Need for Hardware in Healthcare and Climate Action

This document captures key unmet public health needs borne out of climate change in India, specifically drawing references from research conducted in the states of **Karnataka, Odisha and Assam**.

Furthermore, it suggests **relevant medical devices** and hardware, innovations which could help steer towards improved health outcomes, thus making last mile communities resilient to climate change

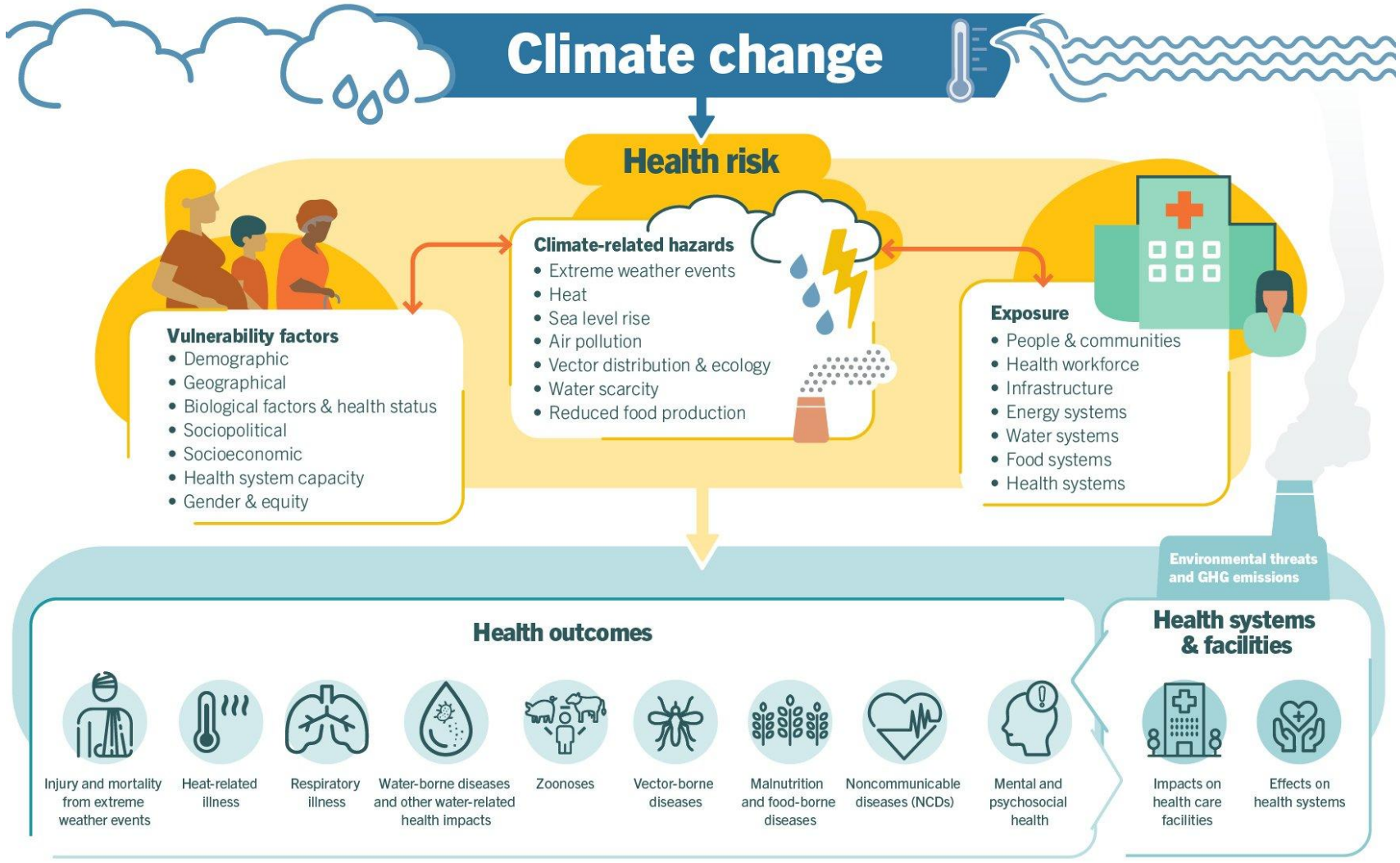
SELCO Foundation

June 2024

There are demonstrated links between climate change and health risks, systems and outcomes

(Right) An overview of climate-sensitive health risks, their exposure pathways and vulnerability factors. Climate change impacts health both directly and indirectly, and is strongly mediated by environmental, social and public health determinants.

WHO



Climate change has a direct impact on the transactional costs of supplying and accessing healthcare

Climate change is not only about disasters but also about the **slow, cumulative pressure that has been building on public health systems.**

Heat stress, water scarcity, supply chain breakdowns are increasing costs to access healthcare.

Rural, tribal and remote areas across India, South Asia, and Africa are the most vulnerable.

48,000+
Cases on heat strokes reported in India between March to June 2024 (Source)

10%
Hospitals in India could shut down by 2100 due to climate change (Source)

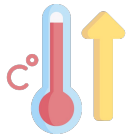
What are these transaction costs associated with healthcare?

At an Individual Level
Travel, Out-of-Pocket expenditure, loss of workdays or labour, overnight stays etc.

