Febrile Illness In Bangladesh

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Febrile Illness

- Febrile Illnesses are the most common cause of hospital admission in Bangladesh

- These illnesses contribute to considerable morbidity and deaths among both children and adults

- Diagnosis of febrile illness remains challenging as it is a common presentation of many infectious diseases

- Up to 80% of febrile illness cases remain undiagnosed\(^1\)

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Current Febrile Diseases in Bangladesh

Febrile illnesses Under National surveillance

- Malaria
- Dengue
- Tuberculosis
- Chikungunya
- Visceral leishmaniosis (kala-azar)

Febrile illnesses not under National surveillance

- Enteric Fever
- Leptospirosis
- Rickettsia

Undifferentiated/Unexplained fever in Bangladesh
Malaria

Malaria situation in 2016
Population at risk: 17.52 million
No. of endemic districts: 13
Total cases: 27,737, No. of deaths: 17
API: 1.58/1,000 population, Mortality rate: 0.10/100,000
Test positivity rate: 2.78%

Map: Thirteen malaria-endemic districts of Bangladesh

Figure: Epidemiological trend of malaria cases and deaths during 2007-2016

Source: Health bulletin, Ministry of Health and Family Welfare of Bangladesh, 2017
Dengue

- *Aedes aegypti* was the main vector responsible for the epidemic while *Aedes albopictus* was identified as potential vector in Chittagong.
- The prevalent serotypes are DENV1, DENV2, and DENV3, with the highest number of reported cases attributed to DENV3.
- The peak time for Dengue infection is July to October.

**Figure:** Distribution of dengue cases and deaths in Dhaka by year (2000-2017)

**Source:** Health bulletin, Ministry of Health and Family Welfare of Bangladesh, 2017
Tuberculosis

- The incidence and prevalence rates of all forms of tuberculosis in 2016 are 221 and 260 per 100000 people respectively.
- It is estimated that about 40 per 100000 people died of TB in the same year.
- From 2008 to 2016, a total of 5,258 multidrug-resistant TB patients had been enrolled for treatment.

**Source:** Health bulletin, Ministry of Health and Family Welfare of Bangladesh, 2017
Chikungunya

- *Aedes* mosquito is identified as the vector for chikungunya viruses.
- First outbreak in 2008 in Rajshahi and Chapainawabganj affecting 39 patients.
- Outbreak in 2011 in Dohar, Dhaka affecting 196 patients.
- Sporadic cases occurred between 2013-2016.
- The largest outbreak was recorded in 2017.
- From 1,480 households, 2,956 suspected cases with chikungunya infection were identified.

**Table:** Number of patients admitted in different hospitals of Dhaka for suspected chikungunya, 2017

<table>
<thead>
<tr>
<th>Name of hospital</th>
<th>Number of patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dhaka Medical College Hospital</td>
<td>4864</td>
</tr>
<tr>
<td>Mitford Hospital</td>
<td>2348</td>
</tr>
<tr>
<td>Shaheed Suhrawardy Medical College Hospital</td>
<td>2558</td>
</tr>
<tr>
<td>Shaheed Mansur Ali Medical College Hospital</td>
<td>9</td>
</tr>
<tr>
<td>Mugda Medical College Hospital</td>
<td>131</td>
</tr>
<tr>
<td>Dhaka Shishu Hospital</td>
<td>93</td>
</tr>
<tr>
<td>United Hospital</td>
<td>522</td>
</tr>
<tr>
<td>Apollo Hospital</td>
<td>197</td>
</tr>
<tr>
<td>Delta Hospital</td>
<td>255</td>
</tr>
<tr>
<td>Other private hospitals/physicians</td>
<td>547</td>
</tr>
<tr>
<td>IEDCR</td>
<td>2290</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>13814</strong></td>
</tr>
</tbody>
</table>

**Source:** Health bulletin, Ministry of Health and Family Welfare of Bangladesh, 2017
Visceral leishmaniosis (kala-azar)

- Around 31 million people are at risk and 26 districts of Bangladesh are endemic for kala-azar.
- The ICT-based rK39 is being used for the diagnosis of kala-azar both in the field and hospitals.

**Figure:** Trends of kala-azar cases (2000-2016)

- Around 31 million people are at risk and 26 districts of Bangladesh are endemic for kala-azar.
- The ICT-based rK39 is being used for the diagnosis of kala-azar both in the field and hospitals.

