EPI-NEWS
NATIONAL SURVEILLANCE OF COMMUNICABLE DISEASES

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www.ssi.dk • epinews@ssi.dk • ISSN: 1396-4798

DIPHTHERIA AND TETANUS PROPHYLAXIS

No. 7, 2004

Both diphtheria and tetanus occur rarely in Denmark, particularly because the coverage of the childhood vaccination programme has been high for many years. Lifetime protection against both diseases is important. In the event of wound injury, tetanus immunity should be assessed, and before foreign travel, immunity to both diseases.

Primary vaccination

The primary vaccination series should be given once in life to everybody; after this, it is only necessary to revaccinate.
Children usually receive primary vaccination with three DTP-IPV-vaccines.
Adults should receive primary vaccination with separate diphtheria and tetanus vaccines, as there is no combined vaccine for adults. It is important to use diphtheria vaccine for primary vaccination, table 1.
Three doses are given with one month's interval between 1st and 2nd vaccination, and 6-12 months' interval between 2nd and 3rd vaccination.

Table 1. Diphtheria and tetanus vaccines

Vaccine	Antigen-content		Dosage
	D	T	
D			
primary vacc.	25 Lf		0.5 ml x 3
revaccination	6 Lf		0.5 ml x 1
T			
primary vacc.		6 Lf	1.0 ml x 3
revaccination		6 Lf	1.0 ml x 1
DTP-IPV			
primary vacc.	25 Lf	7 Lf	0.5 ml x 3
DT			
revaccination	6 Lf	6 Lf	0.5 ml x 1
DTP			
revaccination	6 Lf	7 Lf	0.5 ml x 1

Revaccination

First revaccination with DT vaccine should be given four to five years after the primary series. Subsequent protection lasts at least ten years. Revaccination is subsequently given every 10 years. Even though many years may have passed since primary vaccination, the immune system's memory will ensure a high antibody level a few days after revaccination.

Table 2. Tetanus prophylaxis in patients with tissue lesions

	Vaccine (TVac)	Human tetanus immunoglobulin (TIG)	
Vaccination status		Minor risk	High risk
A. Fully vaccinated			
1. Time is within interval of protection	0	0	0
2. Interval for duration of protection exceeded	+	0	+
B. Two vaccinations	+	+*	+
C. One or no vaccinations or missing information	+	+	+
D. Independent of vaccination status	In the event of massive blood loss, both vaccine and tetanus immunoglobulin are given.		

* If the two vaccinations have been given within one year, vaccine alone is given.

If the primary vaccination series is commenced or completed in connection with a lesion, TIG is given simultaneously, which means that an extra dose of tetanus vaccine (TVac) must be given one month later. If there is any doubt about the vaccination history, supplementation is given with TIG. If the person:
1. Has never been vaccinated: day 0: TIG & TVac, 1 month: TVac, 2 months: TVac, 1 year: TVac.
2. Has previously been vaccinated once: day 0: TIG & TVac, 1 month: TVac, 1 year: TVac.
3. Has previously been vaccinated twice: day 0: TIG & TVac, 1 month; TVac.
Have the two vaccines been given within 1 year, only TVac is to be given.

Vaccination, wound injuries

Whether a patient should both be vaccinated (TVac) and receive human tetanus immunoglobulin (TIG) depends on both the vaccination status of the patient and the degree of tissue injury, see table 2 and the Danish Drug Catalogue. An unvaccinated patient should receive TIG at the same time as the first tetanus vaccination. This is subsequently supplemented with a total of three tetanus vaccinations after one, two and 12 months, respectively. If the patient has not previously been vaccinated against diphtheria, three diphtheria vaccines for primary vaccination should also be given.
For patients who have received primary vaccination against both diphtheria and tetanus, DT vaccine is used for revaccination. If the interval for the vaccine's protection has been exceeded, TIG may also be given, table 2. An infant is covered by maternal antibodies against tetanus for the first three months, if the mother has been revaccinated within the last 10 years.

