

Dr Nishant Sagar

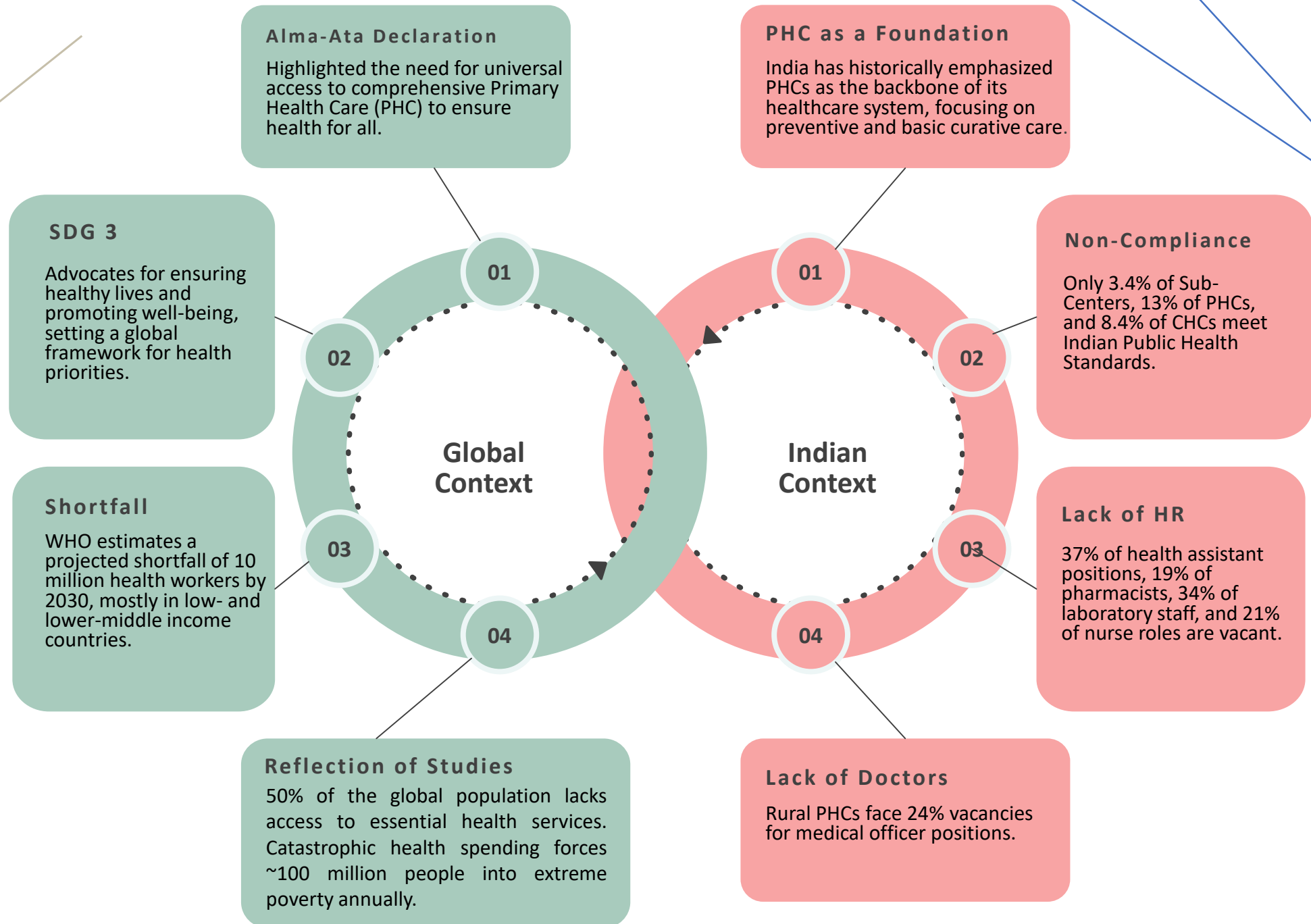
Dr. Nishant Sagar serves as the AVP and Team Leader – Bihar Health Systems Digitization under Mukhyamantri Digital Health Yojana at Rodic Consultants, with over 17 years of experience in health systems strengthening and public health leadership. He has held key roles in renowned organizations including the National Health Authority, Ministry of Health and Family Welfare, Government of India, Confederation of Indian Industry (CII), Piramal Foundation, National Health Mission (NHM), etc.

Dr. Sagar's work spans health policy, digital health innovation, and implementation of large-scale public health programs, etc. His research has been published in esteemed national and international journals, and he has contributed chapters to academic books. He also serves as a guest faculty and research mentor at leading institutions such as the Tata Institute of Social Sciences (TISS), Mumbai, India.

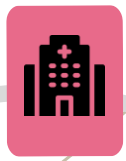
Strengthening Health Systems through Digital Innovation : BHAVYA

**Dr Nishant Sagar, PhD
Rodric Consultants Pvt Ltd, India**





KEY CHALLENGES IN UTILIZATION OF HEALTH SERVICES



Shortage of Facilities

- Insufficient to meet growing demands
- Rural areas facing the brunt
- Overburdening



Drug Procurement & Utilization

- Inefficiencies in procurement storage, and distribution
- A study revealed overall availability of medicines is less than 50%



Adherence of Guidelines/Norms

- Poor compliance
- Insufficient training,
- Lack of accountability mechanisms



Lack of Basic Amenities

- A report found that 1 in 5 health care facilities lacks sanitation services.
- Unsafe environment for patients and staff.



Inadequate Infrastructure

- Outdated infrastructure
- Insufficient space limiting service quality,
- Minimal digital systems.



Performance in SDG Indicators

- Slow progress on Health-related SDGs

Bihar Health Application Visionary Yojana for All (BHAVYA)

BHAVYA is a pioneering digital health initiative under the Mukhvi Mantri Digital Health Yojana, Bihar, designed to digitalize Bihar's health ecosystem at scale.

Unified healthcare interface
improving **coordination and transparency**

Integration with legacy applications
for last-mile reach

Aims to achieve **Universal Health Coverage** and **Primary Health Care**



SCOPE OF IMPLEMENTATION OF BHAVYA

Coverage

 **12+ Cr.**
population

 **38 districts**

DH
SDH
RH
CHC
PHC
APHC
HSC

 **13000**
healthcare facilities
(low to high levels of care)



Design, Develop,
Implement, Train,
Operate & Maintain
(2 years of implementation,
3 years of O&M)

Scope



Hospital Information
Management
System



ABDM
Support and
Roll-out



Integration with
existing systems



Change
Management



Health
Analytics and
Advisory



Operations &
Maintenance

ABDM Status

- **HFR:** 99.40% approved
- **Doctors' HPR:** 83.2% verified
- **Nurses' HPR:** 92.12% verified

