)		1.00 (0.97-1.03)		10.1 (226/2236)	1.16 (0.93-1.44)		1.07 (0.85-1.36)	
5 th (highest)	9.8 (7840/80,151)	1(ref)		1(ref)		9.0 (201/2232)	1(ref)		1(ref)	
Other children in the household										
No	11.2 (19,637/174,936)	1(ref)		1(ref)		10.5 (514/4914)	1(ref)		1(ref)	
Yes	9.7 (22,417/232,400)	0.86 (0.85-0.88)	<0.001	0.87 (0.86-0.89)	<0.001	9.9 (639/6487)	0.94 (0.82-1.08)	0.37	0.95 (0.81-1.11)	0.51
Population density, inhabitants per km ²										
<50	7.5 (2061/27,597)	1(ref)		1(ref)		8.0 (56/704)	1(ref)		1(ref)	
50-499	9.7 (23,282/239,595)	1.30 (1.24-1.36)		1.27 (1.21-1.33)		10.0 (690/6891)	1.44 (1.06-1.96)		1.40 (1.01-1.94)	
500-1999	10.9 (8254/75,449)	1.46 (1.39-1.53)	<0.001	1.44 (1.37-1.52)	<0.001	10.7 (215/2014)	1.52 (1.09-2.11)	0.16	1.53 (1.06-2.20)	0.15
2000-4999	13.5 (2423/18,002)	1.80 (1.70-1.91)		1.76 (1.66-1.87)		11.4 (59/516)	1.55 (1.02-2.36)		1.68 (1.07-2.65)	
>=5000	12.9 (6034/46,693)	1.73 (1.64-1.82)		1.70 (1.61-1.79)		10.4 (133/1276)	1.46 (1.03-2.08)		1.53 (1.04-2.26)	

Abbreviations: DTaP-IPV-Hib3, vaccination with the third dose against diphtheria, tetanus, pertussis (acellular), polio, and *Haemophilus influenzae* type b; MMR, vaccination against measles, mumps, and rubella; IRR, incidence rate ratio; CI, confidence interval; n.a., not available.

^a The recommended-schedule-cohort included 456,043 children who received DTaP-IPV-Hib3 after DTaP-IPV-Hib2. They contribute with 42,054 infectious disease admissions during 407,335 person-years at risk.

^b Cox proportional hazards model with age as underlying time and stratified by date of birth thereby controlling for season.

^c Cox proportional hazards model with age as underlying time, stratified by date of birth and adjusted for all variables in the table.

^d The reversed-schedule-cohort included 19,219 children who received MMR after DTaP-IPV-Hib2. They contribute with 1153 infectious disease admissions during 11,401 person-years at risk.

eTable 6. Incidence and Incidence Rate Ratio for Infectious Disease Hospital Admissions for Different Groupings of Duration of Admission According to the Most Recent Vaccination

	Recommended-schedule-cohort			Reversed-schedule-cohort		
	Admissions per 100 person-years (Admissions/ Person-years)	Unadjusted IRR ^a (95% CI)	Adjusted IRR ^b (95% CI)	Admissions per 100 person-years (Admissions/ Person-years)	Unadjusted IRR ^a (95% CI)	Adjusted IRR ^b (95% CI)
a) Duration grouped at 0 days						
0 days						
DTaP-IPV-Hib3	4.1 (6854/167,693)	1 (ref)	1 (ref)	4.3 (43/1001)	1.63 (1.12-2.36)	1.51 (1.01-2.25)
MMR	3.1 (7374/239642)	0.83 (0.79-0.87)	0.86 (0.82-0.90)	3.4 (356/10,400)	1 (ref)	1 (ref)
>=1 days						
DTaP-IPV-Hib3	8.3 (13,889/167,693)	1 (ref)	1 (ref)	8.5 (85/1001)	1.75 (1.34-2.30)	1.68 (1.25-2.25)
MMR	5.8 (13,937/239,642)	0.81 (0.78-0.83)	0.86 (0.83-0.89)	6.4 (669/10,400)	1 (ref)	1 (ref)
<i>P equality</i>		0.32	0.87		0.75	0.68
b) Duration grouped at 1 days						
<=1 days						
DTaP-IPV-Hib3	7.5 (12,561/167,693)	1 (ref)	1 (ref)	6.9 (69/1001)	1.37 (1.03-1.83)	1.27 (0.94-1.73)
MMR	5.7 (13,626/239642)	0.85 (0.82-0.88)	0.88 (0.85-0.91)	6.4 (663/10,400)	1 (ref)	1 (ref)
>=2days						
DTaP-IPV-Hib3	4.9 (8182/167,693)	1 (ref)	1 (ref)	5.9 (59/1001)	2.41 (1.71-3.40)	2.31 (1.57-3.39)
MMR	3.2 (7685/239,642)	0.76 (0.73-0.80)	0.83 (0.79-0.86)	3.5 (362/10,400)	1 (ref)	1 (ref)
<i>P equality</i>		<0.001	0.02		0.01	0.02

Abbreviations: IRR, incidence rate ratio; CI, confidence interval; DTaP-IPV-Hib3, vaccination with the third dose against diphtheria, tetanus, pertussis (acellular), polio, and *Haemophilus influenzae* type b; MMR, vaccination against measles, mumps, and rubella.

^aCox proportional hazards model with age as underlying time and stratified by date of birth thereby controlling for season.

^bCox proportional hazards model with age as underlying time, stratified by date of birth and adjusted for sex, mother smoking during pregnancy, birth weight, gestational age, caesarean section, chronic diseases, number of admissions due to infections before 11 months of age, admitted to hospital for any cause within the last 30 days, maternal age at birth of the child, highest educational level for the female adult in the household, parental place of birth, adult composition of the household, income quintiles for the household, other children in the household, and population density.

eTable 6. Incidence and Incidence Rate Ratio for Infectious Disease Hospital Admissions for Different Groupings of Duration of Admission According to the Most Recent Vaccination (continued)

	Recommended-schedule-cohort			Reversed-schedule-cohort		
	Admissions per 100 person-years (Admissions/ Person-years)	Unadjusted IRR ^a (95% CI)	Adjusted IRR ^b (95% CI)	Admissions per 100 person-years (Admissions/ Person-years)	Unadjusted IRR ^a (95% CI)	Adjusted IRR ^b (95% CI)
c) Duration grouped at 2 days						
<=2 days						
DTaP-IPV-Hib3	9.1 (15,218/167,693)	1 (ref)	1 (ref)	9.0 (90/1001)	1.53 (1.19-1.98)	1.43 (1.09-1.88)
MMR	6.8 (16,293/239,642)	0.84 (0.82-0.87)	0.88 (0.85-0.91)	7.7 (802/10,400)	1 (ref)	1 (ref)
>=3days						
DTaP-IPV-Hib3	3.3 (5525/167,693)	1 (ref)	1 (ref)	3.8 (38/1001)	2.35 (1.53-3.62)	2.38 (1.47-3.83)
MMR	2.1 (5018/239,642)	0.73 (0.69-0.77)	0.80 (0.76-0.84)	2.1 (223/10,400)	1 (ref)	1 (ref)
<i>P equality</i>		<0.001	0.001		0.09	0.07
d) Duration grouped at 3 days						
<=3 days						
DTaP-IPV-Hib3	10.1 (16,903/167,693)	1 (ref)	1 (ref)	10.2 (102/1001)	1.63 (1.28-2.08)	1.53 (1.18-1.98)
MMR	7.5 (17,867/239,642)	0.83 (0.81-0.86)	0.87 (0.85-0.90)	8.3 (861/10,400)	1 (ref)	1 (ref)
>=4days						
DTaP-IPV-Hib3	2.3 (3840/167,693)	1 (ref)	1 (ref)	2.6 (26/1001)	2.12 (1.26-3.54)	2.09 (1.15-3.81)
MMR	1.4 (3444/239,642)	0.73 (0.68-0.77)	0.80 (0.75-0.86)	1.6 (164/10,400)	1 (ref)	1 (ref)
<i>P equality</i>		<0.001	0.02		0.37	0.35

Abbreviations: IRR, incidence rate ratio; CI, confidence interval; DTaP-IPV-Hib3, vaccination with the third dose against diphtheria, tetanus, pertussis (acellular), polio, and *Haemophilus influenzae* type b; MMR, vaccination against measles, mumps, and rubella.