At a Systemic Level
Infrastructural damages, medicine wastage, logistical failures etc.

Healthcare costs on both the demand and supply side are affected by climate change

DEMAND SIDE (At an Individual Level)



Heat Stress

Extreme heat often discourages travel for medical consultations, leading to **delayed treatment, additional expenses and worsened health outcomes**. High temperatures have been proven to cause **preterm and stillbirths and low birth weights.**

Furthermore, the **health of rural women**, taking majority household responsibilities, is **disproportionately affected** due to extreme heat.

Water Stress

Poor access to good quality water or the complete lack thereof, contributes to spikes in diarrhea and typhoid as well as cases of UTIs and dehydration, increasing the burden of public healthcare facilities.

Nutritional Burden

Climate induced **crop failures and food insecurity** contributes to child malnutrition and anemia. Families end up **paying more for supplemental nutrition and anemia related healthcare.**

Vector Diseases

Diseases like **Dengue, Malaria and Chikungunya** area spreading to remote hilly areas as well, thereby **increasing the OOP costs for diagnosis, medication etc**. for the communities living there.

Access Constraints

Transport to health clinics to avail medical facilities during extreme summer or heavy monsoon can become **twice as expensive due to fuel shortages, landslides, infrastructure failures.**

SUPPLY SIDE (At a Systemic Level)

Cold Chain Disruptions

Frequent power cuts can **disable cold storage appliances** and lead to spoilage of vaccines at health centres

Medical Waste

Higher percentage of expired medications due to **improper storage during summer months**, especially for rural health centres with inadequate infrastructure.

Service Disruptions

During heat waves or excessive rainfall, the delivery of essential medicines to remote areas is delayed due to **waterlogging, overheating of vehicle or rain/heat damaged roads.**

Human Resources

Limitations in working hours of ASHA's during extreme heat or cold conditions particularly affecting immunization outreach and delivery of maternal care. **Unavailability of health workers** during floods and extreme climate events.

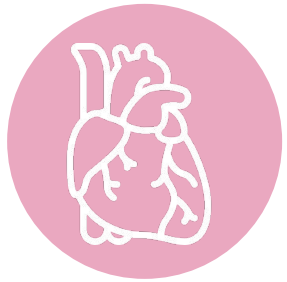
Energy Costs

Public health facilities often have to **rely on diesel generators for cooling and other health services,** leading to a steep increase in their monthly operational expenditures.

Transaction costs and adverse health risks due to climate change can be mitigated with innovative hardware. Some technologies can also help cope to the changing climate and extreme weather events.

Hardware needs in climate and health can thus be broadly categorised in four categories:

Solutions to combat rise in communicable diseases and other afflictions directly impacted or caused by climate risks and extreme events



Solutions to mitigate non-communicable diseases which are exacerbated due to the stress associated with climate change and extreme events

Solutions for individuals at high risk, who have a greater risk of disease with lack of access to treatment and fatality during extreme events

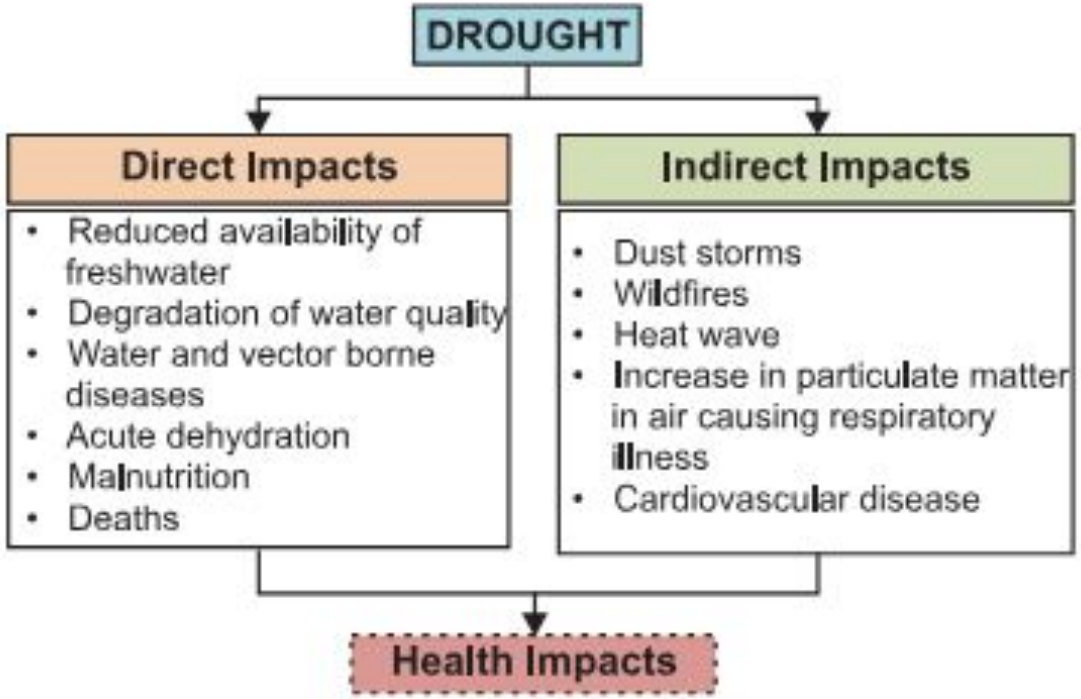
Solutions like decentralized climate smart health tech which can help health institutions and staff in low resource settings be better equipped to deal with emergencies, new health burdens and case surges.