Value Delivered



ABDM (M1, M2 & M3)
compliant HIMs solution

HPR & HFR creation &
validation



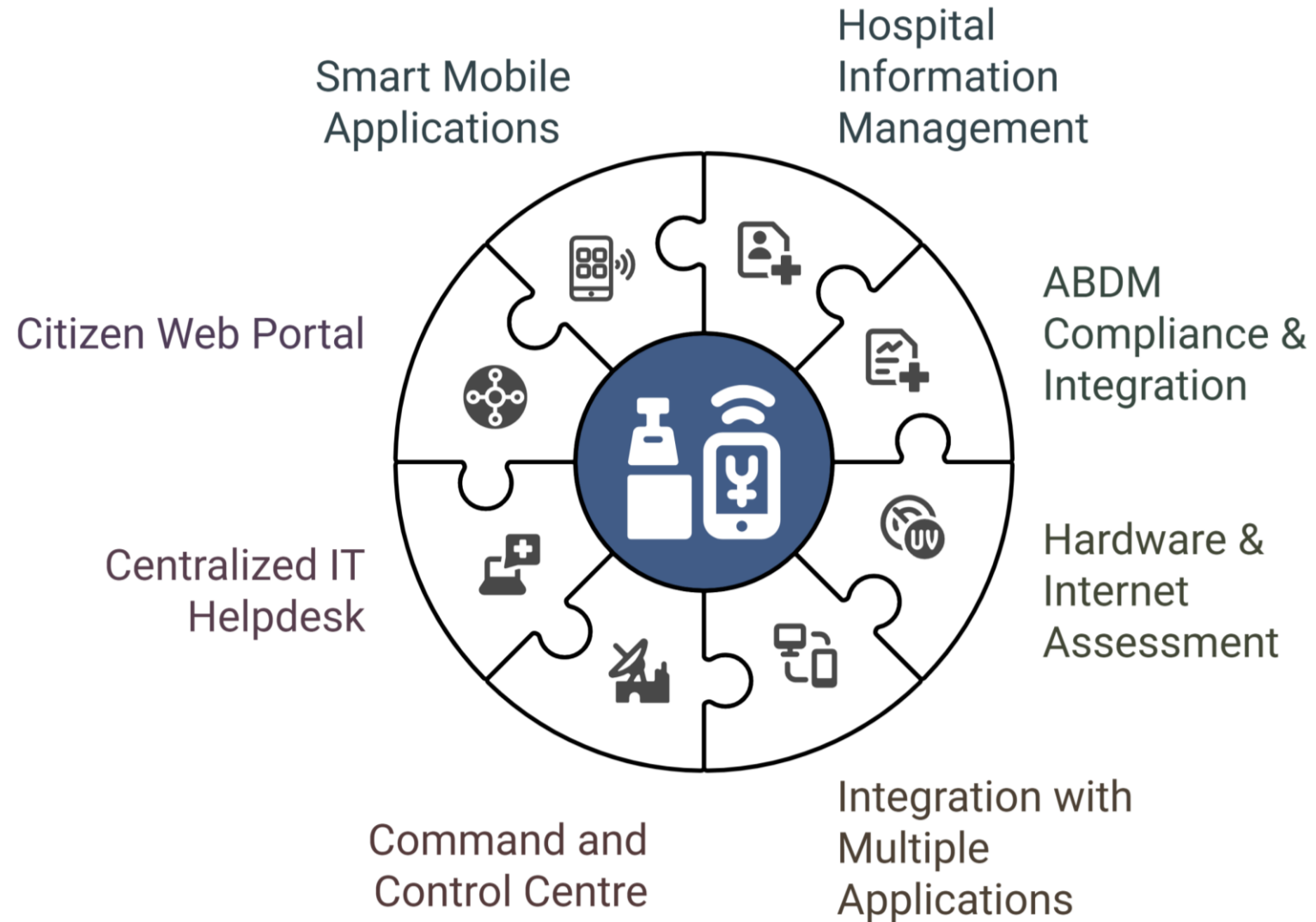
Integration with legacy
applications – 30 Central &
State Govt. applications

Training & adoption of all
relevant stakeholders –
Around 14,250 hours



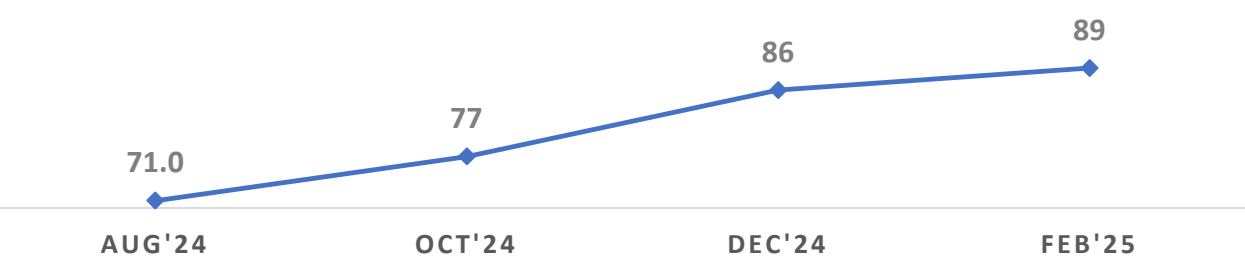
Innovation Unit & manning of
CCC

Components of BHAVYA

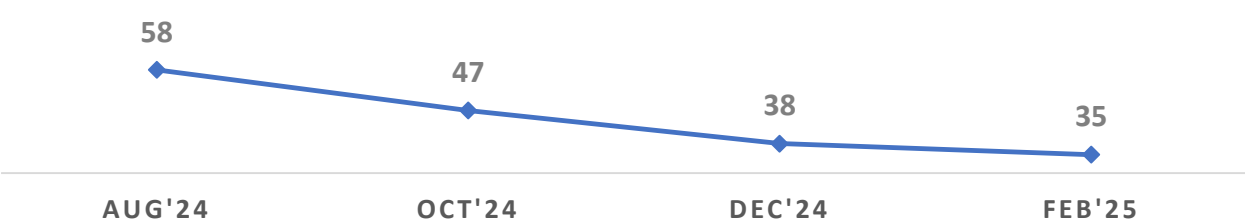


PROGRESS AND ACHIEVEMENT- Patient's Perspective

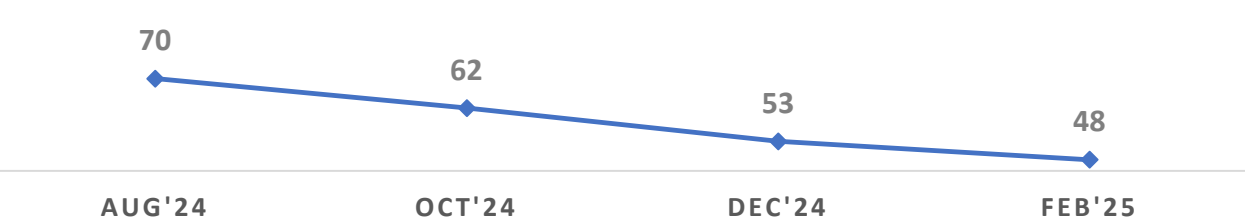
% REGISTRATIONS VIA SCAN & SHARE



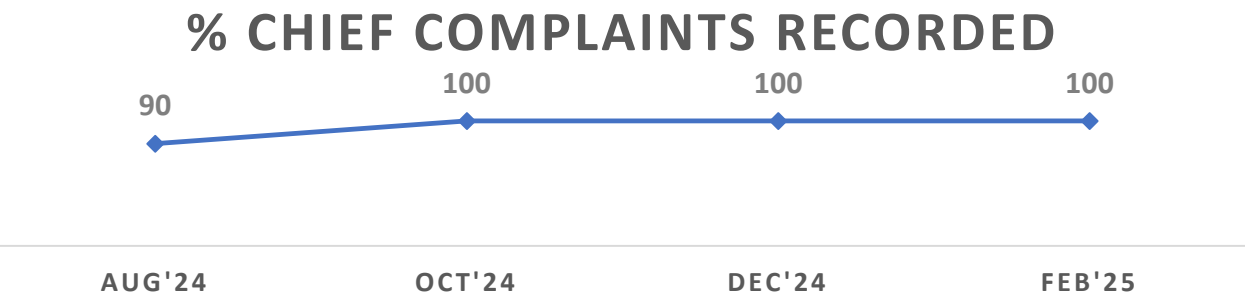
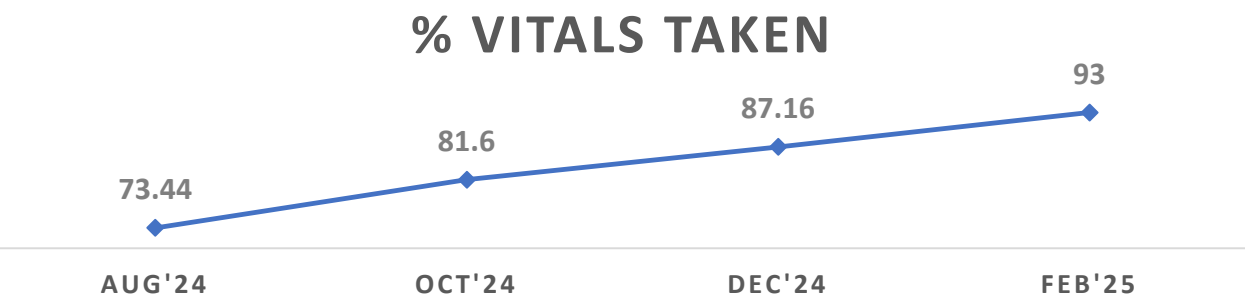
AVERAGE WAITING TIME (MINS)



AVERAGE JOURNEY TIME (MINS)