^aCox proportional hazards model with age as underlying time and stratified by date of birth thereby controlling for season.

^bCox proportional hazards model with age as underlying time, stratified by date of birth and adjusted for sex, mother smoking during pregnancy, birth weight, gestational age, caesarean section, chronic diseases, number of admissions due to infections before 11 months of age, admitted to hospital for any cause within the last 30 days, maternal age at birth of the child, highest educational level for the female adult in the household, parental place of birth, adult composition of the household, income quintiles for the household, other children in the household, and population density.

eTable 7. The Recommended-Schedule Cohort: Results for Interactions Between Most Recent Vaccine and Other Covariates

Characteristics	Admissions per 100 person-years (Admissions/ Person-years)	Unadjusted IRR ^a (95% CI)	Adjusted IRR ^b (95% CI)
Female			
DTaP-IPV-Hib3	10.6 (8648/81,795)	1 (ref)	1 (ref)
MMR	7.7 (9148/118,206)	0.83 (0.80-0.86)	0.87 (0.84-0.90)
Male			
DTaP-IPV-Hib3	14.1 (12,095/85,898)	1 (ref)	1 (ref)
MMR	10.0 (12,163/121,437)	0.81 (0.78-0.83)	0.85 (0.83-0.88)
<i>P Interaction</i>		0.09	0.26
Normal birth weight (>2500 g)			
DTaP-IPV-Hib3	11.9 (18,988/159,281)	1 (ref)	1 (ref)
MMR	8.6 (19,557/227,941)	0.82 (0.80-0.84)	0.86 (0.83-0.88)
Low birth weight (<=2500 g)			
DTaP-IPV-Hib3	20.9 (1755/8412)	1 (ref)	1 (ref)
MMR	15.0 (1754/11,701)	0.82 (0.76-0.88)	0.89 (0.83-0.95)
<i>P Interaction</i>		0.95	0.28
Term (gestational age>=37 weeks)			
DTaP-IPV-Hib3	11.8 (18,664/157,594)	1 (ref)	1 (ref)
MMR	8.5 (19,235/225,545)	0.82 (0.80-0.84)	0.86 (0.83-0.88)
Premature (gestational age<37 weeks)			
DTaP-IPV-Hib3	20.6 (2079/10,099)	1 (ref)	1 (ref)
MMR	14.7 (20761/14,097)	0.82 (0.77-0.87)	0.89 (0.83-0.95)
<i>P Interaction</i>		0.96	0.24
No caesarean section			
DTaP-IPV-Hib3	11.6 (16,068/138,403)	1 (ref)	1 (ref)
MMR	8.4 (16,609/197,675)	0.82 (0.79-0.84)	0.86 (0.84-0.88)
Caesarean section			
DTaP-IPV-Hib3	16.0 (4675/29,291)	1 (ref)	1 (ref)
MMR	11.2 (4702/41,967)	0.80 (0.77-0.84)	0.86 (0.82-0.90)
<i>P Interaction</i>		0.41	0.99
No chronic diseases			
DTaP-IPV-Hib3	11.6 (18,807/162,576)	1 (ref)	1 (ref)
MMR	8.3 (19,406/232,728)	0.82 (0.80-0.85)	0.85 (0.83-0.88)
Chronic diseases			
DTaP-IPV-Hib3	37.8 (1936/5117)	1 (ref)	1 (ref)
MMR	27.6 (1905/6914)	0.83 (0.78-0.89)	0.94 (0.88-1.00)
<i>P Interaction</i>		0.71	0.006

Abbreviations: IRR, incidence rate ratio; DTaP-IPV-Hib3, vaccination with the third dose against diphtheria, tetanus, pertussis (acellular), polio, and *Haemophilus influenzae* type b; MMR, vaccination against measles, mumps, and rubella.

^aCox proportional hazards model with age as underlying time and stratified by date of birth thereby controlling for season.

^bCox proportional hazards model with age as underlying time, stratified by date of birth and adjusted for sex, mother smoking during pregnancy, birth weight, gestational age, caesarean section, chronic diseases, number of admissions due to infections before 11 months of age, admitted to hospital for any cause within the last 30 days, maternal age at birth of the child, highest educational level for the female adult in the household, parental place of birth, adult composition of the household, income quintiles for the household, other children in the household, and population density.

eTable 7. The Recommended-Schedule Cohort: Results for Interactions Between Most Recent Vaccine and Other Covariates (continued)

Characteristics	Admissions per 100 person-years (Admissions/ Person-years)	Unadjusted IRR ^a (95% CI)	Adjusted IRR ^b (95% CI)
No hospital admissions within the last 30 days			
DTaP-IPV-Hib3	11.5 (19,006/165,230)	1 (ref)	1 (ref)
MMR	8.3 (19,725/237,055)	0.82 (0.80-0.85)	0.84 (0.82-0.87)
Hospital admissions within the last 30 days			
DTaP-IPV-Hib3	70.5 (1737/2464)	1 (ref)	1 (ref)
MMR	61.3 (1586/2588)	0.99 (0.92-1.07)	1.05 (0.98-1.13)
<i>P Interaction</i>		<0.001	<0.001
Not admitted to hospital with infections before 11 months of age			
DTaP-IPV-Hib3	10.7 (16,285/151,778)	1 (ref)	1 (ref)
MMR	7.8 (16,997/218,804)	0.83 (0.81-0.85)	0.85 (0.82-0.87)
Admitted to hospital with infections before 11 months of age			
DTaP-IPV-Hib3	28.0 (4458/15,916)	1 (ref)	1 (ref)
MMR	20.7 (4314/20,839)	0.86 (0.82-0.90)	0.90 (0.86-0.94)
<i>P Interaction</i>		0.23	0.02
At least one parent born in Denmark			
DTaP-IPV-Hib3	12.4 (19,260/155,464)	1 (ref)	1 (ref)
MMR	8.8 (19,447/221,951)	0.80 (0.78-0.82)	0.85 (0.82-0.87)
Both parents born outside Denmark			
DTaP-IPV-Hib3	12.1 (1483/12,229)	1 (ref)	1 (ref)
MMR	10.5 (1864/17,692)	0.99 (0.92-1.06)	1.04 (0.97-1.11)
<i>P Interaction</i>		<0.001	<0.001
No single parent			
DTaP-IPV-Hib3	12.0 (18,904/156,986)	1 (ref)	1 (ref)
MMR	8.7 (19,639/226,818)	0.82 (0.80-0.84)	0.86 (0.83-0.88)
Single parent			
DTaP-IPV-Hib3	17.2 (1839/10,707)	1 (ref)	1 (ref)
MMR	13.0 (1672/12,824)	0.86 (0.80-0.92)	0.90 (0.84-0.97)
<i>P Interaction</i>		0.16	0.14
No other children in the household			
DTaP-IPV-Hib3	14.1 (9308/66,005)	1 (ref)	1 (ref)
MMR	9.5 (10,329/108,930)	0.75 (0.73-0.78)	0.82 (0.79-0.85)
Other children in the household			
DTaP-IPV-Hib3	11.2 (11,435/101,688)	1 (ref)	1 (ref)
MMR	8.4 (10,982/130,712)	0.83 (0.81-0.86)	0.89 (0.86-0.92)
<i>P Interaction</i>		<0.001	<0.001

