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Strengthening health facilities, health workforce and community processes for primary health care in Chhattisgarh



Title: Strengthening health facilities, health workforce and community processes for primary health care in Chhattisgarh

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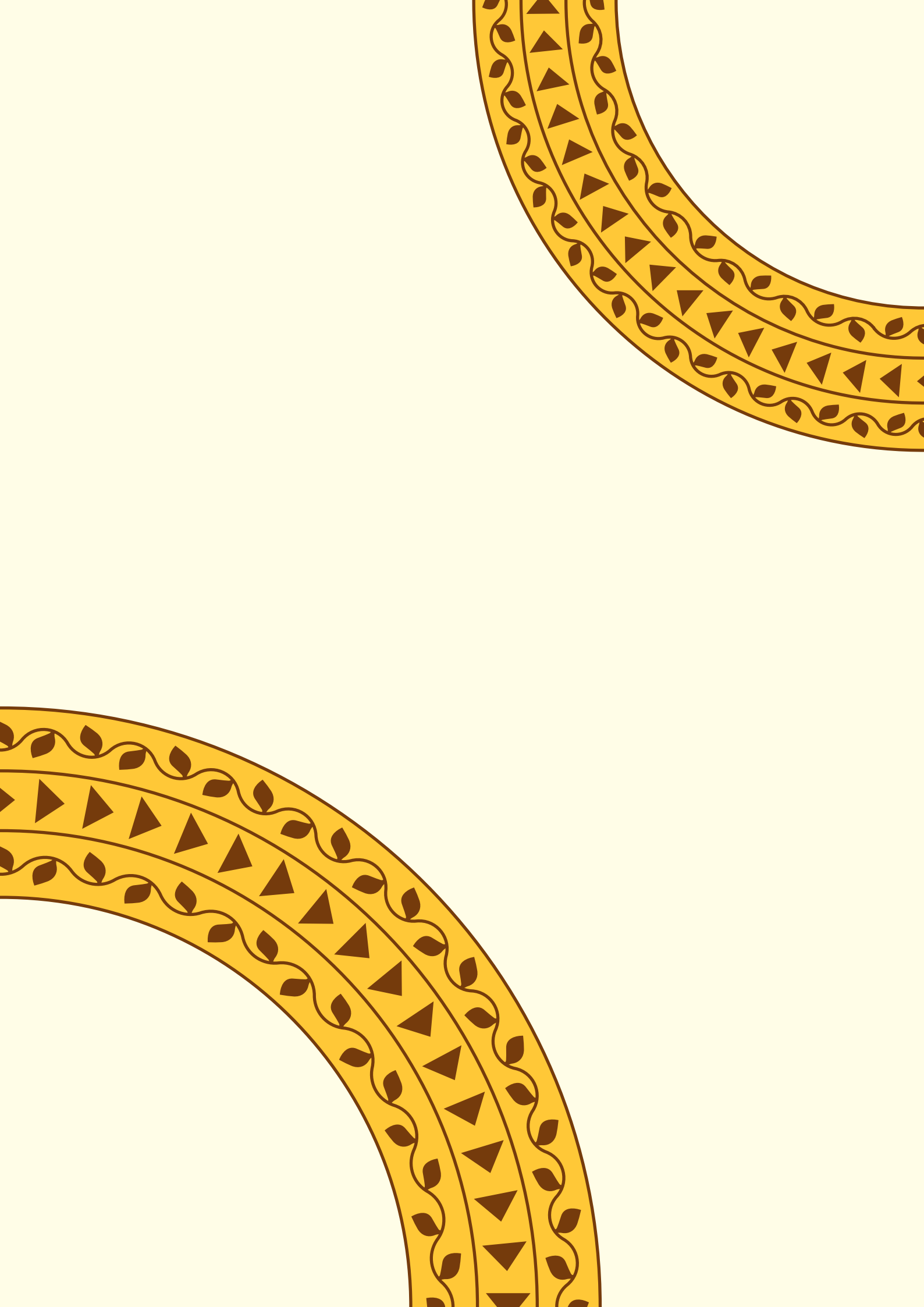
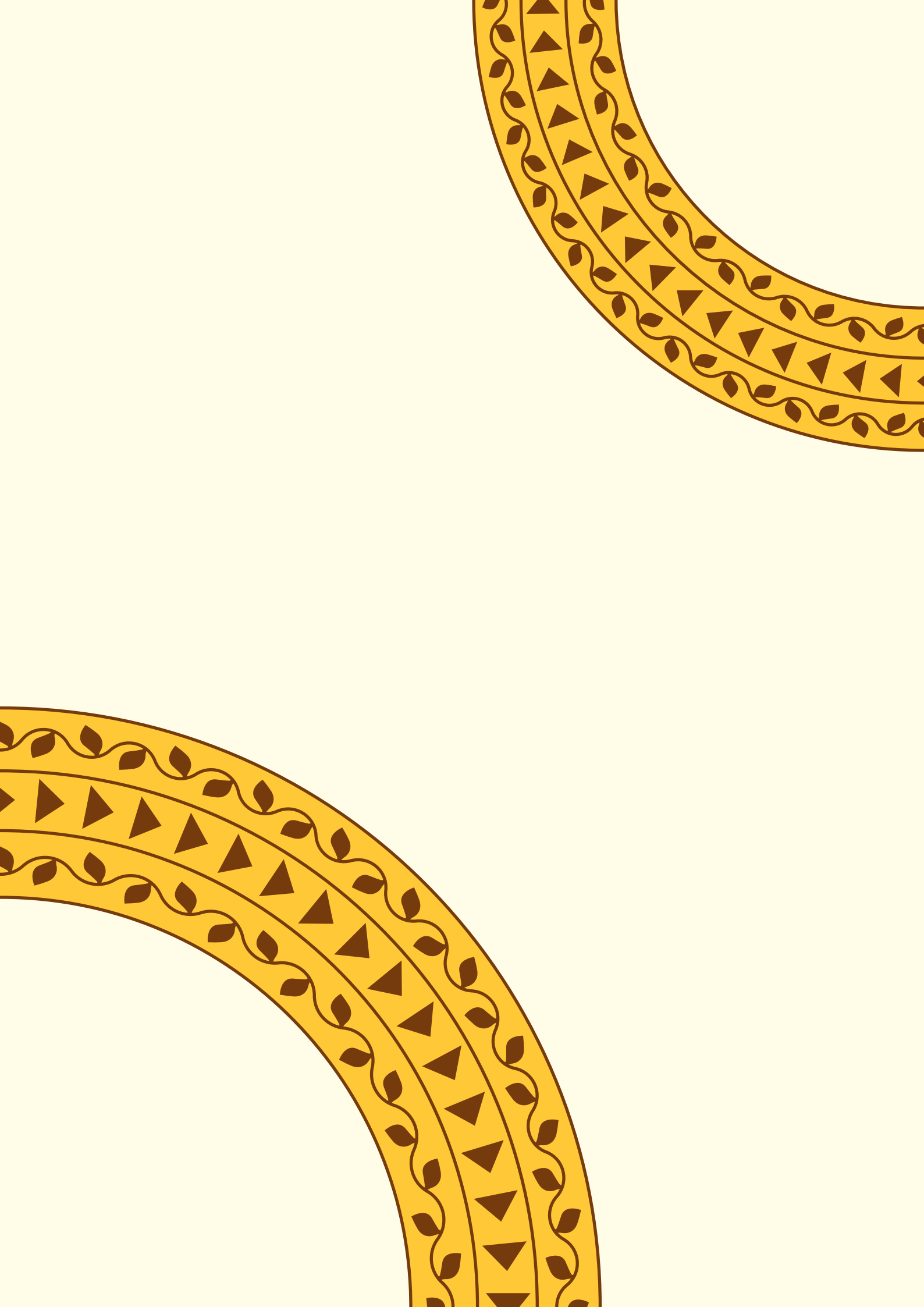
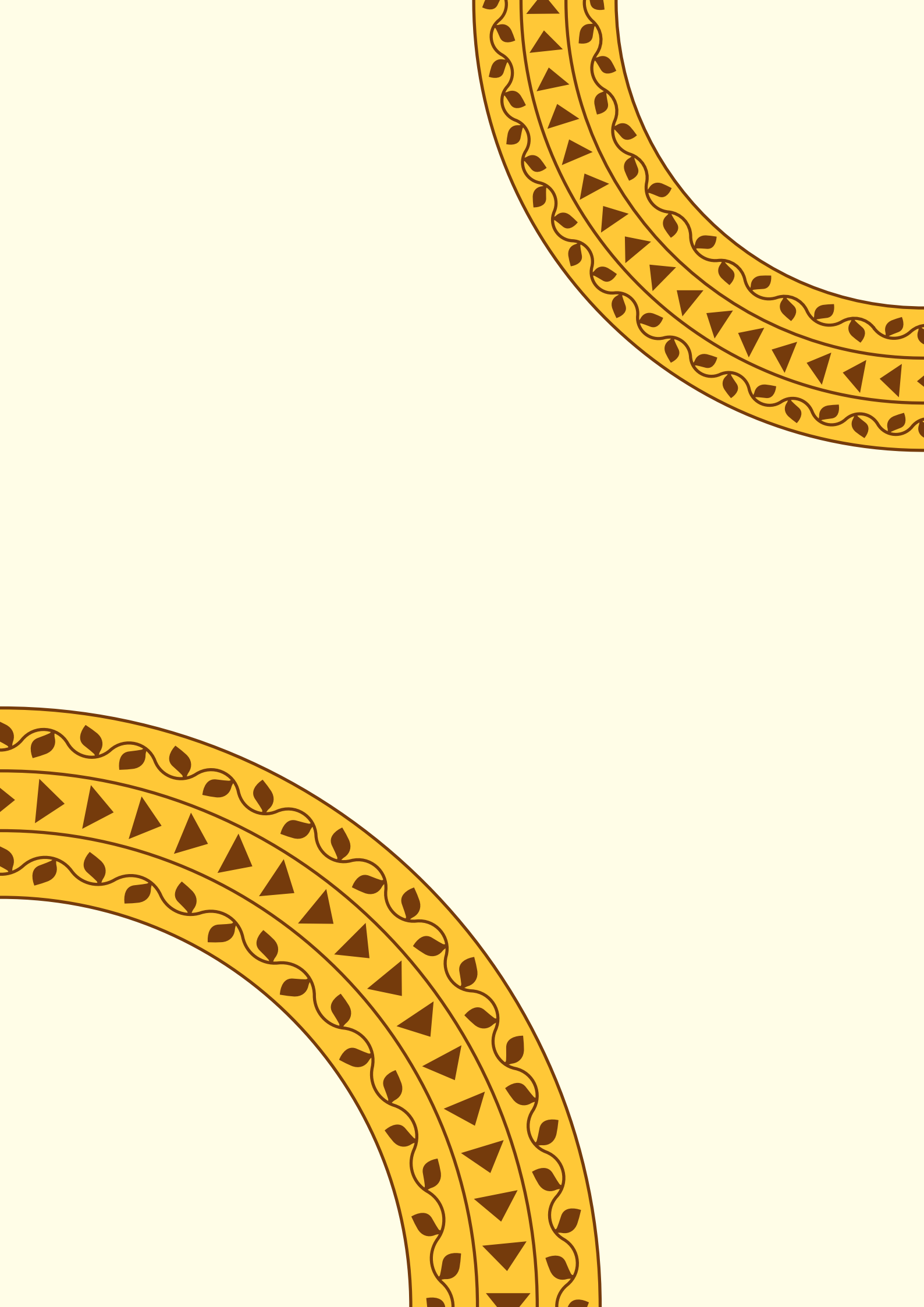