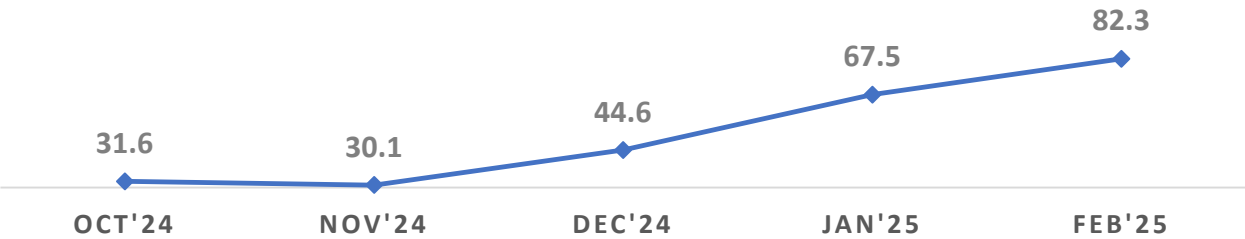


PROGRESS AND ACHIEVEMENT- Provider's Perspective

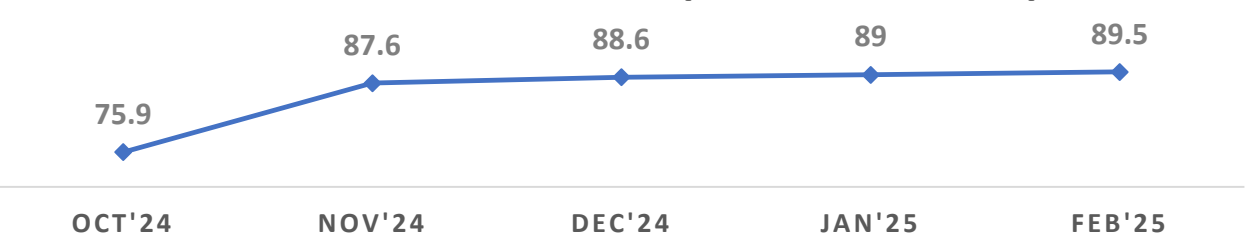


PROGRESS AND ACHIEVEMENT- HSC & ASHAs

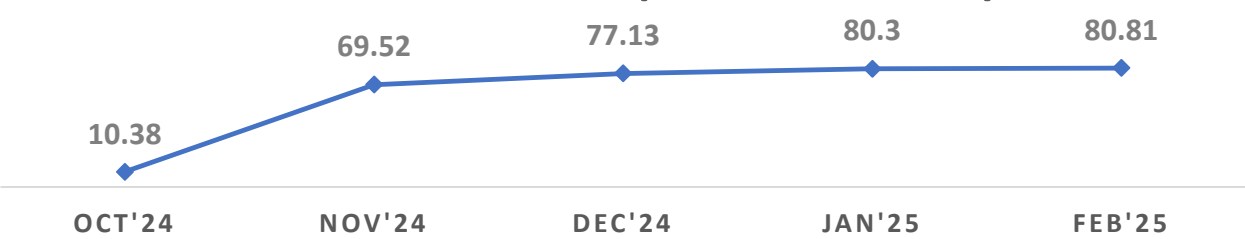
% HEALTH SUB-CENTRES ACTIVE



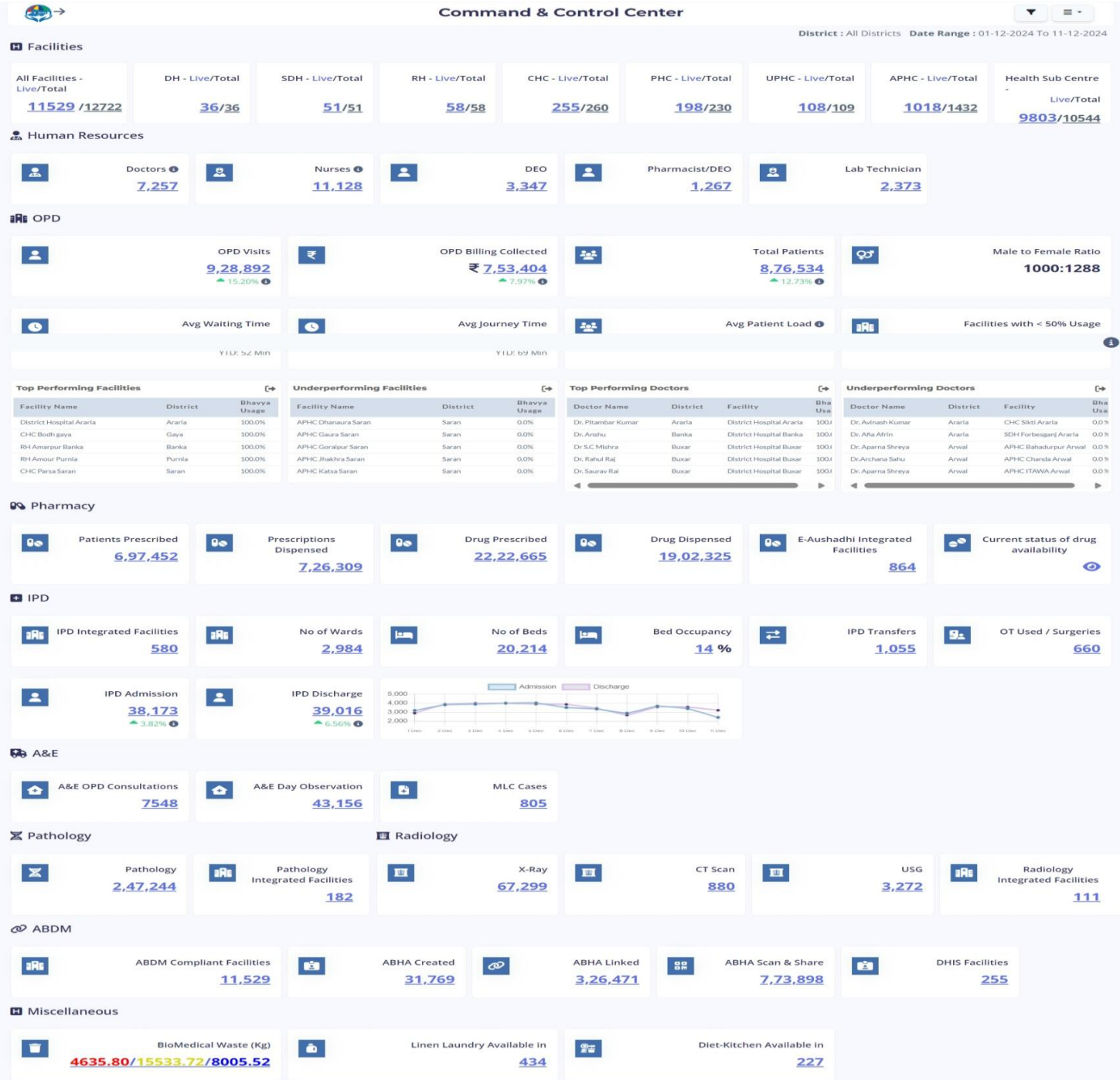
ASHA ID CREATED (THOUSANDS)



ASHAs ACTIVE (THOUSANDS)



DASHBOARD PREVIEW





Command & Control Center



District : All Districts Date Range : 01-12-2024 To 11-12-2024

Facilities

All Facilities -
Live/Total

11529 / 12722

DH - Live/Total

36 / 36

SDH - Live/Total

51 / 51

RH - Live/Total

58 / 58

CHC - Live/Total

255 / 260

PHC - Live/Total

198 / 230

UPHC - Live/Total

108 / 109

APHC - Live/Total

1018 / 1432

Health Sub Centre

Live/Total
9803 / 10544

Human Resources



Doctors

7,257



Nurses

11,128



DEO

3,347



Pharmacist/DEO

1,267



Lab Technician

2,373

OPD



OPD Visits

9,28,892
▲ 15.20%



OPD Billing Collected

₹ 7,53,404
▲ 7.97%



Total Patients

8,76,534
▲ 12.73%



Male to Female Ratio

1000:1288



Avg Waiting Time

YTD: 52 Min



Avg Journey Time

YTD: 69 Min



Avg Patient Load



Facilities with < 50% Usage



Top Performing Facilities



Facility Name	District	Bhavya Usage
District Hospital Araria	Araria	100.0%
CHC Bodh gaya	Gaya	100.0%
RH Amarpur Banka	Banka	100.0%
RH Amour Purnia	Purnia	100.0%
CHC Parsa Saran	Saran	100.0%

Underperforming Facilities



Facility Name	District	Bhavya Usage
APHC Dhanaura Saran	Saran	0.0%
APHC Gaura Saran	Saran	0.0%
APHC Goralpur Saran	Saran	0.0%
APHC Jhakhra Saran	Saran	0.0%
APHC Katsa Saran	Saran	0.0%