Abbreviations: IRR, incidence rate ratio; DTaP-IPV-Hib3, vaccination with the third dose against diphtheria, tetanus, pertussis (acellular), polio, and *Haemophilus influenzae* type b; MMR, vaccination against measles, mumps, and rubella.

^aCox proportional hazards model with age as underlying time and stratified by date of birth thereby controlling for season.

^bCox proportional hazards model with age as underlying time, stratified by date of birth and adjusted for sex, mother smoking during pregnancy, birth weight, gestational age, caesarean section, chronic diseases, number of admissions due to infections before 11 months of age, admitted to hospital for any cause within the last 30 days, maternal age at birth of the child, highest educational level for the female adult in the household, parental place of birth, adult composition of the household, income quintiles for the household, other children in the household, and population density.

eTable 7. The Recommended-Schedule Cohort: Results for Interactions Between Most Recent Vaccine and Other Covariates (continued)

Characteristics	Admissions per 100 person-years (Admissions/ Person-years)		Unadjusted IRR ^a (95% CI)	Adjusted IRR ^b (95% CI)
Birth-cohort: 1 January 1997–30 June 2000 (DTaP-IPV-Hib given as two separate vaccines ^c)				
DTaP-IPV-Hib3	11.4	(7060/62,101)	1 (ref)	1 (ref)
MMR	8.3	(7340/88,848)	0.79 (0.75-0.82)	0.83 (0.80-0.87)
Birth-cohort: 1 July 2000 -30 June 2002 (DTaP-IPV-Hib both combined vaccine and two separate vaccines ^c)				
DTaP-IPV-Hib3	11.5	(4068/35,345)	1 (ref)	1 (ref)
MMR	8.4	(4543/53,804)	0.81 (0.77-0.86)	0.86 (0.81-0.91)
Birth-cohort: 1 July 2002 -31 August 2006 (DTaP-IPV-Hib given as combined vaccine ^c)				
DTaP-IPV-Hib3	13.7	(9615/70,247)	1 (ref)	1 (ref)
MMR	9.7	(9428/96,990)	0.84 (0.80-0.87)	0.88 (0.84-0.91)
<i>P Interaction</i>			0.15	0.23
Abbreviations: IRR, incidence rate ratio; DTaP-IPV-Hib3, vaccination with the third dose against diphtheria, tetanus, pertussis (acellular), polio, and <i>Haemophilus influenzae</i> type b; MMR, vaccination against measles, mumps, and rubella.				
^a Cox proportional hazards model with age as underlying time and stratified by date of birth thereby controlling for season.				
^b Cox proportional hazards model with age as underlying time, stratified by date of birth and adjusted for sex, mother smoking during pregnancy, birth weight, gestational age, caesarean section, chronic diseases, number of admissions due to infections before 11 months of age, admitted to hospital for any cause within the last 30 days, maternal age at birth of the child, highest educational level for the female adult in the household, parental place of birth, adult composition of the household, income quintiles for the household, other children in the household, and population density.				
^c Until 1 July 2002 the vaccine against diphtheria, tetanus, pertussis (acellular), and polio was administered as one vaccine and the vaccine against <i>Haemophilus influenzae</i> type b was administered in a different syringe at another body site. However, it was recommended that the two vaccines be given at the same consultation. From 1 July 2002 all components were given as one combined vaccine.				

eTable 8. The Reversed-Schedule Cohort: Results for Interactions Between Most Recent Vaccine and Other Covariates

	Characteristics	Admissions per 100 person-years (Admissions/ Person-years)	Unadjusted IRR ^a (95% CI)	Adjusted IRR ^b (95% CI)
Female				
	DTaP-IPV-Hib3	9.5 (46/486)	1.54 (1.09-2.17)	1.72 (1.21-2.46)
	MMR	8.3 (417/5028)	1 (ref)	1 (ref)
Male				
	DTaP-IPV-Hib3	15.9 (82/516)	1.82 (1.38-2.41)	1.56 (1.15-2.11)
	MMR	11.3 (608/5372)	1 (ref)	1 (ref)
	<i>P Interaction</i>		0.45	0.67
Normal birth weight (>2500 g)				
	DTaP-IPV-Hib3	12.8 (123/960)	1.75 (1.40-2.19)	1.64 (1.29-2.08)
	MMR	9.6 (952/9924)	1 (ref)	1 (ref)
Low birth weight (<=2500 g)				
	DTaP-IPV-Hib3	12.2 (5/41)	1.14 (0.38-3.45)	1.18 (0.37-3.74)
	MMR	15.3 (73/476)	1 (ref)	1 (ref)
	<i>P Interaction</i>		0.46	0.59
Term (gestational age>=37 weeks)				
	DTaP-IPV-Hib3	12.7 (121/952)	1.77 (1.41-2.21)	1.64 (1.29-2.09)
	MMR	9.6 (941/9802)	1 (ref)	1 (ref)
Premature (gestational age<37 weeks)				
	DTaP-IPV-Hib3	14.2 (7/49)	0.94 (0.38-2.34)	1.31 (0.49-3.51)
	MMR	14.1 (84/598)	1 (ref)	1 (ref)
	<i>P Interaction</i>		0.19	0.66
No caesarean section				
	DTaP-IPV-Hib3	12.7 (106/834)	1.79 (1.41-2.28)	1.63 (1.25-2.11)
	MMR	9.5 (807/8500)	1 (ref)	1 (ref)
Caesarean section				
	DTaP-IPV-Hib3	13.1 (22/168)	1.41 (0.83-2.38)	1.61 (0.93-2.79)
	MMR	11.5 (218/1899)	1 (ref)	1 (ref)
	<i>P Interaction</i>		0.42	0.98
No chronic diseases				
	DTaP-IPV-Hib3	11.0 (107/973)	1.49 (1.18-1.89)	1.48 (1.15-1.89)
	MMR	9.4 (951/10,088)	1 (ref)	1 (ref)
Chronic diseases				
	DTaP-IPV-Hib3	73.2 (21/29)	5.59 (2.49-12.5)	5.32 (2.17-13.0)
	MMR	23.7 (74/312)	1 (ref)	1 (ref)
	<i>P Interaction</i>		0.002	0.007

Abbreviations: IRR, incidence rate ratio; DTaP-IPV-Hib3, vaccination with the third dose against diphtheria, tetanus, pertussis (acellular), polio, and *Haemophilus influenzae* type b; MMR, vaccination against measles, mumps, and rubella.

^aCox proportional hazards model with age as underlying time and stratified by date of birth thereby controlling for season.