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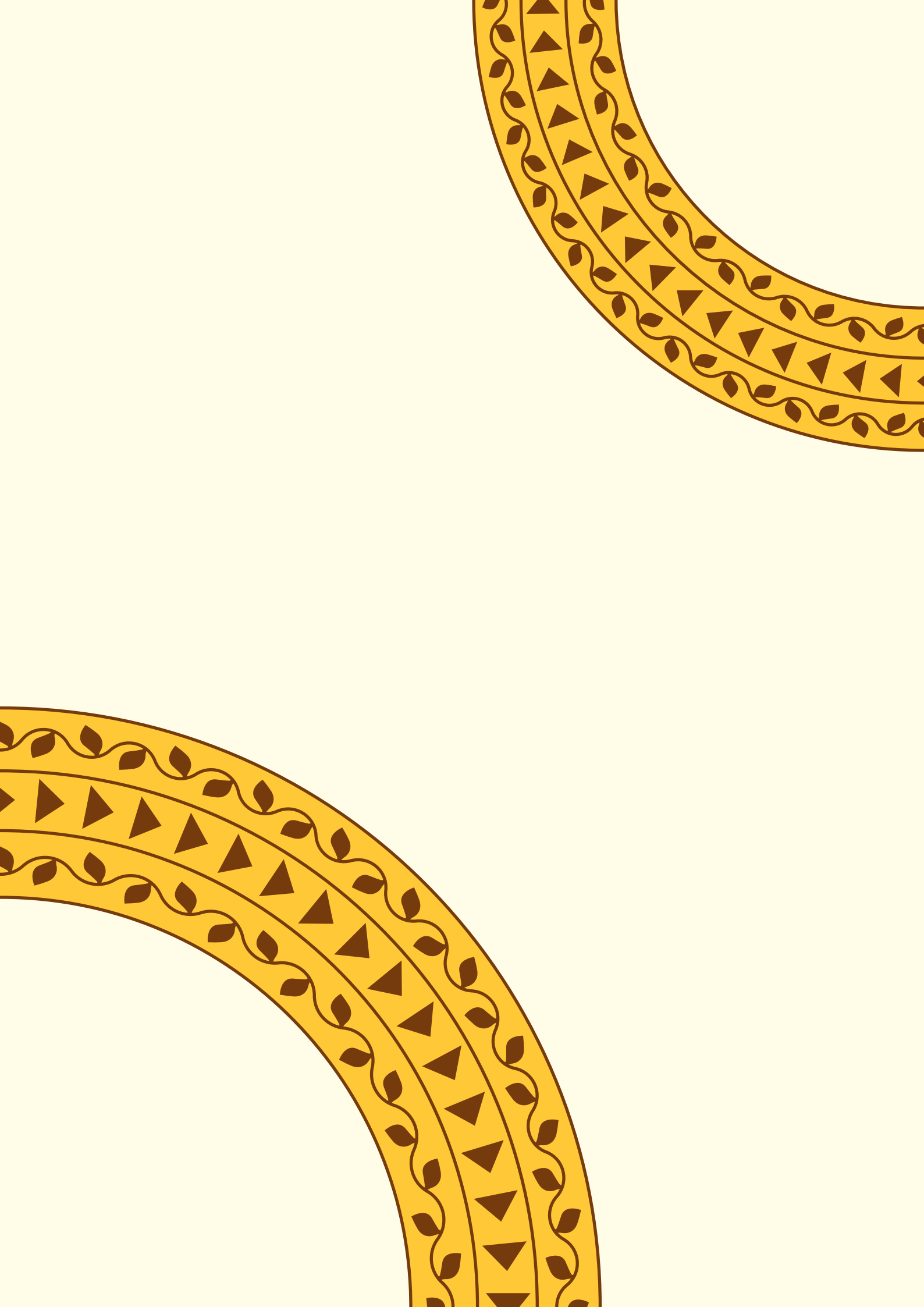




Abbreviations

AB	Ayushman Bharat
ACT	artemisinin-based combination treatments
AFB	Acid Fast Bacilli
ALS	advanced life support
ANC	Antenatal Care
ANM	Auxiliary Nurse Midwife
AOR	adjusted odds ratio
ASHA	Accredited Social Health Activist
BLS	basic life support
BMO	Block Medical Officer
BP	blood pressure
C-sec	Cesarean section
CBAC	community-based assessment checklist
CBC	complete blood count
CCMM	Community Case Management of Malaria
CGMSC	Chhattisgarh Medical Service Cooperation
CHC	community health centre
CHO	community health officer
CHW	community health worker
CI	confidence interval
CMHO	Chief Medical and Health Officer
CPHC	comprehensive primary health care
CRMC	Chhattisgarh Rural Medical Corps
CSR	corporate social responsibility
DGHS	Directorate General of Health Services
DH	district hospital
DKBSSY	Dr. Khoobchand Baghel Swastyha Sahayata Yojana
DMF	district mineral fund
DoHFW	Department of Health and Family Welfare
ECG	Electrocardiography
EDL	essential drug list

OPD	outpatient department
ORS	oral rehydration solution
OT	operation theatre
PG	postgraduate
PHC	primary health centre
PIP	Programme Implementation Plan
PoC	Point of Care
PPE	personal protective equipment
PSC	programme study centre
RBSK	Rashtriya Bal Swasthya Karyakram
RCH	reproductive and child health
RDT	rapid diagnostic test
RFT	renal function test
RHO-F	rural health officer - Female
RHO-M	rural health officer - Male
RMA	rural medical assistant
RTI/UTI	reproductive tract infection/urinary tract infection
SCD	sickle-cell disease
SDGs	Sustainable Development Goals
SDOH	social determinants of health
SHC	sub-health centre
SHRC	State Health Resource Centre
SNCU	sick neo-natal care unit
ST	scheduled tribe
TB	Tuberculosis
UG	Undergraduate
UHC	universal health coverage
UPT	urine pregnancy test
USG	Ultrasonography
VHSNC	Village Health Sanitation and Nutrition Committee
WHO	World Health Organization



Executive summary

Primary health care is the best approach to ensure access to equitable health care at a much lower cost. It contributes to substantial reduction in the need for secondary and tertiary care. More importantly, primary health care prepares the health system and health workers as first-line responders for future emergencies.

