

Supplemental Information

Following are several hypothetical examples of children who would be coded as following each pattern of vaccination and up-to-date status. The purpose of this supplement is to demonstrate the flexibility in the coding scheme as well as show how each of the coding schemes might result in a child who is up-to-date or not up-to-date (except selective pattern followers, who are always not up-to-date). In the following tables, time points that are coded as late are indicated with footnotes.

SUPPLEMENTAL TABLE 6 Recommended, UTD

	Child A		Child B		Child C	
	20 mo Old		21 mo Old		23 mo Old	
	Date Received, d	Vaccination(s) Received	Date Received, d	Vaccination(s) Received	Date Received, d	Vaccination(s) Received
Time point 1: birth	0	Hepatitis B	1	Hepatitis B	35 ^a	Hepatitis B ^a
Time point 2: 2 mo	60	DTaP PCV Hib IPV RV	75	DTaP PCV Hib IPV RV	65	DTaP PCV Hib IPV RV
Time point 3: 4 mo	122	DTaP PCV Hib IPV RV	150	DTaP PCV Hib IPV RV	133	DTaP PCV Hib IPV RV
Time point 4: 6 mo	184	Hepatitis B DTaP PCV Hib IPV RV	220	DTaP Hib IPV	195	Hepatitis B DTaP PCV IPV
Time point 5: 12–18 mo	455	DTaP Hib PCV MMR VRC Hepatitis A	440	Hib PCV MMR VRC	380	Hib PCV MMR VRC
	—	—	540	Hepatitis B DTaP IPV Hepatitis A	470	DTaP Hepatitis A
Vaccination pattern	Routine		Routine		Routine	
UTD status	UTD		UTD		UTD	
Explanation	Child A received all vaccines at the recommended time, with as few vaccination visits as possible.		Child B did not receive third RV vaccine and did not receive third PCV at month 6; both were assumed not to be needed. Time point 4 was not coded as recommended (too few vaccines were given), but all other time points were, so child B is overall following a recommended schedule.		Child C received the birth dose of hepatitis B vaccine late and so is not considered to be following the recommended schedule at time period 1.	

IPV, inactivated polio vaccine; RV, rotavirus vaccine; UTD, up-to-date; VRC, varicella vaccine; —, not applicable.

^a Coded as late.

SUPPLEMENTAL TABLE 7 Recommended, Not UTD

	Child D		Child E	
	30 mo Old		23 mo Old	
	Date Received, d	Vaccination(s) Received	Date Received, d	Vaccination(s) Received
Time point 1: birth	0	Hepatitis B	0	Hepatitis B
Time point 2: 2 mo	60	DTaP PCV Hib IPV RV	60	DTaP PCV Hib IPV RV
Time point 3: 4 mo	122	DTaP PCV Hib IPV RV	122	DTaP PCV Hib IPV RV
Time point 4: 6 mo	184	Hepatitis B DTaP PCV Hib IPV RV	184	Hepatitis B DTaP PCV Hib IPV RV
Time point 5: 12–18 mo	455	DTaP Hib PCV MMR VRC Hepatitis A	455	DTaP Hib PCV VRC Hepatitis A
Vaccination pattern	Recommended		Recommended	
UTD status	Not UTD		Not UTD	
Explanation	Child A and child D follow the same vaccination schedule. However, because child D is 30 mo old, they need a second hepatitis A vaccine (should be delivered 6 mo after the first hepatitis A vaccine) to be considered UTD.		Child A and child E follow the same vaccination schedule, except that child E has never received an MMR vaccine. Because adherence to the recommended schedule was assessed before adherence to a selective vaccination pattern, child E has been coded as following a recommended schedule on the basis of how many vaccines were received at each time point. However, they do not meet the requirements necessary to be considered UTD.	

IPV, inactivated polio vaccine; RV, rotavirus vaccine; UTD, up-to-date; VRC, varicella vaccine.