Measurement of antibodies

Measurement of antibody titre for both diphtheria and tetanus may provide an indication of immunity and possible need for vaccination. This is particularly relevant for persons who have previously had pronounced side effects after vaccination, or whose vaccination status is unknown.
Interpretation of antibody results:
>1 IE/ml: revaccination may wait 10 years.
>0.5: revaccination may wait five years.
<0.1: revaccination should be given within a few years.
<0.01: the person is unprotected. This may be because the person has never received primary vaccination, or a very long time has passed since the person was last vaccinated. Further guidance on interpretation of results is available by contacting SSI.
In the event of unknown vaccination status in adults, a DT vaccine may be given, and a blood test for determination of diphtheria and tetanus antibody titre taken after four weeks. If the person has received primary vaccination, the immune system's memory will cause the antibody titre to be high, usually >0.5 IU/ml for diphtheria and >1 IU/ml for tetanus. If antibody level <0.1 IU/ml for both tetanus and diphtheria, the person has probably not previously received primary vaccination, and a further two tetanus vaccines and three diphtheria vaccines are given as primary vaccination. In the event of unknown vaccination status in children, see EPI-NEWS 50/2001.

(A. H. Christiansen, P. H. Andersen, Department of Epidemiology)

11 February 2004

Patients with laboratory-diagnosed pertussis

3rd quarter of 2003 compared with the corresponding period in 2002

	2003				2002			
	July	August	September	Total	July	August	September	Total
< 2 years	8	12	2	22	30	43	27	100
2-17 years	9	24	16	49	113	105	138	356
≥ 18 years	5	7	2	14	31	33	29	93
Total	22	43	20	85	174	181	194	549

Patients with laboratory-diagnosed pertussis

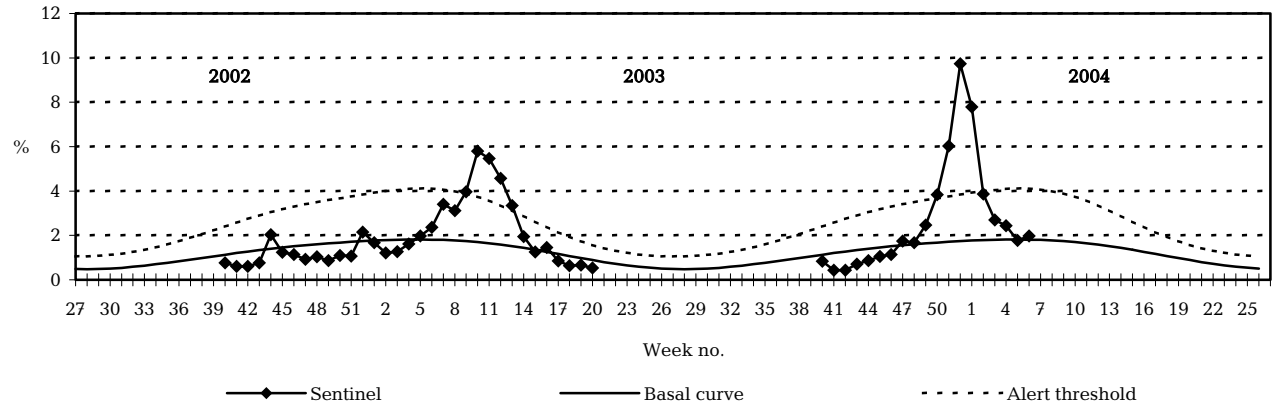
4th quarter of 2003 compared with the corresponding period in 2002

	2003				2002			
	October	November	December	Total	October	November	December	Total
< 2 years	9	17	20	46	28	46	21	95
2-17 years	21	40	38	99	86	145	117	348
≥ 18 years	5	13	14	32	26	43	21	90
Total	35	70	72	177	140	234	159	533

(DBMP)

Sentinel surveillance of the influenza activity

Weekly percentage of consultations, 2002/2003/2004



Sentinel: Influenza consultations as percentage of total consultations
Basal curve: Expected frequency of influenza consultations under non-epidemic conditions
Alert threshold: Possible incipient epidemic

(Dept. of Epidemiology)

Secretion specimens received from the sentinel surveillance system

	2003															2004													
Week no.	44	45	46	47	48	49	50	51	52	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
No. received	0	5	6	12	9	10	23	28	15	10	19	9	8	5	0														
Influenza A												3	3																
A/H3				3	1	6	7	12	4	3	3	1																	
A/H1																													
Influenza B																													

(Depts. of Epidemiology & Virology)