^bCox proportional hazards model with age as underlying time, stratified by date of birth and adjusted for sex, mother smoking during pregnancy, birth weight, gestational age, caesarean section, chronic diseases, number of admissions due to infections before 11 months of age, admitted to hospital for any cause within the last 30 days, maternal age at birth of the child, highest educational level for the female adult in the household, parental place of birth, adult composition of the household, income quintiles for the household, other children in the household, and population density.

eTable 8. The Reversed-Schedule Cohort: Results for Interactions Between Most Recent Vaccine and Other Covariates (continued)

Characteristics	Admissions per 100 person-years (Admissions/ Person-years)	Unadjusted IRR ^a (95% CI)	Adjusted IRR ^b (95% CI)
No hospital admissions within the last 30 days			
DTaP-IPV-Hib3	11.5 (114/988)	1.68 (1.34-2.12)	1.62 (1.27-2.06)
MMR	9.0 (929/10,274)	1 (ref)	1 (ref)
Hospital admissions within the last 30 days			
DTaP-IPV-Hib3	104.1 (14/13)	1.87 (0.66-5.30)	1.69 (0.56-5.08)
MMR	76.3 (96/126)	1 (ref)	1 (ref)
<i>P Interaction</i>		0.85	0.94
Not admitted to hospital with infections before 11 months of age			
DTaP-IPV-Hib3	9.9 (88/892)	1.49 (1.15-1.92)	1.51 (1.16-1.97)
MMR	8.3 (783/9387)	1 (ref)	1 (ref)
Admitted to hospital with infections before 11 months of age			
DTaP-IPV-Hib3	36.7 (40/109)	2.54 (1.57-4.11)	2.39 (1.43-4.00)
MMR	23.9 (242/1013)	1 (ref)	1 (ref)
<i>P Interaction</i>		0.05	0.12
At least one parent born in Denmark			
DTaP-IPV-Hib3	13.1 (119/911)	1.82 (1.45-2.28)	1.71 (1.33-2.18)
MMR	9.7 (924/9534)	1 (ref)	1 (ref)
Both parents born outside Denmark			
DTaP-IPV-Hib3	10.0 (9/90)	0.87 (0.38-1.98)	0.99 (0.42-2.29)
MMR	11.7 (101/866)	1 (ref)	1 (ref)
<i>P Interaction</i>		0.09	0.22
No single parent			
DTaP-IPV-Hib3	12.6 (117/929)	1.68 (1.34-2.11)	1.60 (1.26-2.05)
MMR	9.6 (935/9703)	1 (ref)	1 (ref)
Single parent			
DTaP-IPV-Hib3	15.2 (11/73)	2.16 (0.98-4.74)	1.92 (0.82-4.51)
MMR	12.9 (90/697)	1 (ref)	1 (ref)
<i>P Interaction</i>		0.55	0.69
No other children in the household			
DTaP-IPV-Hib3	10.9 (42/386)	1.38 (0.95-2.01)	1.48 (1.00-2.17)
MMR	10.4 (472/4528)	1 (ref)	1 (ref)
Other children in the household			
DTaP-IPV-Hib3	14.0 (86/615)	1.94 (1.48-2.53)	1.72 (1.28-2.30)
MMR	9.4 (553/5872)	1 (ref)	1 (ref)
<i>P Interaction</i>		0.15	0.54

Abbreviations: IRR, incidence rate ratio; DTaP-IPV-Hib3, vaccination with the third dose against diphtheria, tetanus, pertussis (acellular), polio, and *Haemophilus influenzae* type b; MMR, vaccination against measles, mumps, and rubella.

^aCox proportional hazards model with age as underlying time and stratified by date of birth thereby controlling for season.

^bCox proportional hazards model with age as underlying time, stratified by date of birth and adjusted for sex, mother smoking during pregnancy, birth weight, gestational age, caesarean section, chronic diseases, number of admissions due to infections before 11 months of age, admitted to hospital for any cause within the last 30 days, maternal age at birth of the child, highest educational level for the female adult in the household, parental place of birth, adult composition of the household, income quintiles for the household, other children in the household, and population density.

eTable 8. The Reversed-Schedule Cohort: Results for Interactions Between Most Recent Vaccine and Other Covariates (continued)

Characteristics	Admissions per 100		Unadjusted IRR ^a (95% CI)	Adjusted IRR ^b (95% CI)
	person-years (Admissions/ Person-years)			
Birth-cohort: 1 January 1997–30 June 2000 (DTaP-IPV-Hib given as two separate vaccines ^c)				
DTaP-IPV-Hib3	11.7	(25/213)	1.74 (1.04-2.93)	1.63 (0.93-2.88)
MMR	9.2	(212/2309)	1 (ref)	1 (ref)
Birth-cohort: 1 July 2000 -30 June 2002 (DTaP-IPV-Hib both combined vaccine and two separate vaccines ^c)				
DTaP-IPV-Hib3	8.7	(30/345)	1.20 (0.76-1.90)	1.40 (0.86-2.27)
MMR	9.3	(181/1956)	1 (ref)	1 (ref)
Birth-cohort: 1 July 2002 -31 August 2006 (DTaP-IPV-Hib given as combined vaccine ^c)				
DTaP-IPV-Hib3	16.5	(73/443)	1.96 (1.48-2.60)	1.72 (1.27-2.33)
MMR	10.3	(632/6135)	1 (ref)	1 (ref)
<i>P Interaction</i>			0.20	0.77

Abbreviations: IRR, incidence rate ratio; DTaP-IPV-Hib3, vaccination with the third dose against diphtheria, tetanus, pertussis (acellular), polio, and *Haemophilus influenzae* type b; MMR, vaccination against measles, mumps, and rubella.

^aCox proportional hazards model with age as underlying time and stratified by date of birth thereby controlling for season.

^bCox proportional hazards model with age as underlying time, stratified by date of birth and adjusted for sex, mother smoking during pregnancy, birth weight, gestational age, caesarean section, chronic diseases, number of admissions due to infections before 11 months of age, admitted to hospital for any cause within the last 30 days, maternal age at birth of the child, highest educational level for the female adult in the household, parental place of birth, adult composition of the household, income quintiles for the household, other children in the household, and population density.

^cUntil 1 July 2002 the vaccine against diphtheria, tetanus, pertussis (acellular), and polio was administered as one vaccine and the vaccine against *Haemophilus influenzae* type b was administered in a different syringe at another body site. However, it was recommended that the two vaccines be given at the same consultation. From 1 July 2002 all components were given as one combined vaccine.

eAppendix. Additional Sensitivity Analyses

We excluded 374 admissions and 7904 person-years occurring during the week of vaccination (Monday-Friday) in the recommended-schedule-cohort which resulted in an adjusted IRR of 0.85 (95% CI, 0.83 to 0.87; eTable 9). In the reversed-schedule-cohort this exclusion removed 9 admissions and 142 person-years of risk from the analyses and resulted in an adjusted IRR of 1.63 (95% CI, 1.29 to 2.07; eTable 9). This exclusion did not change the results of the analyses of time since vaccination (eTable 10).

In the recommended-schedule-cohort 36 of the included hospital admissions was due to a vaccine preventable disease (pertussis, N=7; *Haemophilus influenzae*, N=3; measles, N=18; mumps, N=6; rubella, N=2) and 2 admissions in the reversed-schedule-cohort was due to pertussis. Exclusion of these hospital admissions did not affect the main estimates (Recommended-schedule-cohort: adjusted IRR, 0.86; 95% CI, 0.84 to 0.88; Reversed-schedule-cohort: adjusted IRR, 1.63; 95% CI: 1.29 to 2.07).