In the past four years (2019-2022), Chhattisgarh state and the WHO Country Office for India have collaborated to conduct research for strengthening health systems in the state. This study covers the health workforce and its organization, mid-level health providers, health services in remote and rural areas, and demand-side assessments as a continuation of the technical assistance provided to the state.

With improvements in the primary health care infrastructure in the state, there has been a felt need to assess these services, along with their referral linkages and interface with communities. Learning from the experience of the COVID-19 pandemic, governments are putting the spotlight on assessing how prepared primary health centres (PHC) and their staff are in responding to health emergencies and calamities.

The current study, “*Strengthening health facilities, health workforce and community processes for primary health care in Chhattisgarh*” was carried out with the aim of assessing primary health care services in the state. This study highlights suggested strategies with a focus on strengthening health workforce and community processes.

Study objectives

- to assess the current provision of primary health care in Chhattisgarh, including population coverage, range of services, and continuum of care.
- to assess the adequacy of existing facilities and systems for ensuring the inputs necessary for providing primary health care.
- to assess the adequacy of the existing system in being prepared to continue providing essential health care services during emergencies.
- to examine health workforce issues in ensuring primary health care.
- to assess the role played by community processes in enhancing access to primary health care; and
- to identify and document best practices in the field, which have shown promise in improving primary health care, including continuum of care.

Methods

The study used a mixed methods approach, including both quantitative and qualitative approaches. The quantitative components included primary data collection based on facility

surveys of the health and wellness centres (HWCs) at the sub-health centre (SHC) level, PHCs, community health centres (CHCs) and district hospitals (DHs).

Though the government designates the existing PHCs also as HWCs, the study retained PHCs as a distinct category of facilities. This was done since their workforce, services and history remained quite different from the HWCs that were developed at the SHC level.

The primary data for the study was collected on the inputs and outputs for health workforce (HWF), service data for the outpatient and inpatient departments (OPD, IPD), deliveries, caesarean section (C-sec), general surgery, noncommunicable diseases (NCDs,) emergency and other services. The key inputs essential for service delivery i.e., availability of HWF, drugs, and diagnostics were available in the data collection. The outputs comprised of the number of patients who were provided services by distinct types of health facilities on the health services they were designated to provide.

The qualitative methods included interviews with various stakeholders. This information was collected on aspects that were difficult to capture using quantitative methods and involved detailed deliberations. Focus group discussions (FGDs) were conducted with community health workers or CHWs (Mitanins in the case of Chhattisgarh) to understand their perspectives on service delivery.

Geographical coverage

All five administrative divisions of the state were covered to ensure geographical representation across the state. In each of the districts covered, five HWCs, two PHCs, one CHC and one DH were sampled for the study.

Sample size

A total of 20 districts were covered (out of 28 districts) and the number of facilities included are as follows:

▪ District hospitals:	16
▪ Community health centres:	19
▪ Primary health centres:	35
▪ Health and wellness centres (SHC-level):	79
▪ Accredited Social Health Activists or ASHAs (Mitanins):	105

Key findings

i. Health and wellness centres

Currently, on an average each HWC diagnosed around one-third of the total NCD cases*, of which about 60% received regular treatment from them. For acute illness, HWCs covered about 31% of the catchment population's total need. The CHWs and communities regarded HWCs as a major addition to improve their access to health care.

- In terms of the kind of services available at their HWC, the services mentioned included OPD care for hypertension, diabetes, antenatal care (ANC) check-up, malaria, toothache, small injuries, skin problems, infections of the eye, ear, reproductive tract, urinary tract and other common ailments like diarrhoea, vomiting, stomach-ache, body-ache, cold, cough and fever, along with other minor illnesses.
- Institutional deliveries were also being conducted at these centres with the help of ANMs and sometimes CHOs. In some HWCs, intrauterine contraceptive device (IUCD) insertion service was available for birth spacing but this service was absent in many HWCs.
- Capacity of the HWC teams to provide an expanded range of services, needs to be enhanced to play a bigger role in complicated pregnancies, common mental illnesses, leprosy follow-up, disability prevention, management of epilepsy and trauma-related injuries. It must also cover other medical emergencies, severe anaemia, pneumonia, animal bites (dog and snake bite) and sickle-cell disease. In case of acute problems, they can be trained to be more involved in stabilization before making an appropriate referral to secondary or tertiary care. In case of chronic illnesses like epilepsy or sickle-cell disease, HWCs can play a role in the continuation of medication after the treatment prescription has been completed by doctors at the PHC/CHC. Further, they can facilitate timely referral in case any deterioration in condition is observed.
- One of the most important roles of HWCs is to identify NCD cases (especially hypertension & diabetes). This is done by undertaking preventive screening of individuals over 30 years of age in their catchment area. According to the study, about 75% of the older HWCs among the target population were screened.
- The NCD application of HWC provides the line list of screened and referred and number of patients on treatment. However, it does not provide the follow-up list of diagnosed patients and their treatment details. The NCD app has not proven to be effective as a mechanism for ensuring coordination of upward and downward referrals on the ground.
- Tele-medicine through e-Sanjeevani has not resulted in meaningful services for people and has instead adversely impacted services as community health officers (CHOs) spend considerable time on this activity. There is poor feasibility of developing linkages between HWCs and health insurance schemes like the Pradhan Mantri Jan Arogya Yojana or the Dr. Khubchand Baghel Swasthya Sahayta Yojana (DKBSSY). This is because HWCs rarely function as gatekeepers for inpatient care referrals. They also do not attract inpatients as their services are more outpatient focused. Most referrals from HWCs are for outpatient care.

