

Situation update of dengue in the SEA Region, 2010

The global situation of Dengue

It is estimated that nearly 50 million dengue infections occur annually in the world. Although dengue has a global distribution, the WHO South-East Asia (SEA) Region together with Western Pacific Region bears nearly 75% of the current global disease burden.

Many developed countries in the world have been free from dengue for the past few years, largely as a result of the 'broad' benefits of socio-economic development and environmental sanitation. However, dengue has proved extremely resilient to eradication even in high resource countries like Singapore, and is re-emerging in some countries where it has not been seen for some time. For example, locally-acquired dengue infection has recently been reported in parts of USA after nearly 40 years absence. Dengue is on the rise in this year with outbreaks reported in as many as 50 countries.

The current situation for dengue in the SEA Region

Dengue is described as 'endemic' in many countries in the SEA Region – which means that cases occur every year, although there is significant variation between countries and within each country. In 2003, eight SEA Region countries (Bangladesh, India, Indonesia, Maldives, Myanmar, Sri Lanka, Thailand and Timor-Leste) reported dengue cases. In 2004, Bhutan reported the country's first dengue outbreak followed by the first indigenous dengue case reported in Nepal in November 2006. At present, the Democratic Peoples Republic of Korea is the only country in the South-East Asia Region that has no reports of indigenous dengue cases. The number of reported cases of dengue in SEA Region countries is shown in Table 1 below.

Cases of dengue typically vary throughout the year and assume a regular pattern, normally in association with changes of temperature and rainfall. This pattern of disease is described as seasonal. In different countries of SEAR, the seasonal pattern of dengue differs, high number of cases is seen in India between August and November, in Indonesia, the peak is seen in January to February and in Myanmar and Sri Lanka increased number of cases is reported between May and August.

The South East Asia Region is currently experiencing an upsurge in reported cases of dengue in a number of countries, including India, Sri Lanka, and Thailand. There was a sudden increase in number of reported cases of dengue in Sri Lanka in 2009 and the trend appears to be continuing now. In Delhi, India, there has been an increase in number of reported cases of dengue in 2010 as compared to previous year and in addition, the number of reported cases started to rise earlier (July/ August) as compared to previous years, where it started to show a rising trend only in September/ October (Figure 4). In Indonesia, the number of reported cases started to rise in 2004 and reached a plateau between 2007 and 2009. In other countries such as Bangladesh, Myanmar and the Maldives numbers of cases are relatively stable, reflecting an endemic pattern

Table 2 and Figures 1 and 2 show the incidence (rate at which new cases occur) of reported cases in selected countries. It can be seen that the incidence of reported cases appears to vary between SEA Region countries. (n.b. number of reported cases in Bangladesh and India are relatively lower than other countries because of variations: i.e. Bangladesh and India report only laboratory-confirmed cases while in other countries include confirmed/ probable/ and suspected cases in the reported case count).

It is also clear from examining this data that the numbers and rates of cases vary significantly from year to year. In addition, in any given year, one country may show an increase in cases, whereas in another country, the same year may see a decrease. Overall, for the majority of countries in the SEAR Region, the total cases reported so far in 2010 (between January and September) are still lower than the total for 2009, whereas in Thailand the number of cases reported so far has *already* exceeded the number of cases reported in 2009. For the other countries (and for the region as a whole), it is too early to say if 2010 will eventually show more cases than in 2009.

The exact reason for the apparent upsurge in reported cases in different countries is not completely clear, but weather patterns, especially relative increases in rainfall are very likely to be an important feature. Patterns of dengue cases can be challenging to explain and predict, because they are influenced by a large number of different factors, including, climate, movements of mosquitoes, the type of dengue viruses that are

circulating (there are 4 different sub-types), environmental factors such as temperature and humidity and human behaviour. In India and Thailand, the prominent strain of dengue has been DEN 1 which is linked with high morbidity and low mortality.

