



WEEKLY EPIDEMIOLOGICAL REPORT

A publication of the Epidemiological Unit,

Ministry of Healthcare & Nutrition

231, de Saram Place, Colombo 01000, Sri Lanka

Tele: (+94-011) 2695112, Fax: (+94,011) 2696583, E-Mail: epidunit@slt.net.lk

Epidemiologist: (+94-011) 2681548, E-mail: chepid@slt.net.lk

Vol. 34 No. 37

8th - 14th September 2007

Prevention and control of soil-transmitted helminthiasis

Parasitic worms do not usually interest doctors because, although worms can cause severe clinical disease, they usually have insidious effects on growth and development that rarely cause attendance at health centers. Yet it is precisely these chronic effects, affecting more than two billion people with lifelong infections, that have forced the public health community to reassess the importance of these infections. And recognition of the simplicity, safety, low cost, and efficacy of treatment has now resulted in major global initiatives to achieve control.

Parasitic worms may be the commonest cause of chronic infection in humans. In many low income countries it is more common to be infected than not. A child growing up in an endemic community can expect to be infected soon after weaning, and to be infected and constantly reinfected for the rest of her or his life.

The burden of disease associated with helminth infections is enormous, with at least 2 billion people affected worldwide. This is being increasingly recognized as a significant public health problem, particularly in developing countries, where poverty, poor nutrition, inadequate sanitation, lack of clean drinking-water and minimal health care prevail. The highest rates of infection are often in children between the ages of 5 and 15 years. Although these helminths can infect all members of a population, the most vulnerable groups – those who are at most risk, and who would benefit most from preventive interventions are pre-school (age 2–5 years) and school-age children, adolescent girls, and women of childbearing age.

There are about 20 major helminth infections of humans, and all have some public health significance, but among the commonest of all human infections are the geohelminthiasis. Recent global estimates indicate that more than a quarter of the world's population are infected with one or more of the most common of these parasites—the roundworm, *Ascaris lumbricoides*; the hookworms, *Necator americanus* and *Ancylostoma duodenale*; and the whipworm, *Trichuris trichiura*. Hookworm infection is the leading cause of pathological blood loss in tropical and subtropical regions. Some 44 million pregnancies are currently complicated by maternal hookworm infection, placing both mothers and children at higher risk of death during pregnancy and delivery.

The distribution of helminths among hosts is over dispersed: that is, while most hosts harbour few or no worms, a few harbour many parasites. This distribution has clinical consequences for hosts, as it is mainly the intensity of that determines the severity of morbidity. Infection with *Trichuris trichiura* and *Ascaris lumbricoides* typically reaches maximum intensity at 5–10 years of age, after which it declines to a lower level that then persists throughout adulthood. A different profile is apparent for hookworm infections, with maximum intensity usually not attained until 20–25 years. Children of school age are thus particularly at risk from the clinical manifestations of disease. Indeed, it has been estimated that, for children aged 5–14 years in low income countries, intestinal worms account

Contents

Page

1. <i>Leading Article - Prevention and control of soil-transmitted helminthiasis</i>	1
2. <i>Surveillance of vaccine preventable diseases & AFP (1st - 7th September 2007)</i>	3
3. <i>Summary of diseases under special surveillance (1st - 7th September 2007)</i>	3
4. <i>Summary of newly introduced notifiable diseases (1st - 7th September 2007)</i>	3
5. <i>Laboratory surveillance of dengue fever (1st - 7th September 2007)</i>	3
6. <i>Summary of selected notifiable diseases reported (1st - 7th September 2007)</i>	4

WEEKLY
Sri Lanka - 2007

for 12% of the total disease burden. About 20% of disability adjusted life years (DALYs) lost due to communicable disease among school children are a direct result of intestinal nematodes. In 1999 the World Health Organization estimated that these infections represented more than 40% of the disease burden from all tropical diseases excluding malaria

Helminth infections have an adverse effect on cognitive development, and individuals in a period of intense physical and intellectual growth are extremely vulnerable. Despite increasing commitment to the health and learning of school-children, progress on these fronts can be seriously threatened by helminth infections. Studies have shown clearly the detrimental effects of infection on educational performance and school attendance, as well as the significant improvements in language and memory development that can be realized following treatment. Helminth infections are also associated with nutritional deficiencies, particularly of iron and vitamin A, with improvements in iron status and increases in vitamin A absorption after deworming. Adolescent girls are particularly at risk of anaemia aggravated by helminth infection and iron stress.

