



## DTaP-IPV/HIB VACCINATION: COVERAGE BY THE END OF 2005

No. 8, 2007

This is the first report on DTap-IPV/Hib vaccination coverage based exclusively on person-identifiable data from the Danish Vaccination Register, EPI-NEWS 6/07. Vaccination coverage was calculated on 31 December 2005; the vaccination coverage as per 31 December 2006 will be published in a future issue of EPI-NEWS.

### Method of calculation

Vaccination coverage is currently calculated by birth years. The number of vaccinated children in a birth year is compared with the total number of children in the year who were registered with the Civil Registration System as residing in Denmark at the time coverage was calculated. Only vaccines administered in Denmark are recorded with the Vaccination Register. Thus, the vaccination status for immigrant children and adolescents is unknown. Vaccination coverage takes into account the number of each vaccine given to each child regardless of the time of vaccination. For instance, a child who was 18 months old at the calculation date (2004 birth cohort) and had been given two DTap-IPV/Hib vaccinations at 6 months and 13 months, respectively, would be included with two vaccinations. Consequently, such a child would not be included in the DTap-IPV/Hib 3 coverage at the calculation date. Vaccination coverage for each vaccine is shown by birth year in [Table 1](#) and [Table 2](#). Until the middle of 2002, the DTap-IPV and Hib vaccines were given concurrently, but in separate syringes and with independent account codes. Subsequently, the vaccines have been mixed before injection and registered with a single account code.

### DTaP-IPV/Hib 1-3

DTaP-IPV/Hib 1 includes children who had received a minimum of one vaccination at the calculation date, regardless of age. The vaccination coverage for the birth years 1997-2005 was 96-98%. DTap-IPV/Hib 2 includes children, who had received a minimum of two vaccinations at the calculation date, regardless of age. The vaccination coverage for the birth years 1997-2004 was 93-95%. For the 2005 birth year, vaccination was presumed not to have been completed at the calculation date. DTap-IPV/Hib 3 includes children who had received three vaccinations at the calculation date, regardless of

**Table 1. Vaccination coverage percentages for DTap-IPV/Hib vaccination in birth years 1997-2005, as per 31 December 2005**

Vaccine	2005 <sup>*)</sup>	2004	2003	2002	2001	2000	1999	1998	1997
DTaP-IPV 1	97	98	98	98	97	97	97	96	96
DTaP-IPV 2	82	94	95	95	95	95	94	94	93
DTaP-IPV 3	-	72	80	82	85	85	84	83	80
Hib1	97	98	98	98	97	97	97	96	96
Hib2	82	94	95	95	95	95	94	93	93
Hib3	-	72	80	83	84	83	82	81	80

<sup>\*)</sup> Calculated on the basis of children born in the period 1 January- 30 June 2005

**Table 2. Vaccination coverage percentages for DTap-IPV revaccination concerning birth years 1993-2000, as per 31 December 2005**

Vaccine	2001	2000	1999	1998	1997	1996	1995	1994	1993
DTaP-IPV re. <sup>*)</sup>	-	64	79	84	84	83	81	80	79

<sup>\*)</sup> DT until 1 September 2003. DTap 1 September 2003 to 1 July 2004. DTap-IPV from 1 July 2004

age. The vaccination coverage for the birth years 1997-2003 was 80-85%. For the 2004 birth year, vaccination was presumed not to have been completed at calculation date.

### DTaP-IPV revaccination

Revaccination data includes children for whom a revaccination account code had been recorded at the calculation date, regardless of age. Until September 2003, the five-year revaccination was given as a DT booster, from September 2003 until and including June 2004 as a DTap booster, and from July 2004 as DTap-IPV booster. The vaccination coverage for the birth years 1993-1999 was 79-84%. For the 2000 birth year, revaccination was presumed not to have been completed at the calculation date.

### Coverage by county

[Table 3](#) shows the county level coverage for DTap-IPV 3 in 2002-2004 and DTap-IPV revaccination in 1998-2000.

### Commentary

The coverage for DTap-IPV/Hib 1 and 2 and for DTap-IPV revaccination was at level with previous reports, EPI-NEWS 3/01 and 15/02. The DTap-IPV/Hib 3 coverage was lower than previously calculated as only ¾ (72%) of children up to the age of 2 years at the calculation date (birth year 2004) had been given all three DTap-IPV vaccinations. For previous birth years, coverage increased to max. 85% due to delayed vaccination. Overall, the proportion of children who received all three initial vaccinations was too low, [Table 3](#). At the calculation date, the DTap-IPV revaccination had less than 2/3 (64%) coverage among five-year olds (birth year 2000). For the

**Table 3. DTap-IPV 3 vaccination coverage for birth years 2002-2004 and DTap-IPV revaccination for birth years 1998-2000, by county, as per 31 December 2005**

County	DTaP-IPV 3			DTaP-IPV 3 rev.		
	2004	2003	2002	2000	1999	1998
Cph. Mun.	70	79	80	57	76	81
Frb. Mun.	72	82	79	57	76	81
Cph. Cnt.	70	78	81	63	78	84
Frd.borg	72	79	81	64	79	82
Roskilde	75	80	84	67	80	86
W. Zealand	70	79	82	61	76	81
Storstroem	69	79	80	59	74	76
Bornholm	74	82	85	68	83	85
Funen	72	80	83	63	78	83
S. Jutland	73	81	82	67	80	85
Ribe	72	83	78	65	81	86
Vejle	74	82	83	67	81	85
Ringkoeb.	72	81	84	66	79	85
Aarhus	75	83	85	66	78	86
Viborg	74	82	84	67	81	85
N. Jutland	75	82	82	67	80	84
Total	72	80	82	64	79	84

previous birth years, coverage increased to max. 84%, also due to delayed vaccination. The lower coverage observed may, in part, also be explained by the fact that the calculation only included vaccinated children residing in Denmark at the time coverage was calculated, and by the continued immigration of children and adolescents whose vaccination status is not registered. This effect is more pronounced for vaccines given during the later parts of the vaccination programme. Assuming that all immigrant children had been fully vaccinated, the vaccination coverage for each vaccination would increase by approx. ½ to 2 percentage points. (P.H. Andersen, P. Valentiner-Branth, S. Glismann, A.H. Christiansen, Department of Epidemiology, J.B. Simonsen, Department of Epidemiology Research)