**Source:** Health bulletin, Ministry of Health and Family Welfare of Bangladesh, 2017
Enteric Fever

- Bangladesh is situated in a region where Typhoid fever is highly endemic

- Children aged <5 years bear a large burden (10.5/1000 person-years)

- Multi-drug resistant strains were identified in approximately 15% cases of all age group patients

- However, the proportion of *Salmonella* spp. among febrile illness patients in Bangladesh is still unknown

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Leptospirosis

A study in Kamlapur (2001), reported that about 8.4% febrile illness are caused by Leptospira infection\(^1\)

Another Study in Chittagong (2007-2010), Bangladesh revealed that high proportions of febrile illness (leptospirosis, typhoid fever) are potentially being misdiagnosed as malaria\(^2\)

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Rickettsia

- A study in Chittagong (2014-15) diagnosed 16.8% scrub typhus and 5.8% murine typhus among febrile illness patients\(^1\)

- Deaths occurred in 4% of the cases; case-fatality rates were 4% each for scrub typhus and murine typhus

- Overall, 23.1% of patients had evidence of treatable rickettsial illnesses

Neglected Febrile Illness

A study in Dhaka detected Rickettsia, Coxiella, Leptospira, Bartonella, and Chikungunya virus infections among febrile patients presenting at hospitals in Bangladesh\(^1\).

**Figure**: Presentation of pathogens among the febrile patients throughout the year from December 2008 to November 2009, at Dhaka

Undifferentiated/Unexplained Febrile illness

Table: Summary of Clinical Diagnoses and deaths

<table>
<thead>
<tr>
<th>Diagnostic Category</th>
<th>All</th>
<th>MPI Poor</th>
<th>MPI Non-Poor</th>
<th>Poor vs. Non-Poor</th>
<th>P-value*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n = 527 (18 deaths)</td>
<td>n = 269 (16 deaths)</td>
<td>n = 258 (2 deaths)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Respiratory Tract Infection</td>
<td>110 (21%)</td>
<td>56 (21%)</td>
<td>54 (21%)</td>
<td>0.351</td>
<td></td>
</tr>
<tr>
<td>Central Nervous System Infection</td>
<td>93 (16%)</td>
<td>61 (23%)</td>
<td>32 (12%)</td>
<td>0.002</td>
<td></td>
</tr>
<tr>
<td>Enteric Fever</td>
<td>78 (15%)</td>
<td>31 (12%)</td>
<td>47 (18%)</td>
<td>0.037</td>
<td></td>
</tr>
<tr>
<td>Urinary Tract Infection</td>
<td>55 (10%)</td>
<td>24 (9%)</td>
<td>31 (12%)</td>
<td>0.258</td>
<td></td>
</tr>
<tr>
<td>Malaria</td>
<td>38 (7%)</td>
<td>28 (10%)</td>
<td>10 (4%)</td>
<td>0.004</td>
<td></td>
</tr>
<tr>
<td>Dengue Fever</td>
<td>34 (6%)</td>
<td>10 (4%)</td>
<td>24 (9%)</td>
<td>0.012</td>
<td></td>
</tr>
<tr>
<td>Febrile Convulsion</td>
<td>23 (4%)</td>
<td>12 (4%)</td>
<td>11 (4%)</td>
<td>1.000</td>
<td></td>
</tr>
<tr>
<td>Hepatobiliary Infection</td>
<td>23 (4%)</td>
<td>12 (4%)</td>
<td>11 (4%)</td>
<td>1.000</td>
<td></td>
</tr>
<tr>
<td>Gastrointestinal Infection</td>
<td>10 (2%)</td>
<td>7 (3%)</td>
<td>3 (1%)</td>
<td>0.340</td>
<td></td>
</tr>
<tr>
<td>Sepsis</td>
<td>9 (2%)</td>
<td>5 (2%)</td>
<td>4 (2%)</td>
<td>1.000</td>
<td></td>
</tr>
<tr>
<td>Soft Tissue Infection</td>
<td>8 (2%)</td>
<td>6 (2%)</td>
<td>2 (1%)</td>
<td>0.286</td>
<td></td>
</tr>
<tr>
<td><strong>Undifferentiated Febrile Illness</strong></td>
<td><strong>46 (9%)</strong></td>
<td><strong>17 (6%)</strong></td>
<td><strong>29 (11%)</strong></td>
<td><strong>0.063</strong></td>
<td></td>
</tr>
</tbody>
</table>

Table: Major causes of morbidity among FDMN people


2Rohingya Refugee Crisis in Cox’s Bazar, Bangladesh: Health Sector Bulletin, 26 February 2018
Thank you