### **Chunk 1: Health Rights, Infrastructure, and Expenditure**

### Bangladesh is one of the most populous countries in the world, as well as having one of the fastest growing economies. Consequently, Bangladesh faces challenges and opportunities in regards to public health. A remarkable metamorphosis has unfolded in Bangladesh, encompassing the demographic, health, and nutritional dimensions of its populace.

### The Human Rights Measurement Initiative finds that Bangladesh is fulfilling 89.3% of what it should be fulfilling for the right to health based on its level of income. When looking at the right to health with respect to children, Bangladesh achieves 95.0% of what is expected based on its current income. In regards to the right to health amongst the adult population, the country achieves only 94.2% of what is expected based on the nation's level of income. Bangladesh falls into the "bad" category when evaluating the right to reproductive health because the nation is fulfilling only 78.8% of what the nation is expected to achieve based on the resources (income) it has available.

### The total expenditure on healthcare as a percentage of Bangladesh's GDP was 2.48% in 2019. In the parliamentary budget of 2017–18, the budget that was set for the health sector was 16 thousand 203 crore 36 lakhs taka. There are 3 hospital beds per 10,000 people. The general government expenditure on healthcare as a percentage of total government expenditure was 7.9% as of 2009. Citizens pay most of their health care bills as out-of-pocket expenditures as a percentage of private expenditure on health: 96.5%. The doctor to population ratio is 1:2,000 and the nurse to population ratio is 1:5,000.

### Hospitals in Bangladesh play a vital role in the country's healthcare system, providing essential medical services to the population. With a growing emphasis on improving healthcare infrastructure, Bangladesh has made significant progress in expanding access to hospital facilities across the country. According to the World Health Organization (WHO), as of 2021, there were approximately 5,146 hospitals in Bangladesh, including both public and private institutions. These hospitals offer a wide range of medical specialties and services, ranging from general healthcare to specialized treatments. The government has also implemented various initiatives to enhance hospital quality and promote patient safety.

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### **Chunk 2: Chikungunya & Dengue Outbreaks**

Chikungunya is one of the neglected tropical diseases of Bangladesh. It is a viral disease which is transmitted to humans by infected mosquitoes – including Aedes aegypti and Aedes albopictus, which is present in Bangladesh. It is an RNA virus that belongs to the alphavirus genus of the family Togaviridae. It was first described during an outbreak in southern Tanzania in 1952. Since then, CHIKV has been reported to cause several large-scale outbreaks in Africa, India, Southeast Asia, Western Pacific and Americas. In the South-East Asia region, Chikungunya virus is maintained in the human population by a human-mosquito-human transmission cycle that differs from the sylvatic transmission cycle on the African continent. In Bangladesh, the first recognized outbreak of Chikungunya was reported in 2008 in two villages in the northwest part of the country adjacent to the Indian border. Two small-scale outbreaks were documented in rural communities in 2011 and 2012.

A massive outbreak of Chikungunya occurred in Bangladesh during the period of April–September 2017, putting over two million people in Dhaka, the capital, at risk of infection. A recent research study involving 1,326 cases was conducted between July 24 and August 5, 2017, to investigate the clinical profiles, economic burden, and quality of life of those affected by Chikungunya. Severe arthropathy is the most consistent clinical feature of chikungunya infection.

In this study, all patients experienced Arthralgia (100%), while other common symptoms included Pain before fever (74.66%), Skin Rash (69.6%), Itching (60.9%), Headache (77.3%), and Myalgia (69.3%).

The severity of certain clinical manifestations of Chikungunya can depend on several factors, including age, gender, immune status, genetic predisposition, and co-morbid conditions. Children (under 15 years) tended to exhibit a higher proportion of oligo-arthralgia and skin rash. However, morning stiffness, and the severity and duration of pain were proportionally lower among children compared to other age groups. Joint swelling was most commonly observed in elderly patients (60 years and above), while adults (30–59 years) experienced the highest severity of pain. Chikungunya infection also led to a significant loss of productivity due to absenteeism from work.

Between January 1 and August 19, 2023, Bangladesh reported 97,476 cases of dengue, resulting in 466 deaths. This outbreak affected 37.6% women and 17.8% children under 18. The World Health Organization noted that dengue had spread to all 64 districts in Bangladesh. In Cox's Bazar, specific Rohingya camps were identified as hotspots for dengue cases. Approximately 126,000 deaths, accounting for 13.5% of all deaths, were caused by tobacco in Bangladesh in 2018. Nearly 1.5 million adults were suffering from diseases attributable to tobacco use, and around 61,000 children were suffering from diseases due to exposure to secondhand smoke. The direct healthcare costs attributable to tobacco use amounted to BDT 83.9 billion annually. Furthermore, the annual productivity loss due to morbidity and premature mortality from tobacco-related diseases was estimated to be BDT 221.7 billion. Thus, the total annual economic cost amounted to BDT 305.6 billion ($3.61 billion), which was equivalent to 1.4% of Bangladesh's GDP in 2017–18.