The main estimate remained essentially unchanged when changing the *time span defining admissions as the same infectious episode from 14 days to 7 days* (Recommended-schedule-cohort: adjusted IRR, 0.86; 95% CI: 0.84 to 0.88; 42,065 admissions; Reversed-schedule-cohort: adjusted IRR, 1.62; 95% CI: 1.28 to 2.05; 1153 admission) *or 30 days* (Recommended-schedule-cohort: adjusted IRR, 0.86; 95% CI: 0.84 to 0.89; 40,573 admissions; reversed-schedule-cohort: adjusted IRR, 1.61; 95% CI, 1.27-2.04; 1099 admissions), *when stratifying by week of birth instead of day of birth* (Recommended-schedule-cohort: adjusted IRR, 0.86; 95% CI, 0.83 to 0.88; Reversed-schedule-cohort: adjusted IRR, 1.35; 95% CI: 1.10 to 1.64), and *when continuing follow-up until 3 years of age* (Recommended-schedule-cohort: adjusted IRR, 0.86; 95% CI, 0.84 to 0.88; 59,338 admissions; Reversed-schedule-cohort: adjusted IRR, 1.37; 95% CI, 1.17 to 1.61; 2045 admissions).

We excluded 116 admissions due to more chronic infections including tuberculosis, protozoal diseases, helminthiases, pediculosis, acariasis and other infestations, spirochaetal disease, viral warts, hepatitis, dermatophytosis and other superficial mycoses, and mycoses (ICD-10 codes: A15.0–A19.9; A59.0–A59.9; A65.0–A69.9; B07.0–B07.9; B15.0–B19.9; B35.0–B37.6; B37.8–B89.9; K93.0). This did not alter the results substantially (eTable 11).

eTable 9. Incidence and Incidence Rate Ratio for Hospital Admissions Due to Infections When Excluding the Week of Vaccination From the Analyses

	Recommended-schedule-cohort ^a			Reversed-schedule-cohort ^d		
	Admissions per 100 person-years (Admissions/ Person-years)	Unadjusted IRR ^b (95% CI)	Adjusted IRR ^c (95% CI)	Admissions per 100 person-years (Admissions/ Person-years)	Unadjusted IRR ^b (95% CI)	Adjusted IRR ^c (95% CI)
Most recent vaccination						
DTaP-IPV-Hib3	12.7 (20,504/161,899)	1(ref)	1(ref)	12.9 (128/990)	1.71 (1.37-2.13)	1.63 (1.29-2.07)
MMR	8.9 (21,176/237,532)	0.80 (0.78-0.82)	0.85 (0.83-0.87)	9.9 (1016/10,268)	1(ref)	1(ref)

Abbreviations: IRR, incidence rate ratio; DTaP-IPV-Hib3, vaccination with the third dose against diphtheria, tetanus, pertussis (acellular), polio, and haemophilus influenzae type b; MMR, vaccination against measles, mumps, and rubella.

aThe recommended-schedule-cohort included 456,043 children who received DTaP-IPV-Hib3 after DTaP-IPV-Hib2. They contribute with 41,680 admissions due to infections during 399,431 person-years at risk.

bCox proportional hazards model with age as underlying time and stratified by date of birth thereby controlling for season.

c Cox proportional hazards model with age as underlying time, stratified by date of birth and adjusted for sex, mother smoking during pregnancy, birth weight, gestational age, caesarean section, chronic diseases, number of admissions due to infections before 11 months of age, admitted to hospital for any cause within the last 30 days, maternal age at birth of the child, highest educational level for the female adult in the household, parental place of birth, adult composition of the household, income quintiles for the household, other children in the household, and population density.

d The reversed-schedule-cohort included 19,219 children who received MMR after DTaP-IPV-Hib2. They contribute with 1217 admissions due to infections during 12,019 person-years at risk.

eTable 10. Incidence and Incidence Rate Ratios of Admission Due to Infections According to Time Since MMR Vaccination for the Recommended-Schedule Cohort (a) and Time Since DTaP-IPV-Hib3 Vaccination for the Reversed-Schedule Cohort (b) When Excluding the Week of Vaccination From the Analyses

a) Recommended-schedule-cohort^a			
Most recent vaccination	Admissions per 100 person-years (Admissions/ Person-years)	Unadjusted IRR^b (95% CI)	Adjusted IRR^c (95% CI)
DTaP-IPV-Hib3	12.7 (20,504/161,899)	1(ref)	1(ref)
1-15 days after MMR	12.6 (1728/13,663)	0.97 (0.93-1.03)	1.02 (0.96-1.07)
16-30 days after MMR	10.4 (1621/15,656)	0.81 (0.76-0.85)	0.85 (0.80-0.89)
31-60 days after MMR	10.0 (3085/30,975)	0.81 (0.77-0.84)	0.84 (0.81-0.88)
61-90 days after MMR	9.7 (2946/30,432)	0.79 (0.75-0.83)	0.83 (0.79-0.87)
91-120 days after MMR	9.1 (2694/29,767)	0.76 (0.72-0.80)	0.80 (0.76-0.84)
>120 days after MMR	7.8 (9102/117,039)	0.74 (0.72-0.77)	0.80 (0.77-0.83)
<i>P Trend</i>		<0.001	<0.001
b) Reversed vaccination schedule^d			
Most recent vaccination	Admissions per 100 person-years (Admissions/ Person-years)	Unadjusted IRR^b (95% CI)	Adjusted IRR^c (95% CI)
MMR	9.9 (1016/10,268)	1(ref)	1(ref)
1-15 days after DTaP-IPV-Hib3	13.0 (9/69)	1.40 (0.62-3.12)	1.07 (0.45-2.52)
16-30 days after DTaP-IPV-Hib3	15.5 (12/77)	2.05 (0.99-4.23)	2.26 (1.07-4.76)
31-60 days after DTaP-IPV-Hib3	16.8 (25/49)	2.00 (1.21-3.31)	2.08 (1.22-3.55)
61-90 days after DTaP-IPV-Hib3	10.7 (15/140)	1.53 (0.84-2.78)	1.14 (0.59-2.20)
91-120 days after DTaP-IPV-Hib3	13.2 (17/128)	1.68 (0.96-2.95)	1.74 (0.96-3.15)
>120 days after DTaP-IPV-Hib3	11.7 (50/427)	1.67 (1.20-2.33)	1.62 (1.13-2.33)
<i>P Trend</i>		0.12	0.11

Abbreviations: IRR, incidence rate ratio; DTaP-IPV-Hib3, vaccination with the third dose against diphtheria, tetanus, pertussis (acellular), polio, and *haemophilus influenzae* type b; MMR, vaccination against measles, mumps, and rubella.

^aThe recommended-schedule-cohort included 456,043 children who received DTaP-IPV-Hib3 after DTaP-IPV-Hib2. They contribute with 41,680 admissions due to infections during 399,431 person-years at risk.

^bCox proportional hazards model with age as underlying time and stratified by date of birth thereby controlling for season.

