



## INTESTINAL PARASITES 2003-2005

No. 4, 2006

This report covers intestinal parasites diagnosed at the Parasitology Laboratory, Department of Bacteriology, Mycology and Parasitology, Statens Serum Institut, from 1 January 2003 to 1 November 2005, [table 1](#). The report includes both infestations acquired in Denmark and imported infestations. The incidence of imported haemoparasites in the period 1994-2004 is described in EPI-NEWS 44/05. Intestinal parasites are predominantly found by direct microscopy of concentrated faeces samples or by permanent staining of the preparation. The number of positive parasite analyses per analysis type is shown in [table 2](#). For each patient, one to three faecal specimens are usually submitted. Analysis no. 071 includes ordinary parasitological investigation of faeces from patients with acute diarrhoea, where tests are performed for worms, eggs and cysts. Other analyses are part of combination investigations, which are directed towards patients with persistent diarrhoea (no. 193), travel-associated diarrhoea (no. 194), immunosuppressed individuals with diarrhoea (no. 195) and cases of diarrhoea in institutions (no. 196). Apart from enteropathogenic bacteria and viruses, tests are performed in these analyses for larvae, eggs, cysts and

**Table 2. Number of faeces specimens tested for intestinal parasites, excluding Charcot-Leyden crystals, by analysis type and year. Percent pos. in ( )**

Analysis	2003	2004	2005
071	10547 (11)	8517 (11)	6056 (13)
073	60 (3)	120 (3)	25 (8)
078	30 (0)	74 (0)	28 (14)
089	0 (0)	0 (0)	30 (20)
193	6285 (8)	5881 (9)	3942 (9)
194	3027 (12)	3090 (14)	2647 (13)
195	243 (8)	214 (10)	85 (6)
196	0 (0)	8 (13)	0 (0)

oocysts of, for example, *Cryptosporidium*. Special investigations for trophozoites (the dividing stage) of protozoa (single-celled organisms) (no. 089), *Cryptosporidium* (no. 073) and *Microsporidium* (no. 078) are rarely used. Data from a previously discussed outbreak of cryptosporidiosis, EPI-NEWS 42/05, is not included in tables 1 and 2. Eggs of pinworms are rarely detected in faeces, for which reason scotch tape analyses are usually used in the investigation for this (no. 072). [Table 3](#) shows the distribution of scotch tape specimens positive for pinworm in 2003-2005.

**Table 1. Number of faeces specimens positive for Charcot-Leyden crystals and intestinal parasites (analysis no. 071 and 193-196) per 10,000 specimens tested, by species and year**

Species	2003	2004	2005
Charcot Leyden crystals (CL)	191	554	627
<b>PROTOZOA (SINGLE-CELLED ORGANISMS)</b>			
<i>Blastocystis hominis</i> *	445	504	527
<i>Giardia duodenalis</i> (s. <i>lamblia</i> )	294	248	272
<i>Entamoeba coli</i> *	272	255	271
<i>Cryptosporidium</i> sp.	291	225	206
<i>Endolimax nana</i> *	112	101	134
<i>Entamoeba histolytica</i> / <i>E. dispar</i> *	53	36	65
<i>Iodamoeba bütschlii</i> *	36	35	47
<i>Entamoeba hartmanni</i> *	20	41	41
<i>Chilomastix mesnili</i> *	16	11	14
<i>Cyclospora cayetanensis</i>	0	1	3
<i>Isospora belli</i>	0	0	1
<b>HELMINTHS (WORMS)</b>			
<i>Trichuris trichiura</i> (whipworm)	13	11	24
<i>Anchylostoma/Necator</i> (hookworm)	11	20	11
<i>Hymenolepis nana</i> (dwarf tapeworm)	7	8	13
<i>Ascaris lumbricoides</i> / <i>suum</i> (roundworm)	20	23	5
<i>Enterobius vermicularis</i> (pinworm)	6	6	2
<i>Taenia</i> sp. (beef/pork tapeworm)	3	4	2
<i>Strongyloides stercoralis</i> (threadworm)	4	0	2
<i>Diphyllobothrium latum</i> (fish tapeworm)	0	1	1
<i>Fasciola hepatica</i> (sheep liver fluke)	0,5	0	0

\* Predominantly non-pathogenic/pathogenicity unknown

**Table 3. Number of positive tests for pinworms by number of tests performed, by year**

Analysis	2003	2004	2005
072	54 / 452	52 / 356	39 / 272

### Trophozoites of protozoa

Charcot-Leyden crystals (CL) are breakdown products, particularly from eosinophilic granulocytes, and can be seen in association with parasitic intestinal infections. However, in 60-80% of the specimens that are positive for CL, no parasites are seen. Studies in progress suggest that some patients who are positive for CL and negative for worms, eggs and cysts, may be trophozoite secretors. Diagnosis of trophozoites of protozoa requires microscopy of fresh faeces or special techniques. Special investigation is also relevant on suspicion of infection with *Dientamoeba fragilis*; a protozoan existing only in trophozoite form. In 2005, *D. fragilis* was detected in 3/26 fixed faeces specimens (no. 089).