Top Performing Doctors



Doctor Name	District	Facility	Bha Usa
Dr. Pitambar Kumar	Araria	District Hospital Araria	100.0%
Dr. Anshu	Banka	District Hospital Banka	100.0%
Dr. S.C. Mishra	Buxar	District Hospital Buxar	100.0%
Dr. Rahul Raj	Buxar	District Hospital Buxar	100.0%
Dr. Saurav Rai	Buxar	District Hospital Buxar	100.0%

Underperforming Doctors



Doctor Name	District	Facility	Bha Usa
Dr. Avinash Kumar	Araria	CHC Sikti Araria	0.0%
Dr. Afia Afrin	Araria	SDH Forbesganj Araria	0.0%
Dr. Aparna Shreya	Arwal	APHC Bahadurpur Arwal	0.0%
Dr. Archana Sahu	Arwal	APHC Chanda Arwal	0.0%
Dr. Aparna Shreya	Arwal	APHC ITAWA Arwal	0.0%

Pharmacy



Patients Prescribed

6,97,452



Prescriptions
Dispensed

7,26,309



Drug Prescribed

22,22,665



Drug Dispensed

19,02,325



E-Aushadhi Integrated
Facilities

864



Current status of drug
availability



+ IPD



IPD Integrated Facilities

580



No of Wards

2,984



No of Beds

20,214



Bed Occupancy

14 %



IPD Transfers

1,055



OT Used / Surgeries

660



IPD Admission

38,173

▲ 3.82% ⓘ



IPD Discharge

39,016

▲ 6.56% ⓘ



A&E



A&E OPD Consultations

7548



A&E Day Observation

43,156



MLC Cases

805

Pathology



Pathology

2,47,244



Pathology
Integrated Facilities

182

Radiology



X-Ray

67,299



CT Scan

880



USG

3,272



Radiology
Integrated Facilities

111

ABDM



ABDM Compliant Facilities

11,529



ABHA Created

31,769



ABHA Linked

3,26,471



ABHA Scan & Share

7,73,898



DHIS Facilities

255

Miscellaneous



BioMedical Waste (Kg)