^cCox proportional hazards model with age as underlying time, stratified by date of birth and adjusted for sex, mother smoking during pregnancy, birth weight, gestational age, caesarean section, chronic diseases, number of admissions due to infections before 11 months of age, admitted to hospital for any cause within the last 30 days, maternal age at birth of the child, highest educational level for the female adult in the household, parental place of birth, adult composition of the household, income quintiles for the household, other children in the household, and population density.

^dThe reversed-schedule-cohort included 19,219 children who received MMR after DTaP-IPV-Hib2. They contribute with 1217 admissions due to infections during 12,019 person-years at risk.

eTable 11. Results When Admissions Due to More Chronic Infections Are Excluded

Characteristics	Recommended-schedule-cohort ^a					Reversed-schedule-cohort ^d				
	Admissions per 100 person-years (Admissions/Person-years)	Unadjusted IRR ^b (95% CI)	P Value	Adjusted IRR ^c (95% CI)	P Value	Admissions per 100 person-years (Admissions/Person-years)	Unadjusted IRR ^b (95% CI)	P Value	Adjusted IRR ^c (95% CI)	P Value
Most recent vaccination										
DTaP-IPV-Hib3	12.3 (20,697/167,695)	1(ref)		1(ref)		12.8 (128/1001)	1.72 (1.38-2.14)		1.63 (1.29-2.06)	
MMR	8.9 (21,242/239,646)	0.81 (0.79-0.84)	<0.001	0.86 (0.84-0.88)	<0.001	9.8 (1024/10,400)	1(ref)	<0.001	1(ref)	<0.001

Abbreviations: IRR, incidence rate ratio; DTaP-IPV-Hib3, vaccination with the third dose against diphtheria, tetanus, pertussis (acellular), polio, and *haemophilus influenzae* type b; MMR, vaccination against measles, mumps, and rubella.

^a The recommended-schedule-cohort included 456,043 children who received DTaP-IPV-Hib3 after DTaP-IPV-Hib2. They contribute with 41,939 admissions due to infections during 407,341 person-years at risk.

^b Cox proportional hazards model with age as underlying time and stratified by date of birth thereby controlling for season.

^c Cox proportional hazards model with age as underlying time, stratified by date of birth and adjusted for sex, mother smoking during pregnancy, birth weight, gestational age, caesarean section, chronic diseases, number of admissions due to infections before 11 months of age, admitted to hospital for any cause within the last 30 days, maternal age at birth of the child, highest educational level for the female adult in the household, parental place of birth, adult composition of the household, income quintiles for the household, other children in the household, and population density.

^d The reversed-schedule-cohort included 19,219 children who received MMR after DTaP-IPV-Hib2. They contribute with 1152 admissions due to infections during 11,401 person-years at risk.

eTable 12. Incidence and Incidence Rate Ratios of Emergency Department Visits Due to Accidents According to Most Recent Vaccination and Other Covariates

Characteristics	Recommended-schedule-cohort ^a						Reversed-schedule-cohort ^d					
	Accidents per 100 person-years (Accidents/ Person-years)	Unadjusted IRR ^b (95% CI)	P Value	Adjusted IRR ^c (95% CI)	P Value		Accidents per 100 person-years (Accidents/ Person-years)	Unadjusted IRR ^b (95% CI)	P Value	Adjusted IRR ^c (95% CI)	P Value	
Most recent vaccination												
DTaP-IPV-Hib3	13.3	(22,263/167,771)	1(ref)		1(ref)		15.8	(158/1000)	1.10 (0.91-1.34)		1.09 (0.89-1.33)	
MMR	14.8	(35,317/239,208)	0.96 (0.94-0.98)	<0.001	0.97 (0.95-0.99)	0.02	13.9	(1447/10,389)	1(ref)	0.33	1(ref)	0.41
Mother smoking during pregnancy												
No	13.8	(46,157/334,439)	1(ref)		1(ref)		13.7	(1291/9408)	1(ref)		1(ref)	
Yes	15.7	(11,423/72,540)	1.13 (1.11-1.15)	<0.001	1.10 (1.07-1.12)	<0.001	15.8	(314/1982)	1.12 (0.97-1.29)	0.12	1.03 (0.88-1.20)	0.70
Sex												
Male	15.9	(32,923/207,136)	1(ref)		1(ref)		16.0	(943/5882)	1(ref)		1(ref)	
Female	12.3	(24,657/199,843)	0.78 (0.76-0.79)	<0.001	0.79 (0.77-0.80)	<0.001	12.0	(662/5508)	0.75 (0.67-0.84)	<0.001	0.75 (0.67-0.85)	<0.001
Birth weight												
<=2000	10.7	(764/7113)	0.76 (0.71-0.82)		0.73 (0.68-0.80)		10.2	(18/176)	0.73 (0.42-1.27)		0.50 (0.27-0.93)	
2001-2500	12.6	(1650/13,061)	0.89 (0.85-0.94)		0.87 (0.83-0.93)		10.8	(37/342)	0.71 (0.49-1.03)		0.56 (0.37-0.85)	
2501-3000	13.5	(6609/49,100)	0.95 (0.92-0.98)		0.94 (0.92-0.97)		13.8	(188/1364)	1.04 (0.86-1.26)		0.97 (0.79-1.18)	
3001-3500	14.1	(18,139/128,372)	1(ref)	<0.001	1(ref)	<0.001	14.5	(527/3644)	1(ref)	0.22	1(ref)	0.05
3501-4000	14.4	(19,628/136,709)	1.02 (1.00-1.04)		1.02 (1.00-1.04)		13.7	(524/3819)	1.02 (0.89-1.17)		1.02 (0.88-1.17)	
4001-4500	14.7	(8643/58,667)	1.04 (1.01-1.07)		1.04 (1.02-1.07)		15.3	(251/1645)	1.13 (0.95-1.35)		1.11 (0.92-1.33)	
>4500	15.4	(2147/13,958)	1.09 (1.04-1.14)		1.09 (1.05-1.15)		15.0	(60/401)	1.13 (0.83-1.55)		1.07 (0.78-1.48)	

eTable 12. Incidence and Incidence Rate Ratios of Emergency Department Visits Due to Accidents According to Most Recent Vaccination and Other Covariates (continued)

Gestational age, weeks												
<37	12.8	(3100/24,257)	0.90 (0.87-0.93)	<0.001	1.00 (0.96-1.05)	0.96	15.9	(103/647)	1.09 (0.86-1.37)	0.49	1.40 (1.05-1.88)	0.02
>=37	14.2	(54,480/382,722)	1(ref)		1(ref)		14.0	(1502/10,743)	1(ref)		1(ref)	
Caesarean section												
No	14.2	(47,725/335,690)	1(ref)		1(ref)		14.0	(1303/9324)	1(ref)		1(ref)	
Yes	13.8	(9855/71,289)	0.98 (0.96-1.00)	0.07	1.02 (1.00-1.05)	0.06	14.6	(302/2066)	1.06 (0.92-1.22)	0.42	1.10 (0.95-1.28)	0.19

Abbreviations: DTaP-IPV-Hib3, vaccination with the third dose against diphtheria, tetanus, pertussis (acellular), polio, and *haemophilus influenzae* type b; MMR, vaccination against measles, mumps, and rubella; IRR, incidence rate ratio.

^aThe recommended-schedule-cohort include 456,043 children who received DTaP-IPV-Hib3 after DTaP-IPV-Hib2. They contribute with 57,580 emergency department visits due to accidents during 406,979 person-years at risk.