Table 1: Number of reported cases of dengue in SEA Region countries

Country	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010*
Bangladesh*	5,551	2,430	6,132	486	3,913	1048	2200	466	1153	474	76
Bhutan	0	0	0	0	2,579	11	116	86	73	351	16
DPR Korea	0	0	0	0	0	0	0	0	0	0	0
India*	650	3,306	1,926	12,754	4,153	11985	12317	5023	12561	15535	9357
Indonesia	33,443	45,904	40,377	51,934	79,462	95279	106425	157442	155607	156052	80065
Maldives	180	73	27	38	742	1126	2768	1680	1476	774	550
Myanmar**	1,884	15,695	16,047	7,907	7,369	17454	11383	15285	14480	24287	11704
Nepal	0	0	0	0	0	0	25	3	6	30	2
Sri Lanka	3,343	4,304	8,931	4,749	15,463	5994	11980	7314	6555	35010	27142
Thailand	18,617	139,327	114,800	62,767	38,367	45,893	42456	62949	89626	25194	57948
Timor Leste					434	1128	162	210	186	175	473
SEAR	63,668	211,039	188,240	140,635	152,482	179918	189832	250458	281723	257882	187333

*Only confirmed cases

**official data awaited

Table 2: Incidence of reported dengue cases in the SEA Region

Country	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010*
Bangladesh	3.95	1.70	4.21	0.33	2.60	0.68	1.42	0.30	0.72	0.29	0.05
Bhutan					409.37	1.72	17.58	12.84	10.74	50.14	2.29
DPR Korea											
India	0.06	0.32	0.18	1.20	0.38	1.10	1.11	0.45	1.10	1.31	0.79
Indonesia	16.31	22.07	19.23	24.38	36.79	43.51	48.16	70.29	68.55	66.83	34.29
Maldives	66.18	26.45	9.64	13.38	257.64	385.62	935.14	560.00	483.93	253.77	180.33
Myanmar*	4.04	33.39	33.93	16.61	15.35	36.14	23.37	31.13	29.25	45.48	21.92
Nepal							0.09	0.01	0.02	0.10	0.01
Sri Lanka	17.88	22.89	47.25	24.86	79.71	30.58	60.51	36.57	32.61	169.13	131.12
Thailand	29.88	221.51	180.22	97.31	58.85	69.64	63.84	94.09	133.17	37.00	85.09
Timor Leste					45.68	113.94	15.88	19.81	17.06	14.58	39.42
SEAR	4.20	13.72	12.06	8.88	9.49	11.04	11.50	14.98	16.62	14.65	10.64

*official data awaited

Table 3 shows the case fatality rate (CFR) (proportion of cases that died among reported cases) in SEA Region countries. It can be seen that CFR varies over time within countries and between different countries. The CFR is dependent on many factors such

as health seeking behaviour, availability of treatment and the strain of dengue virus in circulation. Therefore, these figures need to be interpreted with caution and the CFR may be over-estimated if not all cases of dengue are reported to the health authorities. Overall there has been a slight decrease in CFR in the past 10 years in SEA Region countries which may be attributed to increased awareness in healthcare workers and training to improve case management of dengue.

Table 3: Case Fatality Rate among reported cases of dengue in SEAR MS

Country	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010*
Bangladesh	1.68	1.81	0.95	2.06	0.33	0.38	0.50	0.21	0.00	0.00	0.00
Bhutan					0.00	0.00	0.00	2.33	6.85	2.28	12.50
DPR Korea											
India	1.08	1.60	1.71	1.69	1.08	1.31	1.49	1.23	0.64	0.62	0.31
Indonesia	1.41	1.08	1.32	1.53	1.20	1.36	1.03	0.92	0.60	0.89	0.93
Maldives	0.56	0.00	3.70	0.00	0.40	0.00	0.36	0.12	0.20	0.26	0.00
Myanmar*	0.74	1.30	1.06	0.99	1.07	0.97	1.12	1.12	0.69	0.75	0.82
Nepal							0.00	0.00	0.00	0.00	0.00
Sri Lanka	1.11	1.25	0.72	0.67	0.57	0.45	0.37	0.34	0.29	0.99	0.77
Thailand	0.17	0.18	0.15	0.12	0.13	0.15	0.14	0.11	0.11	0.01	0.12
Timor Leste					0.46	3.63	0.00	2.86	0.54	0.00	0.21

*official data awaited

Figure1: Incidence of reported dengue (including confirmed/ probable/ suspected cases) per 100,000 in selected Member States

