



WEEKLY EPIDEMIOLOGICAL REPORT

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Ministry of Healthcare & Nutrition

231, de Saram Place, Colombo 01000, Sri Lanka.

Tele: (+94-011) 2695112/681548/4740490/4740492, E-Mail: epidunit@slt.net.lk

Epidemiologist: (+94-011) 4740491, E-mail: chepid@slt.net.lk, Web: www.epid.gov.lk

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Burden of Asthma—Part I

World Asthma Day [WAD] is organized by the Global Initiative for Asthma (GINA) in collaboration with health care groups and asthma educators to raise awareness about asthma and improve asthma care throughout the world

World Asthma Day 2008 took place on Tuesday, May 6. This year's event continues the focus on the positive theme introduced for WAD 2007, "You Can Control Your Asthma." This theme is consistent with the emphasis on asthma control set out in the latest versions of the GINA guideline documents, and will help to spread the word that asthma control is the goal of treatment and can be achieved in the vast majority of asthma patients with proper management

Asthma is one of the most common chronic health conditions in the world. It is estimated that asthma affects between 155 million and 300 million people worldwide. The prevalence of asthma is growing with urbanisation and as communities adopt Western lifestyles. The proportion of the world's urban population is estimated to grow from 45% to 59% by 2025, suggesting significant increases in asthma globally. In 2001, asthma accounted for one in every 250 deaths worldwide. Many are preventable. Annually, approximately 15 million disability-adjusted life years – or approximately 1% of all disability-adjusted life years – lost worldwide are due to asthma. Both direct and indirect costs associated with asthma increase significantly when asthma is not under control.

Asthma is a worldwide problem with a profound impact on patients, families and healthcare systems. The prevalence and associated morbidity

of asthma have increased over the past 35 years despite an overall reduction in asthma mortality. The latter probably reflects better awareness and understanding of the disease and, to some extent, an increased use of inhaled corticosteroids. In contrast, the reasons for the continued increases in asthma prevalence are not clear. Increased prevalence is occurring in a wide range of populations with different lifestyles. Recent international studies that have examined trends in worldwide asthma morbidity have made the following observations:

- asthma prevalence tends to be highest in economically developed countries (e.g. New Zealand, the UK, the US and Australia);
- the prevalence of asthma increases when developing countries adopt a more urban lifestyle; and
- changes in the prevalence of asthma appear to be related to a worldwide increase in allergic diseases.

Morbidity: Asthma is a chronic disorder that can significantly impact the quality of life of the affected patients and their families. Uncontrolled or poorly controlled asthma can:

- disturb sleep
- increase fatigue and decrease energy
- produce difficulty in concentrating
- restrict physical activity and exercise;
- cause absence from work and/or school
- reduce participation in normal daily activities resulting in missed recreational and social opportunities.

Uncontrolled asthma is a common reason for work and school absences and missed daily

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activities. Subtler effects include fatigue and associated concentration deficits due to decreased quality of sleep. Many people with asthma restrict their lifestyles in order to accommodate the disease without acknowledging that they do so. The patient therefore may not recognise the impact of asthma on his/her physical and social functioning or quality of life.

Cost: Asthma causes significant expense for society and healthcare systems: as prevalence increases, so do costs. The total cost of asthma in the US are estimated to have increased between the mid 1980s and the mid 1990s from approximately US\$4.5 billion to over US\$10 billion. Weiss and colleagues estimated the total asthma cost for Australia, the UK and the US (adjusted to 1991 US dollars for comparison purposes) at US\$457 million, US\$1.79 billion and US\$6.40 billion, respectively. Updating these figures to 2003 dollars using the Consumer Price Index (CPI) yields approximately US\$617 million, US\$2.42 billion and US\$8.64 billion, respectively. These data are probably underestimates, as the cost and prevalence of asthma were increasing during this period.

Indirect cost for asthma are difficult to determine but reflect time lost from work and decreased productivity for patients and caregivers. The direct cost associated with the disease are related largely to medications and use of healthcare services. Direct cost for asthma vary from country to country according to healthcare systems and policies; however, the majority of the asthma-related health expenses in any community are associated with urgent care. In the US, the projected direct cost for asthma in 1998 exceeded US\$7.3 billion; and those for indirect cost exceeded US\$5.3 billion. Adjusting to 2003 (using the CPI), the respective direct and indirect cost approximate to US\$7.6 billion and US\$5.8 billion. Cost for in-patient hospital services accounted for the largest direct expenditure and lost productivity related to work absences accounted for the largest indirect expenditure. An important goal of disease management in any society is to reduce the need for urgent care for asthma. Asthma affects the family, not just the patient, and medical bills can be a substantial burden – one that increases with disease severity. A community-based study of healthcare usage estimated an up to five-fold increase in costs associated with severe asthma compared with mild asthma. The distribution of direct cost was also influenced by disease severity.

