Future Health Systems
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FHS India Research Brief

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# How healthy are the children of the Indian Sundarbans?

## Findings from the first Sundarbans Health Watch

*Over one third of children between 0-5 years of age are chronically malnourished in the Patharpratima block of the Indian Sundarbans.*

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IIHMR JAIPUR

The health situation of children in the Indian Sundarbans couldn't be more precarious. Facing chronic malnutrition as well as a high prevalence of easily preventable but highly communicable diseases, access for children to health services in the region is complicated by the rough terrain and the winding tidal rivers of the deltaic region. Increasingly frequent climatic shocks, such as flooding and cyclones, threaten to tip the balance and create an even more difficult health situation for all – but especially children – in the Sundarbans.

The key question is, what can be done to improve the health situation of children in the Sundarbans, a region with a population of roughly 4.5 million people? To tackle this, FHS designed a series of studies into a representative block in the Sundarbans – Patharpratima – to get a better picture of the health problems being faced, the current state of the health system, and how people access and make decisions about accessing those services.

This briefing starts by outlining the several methodologies employed in the study. It then considers both the demand and supply sides for child-centred health services in the block. It concludes with recommendations for beginning to repair the fractured health system there.

### Table 1: Nutritional status of children (0-5 years) (N = 1332)

| | | Percentage of undernourished children | | | | | |
|---|---|---|---|---|---|---|---|
| | | Stunted | | Wasted | | Underweight | |
| | | < -2 SD | < - 3 SD | < -2 SD | < - 3 SD | < -2 SD | < - 3 SD |
| **Total** | | 35.2 | 11.7 | 25.2 | 8.6 | 38.6 | 12 |
| **Sex** | Male | 35.5 | 12.9 | 25.2 | 8.3 | 37.6 | 11.6 |
| | Female | 35 | 10.5 | 25.3 | 8.9 | 39.6 | 12.5 |
| **Location** | Deltaic | 32.9 | 11 | 23.9 | 7.6 | 37.5 | 10.7 |
| | Non-deltaic | 38.5 | 12.8 | 27.2 | 10 | 40.2 | 13.9 |
| **Age** | 0-12 months | 18.3 | 4.9 | 21.7 | 6.5 | 18.9 | 5.9 |
| | 13-24 months | 41.3 | 15.1 | 17 | 8.5 | 33.2 | 8.9 |
| | 25-36 months | 45.8 | 13.5 | 27.3 | 10.4 | 48.9 | 16.1 |
| | 37-60 months | 37.6 | 13.5 | 30.9 | 9 | 49 | 15.5 |
| **Self-perceived poverty*** | Poor | 43.8 | 16.4 | 25 | 5.8 | 44.2 | 14.4 |
| | Less poor | 33.6 | 10.9 | 25.3 | 9.8 | 37.5 | 11.6 |

** Poor: those who reported to have no full square meal every day or any day during the last seven days, Less poor: those who reported to have a full square meal every day during the last seven days*

## Methodology

Four parallel surveys were conducted in 30 randomly selected villages in the Patharpratima block of South 24 Parganas district in spring 2012. Of the roughly 331,000 in the block, around 12% are children aged 0-5. The block was selected because it reflects a mix of deltaic and non-deltaic habitations as well as a mix of ethnicities – with scheduled castes, scheduled tribes, and religious minorities comprising almost 40% of the population. It is also one of six blocks of 19 in the Indian Sundarbans identified as most vulnerable to climatic shocks (IIHMR, 2010).

Surveys conducted include: A household survey covering about 1200 households selected through a two-stage stratified sampling; An exit interview of 253 outpatients in selected government facilities and Rural Medical Practitioner (RMP) clinics; In-depth interviews with selected RMPs; and In-depth interviews with facility-in-charge of government health and nutrition care facilities. The studies were supplemented with: a mapping of formal and informal health care providers; a rapid ethnographic study in two villages; and several case studies on RMPs and their clients.

## The demand side: Health status of Sundarbans' children

The study collected basic health information of 1503 children six years old and under from across the block. Families in the deltaic regions faced significantly higher economic and climatic difficulties. A large majority (80%) of households in the block lived in rudimentary earth and thatch houses (*kuccha*), which provide little protection against climatic shocks. Many of the families surveyed were farmers (64%), while a small number (5%) collected items from the forest.