4635.80/15533.72/8005.52



Linen Laundry Available in

434

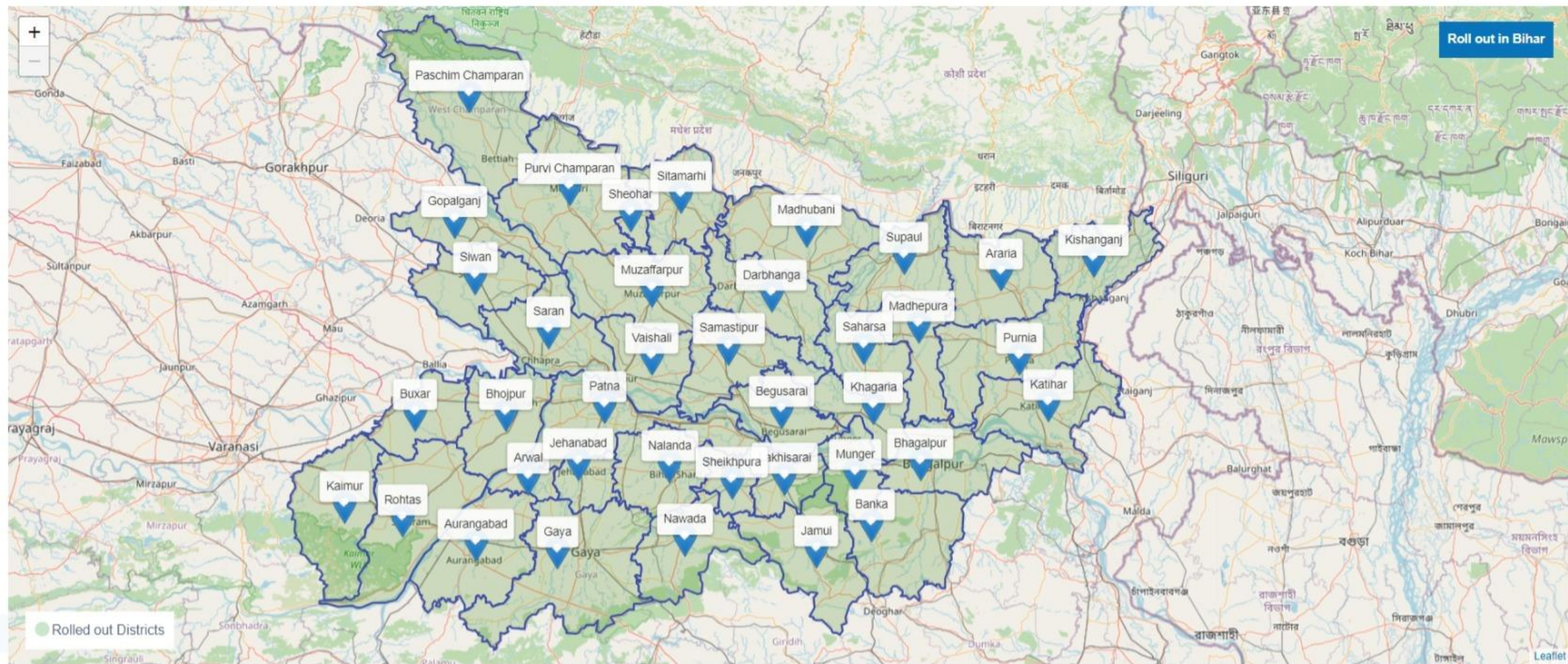


Diet-Kitchen Available in

227



Performance period - 01-12-2024 To 11-12-2024





Bhavya District QMS-Muzaffarpur



▼ Filters

From Date

01-12-2024



To Date

11-12-2024



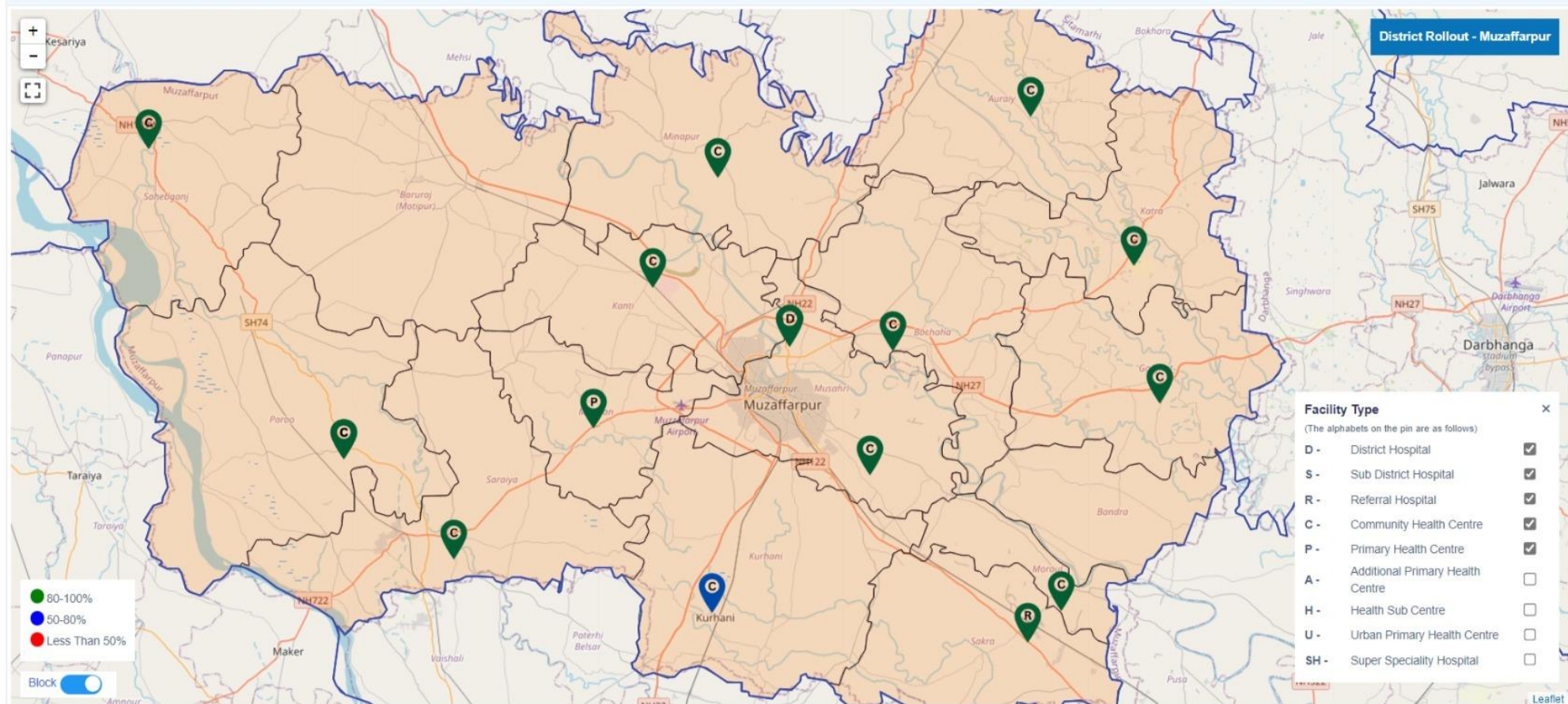
Apply

Dashboard / Bhavya QMS / Bhavya District QMS

Performance period - 01-12-2024 To 11-12-2024

Total - 616 | DH - 1 | SDH - 0 | RH - 1 | CHC - 14 | PHC - 1 | APHC - 83 | UPHC - 4 | SSH - 0 | HSC - 512

Muzaffarpur





Bhavya District QMS-Muzaffarpur



Filters

From Date

01-12-2024



To Date

11-12-2024



Apply

Dashboard / Bhavya QMS / Bhavya District QMS

Performance period - 01-12-2024 To 11-12-2024

Total - **616** | DH - **1** | SDH - **0** | RH - **1** | CHC - **14** | PHC - **1** | APHC - **83** | UPHC - **4** | SSH - **0** | HSC - **512**

Bhavya Usage (%): **81.3%**

Facility Performance (%): **95.8%**

District Hospital Muzaffarpur

IN1010000397 [26.1692, 85.39065]

Data Range: **01-12-2024 To 11-12-2024**

Patient Registered

6,018

No Of Doctors

56

Avg Doctor Load

129

Avg Patient Journey

47 Min

Avg Patient Waiting

40 Min

HPR %

92 %

Avg First Registration

09:02:33

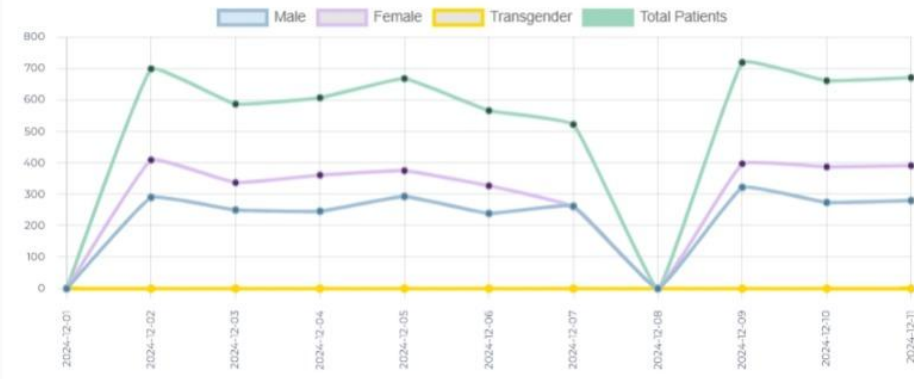
Avg First OPD

09:39:10

Doctor Usage



Patient Registration





Bhavya District QMS-Muzaffarpur



Filters

From Date

01-12-2024



To Date

11-12-2024



Apply

Dashboard / Bhavya QMS / Bhavya District QMS

Performance period - 01-12-2024 To 11-12-2024

Total - **616** | DH - **1** | SDH - **0** | RH - **1** | CHC - **14** | PHC - **1** | APHC - **83** | UPHC - **4** | SSH - **0** | HSC - **512**

No of Wards

21

No of Beds

243

No of Admission

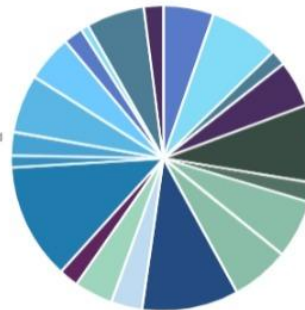
112

No of Discharge

93

Ward-Bed Allocation

- Female Medicine Ward
- Male Medicine Ward
- ICU Ward
- NBSU/SNCU Ward
- NRC Ward
- Accident & Emergency Ward
- AES/JE Ward
- Paediatric Ward
- ANC Ward
- PNC Ward
- Dialysis Ward
- Kaldi Ward
- Maternity Ward
- Day Observation Ward
- Triage Ward
- Male Surgical Ward
- Female Surgical Ward
- Isolation Ward
- Kala-azar Ward
- Maternity Surgical Ward
- De-Addiction Ward

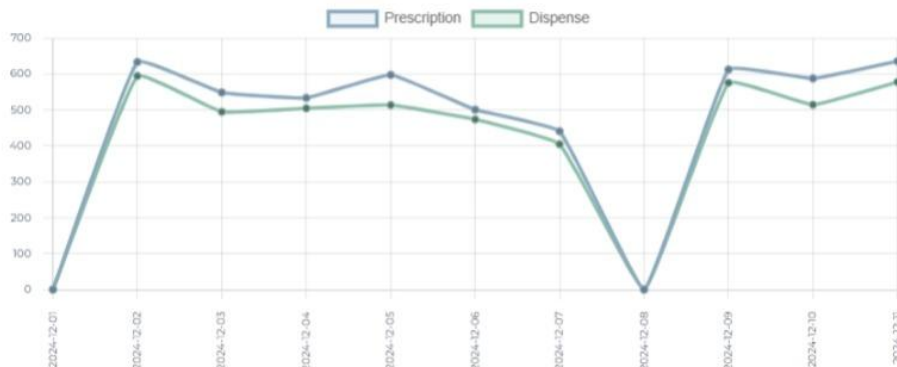


IPD Admission and Discharge

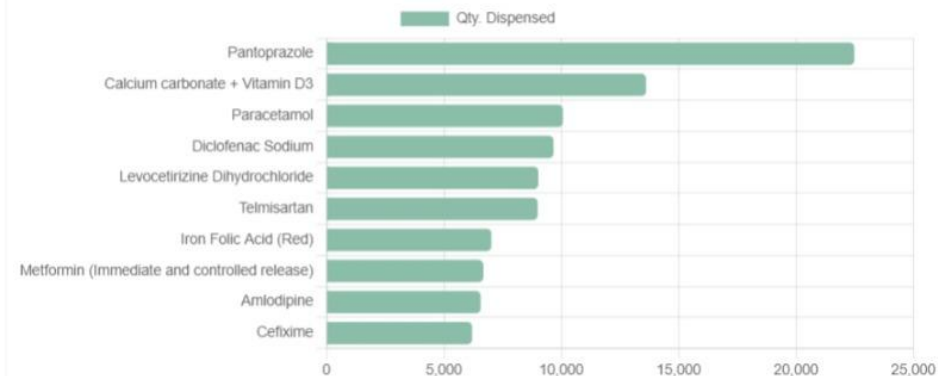


Pharmacy/Drugs

Prescriptions vs Dispense



Frequently Dispensed Drugs





Bhavya District QMS-Muzaffarpur



Filters

From Date

01-12-2024



To Date

11-12-2024



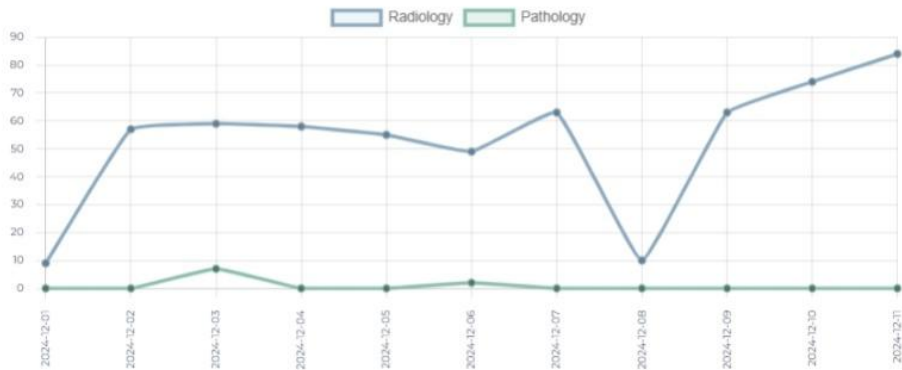
Apply

Dashboard / Bhavya QMS / Bhavya District QMS

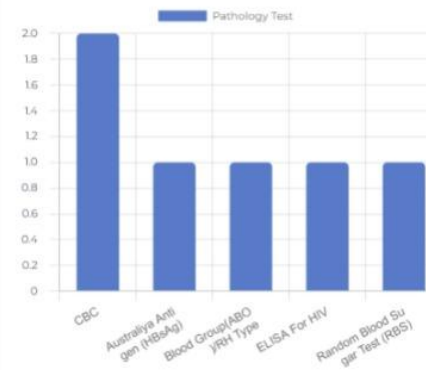
Performance period - 01-12-2024 To 11-12-2024