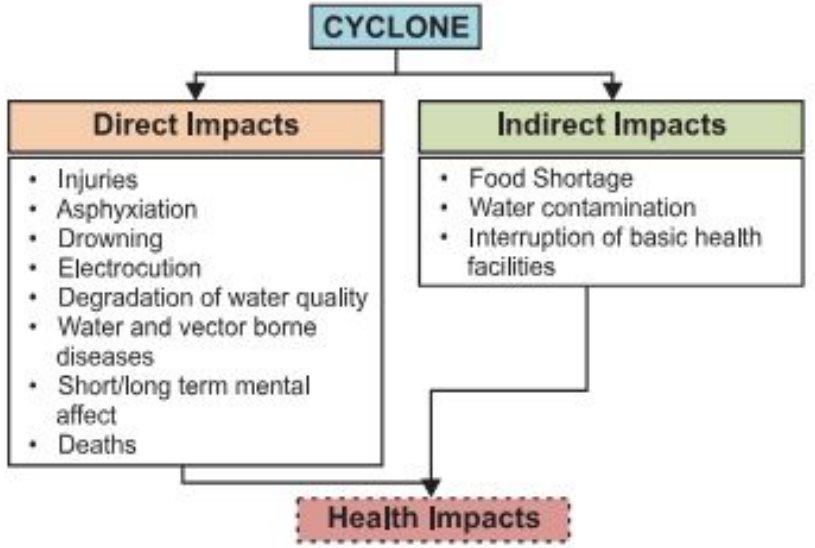
The National Institute of Disaster Management (NIDM) in India released in 2021, a training manual to raise greater awareness on the key health burdens challenges exacerbated by climate change in the Indian context

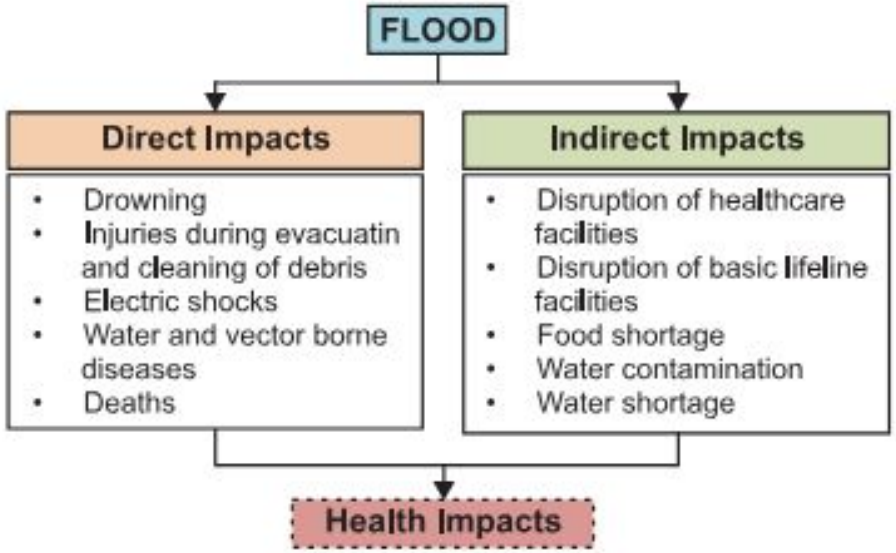
It broadly categorised climate linked events into two, both presenting specific health burdens

- **Hydro-meteorological disasters & events** like floods, droughts and cyclones
- **Temperature related disasters** like heatwaves and cold waves

Below provided are examples of linkages NIDM draws with regards to hydro-meteorological events.







A major area of concern w.r.t disasters is communicable diseases, where in last mile diagnostics are essential for prompt screening, followed by disease control, rehab and prevention

The NIDM further goes on to classify the key epidemic burdened linked to disasters into three groups, along with list of diseases and diagnostics needed for each of these categories

	 **Waterborne Diseases**	 **Vectorborne Diseases**	 **Direct Contact and Airborne Diseases**
COMMON DISEASES	**Diseases like Cholera, Leptospirosis, Hepatitis, Bacillary Dysentery, Typhoid Fever**	**Diseases like Malaria, Dengue Fever, Japanese Encephalitis and Yellow Fever**	**Diseases like Pneumonia, Measles, Bacterial Meningitis, Tetanus, TB, Leprosy Influenza, Hepatitis A and B, Conjunctivitis. Herpes Simplex, pertussis**
TECH NEEDS	Direct microscope observations, serological assays, blood cultures, rapid antibody tests, etc. Water purification for last mile disaster prone areas	Microscope observations, rapid diagnostic assays, serum antibody testing, serological assays, etc.	Respiratory secretion cultures, examination of cerebrospinal fluids, clinical representations, etc. Sterilization methods to control spread of infections

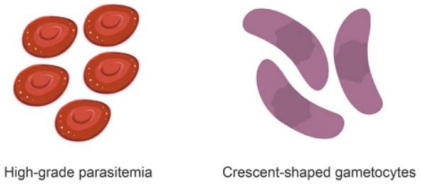
Odisha is a malaria-endemic state.