SUPPLEMENTAL TABLE 8 Alternate and Other Patterns, UTD

	Child F		Child G		Child H	
	24 mo Old		23 mo Old		33 mo Old	
	Date Received, d	Vaccination(s) Received	Date Received, d	Vaccination(s) Received	Date Received, d	Vaccination(s) Received
Time point 1: birth	1	Hepatitis B	0	Hepatitis B	100 ^a	Hepatitis B ^a
Time point 2: 2 mo	55	DTaP PCV Hib	40	DTaP PCV Hib IPV RV	100 ^a	DTaP ^a PCV ^a Hib ^a IPV ^a RV ^a
	85	IPV RV	—	—	—	—
Time point 3: 4 mo	145	DTaP PCV Hib	60	DTaP PCV Hib IPV RV	160 ^a	DTaP ^a PCV ^a Hib ^a IPV ^a RV ^a
	175	IPV RV	—	—	—	—
Time point 4: 6 mo	225 ^a	DTaP ^a PCV ^a Hib ^a	230 ^a	Hepatitis B ^a DTaP ^a PCV ^a Hib ^a IPV ^a RV ^a	400 ^a	Hepatitis B ^a DTaP ^a PCV ^a Hib ^a IPV ^a
	255 ^a	IPV ^a RV ^a	—	—	—	—
Time point 5: 12–18 mo	460	PCV Hib Hepatitis B	455	DTaP Hib PCV VRC Hepatitis A	600 ^a	DTaP ^a Hib ^a PCV ^a VRC ^a Hepatitis A ^a
	500	MMR VRC	—	—	—	—
	550	DTaP IPV Hepatitis A	—	—	800 ^a	Hepatitis A ^a
Vaccination pattern	Alternate, selective only		Other		Other	
UTD status	UTD		UTD		UTD	
Explanation	Child F received all vaccinations necessary to be UTD but had 10 vaccination visits. Child F's first visit for time point 4 vaccines was at 225 d of age, so child F is flagged as having late initiation of vaccination at least once (time point 4 vaccines are considered late when initiated after 214 d of age). Time point 3 is not considered late because the first visit of time point 3 is at 145 d of age, within the on-time range for that group of vaccines.		Child G receives all the vaccines necessary to be UTD but has several issues. Time point 3 is administered too early to be valid (perhaps child G is going on a trip abroad and their provider wanted them as protected as possible before travel), and time point 4 is administered late; therefore, both time points 3 and 4 are not considered to be following the recommended schedule. Thus, although time points 1, 2, and 5 follow the recommended pattern and child G has neither a restrictive nor selective vaccination pattern, they are following another vaccination pattern.		Child H receives all recommended vaccines but receives them late. Therefore, no time points follow a recommended schedule, nor are they selective or restrictive.	

IPV, inactivated polio vaccine; RV, rotavirus vaccine; UTD, up-to-date; VRC, varicella vaccine; —, not applicable.

^a Coded as late.

SUPPLEMENTAL TABLE 9 Alternate and Other, Not UTD

	Child I		Child J		Child K	
	24 mo Old		21 mo Old		33 mo Old	
	Date Received, d	Vaccination(s) Received	Date Received, d	Vaccination(s) Received	Date received, d	Vaccination(s) Received
Time point 1: birth	1	Hepatitis B	0	Hepatitis B	—	—
Time point 2: 2 mo	55	DTaP PCV Hib	60	DTaP PCV Hib IPV	55	DTaP PCV Hib
	85	IPV RV	—	—	85	IPV RV
Time point 3: 4 mo	145	DTaP PCV Hib	122	DTaP PCV Hib IPV	145	DTaP PCV Hib
	175	IPV RV	—	—	175	IPV RV
Time point 4: 6 mo	225 ^a	DTaP ^a PCV ^a Hib ^a	184	Hepatitis B DTaP PCV Hib IPV RV	225 ^a	DTaP ^a PCV ^a Hib ^a
	255 ^a	IPV ^a RV ^a	—	—	255 ^a	IPV ^a RV ^a
Time point 5: 12–18 mo	460	PCV Hib	540	DTaP Hib PCV VRC Hepatitis A	460	PCV Hib
	500	MMR VRC	—	—	500	MMR VRC
	550	DTaP IPV Hepatitis A	—	—	550	DTaP IPV Hepatitis A
Vaccination pattern	Alternate, restrictive only		Alternate, selective only		Alternate, selective and restrictive	
UTD status	Not UTD		Not UTD		Not UTD	
Explanation	Child I follows the same vaccination pattern as child F but never receives their final hepatitis B vaccine and so is not UTD. Because child I received at least 1 of each vaccine in the schedule, they are not considered to be following a selective vaccination pattern.		Child J follows a vaccination pattern similar to child A but never receives rotavirus vaccine. Thus, they are both selective and not UTD.		Child K follows a vaccination pattern similar to child I but never receives any hepatitis B vaccine. Thus, child K is both selective (because they never receive hepatitis B vaccine) and restrictive (because they have >6 vaccination visits with 3 or fewer vaccines received at each visit). Additionally, child K is not UTD because they lack any hepatitis B vaccine.	

IPV, inactivated polio vaccine; RV, rotavirus vaccine; UTD, up-to-date; VRC, varicella vaccine; —, not applicable.