Total - **616** | DH - **1** | SDH - **0** | RH - **1** | CHC - **14** | PHC - **1** | APHC - **83** | UPHC - **4** | SSH - **0** | HSC - **512**

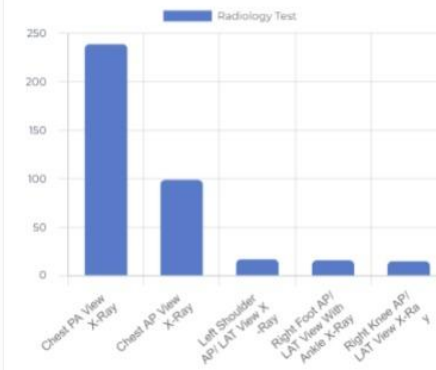
Pathology & Radiology



Top 5 Pathology Test

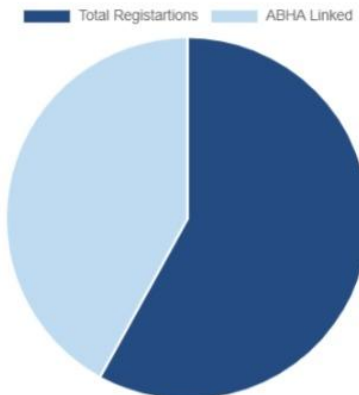


Top 5 Radiology Test



ABDM

ABDM Linked Records



ABDM Linked Records



Monitoring Doctor Performance

→

Doctor Monitor

Filters

District

All

Facility Type

All

Facility

All

From

01-12-2024

To

12-12-2024

Apply

This page displays data for all districts and for the period ranging from **01-12-2024 To 12-12-2024**.

Non Active Doctor List

Export

No.	Doctor Name	HPR ID	Facility	Patients Registered	Online Consulted	Online Prescribed	Complaint	Prov Diag	Diag	Reco. Lab	Reco. Radio	Medical Certificate	A&E	Paper Prescribed	Consult Online (in %)	Prescription Online (in %)	P Score (in %)	BHAVYA Usage (in %)
1	Dr. Manoj Kumar	i 71-3563-4527-7800	CHC Bodh gaya	1526	1526	1524	1525	1525	0	767	28	0	0	0	100.0%	99.9%	100.0%	100.0%
2	Dr. Ramesh Lal	i 71-1065-5258-0846	CHC Paraiya Gaya	1127	1127	1111	1127	1127	0	192	19	0	0	2	100.0%	98.6%	99.8%	100.0%
3	Dr. Prahasht Kumar	i 13-2608-1046-7378	PHC Ramgarhwa East Champaran	1001	1001	1001	1001	1000	1	0	0	0	0	0	100.0%	100.0%	100.0%	100.0%
4	Dr. Priya	i 71-6133-8327-5041	CHC Fatuha Patna	981	981	802	981	981	1	118	16	0	0	42	100.0%	81.8%	97.3%	100.0%
5	Dr. Ekbal Singh	i 71-4854-4317-0367	PHC Darauli Siwan	937	937	919	937	937	1	55	0	0	0	0	100.0%	98.1%	99.7%	100.0%
6	Dr. Jyoti Kumari	i 71-6813-0580-2457	District Hospital Samastipur	915	915	863	915	915	0	153	142	0	0	12	100.0%	94.3%	99.1%	100.0%
7	Dr. Arjun Kumar Gupta	i 71-8332-5884-1624	CHC Turkauliya East Champaran	857	857	857	857	857	0	90	8	0	0	0	100.0%	100.0%	100.0%	100.0%
8	Dr. Navneeta Kumar	i 71-5515-2086-0814	District Hospital Samastipur	835	835	773	834	835	0	136	169	0	1	13	100.0%	92.6%	98.9%	100.0%
9	Dr. Manish Kumar	i 71-0707-5030-4467	District Hospital Samastipur	820	820	756	820	820	0	100	96	0	0	3	100.0%	92.2%	98.8%	100.0%

i

Monitoring Facility Performance



Facility Monitor



District

Facility Type

Facility

From

To

All



All



All



01-12-2024



12-12-2024



Apply

This page displays data for all districts and for the period ranging from **01-12-2024 To 12-12-2024**.

All

DH

SDH

RH

CHC

PHC

APHC

UPHC

HWC

SSH

Export

No.	Facility	District	Block	HFR ID	Patients Registered	Online Consulted	Online Prescribed	Complaint	Prov Diag	Diag	Vital Taken	Medical Certificates	Paper Prescribed	Patients Drug Dispensed	Consult Online (in %)	Prescription Online (in %)	Facility Performance	Bhavya Usage
1	District Hospital Araria	Araria	Araria	IN1010000554	4660	4599	4127	4590	4590	8	4556	91	100	4041	99	89	97.4%	100.0%
2	CHC Bodh gaya	Gaya	Bodhgaya	IN1010000299	2401	2401	2398	2400	2400	0	2005	0	0	2405	100	100	100.0%	100.0%
3	RH Amarpur Banka	Banka	AMARPUR	IN1010000577	2115	2115	2001	2115	2114	0	2114	0	2	2115	100	95	99.2%	100.0%
4	RH Amour Purnia	Purnia	Amour	IN1010000192	2058	2058	2056	2058	2058	0	2027	0	0	1815	100	100	100.0%	100.0%
5	CHC Parsa Saran	Saran	Parsa	IN1010000153	2038	2038	1989	2038	2038	1	1898	0	4	1834	100	98	99.6%	100.0%
6	PHC Teghra Begusarai	Begusarai	Teghra	IN1010005519	1975	1975	1973	1975	1974	0	1489	0	0	2014	100	100	100.0%	100.0%
7	PHC Warisliganj Nawada	Nawada	Warisliganj	IN1010000414	1954	1954	1717	1954	1954	1	1875	0	0	1601	100	88	98.2%	100.0%
8	SDH Kahalgaon Bhagalpur	Bhagalpur	Kahalgaon	IN1010012807	1923	1923	1651	1922	1923	4	1347	0	37	1592	100	86	97.9%	100.0%
9	CHC Parhatta Khazaria	Khazaria	Parhatta	IN1010000	1741	1741	1740	1741	1741	0	1737	0	0	1757	100	100	100.0%	100.0%



PATIENT SNAPSHOT

Consultation

Patient ID: GO-A26-BNX3899

Gender: Male

Age: 30

Blood Group: -

Service: General Physician OPD

Staff Name: Dr. Seo Shanker Kumar

Facility Name: District Hospital Gopalganj

Drugs Dispense Time: 09-12-2024 10:54:10

Registration Date: 09-12-2024

Provisional Diagnosis: DOG BITE

ICD10: N/A

Chief Complaint: DOG BITE

Vitals:

Temperature	Pulse	R.R	B.P	Weight (kg)	Height (cm)	BMI	SPO2
-	84	-	143/85	-	-	-	99

Prescribed Drug Details:

Drugs Name	Frequency	Duration	Start Date	End Date	Prescribed By
Rabies Vaccine (ARV) - 0.5ml vial with 0.5ml dilutents containing 2.5 I.U (Injection / 0.5ml vial with 0.5ml dilutents containing 2.5 I.U)	1-0-0	1	09-12-2024	09-12-2024	Dr. Seo Shanker Kumar

Distributed Drugs:

Drugs Name	Quantity	Distribution Date
Rabies Vaccine (ARV) (Injection / 0.5ml vial with 0.5ml dilutents containing 2.5 I.U)	1	09-12-2024

