WEEKLY EPIDEMIOLOGICAL REPORT

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Combating Emerging Infectious Diseases - Part I

Emerging infectious diseases are diseases of infectious origin of which incidence in humans has increased in the recent past or threatens to increase in the near future. These also include those infections that appear in new geographic areas or increase abruptly. The new infectious diseases and those which are re-emerging after a period of quiescence are also grouped under emerg-

The spectrum of health, environment and development hazards has changed considerably over the millennia of human existence. People are living longer, literacy has increased, education has improved and incomes and opportunities have amplified. With the discovery of vaccines that helped to eradicate smallpox, launch of a global campaign to eradicate poliomyelitis, and support control of measles, diphtheria and other killer diseases, and the discovery of potent antimicrobial agents, the last 50 years of the 20th century heralded strong hope for conquering many infectious diseases in the near future. Yet, despite these advances, infectious diseases remain the leading cause of death in developing countries, and the South-East Asia Region (SEAR) is no exception. In addition, these countries, mainly those with low resources, are grappling with a variety of new, emerging and reemerging infectious diseases.

The recent emergence of a new strain of H5N1 of influenza A virus and the outbreak of SARS underlines the importance of Asia as an epicenter not only for influenza A viruses, but also for other microbial agents. It is likely that epidemics will continue to occur in the future as they have in the past. Changes in human behaviour and customs will continue to provide opportunities for microbes to produce unexpected epidemics. Science cannot stop the emergence of new microbes. These emerge from the evolutionary stream as a consequence of genetic events and selective pressure that favours them. It is nature's way. It is strongly believed that new infections shall continue to emerge and pandemics commence in all likelihood from the developing countries, mainly in Asia. What is needed is to enhance the capacity to detect them early and respond most effectively and efficiently with available resources, skills and knowledge.

Emerging infectious diseases threaten to disrupt the health care system. Conversely, a strong health system is a prerequisite for effectively combating emerging infectious diseases. Left unchecked, today's emerging diseases can assume pandemic proportions causing social and economic disruption and ultimately becoming endemic. This is what happened with HIV/AIDS, which spread from a remote part of Africa to all other continents and is now entrenched all over the world. In less than 25 years from its first isolation it has become the fourth leading cause of death worldwide.

The successful detection and treatment of

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of microbes, vectors and intermediate hosts, and create awareness on the possibility that new epidemics can, and will emerge in unexpected places. A sustained forward-thinking applied research programme is crucial to effectively respond to new and emerging infectious diseases.

The health and economic impact of recent outbreaks occurring in many countries of the Region underscore the need to further strengthen national disease surveillance and response systems, including early warning systems and epidemic preparedness as well as laboratory and entomological investigation facilities. They have also driven home the critical role of collaboration within and between the countries. Inter-regional cooperation can facilitate an effective and prompt response through activation of various technical networks available all over the world.

This is a wake up call for all those who are concerned with the health of the people. This includes mainly policy makers, health administrators, public health professionals, national finance managers, international agencies and NGOs. The importance of emerging infections must be recognized and suitable remedial measures instituted to combat them.

More than 30 years ago, the then US Surgeon General stated that “the time has come to close the book on infectious diseases”. Hindsight is a great teacher and the last three decades have taught us that there will be no closing of books on infectious diseases, now or ever. In fact, emerging infectious diseases seem to be closing, or have the potential to close windows of opportunity for infectious disease eradication or elimination.

Distribution and Trends

Infectious diseases continue to be a major challenge in the South-East Asia Region (SEAR). They are estimated to be responsible for about 40% of the 14 million deaths annually in the Region and account for 28% of the global burden of infectious diseases. Of 350 million DALYs that are lost due to communicable diseases globally, South-East Asia Region accounts for 89 million. The brunt is mainly borne by children, women and marginalized sections of society. Children show greater vulnerability. Infectious diseases represent 7 out of 10 top causes of child deaths in developing countries, and account for nearly 60% of all such deaths. Acute respiratory infections cause 18% of all deaths and diarrhoeal diseases kill 15% children in developing countries. More than 80% of the population in SEAR continues to live in malaria-prone areas of which 178.8 million are at high risk. On an average, 2 to 2.5 million cases of malaria are reported annually with an estimated 27,000 deaths and an annual economic loss of US$ 2 billion.

Tuberculosis continues to be the biggest killer of young adults. Notwithstanding the success of DOTS, the TB situation is likely to be complicated with the rapid spread of HIV and the emergence of drug resistant strains in the Region. Multidrug resistant-TB is at least 100 times more expensive to cure. There is a new threat to TB control in the form of a parallel HIV/AIDS epidemic with around 2.5 million people estimated to be co-infected with HIV and TB in countries of the Region. HIV/AIDS is one of the most rapidly growing epidemics globally. HIV has already spread to more than 6 million people in SEAR.

The Region has witnessed several outbreaks of new and emerging infections as new micro-organisms continue to appear and some of the existing ones alter their characteristics to promote their survival at the expense of human health. Japanese encephalitis, Chandipora virus, Nipah virus and leptospirosis are examples of emerging infectious diseases that appeared a few years back and have now established endemicity. These infections are gradually and steadily progressing to conquer newer areas and populations.

Microbes are never idle. They possess remarkable genetic versatility that enables them, under favourable circumstances, to develop new pathogenic vigour, to escape population immunity by acquiring new antigens and to develop antimicrobial resistance. New pathogens, particularly viruses, remain unpredictable and continue to emerge and spread across countries, without respecting national boundaries. During the past 30 years, more than 30 new pathogens have been detected worldwide many of which have caused serious outbreaks. They continue to challenge our ability to respond to the epidemic quickly. Deliberate use of the micro-organisms adds another grim dimension to the burgeoning problem of microbial diseases.