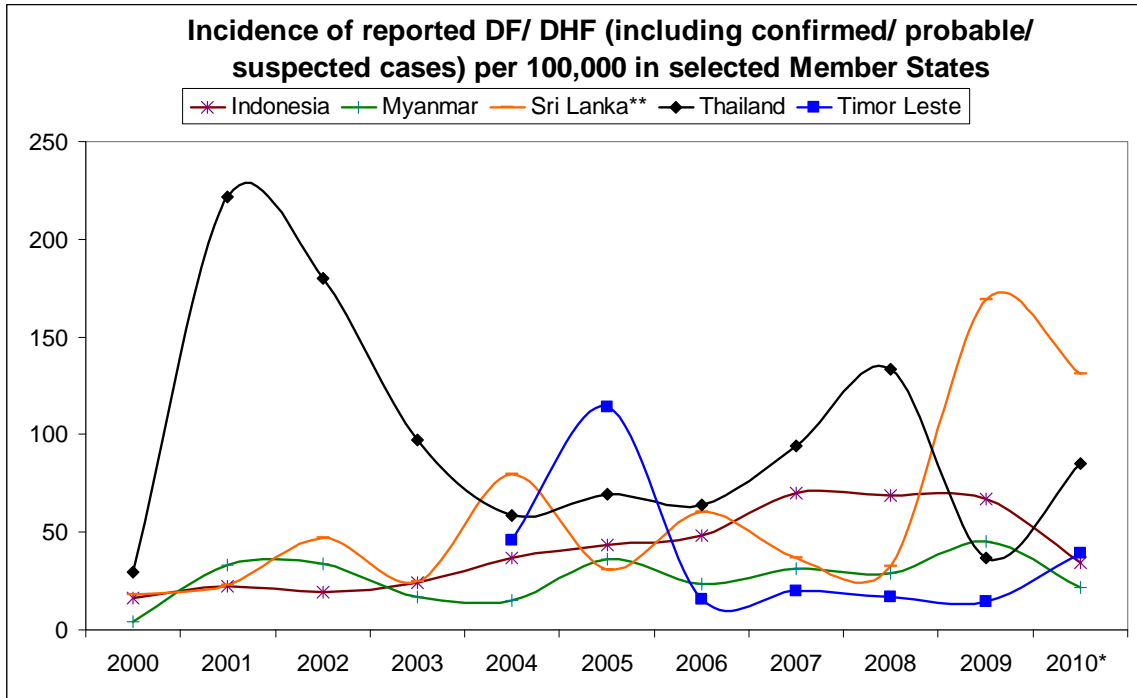


Figure 2: Incidence of reported confirmed dengue per 100,000 in Bangladesh and India