It contributes to 40% of the malaria burden in the country.

YoY basis, there is a 78.34% rise (Sep' 22 vs Sep' 23) in total positive cases (TPC); compared to the last three-year average, there is a 34.26% increase.

Blood smear examination to detect malaria parasite and rapid diagnostic test has been the mainstay of malaria detection, however, two species are easily missed in the slide examination. This leads to challenges in treatment and is a threat to elimination (target 2030). Sub Patent malaria could be threat and underlying factor for anemia and LBW infants in endemic areas,

Odisha made more than 70 Lakhs blood smear slides last year until Sep 23



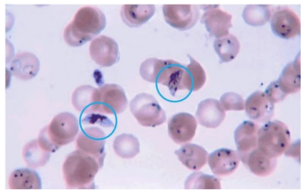


Photo Credits:
Left – WHO,
Right – Med Mastery

It is essential to improve the diagnosis of malaria both patent and sub patent, along with the identification of rarer Plasmodium species in Odisha at the primary care level. Screening of pregnant ladies in endemic pockets of Odisha for sub-patent malaria infection. Should be prioritized.

A sub-microscopically or sub patently infected individual is someone who is detectable by molecular methods but is undetectable by microscopy or microscopy/RDT, respectively

Subpatent malaria can cause low birth weight babies. It can persist as a silent reservoir of malaria infection and can contribute to the persistence and disease transmission of malaria. So, this problem presents at the interface of pregnancy, childbirth, and malaria. The blood examination of Hb estimation during ANC presents an opportunity to detect sub-patent malaria.

The prevalence of Japanese Encephalitis in Assam, underscores the urgency of targeted interventions.

Assam reported highest number of cases of JE in 2018. JE has a cyclical peak every few years. The disease has high fatality rate and affects children the most. It is a vaccine preventable disease, yet it results in high fatalities, especially among the younger population.

Lack of access to efficient cold chains

Doctors in the region suspect that the cold chain to transport the vaccines to remote areas may have been compromised at some places. “By the time, the vaccine reaches a remote village in Sibasagar and Jorhat, where there are practically no roads, it is possible that their efficacy decreases because it is difficult to maintain a cold chain for such a long time,” said a government doctor who did not want to be identified.

Bora’s story, who was infected with Japanese Encephalitis during an outbreak in 2017

When Bora fell ill, her family brought her to the mini-primary health centre. **Dr Bhaskar Jyoti Saikia, who manages the centre, is the only doctor for 10,000 people in the area**.

With the threat of encephalitis and Bora displaying quite a few early symptoms, Saikia wasted no time in collecting her blood sample. **The test kit to detect Japanese encephalitis was however only available at Jorhat Medical College in Jorhat town. Although barely 40 kilometers away, getting to the town was problematic.**

Their village is located on the banks of the river Jhanji, a south bank tributary of the Brahmaputra. The village is protected from the river by a dyke **and the only way to reach there from either of the two districts is by taking the road on top of the dyke. The recent incessant rains had made large stretches of the road unmotorable.**

Since the health centre has no vehicle at its disposal, Bora’s family and Saikia pitched in to rent one that could transport the blood sample to the medical college. Bora finally got her tests results based on which Saikia treated her to a full recovery.

Source scroll.in

Point-of-care devices, and diagnostics play a critical role in these cases.

In the below table, health conditions are mapped to states, also showing relevance of health services through the continuum of care for these conditions.

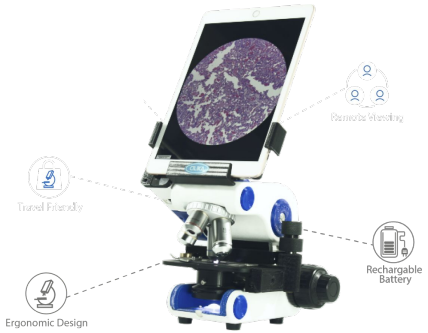
KA	AS	OD	Health Condition/ Diseases	Prevention/ prophylaxis	Screening	Diagnosis	Management	Follow-up	Referral	Rehab
Y	Y	Y	Tuberculosis		Y	Y				
		Y	Malaria			Y				
Y		Y	Filariasis		Y	Y	Y			Y

Hardware innovation particularly for diagnostics can greatly aid health delivery

Malaria

Unspecified Malaria-B54; Plasmodium falciparum malaria, unspecified- B50.9; Subpatent Malaria;

- Microscopy with AI
- Devices easing the process of blood smear collection
- Innovations/improvements in rapid diagnostic tests
- Use of truelab (truenat device) for PCR/molecular tests for malaria at PHCs
- Satellites & drones to discover mosquito breeding sites
- Drones for spraying larvicide



The world's first smartphone integrated microscope

CILIKA™ Portable by Medprime is designed for extensive traveling. It has high-quality imaging, battery backup and a lightweight body which makes it suitable for field visits, medical camps and seminars.