ii. Primary health centres

Around 42% PHCs had medical officers (MOs) posted in their premises with around 50% being through bond postings. The RMAs were available in all PHCs which remained the most important factor providing stability to services in PHCs. A comparison of services in the PHCs, with and without MOs showed that PHCs with regular MOs performed well in providing improved quality of health care services. The MOs were found to be handling and managing emergency cases like snakebite and poisoning. Posting bonded MOs did not show any major benefit because most of them treated it as a short-term assignment with no long-term

commitment and accountability. The MOs from PHCs were often attached at CHCs, leading to gaps in service delivery.

The lack of availability of diagnostic tests severely impacted decision-making at PHCs. It was found that the haemoglobin followed by blood sugar test (glucometer strips) was available in majority of the PHCs while the complete blood count (CBC) was not available at any of the facilities visited. Moreover, ANC was the most common health care service being provided, while services like resuscitation to newborns or caring for a sick newborn were provided by only 40% of sampled PHCs.

iii. Primary care capacity to respond to health emergencies

Primary care teams developed their capacities in contact tracing, early identification and supportive management with appropriate infection control or safe onward referrals. The PHCs and HWCs developed their capacities for surveillance, screening, and testing of suspected cases. However, in the case of syndromic surveillance, Mitnin-CHWs played a central role in performing these tasks.

- Monitoring of COVID-19 cases in home isolation was found to be weak and there were inconsistencies in the quality of training provided to Mitnin-CHWs. The state was able to continue certain essential health services (EHS) like immunization and ANC during the pandemic. Although, the deliveries were shifted from higher to lower level of (more rural) facilities, active case finding (ACF), and detection of tuberculosis (TB) reduced and is yet to be resumed at pre-pandemic levels. Meanwhile, curative care services suffered the most during the pandemic, especially at the secondary and tertiary levels of care.
- Interestingly, at the HWCs-SHCs, curative care was provided to communities to a large extent by primary health care teams. The Mitnins assisted in delivering medicines to hypertensive and diabetic cases at their home to ensure management and follow-up care.

iv. Referral transport

In most of the months during the data collection period, the cases brought by the 102 ambulances out of the total reported institutional deliveries on average, stood at below 40%.

- Of all the trips which were made by the ambulances, their utilization to drop the mother and newborn back home remained the highest (37%). More than 60% deliveries at public institutions/hospitals were not through the free referral transport service. This impacted the outcome of high-risk pregnancies which tended to suffer due to delay in reaching the health facility.
- The study found that the protocol to refer delivery cases was not well established. It was mandated to transfer the high-risk pregnancies to the first referral units (FRUs) where emergency obstetric care was available. Instead, the 102 vehicles would first take them to the nearest government facility i.e., SHC or PHC where no emergency obstetric care was available as 102 did not have a list of functional FRUs. This led to loss of critical time to care.
- With around 370 ambulances and a performance benchmark of four trips per day per vehicle, the maximum number of beneficiaries that could be transported in a month was

around 44 000 which was below the requirement. Given the larger distances between health care facilities and limitations in transport, especially in tribal areas, this number should be increased.

- Poorest coverage was observed in case of sick newborns, including special newborn care unit (SNCU) referrals, follow-up, and discharge. The infants being referred to the Nutrition Rehabilitation Centres (NRCs) was almost nil.

v. Community health centres

Most doctors in the CHC are Bachelor of Medicine and Bachelor of Surgery (MBBS) graduates since specialists are available in very few places. The average OPD cases in CHCs was 16 per doctor per day. The range of diagnostic services in most CHCs was poor. Out of the 19 CHCs covered, only three conducted caesarean deliveries and another three despite having the required combination of gynaecologist/emergency obstetric care (EmOC) and anaesthetist/lifesaving anaesthesia skills (LSAS) in-position, reported no caesarean deliveries over the preceding month. The CHCs were found to only conduct a few surgeries and not provide services for any mental illness or related disorders.

vi. District hospitals

The average OPD per DH was around 7000 a month, but this varied widely. The availability of doctors in a DH ranged from 17-57 with an average OPD of 10 cases per doctor per day. Many specialists posted under the state bond had not yet received separate rooms or chambers for consultation. Further, no name boards were available so beneficiaries could know if the specialists were available in the hospital or not. In addition, specific instruments were unavailable for undertaking diagnosis and treatment by the specialists. Hence, these specialists too were undertaking OPD consultation for general cases of cold, cough and fever, besides cases that were unrelated to their specialties.

- The evening OPD was mostly managed by two to three MOs. Diagnostic tests such as thyroid function, electrophoresis and HBA1C were not being conducted by most DHs. It is important for these tests to be made part of their essential functions and to act as a hub for CHCs and PHCs.
- Caesarean sections were being conducted in all DHs. However, these surgeries ranged from 3-138 a month. Most DHs were performing C-sec on elective basis in the daytime. The main reason for low C-sec rates was non-availability of trained staff to manage the facilities at night. Almost all DHs were equipped with operation theatres (OTs) to perform regular cataract surgeries that varied from 12-300 a month.
- Patients undergoing treatment for hypertension and diabetes who availed treatment varied from around 50-200 across facilities every month. Services for mental illnesses were being provided in most DHs. Curative services for cancer-like chemotherapy were at a very early stage of being established and need further strengthening and linkages with tertiary care facilities.

vii. Health workforce

Based on policy suggestions that were made in 2018 after a detailed HLMA¹ report, which was supported by WHO, the state was able to address many HWF issues. Adoption of several policy recommendations including organization of recruitment drives in a time-bound manner led to a streamlining of HWF across Chhattisgarh, including hard-to-reach areas. However, a few gaps were identified during the field visit that still needed attention and are detailed as under:

- despite impressive jump in number of specialists, there was considerable gap with 66% vacancies in the state.
- success in improving availability of specialists so far has been largely limited to the DH, while the CHCs continued to face a severe shortage of specialists.
- transfer policy to facilitate adequacy in number of doctors in tribal areas suggest a mandatory fixed term (5-7 years) posting in rural and remote areas for each doctor. However, this is yet to be formulated and implemented.
- increase in the Chhattisgarh Rural Medical Corps (CRMC) incentives and salaries of health care workers which was implemented in the year 2011 but not provided at regular time intervals; and
- UG doctors on bond may not be suitable to build strong services in PHCs.

viii. Community processes

Mitanin CHWs in Chhattisgarh were able to achieve high coverage rates and provide care to newborns and sick newborns, fever and malaria cases and those suffering from diarrhoea etc. Mitanins also fill the family-folder and CBAC forms and submit them to their HWC, identifying the high-risk cases in the community.

The smaller population size that a Mitanin catered to (one-third of the population looked after by the ASHAs, as per the national norm) was a key factor to achieve the desired contact with families and provide need-based services. This also indicated that there was a need to reduce the population served per ASHA (as per national norms) by increasing the number of ASHAs. The existing HWC team-based incentive therefore must be paid to Mitanins.

Recommendations

Health and wellness centres

- **Strengthen the skills of CHOs in disease management:** In case of acute problems, CHOs can be trained to play a better role in stabilization, before they make a referral to the appropriate higher-level facility for secondary and tertiary care.
- **Ensure availability of designated medicines of optimal quality:** For chronic illnesses, HWCs can play a role in ensuring availability and adherence to the medication regimen after the confirmatory diagnosis and treatment prescription.
- **Bring about a shift in programme monitoring:** The current programme monitoring followed a heavy “top-down” approach with a design that was decided by the central

1. https://www.who.int/docs/default-source/searo/india/publications/policy-brief-health-labour-market-analysis9-july-2020.pdf?sfvrsn=102d865d_2

ministry. It tended to focus on target-based telemedicine, online data entry and reporting and yoga. This did not aid progress towards the fundamental purpose of HWCs, which was to provide need-based primary care to people. The emphasis in programme monitoring should shift to the quality of health care services and to providing a range of primary health care services, following a patient-centric approach. This will ensure availability of essential medicines and appropriate diagnostic services that are needed for screening and confirmatory diagnosis, regular check-ups, and community-based follow-up.

- **Provide free referral transport:** To make sure that effective referrals take place from HWCs to higher facilities, free referral transport may need to be provided. Moreover, the linked PHC should deploy an ambulance to cater to referral needs of each HWC on a fixed day of the week.
- **Initiate team-building efforts among CHOs, ANMs, male multipurpose workers (MPW), Mitanins and Mitanin Trainers (MT):** The core primary health care team must receive regular training. Further, linkages between PHCs and HWCs should be strengthened so that CHOs can get necessary advice for handling a variety of primary care needs from MOs or rural medical assistants (RMAs) working in the PHCs.

Primary health centres

- **Post MOs to remote areas:** A regular cadre of MOs should be posted in each PHC with preference to PHCs in remote areas and those farthest from existing CHCs and DHs.
- **Assign one LT in all PHCs:** The position of LT should be approved, which is a requirement under the Indian Public Health Standards (IPHS) norms (2012 and 2021). No substitutional or temporary attachment of LTs to CHCs should be permitted.
- **Equip PHCs with automatic haematology and biochemistry analysers:** All PHCs should be equipped with automatic haematology and biochemistry analysers, and they must function as hubs for their linked SHCs.
- **Ensure regular training and skill building of MOs, nurses and ANMs:** It would be important to train all MOs and RMAs through short courses that sharpen skills to diagnose and treat the entire range of illnesses, including those which occur sporadically in the region. Nurses and ANMs in PHCs need to be adeptly trained in the management of birth asphyxia and initiating of Kangaroo Mother Care (KMC) for low-birth-weight babies, in addition to the expanded range of services that are required.
- **Ensure availability of essential and other drugs:** Despite the EDL 2021 for the state, the CGMSC and PHCs need to maintain adequate buffer stock levels for all drugs. They must ensure that only quality checked drugs are provided and optimally stored and transported.

Managing emergencies

- **Provide essential equipment to Mitanins:** Mitanin-CHWs must always be equipped with pulse oximeters and other oxygen products. Also, they must be trained and updated on all protocols.
- **Factor in additional remuneration for emergency work:** As an ongoing process, the

Mitanin-CHWs must be equipped and trained. Also, they must be paid for their role in emergencies, including monitoring of home isolation cases.

- **Engage additional health workforce to maintain required surge capacity:** This will help in simultaneously managing emergencies and ensuring continuity of essential primary health care services. It is also advised to identify and nominate members for emergency response who can be immediately deputed for crisis management. Assigning them pre-defined roles and responsibilities will reduce inconsistencies, overlap and lack of clarity in providing care. Further, to ensure regular services are not hampered, other health care personnel too must continue to provide essential services.
- **Conduct periodic drills:** A system should be in place that makes mandatory drills a regular feature and HWC and PHC teams responsive to different emergency scenarios.
- **Expand emergency referral transport:** The 108 fleet should be expanded to allow for timely referrals needed during emergencies and to ensure the care continuum.