In order to promote and protect the rights of each child, including the “right to the enjoyment of the highest attainable standard of health and to facilities for the treatment of illness and rehabilitation of health”, illnesses that place an undue burden on child health and development must be effectively addressed. Furthermore, the creation of a safe, healthy, inclusive and equitably resourced educational environment, conducive to excellence in learn.

The overall objectives of preventing helminth infections are to improve children’s health, nutrition and learning capabilities and to improve women’s lives and their caring capacity, work efficiency and economic productivity. Recent evidence confirms that a significant reduction in the burden of disease due to these infections can be achieved through regular anthelmintic treatment directed to all high-risk groups. Currently, a number of drugs are included in the WHO Model List of Essential Medicines for the single-dose treatment of soil-transmitted helminths and schistosomiasis. The price of anthelmintics has now decreased to a level that makes regular treatment both affordable and deliverable in a sustainable manner through existing channels. It is estimated that most of the disease burden due to soil-transmitted helminths can be prevented in high-prevalence communities by treating pre-school and school-age children. Both albendazole (400 mg) and mebendazole (500 mg) offer the further advantage that they can be administered as a single tablet to all individuals over 2 years of age.

These drugs are effective, well tolerated and inexpensive and can be safely given after the first trimester of pregnancy. Studies in pregnant women have shown that deworming is beneficial for the course of pregnancy, and that combining treatment with iron-folate supplementation helps to improve

iron status.

Anthelmintic treatment can be dispensed through health services (maternal and child health and antenatal clinics), school health programmes, and community interventions directed at other vulnerable groups (such as adolescent girls). Repeated and regular chemotherapy of those at risk ensures that levels of infection are kept below those associated with morbidity. Since reinfection is common, permanent control can be achieved only through regular treatment accompanied by long-term key preventive interventions as provision and use of a safe and adequate water supply, improvement of environmental sanitation and practicing good sanitation and hygiene habits in order to break transmission routes.

National level survey conducted among Sri Lankan school children in 2003 by Nutrition & parasitological departments of the MRI had revealed that prevalence of worm infections were 6.9%. This level of control has been achieved mainly through the high coverage of regular anthelmintic treatment. This was supported by the outdoor morbidity statistics published in the AHB 2003 where infections and parasitic diseases were the third leading cause of outdoor morbidity. Therefore, to achieve sustainable control of worm infections, while maintaining high coverage of anthelmintic treatment among children and pregnant mothers, it is essential to ensure access to safe water, adequate sanitation facilities and good hygiene & sanitation practices at the community level.

A comprehensive control strategy for helminth infection should include:

- ensuring wide availability of anthelmintics for schistosomiasis and soil-transmitted helminth infections in all health services in endemic areas;
- ensuring good case management of symptomatic cases ;
- regular treatment of all children at risk, including adolescent girls, through school- and community-based initiatives;
- treating pregnant women at risk, through antenatal care and other women’s health programmes;
- ensuring a safe water supply and adequate sanitation facilities in all schools;
- ensuring provision of adequate water and sanitation facilities at household/community level;
- promoting good hygiene and sanitation practices among schoolchildren and caregivers (hand-washing, use of latrines, use of footwear) through community capacity development activities and in school curricula.

sources:

Awasthi, Bundy DAP, Savioli L. Helminthic Infection. *BMJ* 2003; 227:431- 433

WHO, UNICEF Joint Statement . Prevention and Control of Schistosomiasis and Soil-transmitted helminthiasis –2004

WHO/CDS/CPE/PVC/2004.9

The editor wishes to acknowledge Dr. Sagarika Samarasinghe, Consultant Parasitologist –MRI for the assistance provided in the preparation of this article.