Filariasis

- Microscopy with AI
- Haematology analyser for DC
- Immunochromatography test for filaria antigen
- Devices easing the process of blood smear collection
- Use of trunaat device for PCR/molecular tests for filariasis at the PHC

Tuberculosis

Pulmonary TB- Active-A15.0

- CBNAAT machines
- Rapid test kits
- Point-of-care biomarker tests (no sputum)
- Energy Efficient X Rays

Pulmonary TB - Latent- Z22.7

Interferon gamma release assay (T.Spot.TB test) cy-tb

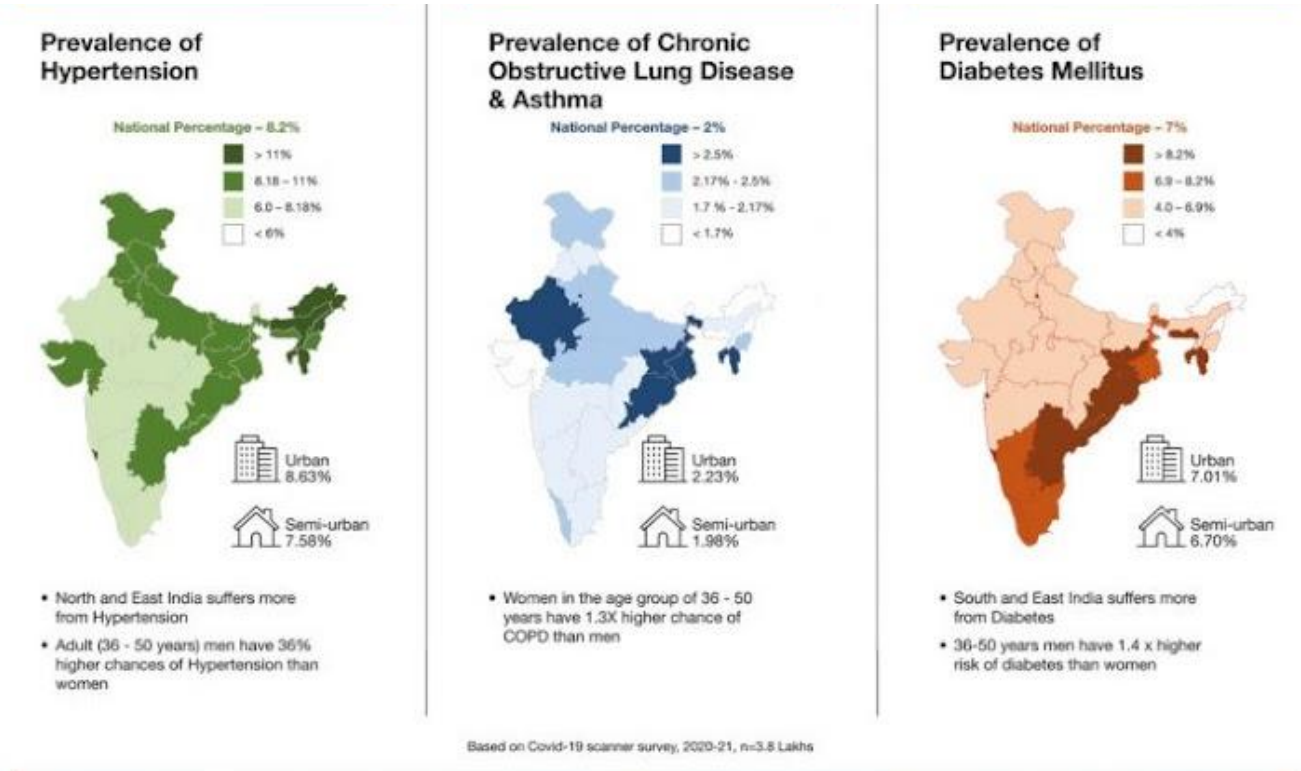
Two major global crises of our time, climate change and the epidemic of NCDs, are intertwined. They erode gains in health and development and the quality of life, hitting poor and marginalized people the hardest.

There is increasing strong evidence for a relation between increased morbidity and mortality from NCDs and extreme weather events, including heat waves, and also increasingly unhealthy diets and food and water insecurity. Climate change also poses serious risks to mental health.

Source: WHO

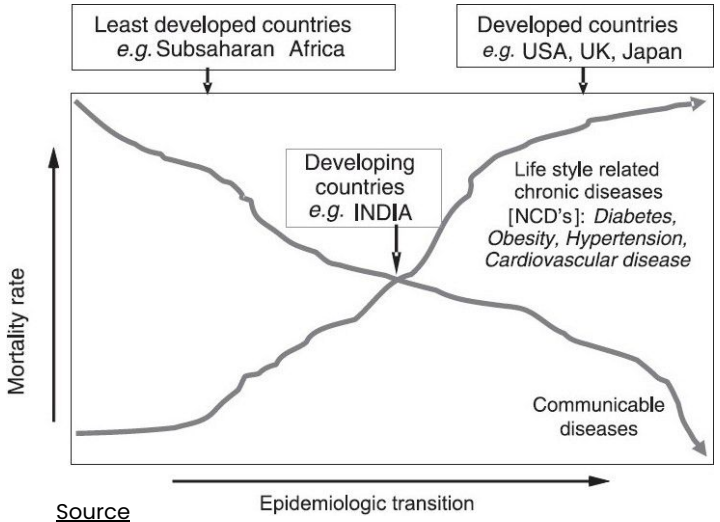
In India, NCDs kill six million people every year of which around 23 per cent are between 30-70 years of age