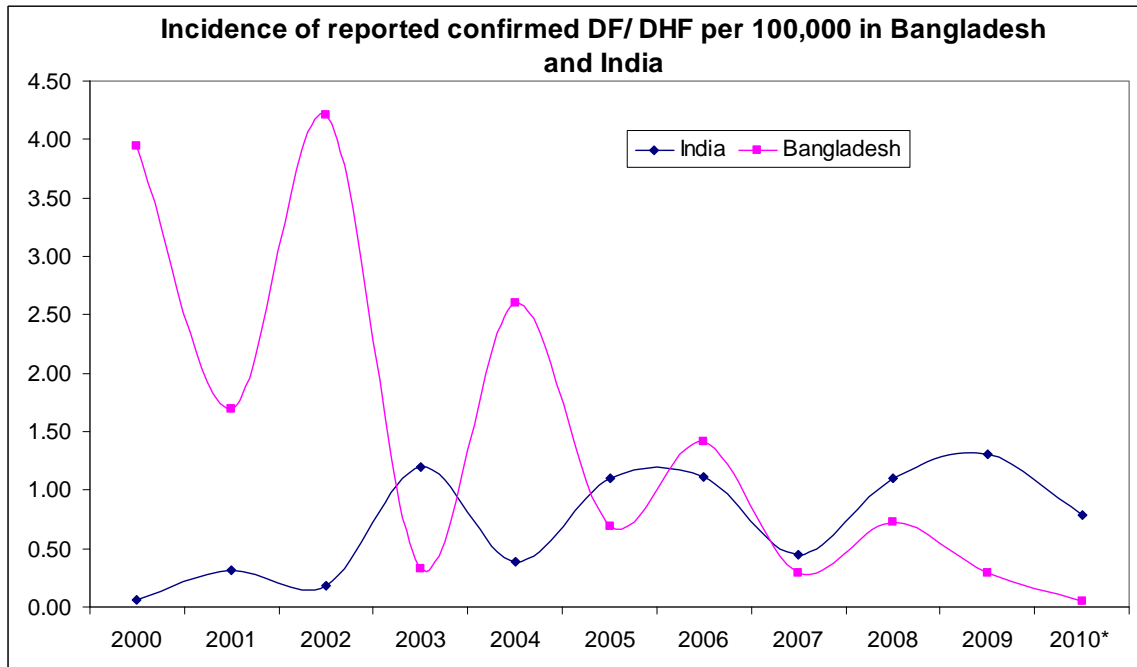
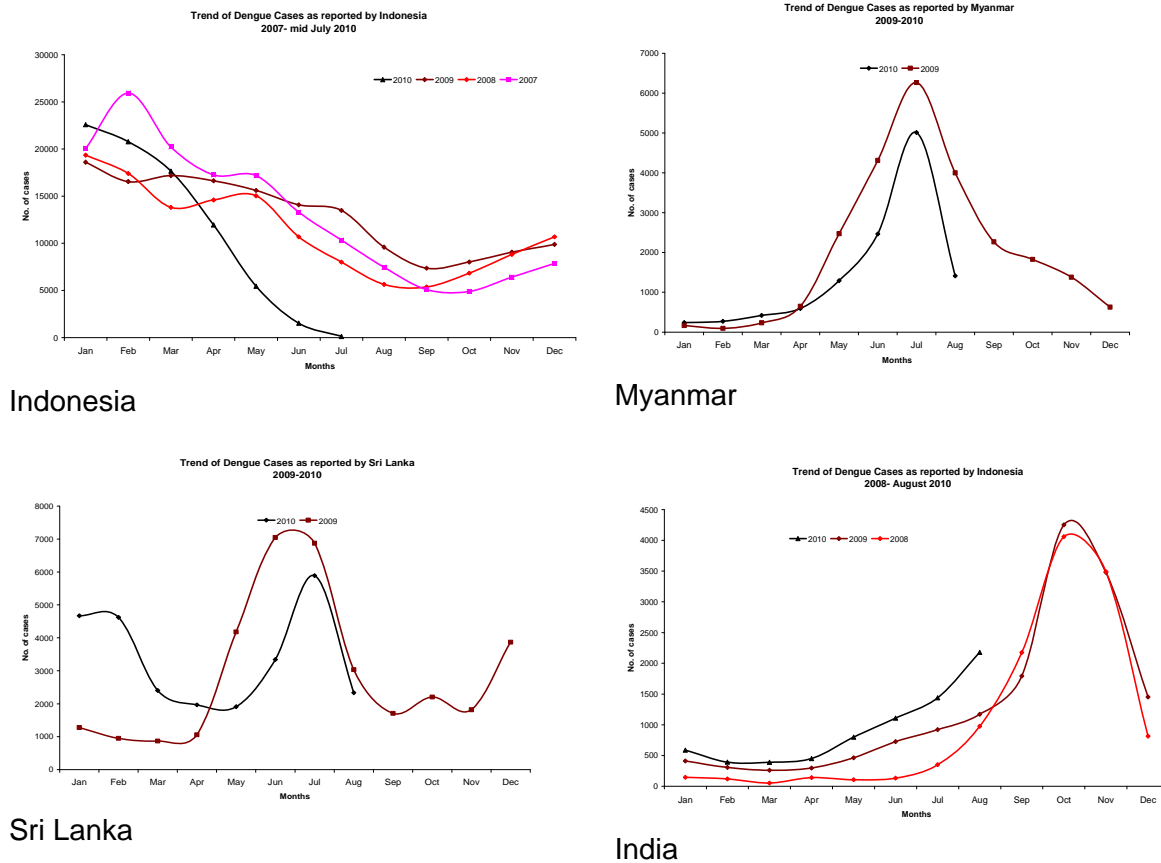