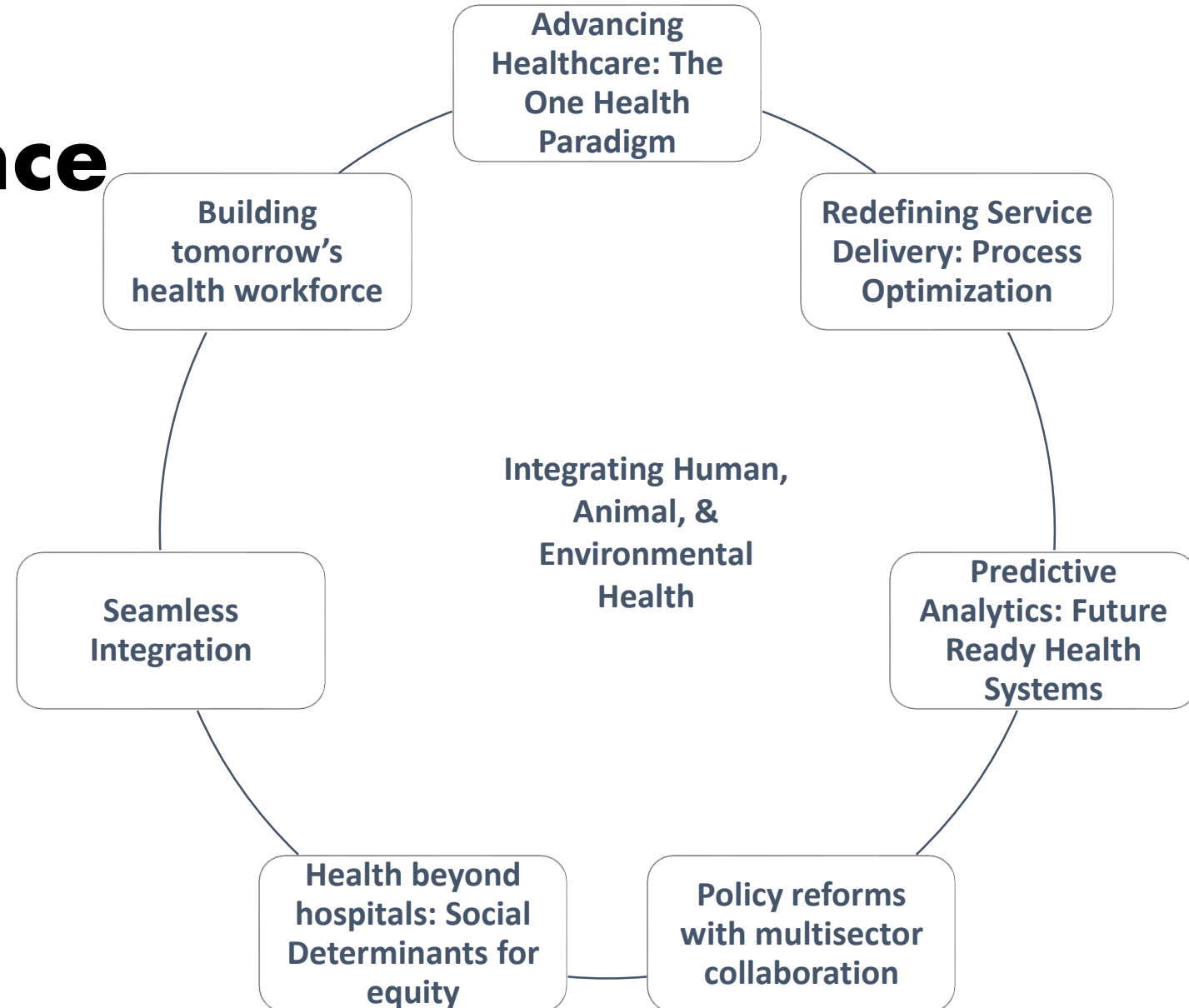
Global Health Systems Resilience

Climate-Resilient Healthcare:

- Tracking climate-related health risks
- Strengthening healthcare responses
- Ensuring equitable health access

Global Scalability:

- Digital integration in various healthcare ecosystems
- Interoperability & AI-driven solutions



One Health & Planetary Health

While **One Health** emphasizes the interconnectedness of human, animal, and ecosystem health, **Planetary Health** focuses on the health of the planet and its natural systems.

These complementary frameworks underscore the vital interdependence between human well-being and the health of animals, ecosystems, and the planet, advocating for integrated, cross-sectoral solutions to address global health and environmental challenges.

Successful public health interventions that work at the human-animal-ecosystem interface require **the broad and committed collaboration of members from all levels of society**



Heat Waves: A Health Emergency

- South Asia is witnessing **increasingly severe heat waves**, with India and Nepal among the most affected
- **Vulnerable populations**, especially in rural and underserved areas, face **heightened health risks** including dehydration, heat stroke, and cardiovascular distress

41%

Number of Days with HI at extreme danger level (i.e. 54°C) from April to June 2020

55%

Increase in Heat Deaths in India (2000–2004 vs. 2017–2021, Lancet)

25,000+

Heat Related Deaths in India from 1992–2022

45°C

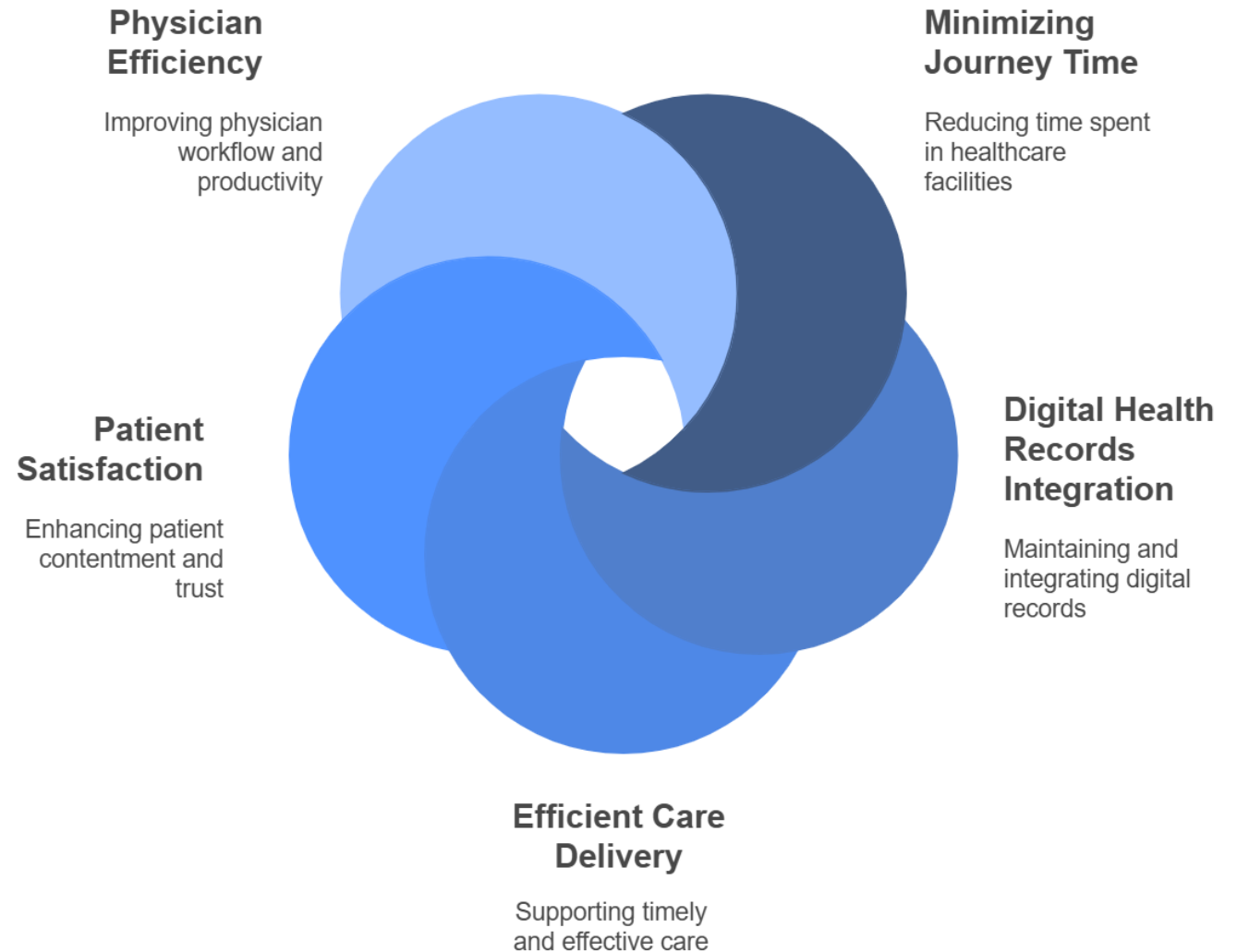
Temperature at Terai Region of Nepal

Process Optimization

Inefficiencies in healthcare cost billions globally and delay critical patient care