Referral transport

- **Increase fleet of 102 ambulances:** It is recommended to increase the number of 102 ambulances to about 800 vehicles across Chhattisgarh.
- **Prioritize ambulances with a government directive:** Provide a detailed standard operating procedure (SoP) with a government order to prioritize the 102 ambulances when competing demands exist. This includes triaging and classifying cases as severe (all deliveries, sick newborn referrals) and others.
- **Ensure referral protocols for high-risk pregnancies are followed:** Specific referral protocols for high-risk pregnancies should be ensured directly from their home to the nearest functional FRU, irrespective of the district boundary and distance. The list of functional FRUs should be provided by the directorate of health to 102 ambulances and call centre.

Community health centres

- **Rationalize distribution of MOs:** Though there are enough MOs for overall functioning of CHCs, their distribution needs to be rationalized to ensure each CHC gets at least four MOs, including specialists.
- **Revisit curricula and make it more student-friendly:** The postgraduate (PG) diploma in family medicine should be started and positions created accordingly. Short courses must be designed and implemented to address specific skill gaps for enhanced service delivery.
- **Prioritize mental health and emergency care:** For treating mental illnesses, CHCs should have at least one MO trained in early identification, diagnosis, and determination of the care regimen. Skill-building is required for emergency care management and stabilization of the patient before making referral to higher centres.
- **Fill up all vacant positions and upgrade skills:** For FRU-CHCs, the gynaecologist-anaesthetist combination must be in-position and vacancies filled-up. Some doctors

trained in these skills would require to be re-skilled as they have limited confidence in performing skilled-based care in the existing set-up. The undergraduate (UG) doctors trained in LSAS need to be retrained or mentored to carry out the role of anaesthetist in FRUs. In addition, monitoring of these CHCs on their performance post trainings and capacity building, should be enforced.

- **Have in place a system to procure reagents and upgrade FRU-CHCs:** Diagnostics are very weak in most CHCs. User fees are being charged at public facilities for tests. Lack of a system for procuring reagents continues to be the main challenge. The model of Hamar Lab has been piloted by few CHCs in the state and should be replicated in all CHCs in a time-bound manner. It is suggested that FRU-CHCs be upgraded on priority. Also, ultrasonogram (USG) should be provided in all FRU-CHCs along with a well-functioning lab and LT.

District hospitals

- **Position one MO in every PHC:** Many DHs had an excess number of undergraduate MOs. It is suggested that the additional workforce in terms of regular MOs be sent to PHCs which allowed all PHCs to have an MO each for better functioning and gatekeeping.
- **Prioritize presence of specialists in DHs:** For each specialty, the DH-wise priority for filling the specialist position needs to be decided. Having at least two anaesthetist and gynaecology specialists in every DH must be prioritized. Paediatrics, medicine, surgery, ophthalmology, and orthopedic surgery can be the other key specializations that should be made available in each DH.
- **Strengthen provision of mental health services:** For diagnosing and treating mental illnesses, each DH should have at least two to three MOs trained in collaboration with the National Institute of Mental Health (NIMH) and Neurosciences (NIMHANS), so that each day a minimum of one MO is available to provide mental health-related services.
- **Provide dialysis and chemotherapy services:** The model of Hamar Lab can be replicated in a time-bound manner and ensure a hub and spoke model with the other tier of health-care facilities. In-addition, USG should be provided in all DHs along with the required health care staff for its optimal utilization. User fees should be removed for availing any of the services at the respective DH.