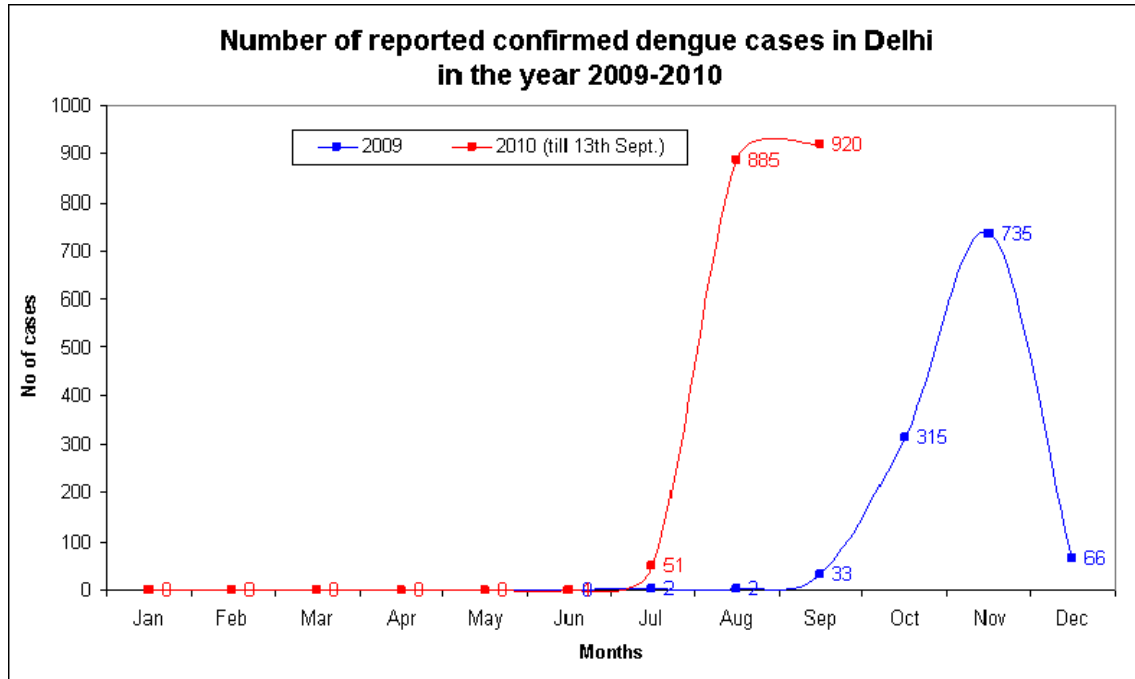
Figure 3: Seasonal trend of reported dengue (including confirmed/ probable/ suspected cases) per 100,000 in selected Member States



Outbreak of dengue in Delhi

Figure 4 shows the number of reported cases of dengue in Delhi, India in 2009 and 2010. Dengue cases have been reported from Delhi for many years. An outbreak of dengue was reported in 1996 with 10252 cases and 423 deaths, following which an increased number of cases was reported again in 2003 and 2006. In 2010, cases started rising in second week of July; approximately 60 – 70 cases are currently being reported daily and until 19th September, 2296 cases and 5 deaths had been reported. In comparison, in 2009, 1153 cases were reported with 3 deaths

Figure 4: Number of reported confirmed cases of dengue in Delhi, India 2009-2010



In response to these events, the South East Asia Regional Office of WHO is monitoring trends closely to determine if 2010 will turn out to have a greater burden of dengue. Dengue is considered a public health priority by WHO and for this reason, a bi-regional SEARO / WPRO Asia Pacific Dengue Strategic Plan (2008--2015) has been developed in consultation with member countries and development partners - as a first step in responding to the increasing threat. The plan aims to support countries to reverse the rising trend of dengue by enhancing their preparedness to rapidly detect, characterize and contain outbreaks, and to stop the spread to new areas.

Dengue and Climate Change

There is currently no clear evidence that climate change is driving an increase in cases of dengue. As described above, climate does play an important role in the epidemiology and spatio-temporal distribution of dengue and it is likely that the changes seen this year may be due to a complex interaction of temperature and rainfall, together with other factors. Increasing population density and greater mobility of populations (greater international travel) may also be important. However it is equally plausible that if climate

change does have some longer term effect, it will be to change the pattern, so that dengue may be seen in some new areas, but will also become more rare in places where it was previously common. At the moment, it is too difficult to make accurate predictions with any degree of confidence. Our ability to understand the complex interaction of dengue with environmental and climate changes will be improved through research, what is more important is that we strengthen our monitoring and response systems and build capacity for public health preparedness to ensure that any emerging threat is contained or mitigated.