Medication cost accounted for the majority of the total direct cost for patients with mild or moderate disease compared with patients with severe disease who had substantially more cost associated with hospitalisations. Other observations from international studies of costs associated with asthma indicate that:

- regular primary care is less expensive than acute urgent care;
- outpatient urgent care (e.g. clinic or emergency department) costs less than hospitalisation; and

- regular treatment with controller (antiinflammatory) medications is less expensive than treating acute exacerbations.

From the perspective of healthcare systems, therefore, the goal of management should be to reduce urgent care visits for acute episodes of asthma and, more specifically, to prevent hospitalisations by encouraging the use of controller medications (i.e. inhaled corticosteroids) in patients with persistent asthma.

Barriers to Reducing the Burden of Asthma

1. Generic barriers including poverty, poor education, and poor infrastructure.

2. Environmental barriers including indoor and outdoor air pollution, tobacco smoking, and occupational exposures.

3. Low public health priority due to the importance of other respiratory illnesses such as tuberculosis and pneumonia and the lack of data on morbidity and mortality from asthma.

4. The lack of symptom-based rather than disease-based approaches to the management of respiratory diseases including asthma.

5. Unsustainable generalisations across cultures and healthcare systems which may make management guidelines developed in high-income countries difficult to implement in low and middle-income countries.

6. Inherent barriers in the organization of healthcare services in terms of: geography, type of professional responding, education and training systems, public and private care, tendency of care to be "acute" rather than "routine."

7. The limited availability and use of medications including: omission of basic medications from WHO or national essential drug lists, poor supply and distribution of infrastructure, cost, cultural attitudes towards drug delivery systems, e.g. inhalers

8. Patient barriers including: cultural factors, lack of information, underuse of self-management, over-reliance on acute care, use of alternative unproven therapies.

9. The requirement of respiratory specialists and related organisations required to care for a wide variety of diseases, which has in some regions resulted in a failure to adequately promote awareness of asthma.

Sources:

Farrar JR. The global burden of asthma and current approaches to its management. *Eur Pharmacother* 2005; 126, 128, 998-1000.

Masoli M, Fabian D, Holt S, Beasley R. Global burden of Asthma. Medical Research Institute of New Zealand, Wellington, New Zealand.

This article was compiled by Dr Samitha Ginige - Consultant Epidemiologist

26th Apr - 2nd May 2008 (18th Week)

Table 1: Vaccine-preventable Diseases & AFP

Disease	No. of Cases by Province									Number of cases during current week in 2008	Number of cases during same week in 2007	Total number of cases to date in 2008	Total number of cases to date in 2007	Difference between the number of cases to date between 2008 & 2007
	W	C	S	N	E	NW	NC	U	Sab					
Acute Flaccid Paralysis	01 CO=1	00	00	00	00	00	00	00	01 RP=1	02	02	31	31	00.0%
Diphtheria	00	00	00	00	00	00	00	00	00	00	00	00	00	00.0%
Measles	00	00	00	00	00	00	01	00	00	01	02	42	27	+55.5%
Tetanus	00	00	00	00	00	00	00	00	00	00	01	12	12	00.0%
Whooping Cough	00	01 GL=1	00	00	00	00	00	00	00	01	01	14	15	-6.6%
Tuberculosis	124	41	09	18	15	09	05	31	00	225	141	2988	3440	-13.1%

Table 2: Newly Introduced Notifiable Diseases

26th Apr - 2nd May 2008 (18th Week)

Disease	No. of Cases by Province									Number of cases during current week in 2008	Number of cases during same week in 2007	Total number of cases to date in 2008	Total number of cases to date in 2007	Difference between the number of cases to date between 2008 & 2007
	W	C	S	N	E	NW	NC	U	Sab					
Chicken-pox	47	15	18	02	01	17	04	03	14	119	58	2153	1228	+75.3%
Meningitis	01 CO=1	01 KD=1	05 GL=3 MT=2	01 JF=1	01 TR=1	06 KR=1 PU=1	00	01 BD=1	05 KG=3 RP=2	21	00	598	49	+1120.4%
Mumps	04	01	10	00	06	13	03	04	10	51	38	870	435	+100.0%