## **Chunk 3: Maternal & Child Health Policies + Mortality**

In the following decades, the Bangladesh government's policy concentrated on population growth reduction, perceiving that a consistent maternal and child health-based family planning program would help achieve development goals. The Health and Population Sector Strategy (HPSS) was developed in 1997. The following seven strategies were included in the HPSP (MOHFW, 1998):

1. Focus on Emergency Obstetric Care for reducing maternal mortality
2. Provision of Essential Obstetric Care/Basic maternity care services for the promotion of "good practices," including early detection and appropriate referral of complications
3. Addressing the needs of women through a woman-friendly hospital initiative
4. Communication for behavior change and development
5. Involvement of professional bodies
6. Stakeholder participation
7. Promotion of innovation

This policy document serves as a theoretical framework for what is necessary and expected for the improvement of the maternal health situation at the national level and includes maternal services such as emergency obstetric care, antenatal care, skilled attendance, postnatal care, neonatal care, and family planning.

In 1990, the number of under-5 deaths, infant deaths, and neonatal deaths in Bangladesh was 532,193, 368,085, and 240,316 respectively. By 2017, these numbers significantly reduced to 99,608 for under-5 deaths, 82,240 for infant deaths, and 56,341 for neonatal deaths. The major causes of under-5 child mortality were identified as preterm birth (18%), intrapartum complications (13.8%), pneumonia (13.5%), sepsis (11%), congenital issues (9.1%), injury (7.9%), diarrhea (7.1%), measles (1.9%), and other causes accounting for 15.9%.

A study on risk factors of infant mortality, utilizing data from the 2014 Bangladesh Demographic and Health Survey, revealed that the risk of mortality in Bangladesh is 1.5 times higher for smaller babies. Additionally, infant mortality rates in Bangladesh are lower for the urban population and for higher economic classes, primarily due to their greater access to health services.

The Millennium Development Goal (MDG) 5 aimed to reduce the maternal mortality rate (MMR) in Bangladesh from 574 to 143 deaths per 100,000 live births by 2015. While there has been a significant reduction in MMR, the progress was not sufficient to meet this specific target. Globally, the MMR was estimated at 385 deaths per 100,000 live births in 1990, while in Bangladesh, it was 563. By 2015, Bangladesh's MMR had decreased to 176 per 100,000 live births, compared to the global average of 216. The total number of deaths of women during pregnancy or within 42 days of termination dramatically fell from 21,000 in 1990 to 5,500 in 2015 in Bangladesh. In 2014, data on maternal health indicators in Bangladesh showed that 36% of women aged 15–49 received postnatal care within two days after giving birth. Antenatal care coverage for at least four visits was 31%, and the proportion of births attended by skilled health personnel was 42%. Caesarean sections accounted for 23% of births. Among women aged 20–24, 36% had given birth before the age of 18. Additionally, 37% of women aged 15–49 with a live birth delivered in a health facility, and 31% of births had their first postnatal check-up within the first two days.

📘 **Chunk 4: COVID-19 & Air Pollution Impact in Bangladesh**

COVID-19 reached Bangladesh in March 2020. The IEDCR confirmed the first cases on March 8. A nationwide lockdown was imposed from March 23 to May 30. Cases surged in April, with a 1,155% increase, the highest in Asia at the time. By May, all districts were affected. On June 13, Bangladesh surpassed China in reported cases; by July 5, it crossed 160,000 cases and 2,000 deaths. Testing was limited early on and centralized at IEDCR in Dhaka.

Oxygen demand rose to 200 tonnes/day. Authorities were urged to forecast medical oxygen needs via DPHE and IEDCR coordination.

In 2021, the leading cause of death was Stroke (80.2 per 100,000), followed by Ischaemic heart disease (58.5), and COVID-19 (46.3). Other causes: COPD (30.6), TB (25.6), Diabetes (18.8), Road injuries (18.4), Diarrhea (18.3), Lower respiratory infections (16.1), and Preterm complications (15.7).

For females: Stroke (88.1), Ischaemic heart disease (50.2), COVID-19 (32.7), TB (24.3), Diabetes (24.4). For males: Stroke (72.3), IHD (67.6), COVID-19 (60.8), Road injury (34.1).

Overall: 63.1% of deaths were from noncommunicable diseases, 26.9% from infectious/maternal/nutritional causes, 6.9% from injuries, and 3.1% from COVID-19 outcomes.

The 2024 SoGA report states air pollution caused 235,000 deaths in Bangladesh in 2021. 19,000 of these were children under five. It’s linked to low birth weight, asthma, pneumonia. Over 40% of respiratory deaths in children under five were attributed to air pollution.

Globally, air pollution caused over 700,000 child deaths under five in 2021, with 500,000 due to indoor cooking fuels. In Bangladesh, 15,000 died from ozone-related COPD—3rd highest globally after India and China.