Source: Health of the Nation 2022, Apollo Hospitals



65% The share of NCDs in the overall all disease burden in the Karnataka state

In Karnataka, the epidemiological transition can be said to be completed. The disease burden is predominantly comprised of NCDs



Source

Indicators		India	Karnataka
Blood sugar level - high or very high (>140 mg/dl) or taking medicine to control blood sugar level (%)	Women	13.5	14
	Men	15.6	15.6
Elevated blood pressure (Systolic ≥140 mm of Hg and Diastolic ≥90 mm of Hg) or taking medicine to control blood pressure (%)	Women	21.3	25
	Men	24	26.9
Screening for cancer in women	Cervical	1.9	0.5
	Breast	0.9	0.4
	Oral	0.9	0.5
Tobacco use (above 15 years and any tobacco) (%)	Women	8.9	8.5
	Men	38	27.1
Alcohol consumption above 15 years (%)	Women	1.3	0.9
	Men	18.8	16.5

Source: NFHS 5

Common NCDs, such as cardiovascular diseases, cancers, chronic respiratory conditions, and diabetes (including complications), constitute the highest burdens in Karnataka and is a key priority for the state government.

- The state government is planning specialised initiatives for Hypertension and diabetes management with medication in 8 districts on a pilot basis.
- The state is also prioritising mental and neurological health conditions, including the problem of dementia among the old age population.
- Eye care appears to be another priority area.

Addressing NCDs across states and types of diseases, requires a focus on screening, diagnosis and consistent follow up

KA	AS	OD	Health Condition/ Diseases	Prevention/ prophylaxis	Screening	Diagnosis	Management	Follow-up	Referral	Rehab
		Y	CVS, Hypertension, dyslipidaemia	Y	Y	Y		Y	Y	Y
Y		Y	Diabetes	Y	Y	Y		Y	Y	Y
Y	Y	Y	Cancer (male)		Y	Y		Y	Y	Y
Y	Y	Y	Cancer (female)		Y	Y		Y	Y	Y
	Y		Digestive Diseases, fatty liver	Y	Y	Y	Y	Y	Y	
Y			Chronic Respiratory Diseases		Y	Y	Y	Y		Y

Screening and diagnostic devices for NCDs are a key priority hardware need across states

CVS, Hypertension, Stroke

Essential Hypertension-I10

- Digital BP Apparatus (Solar)
- Aneroid Sphygmomanometers
- Oscillatory Blood Pressure Watch
- Wrist BP Monitor
- PPG based wearables

Atherosclerosis-I70 (Coronary Artery Disease), Hyperlipidemia - I78.5m, Hypertensive chronic kidney disease-I12

- Health Kiosk/Lab on Bike/POC Analyzer with Lipid Profile Tests, ECG, Serum Creatinine, Microalbuminuria, Macroalbuminuria Tests
- Non-invasive Radiology
- Wearable ECG
- iPPG/thermal imaging (TI)/optical fiber sensing/piezoelectric sensor based Monitoring Hemodynamics

Diabetes

Type 2 Diabetes Mellitus-E11

- Non Invasive Glucose Test
- Improved Strip based Glucometers
- Health Kiosk/Lab on Bike/POC Analyzer with Glucose, HbA1c tests

Type 2 Diabetes Mellitus with retinopathy - E11.31; E11.35;

- Non Mydriatic Retinal on-phone or Other cameras
- AI to diagnose

Type 2 Diabetes mellitus with diabetic nephropathy-E11.21, E11.40

- Digital, handheld refractometer
- Health Kiosk/Lab on Bike/POC Analyzer with Serum Creatinine, Microalbuminuria, Macroalbuminuria Tests
- PPG based wearables/devices for testing Autonomic Neuropathy changes (Sweat Tests
- Sudomotor Axon test
- Tech aids for diabetic neuropathy and rehab

Chronic Respiratory Illnesses

- Digital spirometry
- Tech aids for pulmonary rehab

Cancers

Ca Breast-Z12.31

Thermal Imaging/
Piezoelectric detection

Ca Cervix--C53.9

- Portable, digital solution for cervical visualization, documentation and teleconsultation
- VIA VILI with telemedicine

Digestive Diseases, Fatty Liver

- Chemistry Analyser for LFT & Lipid Profile
- Health Kiosk/ATM for some of the tests
- Fibroscan kind of Transient Elastography

For individuals already at risk due to poor health in harsh environments, like pregnant mothers in rural areas, specialised care is essential

The Assam state has the highest maternal mortality ratio (MMR) – 195 in the country, as against 97 of the national average. Haemorrhage, Hypertension, and sepsis are the leading direct causes of maternal mortality while anaemia is the most important indirect cause.

Parameter	India	Assam
Total unmet need for Family Planning	9.4	14.2
Mothers who have had at least 4 ANC visits	58.1	50.7
Institutional births	88.6	84.1

It is our priority to increase the number of delivery points as much as possible; to make sure that no region of our district, in fact the whole state, is left without access to a nearby delivery point. We have to make available proper infrastructure and human resources at PHCs and sub-centers … It would be great if you can find some inexpensive intrapartum monitoring devices to help identify complications early. It will help in the remote delivery points.