^bCox proportional hazards model with age as underlying time and stratified by date of birth thereby controlling for season.

^cCox proportional hazards model with age as underlying time, stratified by date of birth and adjusted for all variables in the table.

^dThe reversed-schedule-cohort include 19,219 children who received MMR after DTaP-IPV-Hib2. They contribute with 1605 emergency department visits due to accidents during 11,390 person-years at risk.

eTable 12. Incidence and Incidence Rate Ratios of Emergency Department Visits Due to Accidents According to Most Recent Vaccination and Other Covariates (continued)

Characteristics	Recommended-schedule-cohort ^a					Reversed-schedule-cohort ^d				
	Accidents per 100 person-years (Accidents/ Person-years)	Unadjusted IRR ^b (95% CI)	P Value	Adjusted IRR ^c (95% CI)	P Value	Accidents per 100 person-years (Accidents/ Person-years)	Unadjusted IRR ^b (95% CI)	P Value	Adjusted IRR ^c (95% CI)	P Value
Chronic diseases										
No	14.1 (55,806/394,841)	1(ref)		1(ref)		14.0 (1543/11,048)	1(ref)		1(ref)	
Yes	14.6 (1774/12,138)	1.03 (0.99-1.08)	0.17	1.01 (0.96-1.06)	0.82	18.1 (62/342)	1.12 (0.83-1.51)	0.45	1.07 (0.79-1.47)	0.65
Number of admissions due to infections before 11 months of age										
None	13.8 (50,903/370,105)	1(ref)		1(ref)		13.8 (1415/10,264)	1(ref)		1(ref)	
One	17.5 (5702/32,551)	1.27 (1.24-1.31)		1.21 (1.18-1.24)		16.1 (160/994)	1.07 (0.89-1.30)		1.00 (0.82-1.21)	
Two	22.1 (803/3632)	1.60 (1.49-1.71)	<0.001	1.46 (1.36-1.56)	<0.001	24.9 (28/113)	1.66 (1.07-2.59)	0.14	1.44 (0.90-2.28)	0.50
Three or more	24.9 (172/691)	1.81 (1.55-2.10)		1.64 (1.41-1.91)		10.0 (2/20)	0.98 (0.20-4.78)		0.97 (0.19-4.85)	
Admitted to hospital for any cause within the last 30 days										
No	14.2 (56,980/400,379)	1(ref)		1(ref)		14.2 (1592/11,209)	1(ref)		1(ref)	
Yes	9.1 (600/6600)	0.65 (0.60-0.71)	<0.001	0.60 (0.56-0.65)	<0.001	7.2 (13/181)	0.45 (0.25-0.83)	0.01	0.40 (0.22-0.75)	0.004
Maternal age at birth of the child, years										
<=19	20.3 (1085/5332)	1.50 (1.41-1.59)		1.42 (1.33-1.51)		17.9 (34/190)	1.29 (0.84-1.97)		1.18 (0.74-1.90)	
20-24	17.0 (8113/47,698)	1.25 (1.22-1.28)		1.25 (1.22-1.29)		17.2 (235/1363)	1.36 (1.13-1.62)		1.37 (1.11-1.68)	
25-29	14.3 (20,966/146,927)	1.05 (1.03-1.07)		1.08 (1.06-1.11)		14.1 (568/4041)	1.10 (0.96-1.26)		1.15 (1.00-1.33)	
30-34	13.5 (19,566/144,456)	1(ref)	<0.001	1(ref)	<0.001	13.3 (538/4033)	1(ref)	0.02	1(ref)	0.02
35-39	12.7 (6952/54,595)	0.94 (0.91-0.97)		0.91 (0.89-0.94)		12.7 (198/1557)	0.98 (0.81-1.17)		0.90 (0.75-1.09)	
>=40	11.3 (898/7971)	0.84 (0.78-0.89)		0.80 (0.75-0.85)		15.5 (32/206)	1.15 (0.75-1.77)		1.14 (0.74-1.77)	

Abbreviations: DTaP-IPV-Hib3, vaccination with the third dose against diphtheria, tetanus, pertussis (acellular), polio, and *haemophilus influenzae* type b; MMR, vaccination against measles, mumps, and rubella; IRR, incidence rate ratio.

^aThe recommended-schedule-cohort include 456,043 children who received DTaP-IPV-Hib3 after DTaP-IPV-Hib2. They contribute with 57,580 emergency department visits due to accidents during 406,979 person-years at risk.

^bCox proportional hazards model with age as underlying time and stratified by date of birth thereby controlling for season.

^cCox proportional hazards model with age as underlying time, stratified by date of birth and adjusted for all variables in the table.

^dThe reversed-schedule-cohort include 19,219 children who received MMR after DTaP-IPV-Hib2. They contribute with 1605 emergency department visits due to accidents during 11,390 person-years at risk.

eTable 12. Incidence and Incidence Rate Ratios of Emergency Department Visits Due to Accidents According to Most Recent Vaccination and Other Covariates (continued)

Characteristics	Recommended-schedule-cohort ^a					Reversed-schedule-cohort ^d				
	Accidents per 100 person-years (Accidents/ Person-years)	Unadjusted IRR ^b (95% CI)	P Value	Adjusted IRR ^c (95% CI)	P Value	Accidents per 100 person-years (Accidents/ Person-years)	Unadjusted IRR ^b (95% CI)	P Value	Adjusted IRR ^c (95% CI)	P Value
Highest educational level for the female adult in the household										
Primary school	16.5 (13,121/79,290)	1.21 (1.18-1.23)		1.09 (1.07-1.12)		16.9 (390/2307)	1.17 (1.01-1.37)		1.05 (0.88-1.25)	
High school examination	14.3 (5888/41,130)	1.05 (1.02-1.08)		0.98 (0.95-1.01)		14.6 (168/1148)	0.96 (0.79-1.17)		0.90 (0.74-1.11)	
Vocational training	13.7 (19,322/141,303)	1(ref)	<0.001	1(ref)	<0.001	14.5 (556/3843)	1(ref)	<0.001	1(ref)	0.005
Bachelor or academy profession	13.2 (14,789/111,756)	0.98 (0.95-1.00)		0.97 (0.95-0.99)		11.9 (363/3054)	0.79 (0.68-0.92)		0.78 (0.66-0.91)	
Master's degree or higher	13.3 (4460/33,500)	0.98 (0.95-1.01)		0.91 (0.88-0.94)		12.4 (128/1036)	0.83 (0.67-1.03)		0.77 (0.61-0.97)	
Parental place of birth										
Denmark	13.9 (47,492/341,587)	1(ref)		1(ref)		13.8 (1296/9384)	1(ref)		1(ref)	
Denmark and foreign	15.1 (5345/35,506)	1.09 (1.06-1.12)	<0.001	1.00 (0.98-1.03)	<0.001	16.0 (168/1051)	1.14 (0.95-1.38)	0.19	1.08 (0.89-1.31)	0.48
Foreign	15.9 (4743/29,886)	1.14 (1.10-1.17)		0.94 (0.90-0.97)		14.8 (141/955)	1.14 (0.94-1.40)		0.91 (0.72-1.14)	
Adult composition of the household										
Two adults	13.9 (53,268/383,368)	1(ref)		1(ref)		13.7 (1457/10,619)	1(ref)		1(ref)	
Single parent	18.3 (4303/23,521)	1.32 (1.28-1.36)	<0.001	1.17 (1.13-1.21)	<0.001	19.3 (148/768)	1.53 (1.25-1.86)	<0.001	1.42 (1.13-1.78)	0.002
No parents	10.0 (9/90)	0.74 (0.39-1.43)		0.72 (0.38-1.39)		0.0 (0/3)	n.a.		n.a.	