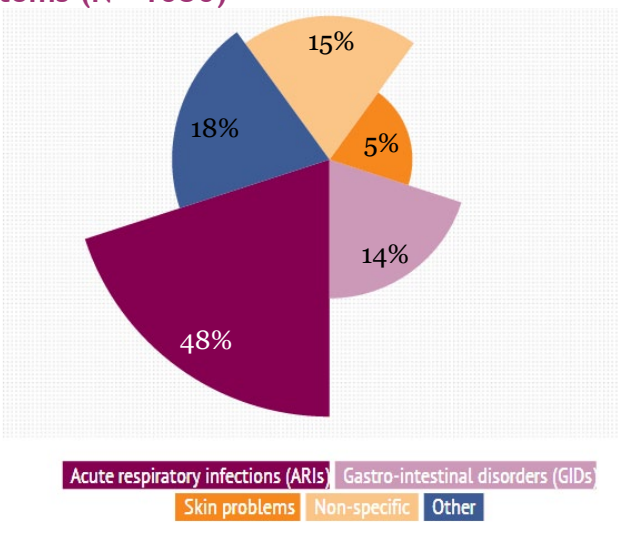
There were two areas of disease burden for the children of the Sundarbans: under-nutrition, and acute communicable diseases.

### Nutrition

Over one third of children between 0-5 years of age are chronically malnourished (i.e. stunted or wasted), with that rate nearly doubling for girls between the ages of 1-3 years old (Table 1). Rates of acute under-nutrition (i.e. low weight for age) are similar, with 39% of children between 0-5 years old underweight.

Children in the 1-3-years-old age range are suffering most, with nearly half of those stunted, as compared to 18% of children under 1 year old. Surprisingly, rates of under-nutrition are lower in the deltaic regions – perhaps because they have been more supported by non-governmental organisations (NGOs). The weight of the mother was a strong predictor of child under-nutrition, which is worrying given that mothers with a body-mass index (BMI) below 18.5 comprised a little over a third of sampled households.

### Figure 1: Distribution of cases of under-five moribity based on reported symptoms (N= 1030)



### Disease prevalence and incidence

The vicious cycle of under-nutrition and morbidity, especially for children, is well established. And this block of the Sundarbans is no different. About two-thirds of the children sampled had suffered from at least one ailment in the last thirty days.

The most common diseases reported for children by their mothers (see Figure 1) were acute respiratory infections (ARIs) and gastro-intestinal disorders (GIDs). This is consistent with confirmed diagnoses of hospitalisations of children during the same period.

This represents a worse situation than the rest of the district (which sits outside of the Sundarbans) and the state of West Bengal. The proportion of children in the block who had at least one fever during the two weeks prior to the survey was almost ten percentage points higher than the state or the district averages (DLHS-3). The incidence of diarrhoea was also considerably higher in the block compared to the state average from DLHS-3, even though the survey was carried out in a relatively low-prevalence season (April- May).

There was also significant reporting of cases of skin diseases and rashes (5%). This may be related to the increasing salinity of the tidal streams, as reported in the Bangladeshi Sundarbans (CCC, 2009).

## The supply side: Health services in the Sundarbans

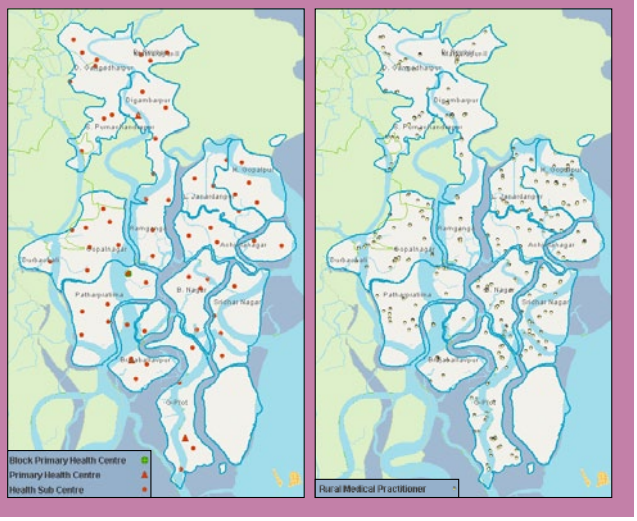
This section details the availability of health services in the Patharpratima in both the public and non-state sectors. Figure 2 shows their geographic distribution. Most services are sought from and provided by the non-state sector in the block. A lack of infrastructure is a major reason for this. Those living in the deltaic regions of the block would need to walk, take boats and buses to reach the nearest public facilities, a journey that can be prohibitively expensive.

### Public sector services

The public health care system in the block delivers preventive and curative services at multiple levels and through outreach workers such as Auxiliary Nurse and Midwives (ANM), Accredited Social Health Activists (ASHA), and Anganwadi Workers (AWW). Facilities range from sub-centres (SCs), to primary health centres (PHCs), and block-level primary health centres (BPHC).

The SCs in the block are the only facility type adequate in number, based on the Indian Public Health Standard (IPHS). The shortage of frontline workers (ANM, AWW, ASHA) is also obvious (Figure 3) – about 28% of the required staff were not available at the time of the survey. The Indrapur PHC, located in the southernmost deltaic *gram panchayat* of the block, was running without a doctor at the time of the survey.