Dr. Mohitosh Banerjee, Jt. Director (Health), Kamrup Rural, Assam

There is a huge problem in tracking of all cases and maintenance of registers, especially so in cases of TB and ANC (antenatal care)… Where are the high risk pregnancies located? How to reach their homes?…. Since they are not finding it easy to come for follow-up, we have to go to them. This is especially true for districts with hard to reach populations…technology can help solve this. Maintenance of digital registers, mapping locations and tracking of the high risk pregnancies using these will help.

Senior Medical Expert, Guwahati, Assam

Accordingly, the National Health Mission (NHM) proposes three broad programmatic measures to tackle high MMR in the state

Focus on ANC and High-Risk Pregnancies (HRPs)

Line listing, Hb checks and follow-up, universal screening for HIV, syphilis and haemoglobinopathies, and for gestational diabetes in aspirational districts

Reduce home deliveries and increase institutional deliveries

Although state reports 84 % of all deliveries as institutional (national average 88.9%), there are pockets with high share of home deliveries. The state plans to saturate the availability of Skilled Birth Attendants (SBAs) in pockets with high home deliveries.

Despite higher levels of institutional deliveries, the quality of care remains a problem.

The state plans to strengthen the availability and quality of institutional deliveries; quality accreditation of labour rooms, functionalisation of the first referral units for Emergency Obstetric Care (EmOC)/Comprehensive emergency obstetric care (CEmOC), blood storage centres and implementation of Maternal Death Surveillance and Response Systems

> In my area the problem is that my referral center is Nalbari Medical College but they don't have a blood bank. Blood is available in the District Hospital only. They are in opposite directions. So when I'm referring any patient with risk of hemorrhage I ask them to send one person to District Hospital to arrange and bring blood. Lot of time gets lost. If it is an emergency then it is almost impossible to arrange blood.
>
> **Dr. Pranjal Hazarika, Medical Officer, Mini PHC, Dhamdhama, Nalbari, Assam**

Malnutrition and Anaemia is another major factor that can exacerbate diseases in situations of climate change.

In Odisha, undernutrition remains the most prevalent risk factor.

A higher prevalence of wasting and stunting among children has been reported in several districts of Odisha vis a vis Indian averages

Sickle cell disease is reported from several districts in Odisha.

The health system's response to screening for the disease is minimal. In the simultaneous presence of malaria, sickle cell anaemia brings the highest risk of death, especially to young patients.

Anemia, in general, is also a major problem across Odisha

The state government has launched a special initiative, "Anemia Mukt Lakshaya AbiyaN (AMLAN)', where several government departments have targeted women and school-aged children to detect anaemia. The aim is to achieve a 10% annual reduction in the prevalence of anaemia. Other major problem areas in the state are TB case detection and NCD screening.

KA	AS	OD	Health Condition/Diseases	Prevention/prophylaxis	Screening	Diagnosis	Management	Follow-up	Referral	Rehab
	Y	Y	PPH			Y	Y		Y	
Y	Y	Y	High Risk Pregnancies (ANC)		Y	Y		Y	Y	
	Y	Y	Anaemia		Y	Y		Y	Y	
	Y	Y	HTN, pre-eclampsia, eclampsia		Y	Y		Y	Y	
	Y	Y	Complications of Labour				Y	Y	Y	
	Y		PP Sepsis			Y	Y			
		Y	Neonatal Sepsis			Y	Y			
		Y	Asphyxia	Y		Y	Y			
		Y	Respiratory Infections	Y		Y	Y		Y	
		Y	Low Birth Weight				Y			
	Y	Y	Vaccine-Preventable Diseases	Y						
	Y		Diarrhoea			Y	Y			
	Y		Pneumonia			Y	Y		Y	
Y	Y	Y	Anaemia		Y	Y	Y	Y	Y	
	Y	Y	Severe and Moderate Acute Malnutrition		Y	Y		Y	Y	

Care During Pregnancy & Childbirth

- Early diagnosis of pregnancy with Nischay Kits
- Community screening of BP, sugar, Hb, weight, temperature, Foetal heart sounds, fundal height;
- Identification of high-risk pregnancies - History & Examination Checklist.
- Screening at HWC Height, HIV, Hep-B, syphilis, malaria; USG
- ANC: Confirmed diagnosis of high-risk pregnancy at HWC Delivery point
- Essential Newborn care: need for POCs, wearables - which help detect hypoglycemia in LBW babies - and send an alarm to Care-giver or mother to feed the baby;
- PNC home visit for history & examination checklist, BP, Temperature
- Post-pregnancy rehab for gestational diabetes mellitus, post-event rehab for haemorrhages, abortions, and other complicated deliveries.

There is a health system challenge of effectively screening high risk pregnancies at ANC visits in all 3 states Assam, Odisha, and Karnataka leading to challenges in effectively screening high-risk pregnancies (HRP) at the population level.

There is a need for improved identification during ANC, regular follow-up, and timely referrals to ensure optimal maternal and fetal health outcomes.

Ensuring safe deliveries, particularly the effective and active management of labor, for average-risk women in Assam and Odisha presents a significant challenge. At present, most cases, including uncomplicated (not a high-risk) pregnancies also getting referred to the higher centers and many PHCs and SCs are not equipped or health professionals not competent (confident) to perform normal deliveries.