Abbreviations: DTaP-IPV-Hib3, vaccination with the third dose against diphtheria, tetanus, pertussis (acellular), polio, and *haemophilus influenzae* type b; MMR, vaccination against measles, mumps, and rubella; IRR, incidence rate ratio; n.a., not available.

^aThe recommended-schedule-cohort include 456,043 children who received DTaP-IPV-Hib3 after DTaP-IPV-Hib2. They contribute with 57,580 emergency department visits due to accidents during 406,979 person-years at risk.

^bCox proportional hazards model with age as underlying time and stratified by date of birth thereby controlling for season.

^cCox proportional hazards model with age as underlying time, stratified by date of birth and adjusted for all variables in the table.

^dThe reversed-schedule-cohort include 19,219 children who received MMR after DTaP-IPV-Hib2. They contribute with 1605 emergency department visits due to accidents during 11,390 person-years at risk.

eTable 12. Incidence and Incidence Rate Ratios of Emergency Department Visits Due to Accidents According to Most Recent Vaccination and Other Covariates (continued)

Characteristics	Recommended-schedule-cohort ^a					Reversed-schedule-cohort ^d						
	Accidents per 100 person-years (Accidents/ Person-years)	Unadjusted IRR ^b (95% CI)	P Value	Adjusted IRR ^c (95% CI)	P Value	Accidents per 100 person-years (Accidents/ Person-years)	Unadjusted IRR ^b (95% CI)	P Value	Adjusted IRR ^c (95% CI)	P Value		
Income quintiles for the household												
1st (lowest)	15.6	(11,336/72,761)	1.14 (1.11-1.17)		0.98 (0.95-1.01)		15.9	(361/2272)	1.20 (1.01-1.44)		1.91 (0.73-1.14)	
2nd	14.3	(11,710/82,071)	1.04 (1.01-1.07)		0.99 (0.96-1.02)		14.8	(333/2252)	1.15 (0.96-1.38)		1.00 (0.82-1.22)	
3rd	13.8	(11,984/86,634)	1.01 (0.99-1.04)	<0.001	1.01 (0.98-1.03)	0.40	13.4	(321/2402)	1.04 (0.86-1.24)	0.15	0.95 (0.78-1.15)	0.88
4th	13.6	(11,596/85,437)	0.99 (0.97-1.02)		1.00 (0.97-1.03)		13.4	(299/2234)	1.02 (0.85-1.22)		0.97 (0.80-1.18)	
5 th (highest)	13.7	(10,954/80,075)	1(ref)		1(ref)		13.1	(291/2230)	1(ref)		1(ref)	
Other children in the household												
No	13.9	(24,363/174,856)	1(ref)		1(ref)		13.2	(648/4911)	1(ref)		1(ref)	
Yes	14.3	(33,217/232,123)	1.02 (1.01-1.04)	.007	1.11 (1.09-1.13)	<0.001	14.8	(957/6479)	1.13 (1.01-1.27)	0.03	1.28 (1.13-1.46)	<0.001
Population density, inhabitants per km ²												
<50	5.8	(1608/27,624)	1(ref)		1(ref)		5.7	(40/705)	1(ref)		1(ref)	
50-499	13.1	(31,396/239,425)	2.26 (2.15-2.38)		2.28 (2.17-2.40)		13.2	(908/6887)	2.69 (1.91-3.78)		2.66 (1.88-3.76)	
500-1999	17.4	(13,135/75,310)	3.00 (2.85-3.16)	<0.001	3.10 (2.94-3.27)	<0.001	16.0	(322/2011)	3.20 (2.23-4.58)	<0.001	3.31 (2.29-4.76)	<0.001
2000-4999	19.2	(3458/17,974)	3.31 (3.12-3.51)		3.46 (3.26-3.68)		19.8	(102/515)	3.83 (2.54-5.79)		4.00 (2.63-6.08)	
>=5000	17.1	(7983/46,646)	2.95 (2.79-3.11)		3.12 (2.95-3.30)		18.3	(233/1272)	3.50 (2.42-5.06)		3.81 (2.61-5.56)	

Abbreviations: DTaP-IPV-Hib3, vaccination with the third dose against diphtheria, tetanus, pertussis (acellular), polio, and *haemophilus influenzae* type b; MMR, vaccination against measles, mumps, and rubella; IRR, incidence rate ratio.

^aThe recommended-schedule-cohort include 456,043 children who received DTaP-IPV-Hib3 after DTaP-IPV-Hib2. They contribute with 57,580 emergency department visits due to accidents during 406,979 person-years at risk.

^bCox proportional hazards model with age as underlying time and stratified by date of birth thereby controlling for season.

^cCox proportional hazards model with age as underlying time, stratified by date of birth and adjusted for all variables in the table.

^dThe reversed-schedule-cohort include 19,219 children who received MMR after DTaP-IPV-Hib2. They contribute with 1605 emergency department visits due to accidents during 11,390 person-years at risk.

eTable 13. Incidence and Incidence Rate Ratios of Emergency Department Visits Due to Infections According to most Recent Vaccination and Other Covariates

Characteristics	Recommended-schedule-cohort ^a						Reversed-schedule-cohort ^d					
	Infections per 100 person-years (Infections/ Person-years)	Unadjusted IRR ^b (95% CI)	P Value	Adjusted IRR ^c (95% CI)	P Value		Infections per 100 person-years (Infections/ Person-years)	Unadjusted IRR ^b (95% CI)	P Value	Adjusted IRR ^c (95% CI)	P Value	
Most recent vaccination												
DTaP-IPV-Hib3	1.4 (2323/168,460)	1(ref)		1(ref)			1.2 (12/1006)	1.31 (0.63-2.75)		2.46 (0.87-6.93)		
MMR	1.1 (2563/240,418)	0.83 (0.77-0.90)	<0.001	0.84 (0.78-0.91)	<0.001		0.8 (88/10,438)	1(ref)	0.47	1(ref)	0.09	

Abbreviations: DTaP-IPV-Hib3, vaccination with the third dose against diphtheria, tetanus, pertussis (acellular), polio, and *haemophilus influenzae* type b; MMR, vaccination against measles, mumps, and rubella; IRR, incidence rate ratio.

^aThe recommended-schedule-cohort include 456,043 children who received DTaP-IPV-Hib3 after DTaP-IPV-Hib2. They contribute with 4886 emergency department visits due to infections during 408,878 person-years at risk.

^bCox proportional hazards model with age as underlying time and stratified by date of birth thereby controlling for season.

^cCox proportional hazards model with age as underlying time, stratified by date of birth and adjusted for sex, mother smoking during pregnancy, birth weight, gestational age, caesarean section, chronic diseases, number of admissions due to infections before 11 months of age, admitted to hospital for any cause within the last 30 days, maternal age at birth of the child, highest educational level for the female adult in the household, parental place of birth, adult composition of the household, income quintiles for the household, other children in the household, and population density.

^dThe reversed-schedule-cohort include 19,219 children who received MMR after DTaP-IPV-Hib2. They contribute with 100 emergency department visits due to infections during 11,444 person-years at risk.