## Individually notifiable diseases

Number of notifications received in the Department of Epidemiology, SSI (2007 figures are preliminary)

Table 1	Week 7 2007	Cum. 2007 <sup>1)</sup>	Cum. 2006 <sup>1)</sup>
AIDS	0	6	7
Anthrax	0	0	0
Botulism	0	0	0
Cholera	0	0	0
Creutzfeldt-Jakob	1	7	3
Diphtheria	0	0	0
Food-borne diseases	10	89	59
of these, infected abroad	1	8	12
Gonorrhoea	8	55	53
Haemorrhagic fever	0	0	0
Hepatitis A	1	8	3
of these, infected abroad	0	2	0
Hepatitis B (acute)	2	4	4
Hepatitis B (chronic)	3	34	31
Hepatitis C (acute)	0	1	1
Hepatitis C (chronic)	6	56	26
HIV	5	35	28
Legionella pneumonia	1	14	12
of these, infected abroad	0	1	2
Leprosy	0	0	0
Leptospirosis	0	4	3
Measles	0	0	1
Meningococcal disease	0	4	15
of these, group B	0	0	9
of these, group C	0	2	1
of these, unspec. + other	0	1	5
Mumps	0	4	4
Neuroborreliosis	1	17	11
Ornithosis	0	1	4
Pertussis (children < 2 years)	1	15	12
Plague	0	0	0
Polio	0	0	0
Purulent meningitis			
Haemophilus influenzae	0	0	1
Listeria monocytogenes	0	1	3
Streptococcus pneumoniae	1	10	11
Other aethiology	0	1	1
Unknown aethiology	0	0	5
Under registration	2	13	-
Rabies	0	0	0
Rubella (congenital)	0	0	0
Rubella (during pregnancy)	0	0	0
Shigellosis	4	7	15
of these, infected abroad	2	3	13
Syphilis	1	14	12
Tetanus	0	0	0
Tuberculosis	5	54	46
Typhoid/paratyphoid fever	0	1	6
of these, infected abroad	0	1	6
Typhus exanthematicus	0	0	0
VTEC/HUS	2	16	17
of these, infected abroad	1	6	5

<sup>1)</sup> Cumulative number 2007 and in corresponding period 2006

## Selected laboratory diagnosed infections

Number of specimens, isolates, and/or notifications received in SSI laboratories

Table 2	Week 7 2007	Cum. 2007 <sup>2)</sup>	Cum. 2006 <sup>2)</sup>
Bordetella pertussis (all ages)	1	21	40
Gonococci	8	54	49
of these, females	1	9	10
of these, males	7	45	39
Listeria monocytogenes	1	12	4
Mycoplasma pneumoniae			
Resp. specimens <sup>3)</sup>	17	156	134
Serum specimens <sup>4)</sup>	20	126	100
Streptococci <sup>5)</sup>			
Group A streptococci	5	23	16
Group B streptococci	1	12	14
Group C streptococci	0	1	5
Group G streptococci	3	19	17
S. pneumoniae	21	176	204
Table 3	Week 5 2007	Cum. 2007 <sup>2)</sup>	Cum. 2006 <sup>2)</sup>
Pathogenic int. bacteria <sup>6)</sup>			
Campylobacter	43	232	176
S. Enteritidis	6	19	23
S. Typhimurium	4	17	29
Other zoon. salmonella	8	50	50
Yersinia enterocolitica	2	19	17
Verocytotoxin- producing E. coli	2	11	8
Enteropathogenic E. coli	4	29	22
Enterotoxigenic E. coli	6	15	17

<sup>2)</sup> Cumulative number 2006 and in corresponding period 2005

<sup>3)</sup> Resp. specimens with positive PCR

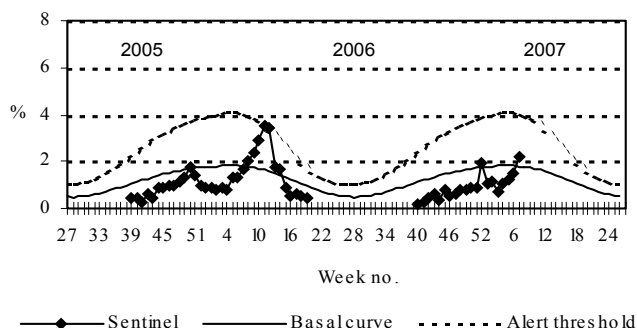
<sup>4)</sup> Serum specimens with pos. complement fixation test

<sup>5)</sup> Isolated in blood or spinal fluid

<sup>6)</sup> See also [www.germ.dk](http://www.germ.dk)

## Sentinel surveillance of the influenza activity

Weekly percentage of consultations, 2005/2006/2007



Sentinel: Influenza consultations  
(as percentage of total consultations)

Basal curve: Expected frequency of consultations  
under non-epidemic conditions

Alert threshold: Possible incipient epidemic