This includes refining existing interventions like skilled birth attendance, integrating technologies for early identification of risks, and addressing training and resource gaps to ensure consistent and high-quality care during childbirth.

Ante-Natal Screening for High Risk Pregnancy

Gestational Hypertension-O13; Eclampsia, Pre-eclampsia-O15.9; O14

- Digital BP Apparatus
- Aneroid Sphygmomanometers
- Rapid Tests for Albuminuria
- Oscillatory
- Blood Pressure Watch
- Wrist BP Monitor
- PPG based wearables
- Ambulatory BP Monitor + Holter Test

Anemia complicating pregnancy-O099.019

- Improved Strip Based Hemometers
- POC Testing devices
- Portable Hematology Analyzer
- Non-Invasive Hemometers (SpHb)
- Nail Bed or Conjunctival Paleness measuring devices; Serum Ferritin

Gestational Diabetes Mellitus- O24.4

- Non Invasive Glucose Test
- Improved Strip based Glucometers
- Health Kiosk/Lab on Bike/POC Analyzer/ANC Kit with Glucose, HbA1c tests

Complication occurring during labor and delivery

Various, including Post Partum Haemorrage

- Intrapartum Fetal & Maternal Monitoring Devices
- Ambulatory Blood Pressure Monitors (including PPG device)
- Uterine Balloon / Vacuum
- Devices & Infra for Delivery Points -Suction Apparatus, Labour Beds, Calf/Leg Support, Power Back Up, Lighting, LED Lamps
- Devices & Infra for NCC- Baby Warmers; Oxygen Therapy, Ventilation Support (Ambu Bags, bubble CPAP)
- Devices for life support during transport to referral unit (Non-Pneumatic Anti Shock garment; Baby Warmer; Ventilation Support)
- Mobile Ambulance/Referral Van with all equipment;

PP Sepsis

Sepsis following an obstetrical procedure-O86. 04

- Effective sterilization methods and energy efficient autoclaves
- Early detectors of markers of Sepsis- C-Reactive Protein
- Heart Rate Variability Tracker
- Autonomous Nervous System Changes Tracker
- Temperature Monitoring Device
- Upgrading Sterilization of Delivery Point

Anemia

Anemia complicating pregnancy -O099.019

- Non-invasive, energy efficient and cost effective Hb Checks
- Covered in High Risk Pregnancies. Improved Strip Based Hemometer
- POC Testing devices for Hb & Serum Ferritin
- Portable Hematology Analyzer
- Non-Invasive Hemometers (SpHb)
- Nail Bed or Conjunctival Paleness measuring devices
- Peripheral Smear reading AI

To be able to combat healthcare emergencies and address public health efficiently, institutions need to be better equipped and provide comfortable environments to healthcare staff and patients

From an overall service delivery viewpoint, Assam faces significant supply-side challenges

- There are challenges in **making HWCs fully functional by ensuring the availability of necessary diagnostic tests.** Thus, the 14th Common Review Mission noted that at SC-HWC and PHC-HWC levels, **only 5 and 10 diagnostic tests are available as compared to mandated 14 and 63 tests**, respectively.
- Primary and secondary health facilities are **unprepared for the service delivery, especially in tribal areas**, as measured in terms of the availability of trained human resource and supplies (drugs and equipment).
- Coupled with this, the population (demand-side) faces severe challenges in **physical access to care due to inaccessible distances, seasonal floods, poor public transport**, and other problems at the point of care.

I am referring all suspected cancer cases right now, we have no way of screening or diagnosing....we are unable to diagnose skin conditions, trauma & fracture and many more...if you ask for a wish list I would like to have as many diagnostic tests available at my PHC, including X-ray for trauma cases.

Dr. Pranjal Hazarika, Medical Officer, Mini PHC, Dhamdhama, Nalbari, Assam

There is no point talking about hi-fi technology like drones and all in Assam's primary health system. The pressing need is in improving the availability of diagnostic tests and diagnostic devices at the primary level. Once the patient has come to the PHC or sub center we must be able to diagnose and treat there itself, as much as possible...once we refer them to a higher center they lose interest...they cannot afford to take another day off, as we all know.

Dr.Mintu Dewri Bharali, Assistant Professor, Gauhati Medical College

To address supply-side readiness, Odisha reports measures like telemedicine and teleradiology besides AMA clinics for increasing the availability of specialized care.

Further, the state government implements the NIDAN scheme for free diagnostics services in public health facilities, from medical colleges to sub-centers in all districts.

We have many problems. So, you can read news about diarrhea cases, air pollution, diabetes complications, and heatwaves all at the same time in same place. Health care facilities become overwhelmed in a short span of time. We need technologies that can help make some quick decisions because healthcare workers posted in nearest facilities feel underconfident in treating those patients and refer them to the higher facilities. Even a basic intervention can be lifesaving before referral, but they won't even do that and simply refer.

Public Health Worker in Odisha

Availability of diagnostics and medicines by government supply has increased in past several months. We have also seen an increased outpatient flow. The OPD timings are in now two shifts, early morning, and late afternoon. A solar power backup helps us a lot in keeping the things running, for example fridge, lights, hot water, and sterilization equipment. We can not solely rely on grid supply to maintain these services.

Public Health Worker in Odisha

Thank you!
For more information,
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