Table 1: Vaccine-preventable Diseases & AFP

1st - 7th September 2007 (36th Week)

Disease	No. of Cases by Province								Number of cases during current week in 2007	Number of cases during same week in 2006	Total number of cases to date in 2007	Total number of cases to date in 2006	Difference between the number of cases to date between 2007 & 2006
	W	C	S	NE	NW	NC	U	Sab					
Acute Flaccid Paralysis	00	00	00	00	01 KR=1	01 PO=1	00	00	02	03	61	86	-29.1%
Diphtheria	00	00	00	00	00	00	00	00	00	00	00	00	00.0%
Measles	00	00	00	00	00	00	00	00	00	00	50	29	+72.4%
Tetanus	00	00	00	00	00	00	00	00	00	00	26	33	-21.2%
Whooping Cough	00	00	00	00	00	00	00	01 RP=1	01	01	32	64	-50.0%
Tuberculosis	182	32	03	20	02	01	47	09	296	302	7000	7136	-1.9%

Table 2: Diseases under Special Surveillance

1st - 7th September 2007 (36th Week)

Disease	No. of Cases by Province								Number of cases during current week in 2007	Number of cases during same week in 2006	Total number of cases to date in 2007	Total number of cases to date in 2006	Difference between the number of cases to date between 2007 & 2006
	W	C	S	NE	NW	NC	U	Sab					
DF/DHF*	85	08	08	03	35	06	03	18	166	117	3788	7270	-47.9%
Encephalitis	00	00	00	00	00	00	00	00	00	00	148	91	+62.6%
Human Rabies	00	00	00	00	00	00	00	00	00	02	45	46	.2.2%

Table 3: Newly Introduced Notifiable Diseases

1st - 7th September 2007 (36th Week)

Disease	No. of Cases by Province								Number of cases during current week in 2007	Total number of cases to date in 2007	*DF / DHF refers to Dengue Fever / Dengue Haemorrhagic Fever. NA= Not Available. Sources: Weekly Return of Communicable Diseases: Diphtheria, Measles, Tetanus, Whooping Cough, Human Rabies, Dengue Haemorrhagic Fever, Japanese Encephalitis, Chickenpox, Meningitis, Mumps. Special Surveillance: Acute Flaccid Paralysis. National Control Program for Tuberculosis and Chest Diseases: Tuberculosis. Details by districts are given in Table 5.
	W	C	S	NE	NW	NC	U	Sab			
Chickenpox	23	02	11	07	07	01	04	04	59	2378	
Meningitis	07 GM=5 C B=1 K L=1	00	02 GL=1 MT=1	03 AM=3	06 KR=1, PU=5	00	00	04 KG=2 RP=2	22	408	
Mumps	19	10	05	42	16	04	04	05	105	1346	

Provinces: W=Western, C=Central, S=Southern, NE=North & East, NC=North Central, NW=North Western, U=Uva, Sab=Sabaragamuwa.
 DPDHS Divisions: CB=Colombo, GM=Gampaha, KL=Kalutara, KD=Kandy, ML=Matale, NE=Nuwara Eliya, GL=Galle, HB=Hambantota, MT=Matara, JF=Jaffna, KN=Killinochchi, MN=Mannar, VA=Vavuniya, MU=Mullaitivu, BT=Batticaloa, AM=Ampara, TR=Trincomalee, KM=Kalmunai, KR=Kurunegala, PU=Puttalam, AP=Anuradhapura, PO=Polonnaruwa, BD=Badulla, MO=Moneragala, RP=Ratnapura, KG=Kegalle.

Table 4: Laboratory Surveillance of Dengue Fever 1st - 7th September 2007 (36th Week)

Samples	Number tested	Number positive *	Serotypes				
			D ₁	D ₂	D ₃	D ₄	Negative
Number for current week	07	01	00	00	01	00	00
Total number to date in 2007	404	42	01	21	12	00	07

Source: Genetech Molecular Diagnostics & School of Gene Technology, Colombo. * Not all positives are subjected to serotyping.