Key to Table 1 & 2

Provinces: W=Western, C=Central, S=Southern, N=North, E= 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=Mataara, 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 3: Laboratory Surveillance of Dengue Fever 26thApr- 2nd May 2008 (18th Week)

Samples	Number tested		Number positive *		Serotypes									
					D ₁		D ₂		D ₃		D ₄		Negative	
	GT	AH	GT	AH	GT	AH	GT	AH	GT	AH	GT	AH	GT	AH
Number for current week	07	03	00	00	00	00	00	00	00	00	00	00	00	00
Total number to date in 2008	78	43	07	13	00	00	04	05	01	04	00	00	02	00

Sources: Genetech Molecular Diagnostics & School of Gene Technology, Colombo [GT] and Genetic Laboratory Asiri Surgical Hospital [AH]

* Not all positives are subjected to serotyping.

NA= Not Available.

Data 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.

Table 4: Selected notifiable diseases reported by Medical Officers of Health
26th Apr- 2nd May 2008 (18th Week)

DPDHS Division	Dengue Fever / DHF*		Dysentery		Encephalitis		Enteric Fever		Food Poisoning		Leptospirosis		Typhus Fever		Viral Hepatitis		Human-Rabies		Returns Receive %
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	
Colombo	35	693	03	63	01	06	00	48	00	57	02	164	00	01	03	53	00	01	85
Gampaha	20	429	01	63	00	05	03	27	00	66	10	146	00	04	07	60	00	01	93
Kalutara	08	214	01	126	00	07	02	37	00	16	02	151	00	02	00	18	00	00	100
Kandy	02	90	07	91	00	03	00	20	00	30	12	109	02	40	01	71	00	00	76
Matale	03	53	06	103	00	01	00	22	00	02	17	271	00	01	00	16	00	00	75
Nuwara Eliya	01	09	05	89	00	01	05	98	00	107	00	15	00	30	00	60	00	01	92
Galle	04	49	00	47	00	08	00	10	00	42	10	159	00	08	00	04	00	03	82
Hambantota	00	46	00	34	00	03	00	05	00	06	01	47	00	48	00	04	00	00	100
Matara	02	99	00	68	00	04	00	20	00	02	13	157	06	89	00	05	00	01	88
Jaffna	00	39	03	49	00	01	02	163	00	05	00	00	01	117	00	17	00	00	50
Kilinochchi	00	00	00	03	00	00	00	00	00	00	00	02	00	00	00	01	00	00	50
Mannar	00	24	00	07	00	06	01	93	00	00	00	00	00	00	00	11	00	00	50
Vavuniya	00	10	01	16	01	02	00	01	00	09	01	04	00	00	01	03	00	00	50
Mullaitivu	00	00	00	01	00	00	00	05	00	12	00	00	00	00	00	04	00	00	40
Batticaloa	00	72	04	30	00	02	00	09	00	18	00	01	00	01	00	64	00	04	73
Ampara	01	08	06	86	00	00	01	03	00	00	01	08	00	00	00	04	00	00	43
Trincomalee	02	152	01	34	00	00	01	07	00	03	04	11	00	10	01	09	00	00	90
Kurunegala	03	186	02	127	01	10	01	23	00	10	21	78	00	14	01	21	00	04	100
Puttalam	05	205	00	35	00	02	04	75	00	18	01	06	00	23	00	19	00	02	89
Anuradhapur	01	100	02	39	00	04	00	08	00	04	18	97	00	09	00	09	00	00	74
Polonnaruwa	00	37	00	42	00	01	00	18	00	06	05	30	00	00	00	15	00	00	100
Badulla	00	37	09	164	00	03	03	54	01	02	00	14	00	55	00	54	00	01	87
Monaragala	05	32	07	92	00	01	01	23	00	19	03	49	00	52	00	11	00	00	100
Ratnapura	04	112	03	95	00	18	00	36	00	42	08	81	01	66	00	35	00	00	75
Kegalle	14	155	04	173	00	17	01	27	00	00	09	82	01	32	10	246	00	00	100
Kalmunai	00	19	02	77	00	02	01	07	00	10	00	00	00	01	00	13	00	00	69
SRI LANKA	110	2870	67	1754	03	107	26	839	01	486	138	1682	11	603	24	827	00	18	82

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 10 May, 2008 Total number of reporting units =238. Number of reporting units data provided for the current week:

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ON STATE SERVICE

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