^a Coded as late.

SUPPLEMENTAL TABLE 10 Other, Not UTD

	Child L		Child M	
	32 mo Old		30 mo Old	
	Date Received, d	Vaccination(s) Received	Date Received, d	Vaccination(s) Received
Time point 1: birth	5	Hepatitis B	0	Hepatitis B
Time point 2: 2 mo	70	DTaP PCV Hib IPV RV	60	DTaP PCV Hib IPV RV
Time point 3: 4 mo	160	DTaP PCV Hib IPV	122	DTaP PCV Hib IPV RV
Time point 4: 6 mo	250 ^a	DTaP ^a PCV ^a IPV ^a Hib ^a	600 ^a	Hepatitis B ^a DTaP ^a PCV ^a IPV ^a
Time point 5: 12–18 mo	500	Hib PCV	650 ^a	DTaP ^a PCV ^a MMR ^a VRC ^a Hepatitis A ^a
	580	MMR Hepatitis A	—	—
	630	DTaP IPV Hepatitis B	832 ^a	Hepatitis A ^a
Vaccination pattern	Other		Other	
UTD status	Not UTD		Not UTD	
Explanation	Child L only receives 1 rotavirus vaccination and 1 hepatitis A vaccination, so at their age, they cannot be UTD. Child L only has 2 time points that look like they are following the recommended schedule (time point 1 and time point 2) and so is not overall considered to be following the recommended schedule. Child L has 5 vaccination visits with ≤ 3 vaccinations given, fewer than the 6 such visits that would be necessary to be considered restrictive. Child L is not considered selective because they receive at least 1 of each vaccine.		Child M follows the recommended schedule for their first 3 time points but then has a long break in vaccinations. Child M's time points 4 and 5 are both late and therefore do not fall into the recommended schedule's time frame. Additionally, child M does not receive their last 1 (or 2) dose of Hib vaccine and so is ultimately not UTD. Like Child L, child M is neither restrictive nor selective because they do not have 6 visits with ≤ 3 vaccinations given, and they receive at least 1 of each vaccine.	

IPV, inactivated polio vaccine; RV, rotavirus vaccine; UTD, up-to-date; VRC, varicella vaccine; —, not applicable.

^a Coded as late.

SUPPLEMENTAL TABLE 11 Distribution of Insurance Variable Responses, NIS, 2014

	Yes	No	Do Not Know	Refused	Missing
	n (%)	n (%)	n (%)	n (%)	n (%)
Employer or union	8321 (55.9)	6270 (42.1)	91 (0.6)	15 (0.1)	196 (1.3)
Medicaid	3236 (21.7)	5441 (36.5)	82 (0.6)	6 (0.0)	6128 (41.2)
S-CHIP	1391 (9.3)	7021 (47.1)	339 (2.3)	7 (0.1)	6135 (41.2)
Indian Health Service, Military, Tricare, CHAMPUS, CHAMPVA	920 (6.2)	13 483 (90.5)	248 (1.7)	6 (0.0)	236 (1.6)
Other	991 (6.7)	13 624 (91.5)	27 (0.2)	7 (0.1)	244 (1.6)
Any time when child was not covered by any health insurance?	1044 (7.0)	13 005 (87.3)	97 (0.7)	5 (0.0)	742 (5.0)

CHAMPUS, Civilian Health and Medical Program of the Uniformed Services; CHAMPVA, Civilian Health and Medical Program of the Department of Veterans Affairs; S-CHIP, state Children's Health Insurance Program.

SUPPLEMENTAL TABLE 12 Up-to-date Vaccination Status by Child's Age Group, NIS, 2014

	Up-to-date ^a	Not Up-to-date
	<i>n</i> (%)	<i>n</i> (%)
Overall (<i>n</i> = 14 893)	8839 (58.3)	6084 (41.7)
Age of child, mo		
19–23 (<i>n</i> = 4407)	2780 (62.4)	1627 (37.6)
24–29 (<i>n</i> = 4495)	2430 (53.8)	2065 (46.2)
30–35 (<i>n</i> = 5991)	3629 (59.0)	2362 (41.0)

^a Children who are up-to-date have received the following doses: ≥ 4 DTaP vaccine, ≥ 3 poliovirus vaccine, ≥ 1 measles-containing vaccine, ≥ 3 Hib vaccine, ≥ 1 hepatitis A vaccine (≥ 2 for children >24 mo of age), ≥ 3 hepatitis B vaccine, ≥ 1 varicella-containing vaccine, ≥ 4 PCV, and ≥ 2 rotavirus vaccine.