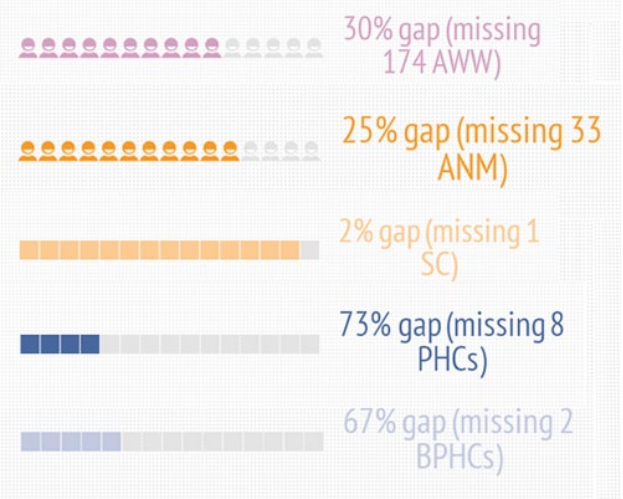
**Figure 2: Mapping of health services in Patharpratima**




Beyond staffing, the quality of care in the facilities was highly dependent on infrastructure (e.g. consistent electricity supply and number of beds). The BPHC in Madhavnagar is the apex health care unit in the block. Serving 331,000 across 17 islands, it is chronically over-subscribed, forcing a substantial portion of sick children to travel out of the block for treatment.

Overall, the survey indicated that, while preventative measures were mostly sufficient, curative services for children were lacking.

**Figure 3: Availability of health workforce and facilities in Patharpratima block (actual compared to IPH Standards)**



## Parallel services

With the gap in public services, a number of parallel services have sprung up in the block, comprised of both informally trained rural medical practitioners (RMPs) and NGOs.

### *Rural Medical Practitioners (RMPs)*

The mapping found 376 RMPs in the block, about one for every 900 people – many more than the one trained doctor. This helps explain why RMPs were the first port of call for child health services for over 85% of people in the block.

RMPs don't tend to have formal training, but over 60% indicated some past experience working with qualified professionals. This has led to questions on quality of care given by these providers. The survey found that, for example, 35% of the child patients were given medicines with no physical examination (compared to 13-16% in of public facilities). Previous studies have indicated good knowledge by RMPs of modern medicines and their purposes, but their ability to properly diagnose and the incentives to rationally prescribe these drugs is lacking. They often over-prescribe antibiotics and steroids, which can provide short-term relief but not a long-term cure.

### *Non-government Organisations (NGOs)*

There are many NGOs operating in the Sundarbans, but few work exclusively on health. NGO initiatives can be broadly classified as: (1) Public-Private Partnerships (PPP), based on a contractual agreement between the state government and select NGOs, and (2) donor-assisted initiatives, where an NGO implements a specific project. Two important examples in the first category include: (a) mobile health clinics (MHC), and (b) community-based delivery centres (CDC). For the latter, a good example is Terre des Hommes' Special Nutrition Units (SNU). Across both categories, the uptake of NGO services is far below the estimated need.

## Priority issues to address in the Sundarbans health system

1. **Malnutrition and curative care:** While coverage of antenatal care and immunisation are comparatively strong in the Sundarbans, there is an urgent need to address malnutrition and curative care for common ARIs and GIDs for children. This is particularly true for children aged between 1-3 years olds to support them through the critical first 1000 days.
2. **Infrastructure gaps:** Within the public health system, infrastructure does not currently meet Indian Public Health Standards. Where facilities do exist, they do not have consistent electricity access, which is particularly problematic for cold storage of medicines and vaccines. Outside of the health system, access to care is challenging owing to a lack of transportation infrastructure. Projects, such as private-public partnerships, that address these gaps should be prioritised.
3. **Disaster risk management and climate change adaptation:** The Sundarbans is particularly vulnerable to climatic shocks like flooding and cyclones. More projects that work to build resilience in the health system to these changes are required. Existing projects, such as one installing flood-resistant toilets that stop the spread of disease, are strong starting points. These projects should make use of local innovative knowledge and include strong community participation.
4. **Integrate parallel health sector:** Integrating parallel services into the health system, either directly (e.g. through formal referral mechanisms) or indirectly (e.g. through involving parallel service providers in decision-making processes) is critical – as are projects that improve the quality of care given by informal providers (e.g. through training and franchising).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This briefing was prepared by Barun Kanjilal, Jeff Knezovich and Shibaji Bose and is based on research from the *The Sundarbans Health Watch Report, Series: 1*, which was compiled by the the entire FHS India team.

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