### PCR for intestinal parasites

It is normally not possible to differentiate morphologically between the pathogenic *Entamoeba histolytica* and the non-pathogenic *E. dispar*. In the Parasitology Laboratory, a PCR method to differentiate between these is now being set up.

### Comments

In the period 2003-2005, there was an almost unchanged proportion of positive specimens from patients with acute, persistent or travel-associated diarrhoea. In the period, there were stable positive rates for virtually all parasites. Protozoans constituted approx. 95% of all intestinal parasites detected in faeces. The increase in CL is presumably due to a change in the reporting of test results, rather than a regular increase in incidence. (R. Stensvold, H.V. Nielsen, Parasitology Laboratory)

### THE EPI-NEWS BACK PAGE

On the back page, table 3 has now been extended to include confirmed verocytotoxin-producing *E. coli* (VTEC), enteropathogenic *E. coli* (EPEC) and enterotoxigenic *E. coli* (ETEC). (Department of Epidemiology)

## Individually notifiable diseases

Number of notifications received in the Department of Epidemiology, SSI (2006 figures are preliminary)

Table 1	Week 3 2006	Cum. 2006 <sup>1)</sup>	Cum. 2005 <sup>1)</sup>
AIDS	2	6	4
Anthrax	0	0	0
Botulism	0	0	0
Cholera	0	0	0
Creutzfeldt-Jakob	1	3	1
Diphtheria	0	0	0
Foodborne diseases	8	32	19
of these, infected abroad	2	5	5
Gonorrhoea	12	27	84
Haemorrhagic fever	0	0	0
Hepatitis A	1	1	8
of these, infected abroad	0	0	1
Hepatitis B (acute)	0	1	4
Hepatitis B (chronic)	1	9	5
Hepatitis C (acute)	0	0	1
Hepatitis C (chronic)	8	14	10
HIV	1	7	17
Legionella pneumonia	4	7	7
of these, infected abroad	0	1	2
Leprosy	0	0	0
Leptospirosis	0	2	1
Measles	0	0	0
Meningococcal disease	1	1	10
of these, group B	1	1	8
of these, group C	0	0	1
of these, unspec. + other	0	0	1
Mumps	3	4	0
Neuroborreliosis	1	5	8
Ornithosis	1	3	1
Pertussis (children < 2 years)	1	6	18
Plague	0	0	0
Polio	0	0	0
Purulent meningitis			
Haemophilus influenzae	0	0	0
Listeria monocytogenes	0	0	0
Streptococcus pneumoniae	0	0	11
Other aethiology	0	0	0
Unknown aethiology	0	0	1
Under registration	4	15	-
Rabies	0	0	0
Rubella (congenital)	0	0	0
Rubella (during pregnancy)	0	0	0
Shigellosis	5	9	4
of these, infected abroad	3	6	3
Syphilis	0	6	6
Tetanus	0	0	0
Tuberculosis	11	25	16
Typhoid/paratyphoid fever	0	3	3
of these, infected abroad	0	2	3
Typhus exanthematicus	0	0	0
VTEC/HUS	2	8	11
of these, infected abroad	0	0	5

<sup>1)</sup> Cumulative number 2006 and in corresponding period 2005

## Selected laboratory diagnosed infections

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

Table 2	Week 3 2006	Cum. 2006 <sup>2)</sup>	Cum. 2005 <sup>2)</sup>
Bordetella pertussis (all ages)	5	20	64
Gonococci	12	22	29
of these, females	3	4	1
of these, males	9	18	28
Listeria monocytogenes	1	4	5
Mycoplasma pneumoniae			
Resp. specimens <sup>3)</sup>	26	70	239
Serum specimens <sup>4)</sup>	16	44	109
Streptococci <sup>5)</sup>			
Group A streptococci	2	10	7
Group B streptococci	1	8	2
Group C streptococci	1	4	0
Group G streptococci	5	14	9
S. pneumoniae	16	127	108
Table 3	Week 1 2006	Cum. 2006 <sup>2)</sup>	Cum. 2005 <sup>2)</sup>
Pathogenic int. bacteria <sup>6)</sup>			
Campylobacter	28	28	60
S. Enteritidis	4	4	8
S. Typhimurium	10	10	9
Other zoon. salmonella	13	13	9
Yersinia enterocolitica	4	4	7
Verocytotoxin-producing E. coli	3	3	2
Enteropathogenic E. coli	5	5	5
Enterotoxigenic E. coli	4	4	2

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

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

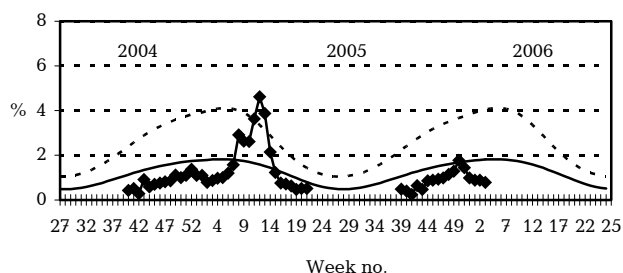
<sup>4)</sup> Serum specimens with pos. complement fixation test

<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, 2004/2005/2006



◆ Sentinel    — Basal curve    - - - Alert threshold

Sentinel: Influenza consultations (as percentage of total consultations)

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

Alert threshold: Possible incipient epidemic