Patients spend up to **60% of their hospital visit waiting**—not receiving care

Solution: A healthcare system that is **faster, smarter, and truly patient-centric**

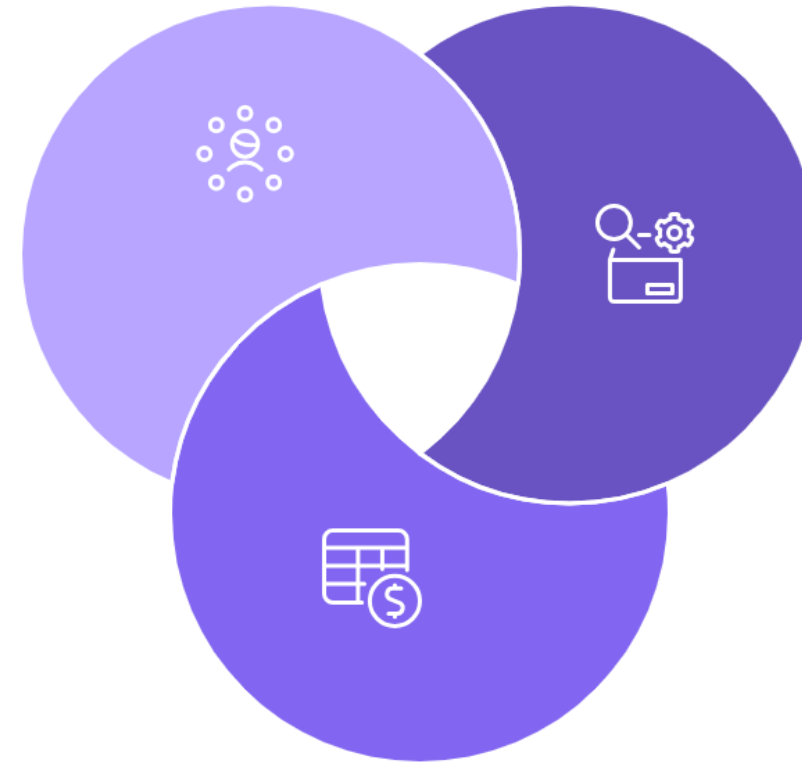


Future Ready Health Systems

Health systems need to be prepared for the shifting dynamics of care

Forecasting future health challenges: Anticipating rise of health issues

Human Resource
Staffing and shift scheduling optimization through data analysis



Supply Chain Management
Optimizing inventory and procurement processes by addressing bottlenecks

Health Financing
Forecasting expenditures, identify cost saving measures and reducing fraud

WHY DIGITALIZATION IS THE WAY FORWARD

Cost Effectiveness

- Cost-effective delivery
- Automation
- Digital record keeping

Scalability

- Scalable healthcare solution
- Decentralization
- Overcome geographical barriers.

- Real-time monitoring
- Decision-making
- Traceable
- Greater transparency
- Reduced corruption
- Improved accountability

Improved Accountability and Transparency

- Derive from proven roadmaps
- Success story from Bihar
- Integrating with pre-existing legacy applications

Leveraging Existing Models



Health Beyond Borders

Common issues across countries:

- Rising burden of infectious (Dengue, Kala-Azar) & non-communicable diseases
- Health system inefficiencies
- Large rural populations with limited access to healthcare
- Workforce shortages
- Need for data-driven decision-making
- Shared health risks due to open border and migration

Global health challenges require integrated digital solutions



Cross Border Collaboration



In an era of interconnected health challenges, we must work together to build resilient healthcare systems

By fostering partnerships, we can:

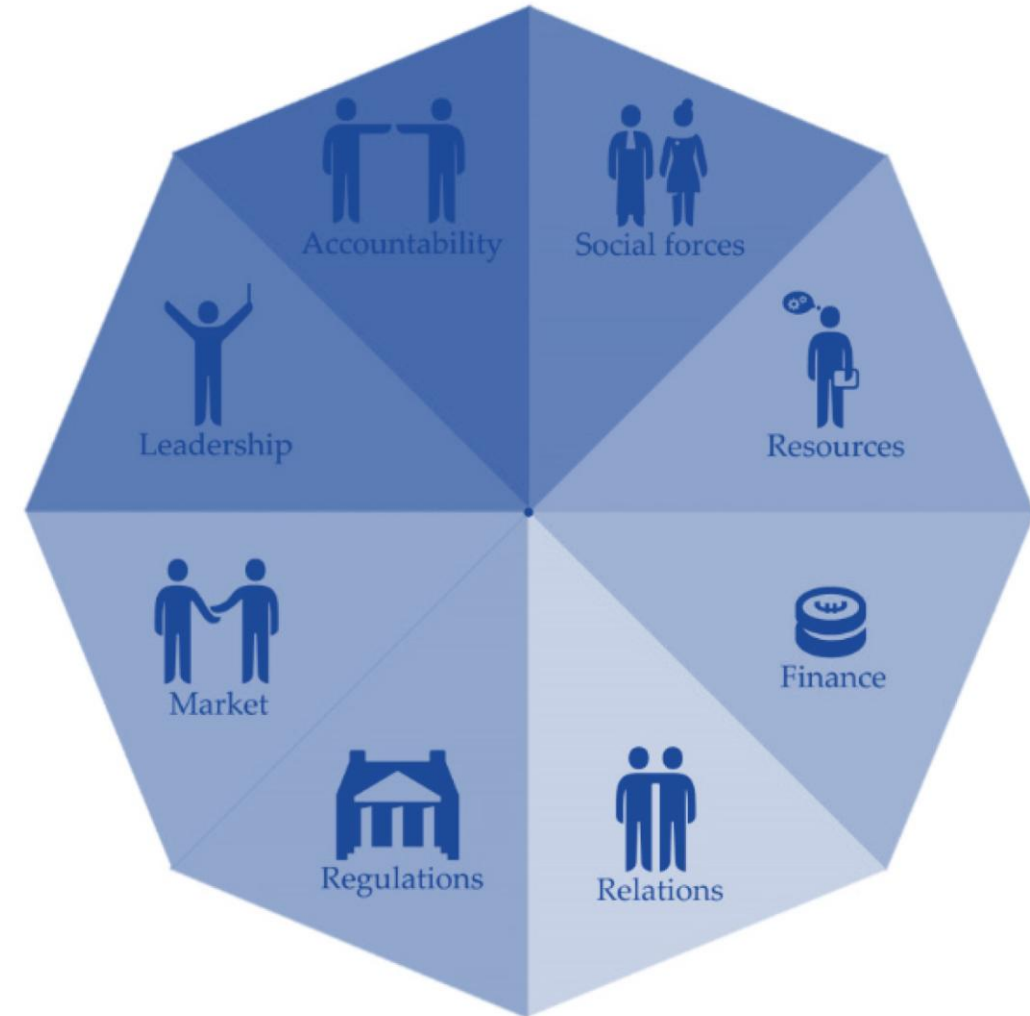
- Enhance disease surveillance
- Improve healthcare accessibility
- Optimize resource sharing
- Advance digital health integration
- Bolster emergency response mechanism

Intersectoral Coordination

Health is shaped by more than just healthcare. True resilience emerges when **health, agriculture, environment, education, and technology sectors** unite for a shared vision of well-being

Why it matters:

- **Zoonotic threats, AMR, and climate-linked diseases** transcend sectors and borders.
- Solutions require **coordinated action** across ministries, local bodies, and development partners.
- Digital platforms like **BHAVYA** and **Nepal's e-Health initiatives** can serve as **integrative backbones**



Shared Public Health Realities- Bihar & Nepal



Flood-prone regions of North Bihar and bordering Nepal face seasonal inundation, disrupting healthcare services and increasing the risk of waterborne and vector-borne diseases



Infrastructure damage leads to inaccessibility of medical services, delayed treatment, and compromised emergency response



Communicable Disease Burden- Kala-azar, Dengue, Scrub Typhus, Influenza, Hepatitis A & E, Typhoid, Diarrhoea, Malaria, Japanese Encephalitis



Difficult terrain, seasonal displacements, and dispersed populations hamper routine immunization and mass vaccination drives



Floods and outbreaks underscore the need for rapid-response infrastructure, interoperable health data systems, and cross-border coordination for emergency healthcare delivery

THANK YOU