Table 5: Selected notifiable diseases reported by Medical Officers of Health
1st - 7th September 2007 (36th Week)

DPDHS Division	Dengue Fever / DHF*		Dysentery		Encephalitis		Enteric Fever		Food Poisoning		Leptospirosis		Typhus Fever		Viral Hepatitis		Returns Received Timely**
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	%
Colombo	54	1027	11	281	00	08	02	55	00	55	05	95	00	03	04	107	85
Gampaha	17	425	03	272	00	22	02	55	00	45	05	163	00	14	15	152	100
Kalutara	14	253	07	366	00	04	01	36	00	31	01	80	00	01	01	49	100
Kandy	06	303	08	225	00	03	02	49	01	08	02	63	00	56	27	1787	95
Matale	01	79	02	154	00	06	00	17	00	12	00	41	00	05	07	112	83
Nuwara Eliya	01	35	02	208	00	02	02	102	01	368	00	08	01	30	21	462	100
Galle	01	67	08	130	00	09	00	18	00	36	01	37	00	24	00	14	94
Hambantota	02	50	05	134	00	05	00	20	00	17	00	34	03	44	01	15	100
Matara	05	118	04	238	00	08	03	31	01	24	10	143	09	169	01	27	94
Jaffna	00	39	00	125	00	02	00	351	00	07	00	00	00	81	00	18	00
Kilinochchi	00	01	00	00	00	00	00	05	00	00	00	00	00	02	00	04	00
Mannar	00	07	00	15	00	00	00	65	00	00	00	01	00	00	00	11	75
Vavuniya	02	15	00	40	00	04	00	13	01	51	00	02	00	00	00	08	100
Mullaitivu	00	03	00	24	00	08	00	20	00	01	00	00	00	00	00	08	40
Batticaloa	01	72	02	443	00	08	00	17	00	10	00	00	00	22	10	856	45
Ampara	00	03	02	76	00	00	00	03	00	00	00	02	00	01	01	23	86
Trincomalee	00	53	00	189	00	03	00	23	00	23	00	09	00	13	01	98	78
Kurunegala	32	440	07	335	00	06	01	54	03	25	00	21	02	34	03	58	78
Puttalam	03	97	03	94	00	11	02	68	00	04	01	19	01	05	03	70	89
Anuradhapura	05	137	00	84	00	08	01	20	00	15	00	18	00	18	01	36	68
Polonnaruwa	01	51	01	68	00	02	00	09	00	04	00	19	00	00	04	30	86
Badulla	01	39	06	449	00	02	00	73	00	10	01	42	02	125	03	259	80
Monaragala	02	30	04	266	00	02	00	45	00	18	02	40	01	63	01	34	90
Ratnapura	14	269	05	438	00	16	00	53	00	17	00	49	01	22	01	77	75
Kegalle	04	175	03	221	00	08	01	38	00	04	01	83	01	28	03	154	82
Kalmunai	0	03	14	146	00	01	00	08	00	06	00	00	00	02	01	100	92
SRI LANKA	166	3788	97	5021	00	148	17	1248	07	791	29	969	21	762	109	4569	81

Source: Weekly Returns of Communicable Diseases (WRCD).

*Dengue Fever / DHF refers to Dengue Fever / Dengue Haemorrhagic Fever.

**Timely refers to returns received on or before 15 September, 2007. Total number of reporting units = 290. Number of reporting units data provided for the current week:

204

PRINTING OF THIS PUBLICATION IS FUNDED BY THE UNITED NATIONS CHILDREN'S FUND (UNICEF).

Comments and contributions for publication in the WER Sri Lanka are welcome. However, the editor reserves the right to accept or reject items for publication. All correspondence should be mailed to The Editor, WER Sri Lanka, Epidemiological Unit, P.O. Box 1567, Colombo or sent by E-mail to chepid@sltnet.lk.

ON STATE SERVICE

Dr. M. R. N. ABEYSINGHE
EPIDEMIOLOGIST
EPIDEMIOLOGICAL UNIT
231, DE SARAM PLACE
COLOMBO 10