The recent epidemics of SARS and avian influenza have caused grave concern and made an enormous health and economic impact throughout the world. There is no way, as yet, to say whether SARS has finally been brought under control and whether avian influenza will make a comeback. Since the SARS epidemic was contained in July 2003, there have been four further out-

Table 1: Vaccine-preventable Diseases & 19th - 25th July 2008 (30thWeek)

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	00	00	00	00	00	01 KU=1	00	00	00	01	03	59	56	+5.6%
Diphtheria	00	00	00	00	00	00	00	00	00	00	00	00	00	00.0%
Measles	00	00	01 HA=1	00	00	00	00	01 BD=1	00	02	03	64	44	+45. 5%
Tetanus	00	01 MT=1	00	00	00	00	00	00	00	01	00	21	21	0.0%
Whooping Cough	00	00	00	00	00	00	00	00	00	00	01	24	25	-4.0%
Tuberculosis	135	12	18	25	26	00	00	11	64	291	194	5130	5921	-13.5`%

Table 2: Newly Introduced Notifiable Diseases 19th - 25th July 2008 (30thWeek)

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	21	10	07	01	03	04	04	05	12	67	39	3273	2078	+57.5%
Meningitis	10 KL=3 CB=4 GM=3	03 KD=2 NE=1	09 HB=2 GL=7	01 JF=1	01 BT=1	03 KR=2 PU=1	02 PO=2	01 BD=1	03 KG=2 RP=1	33	20	849	247	+243.7%
Mumps	08	15	13	04	01	05	10	02	04	62	47	1574	938	+67.8%

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=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 3: Laboratory Surveillance of Dengue Fever 19th– 25th July 2008 (30thWeek)

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	03	06	00	00	00	00	00	00	00	00	00	00	00	00
Total number to date in 2008	107	119	08	19	00	00	05	08	01	06	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

19th - 25th July 2008 (30thWeek)

DPDHS Division	Dengue Fever / DHF*		Dysentery		Encephal-itis		Enteric Fever		Food Poisoning		Leptos-pirosis		Typhus Fever		Viral Hepatitis		Human-Rabies		Re-turns Re-ceive
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	%
Colombo	46	1082	06	111	00	07	04	64	00	69	09	265	00	02	05	78	00	00	**100**
Gampaha	08	630	03	110	00	14	01	34	00	67	02	249	00	05	03	89	00	03	**71**
Kalutara	07	323	07	220	01	09	00	44	02	18	13	316	00	02	00	27	01	01	**100**
Kandy	08	156	16	189	00	05	02	40	00	52	07	289	03	67	02	92	00	01	**76**
Matale	03	76	03	149	00	02	00	35	00	04	08	592	00	01	00	22	00	00	**92**
Nuwara Eliya	01	17	08	166	00	02	04	193	00	110	01	35	01	35	00	86	00	01	**100**
Galle	02	71	01	113	00	12	00	12	00	43	07	225	01	11	00	06	00	03	**94**
Hambantota	03	64	00	64	00	05	00	06	04	11	00	68	03	63	02	08	00	00	**91**
Matara	10	176	06	125	01	10	00	23	00	04	05	223	04	132	00	09	00	01	**94**
Jaffna	00	52	03	91	00	02	02	217	01	10	00	00	00	148	01	30	00	00	**88**
Kilinochchi	00	00	00	14	00	00	00	01	00	00	00	02	00	00	00	01	00	00	**25**
Mannar	00	25	02	14	00	06	03	118	00	00	00	00	00	01	00	12	00	00	**50**
Vavuniya	00	10	02	40	00	02	00	05	00	13	00	05	00	01	00	04	00	00	**75**
Mullaitivu	00	00	00	06	00	00	00	12	00	12	00	00	00	01	00	08	00	00	**40**
Batticaloa	00	85	02	73	00	03	00	20	00	19	00	04	00	01	01	81	00	05	**91**
Ampara	00	25	08	210	00	00	00	05	00	00	00	17	00	00	01	07	00	00	**29**
Trincomalee	01	174	01	68	00	00	00	12	00	12	00	28	00	15	00	12	00	00	**80**
Kurunegala	08	241	02	159	02	13	02	39	00	13	09	175	01	18	05	48	00	04	**83**
Puttalam	02	267	01	51	00	08	03	131	05	26	01	26	00	32	01	27	00	03	**100**
Anuradhapur	00	109	03	54	00	09	00	08	00	06	00	219	00	10	00	11	00	02	**79**
Polonnaruwa	00	58	00	82	00	01	00	21	00	07	00	54	00	01	00	18	00	00	**71**
Badulla	03	61	08	304	00	04	06	93	00	13	00	32	06	91	05	87	00	01	**80**
Monaragala	04	49	07	271	00	02	00	29	00	114	00	85	00	71	01	27	00	00	**64**
Ratnapura	06	200	09	212	00	24	00	41	00	43	02	121	00	74	00	43	00	00	**63**
Kegalle	07	284	01	223	01	24	00	47	00	02	03	208	01	48	03	405	00	01	**82**
Kalmunai	00	29	03	192	00	02	00	09	02	14	00	00	00	02	01	21	00	00	**77**
SRI LANKA	**119**	**4264**	**102**	**3311**	**05**	**166**	**27**	**1259**	**14**	**682**	**67**	**3238**	**20**	**832**	**31**	**1259**	**00**	**27**	**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 2 August, 2008 Total number of reporting units =238. Number of reporting units data provided for the current week: 247

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