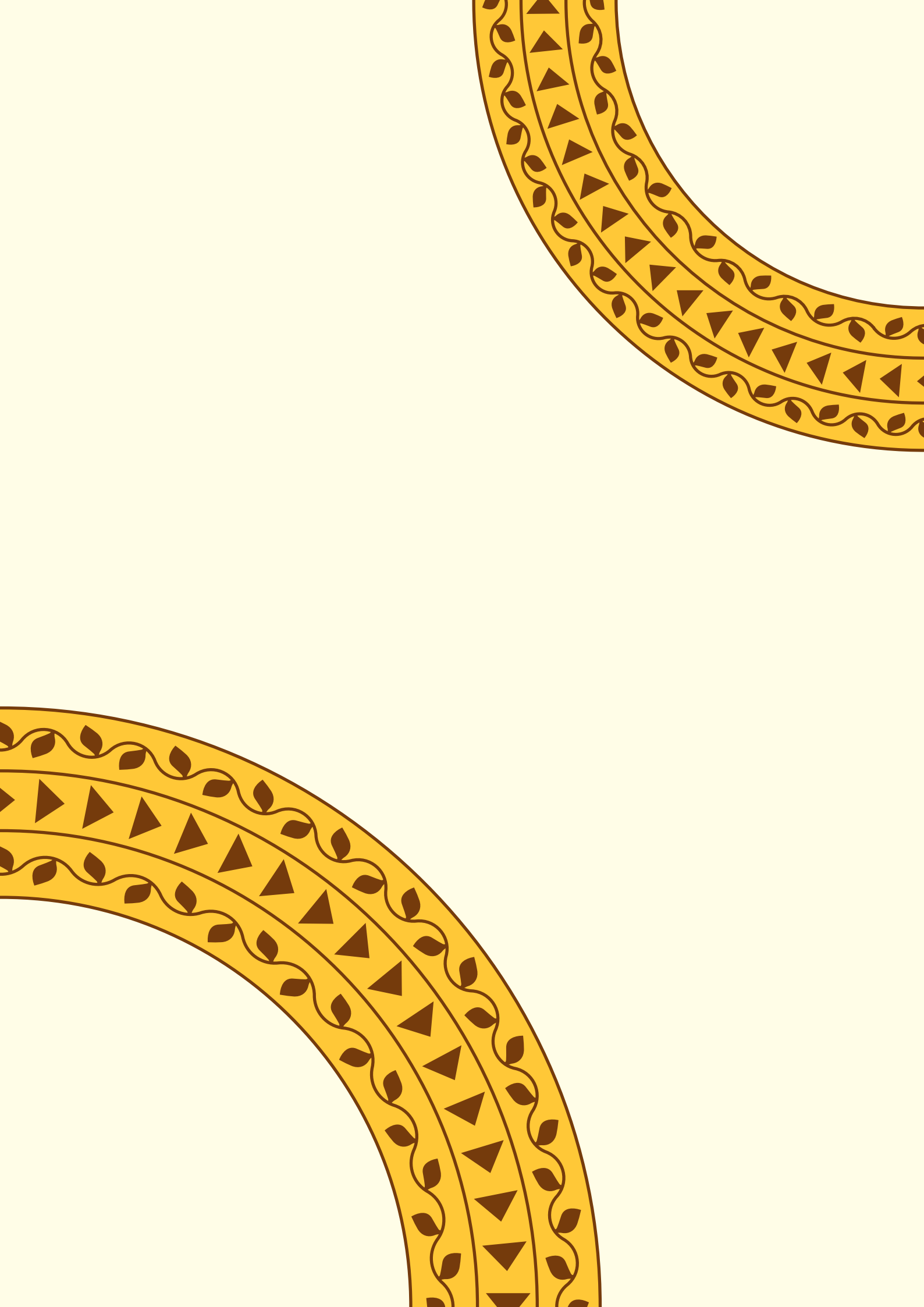
Health workforce

- **Provide an increased remuneration and other fixed-term benefits to retain doctors:** This decision would help with using flexible resources at district level for hiring specialists on an annual contract. It would also increase the amount of incentive for working in remote hard-to-reach areas and introduce a transfer policy to prioritize tribal areas. It is suggested that a mandatory fixed term (5-7 years) posting in rural and remote areas is ordained for each doctor.
- **Expand platforms for multiskilling of UG doctors and train them in specialist skills:** Short courses must be offered along with incentives or recognition to help meet health care needs. Opportunities for skill-building of recruited doctors must be an ongoing process as their competence and soft skills are strengthened.

- **Undertake research on multiple topics and across levels of hierarchy:** Further research is recommended to understand determinants of performance of health workforce including specialists, UG doctors, health administrators (Chief Medical Officer, Block Medical Officer, Hospital Superintendents) and training needs assessment to improve their competencies.

Community health workers

- **Step-up the role of Mitanins:** Include a policy to train, equip and support Mitanins or ASHA-CHWs to play a major role in each component of comprehensive primary health care (CPHC).
- **Equip Mitanins with appropriate equipment:** All Mitanins must be provided with blood pressure (BP) measurement instruments. This will add to the effectiveness of current efforts on hypertension and prevention of strokes.
- **Improve compensation to Mitanins:** Another suggestion relates to increasing the payments made to Mitanins based on their time-use pattern.



Background and methods

1.1 Background

According to WHO, primary health care is the best approach to ensure access to equitable health care at a much lower cost. It significantly reduces the need for secondary and tertiary care. It also includes essential public health functions, including approaches for health promotion, health protection and disease prevention, which are efficient ways of addressing poor health, especially amongst vulnerable population. Primary health care and public health workers are likely to be the first point of contact (PoC) for the community to seek care and are an essential foundation for health emergency and risk management. They also help with building resiliency in the health system.

The concept of primary health care is not new and has been emphasized and reiterated at various platforms over the years. The Alma Ata Declaration that was signed by 134 states (including India) in 1978 was a major milestone in the history of primary health care. India has committed to provide primary health care to its citizens.

A 2008 WHO Report on ‘*The primary health care India scenario*’ (1) quotes, “India was one of the first countries to recognize the importance of a primary health care approach. The PHC was conceptualized with the recommendations of the Bhore Committee that provided details on the organization of services in India in the year 1946. Next, it was the responsibility of the state to provide comprehensive primary health care to its people as envisioned by the declaration that led to the formulation of India’s first National Health Policy in 1983.

WHO differentiates primary health care, which is more of a whole-of-society approach to health, from primary care - the first contact for health services. The latter is people-centered, continuous, and comprehensive. It calls for coordinated investments in illness treatment alone, which are rarely likely to suffice, given the mounting costs of health care. This points to the growing realization that the world has to spend on prevention of disease and on educating the population on risk factors and lifestyle related illnesses, if they want an improved health system that can safeguard and promote their health. (2)

Thus, primary care is the ideal driver for this care as it has pre-existing links with communities with capacities to understand the environmental, social, and cultural elements that affect health. The 40 years of declaration of Alma Ata has seen various commitments by the Government. This guides the implementation of primary health care and more recently, CPHC through the National Health Mission (NHM).

In India’s 2017 National Health Policy, the government pledged to devote a significant share of resources to primary health care. The global commitment to primary health care has been reconfirmed in the Declaration of Astana, 2018 and the United Nations General Assembly high-level meeting on universal health coverage (UHC) in 2019. India has also seen an upswing in

its national commitment to implement PHC.

The PHC is also being seen as critical to making health systems more resilient to situations of crisis, such as the COVID-19 pandemic. While the pandemic is yet to be completely over and infection surges from new strains are likely to strike the country every now and then, there will be recurring demand of COVID vaccination from time to time. This is over and above the need to cater to the primary and secondary care health needs of communities, especially for the most vulnerable populations, such as pregnant mothers, children, older persons, people living with chronic conditions, and those living with disabilities. Moreover, those in settings that have underdeveloped secondary and tertiary health systems would be more at risk.

1.1.1 Chhattisgarh's public health system

Chhattisgarh is a relatively young state in India. It was carved out of Madhya Pradesh in 2000. It has a population of around 29.4 million (2020) and has 28 districts, divided into five administrative regions called divisions. It is primarily an agrarian state, with 77% of its population living in rural areas. Scheduled tribes (STs), a vulnerable group, make up 31% of the state's population which is almost four-fold of the national average of 8%. The state has two kinds of geographies that include the central plains region with high population density and an undulating plateau around its periphery. There is the Surguja region in the north and Bastar region in the south that form the main tribal regions.

The public health system of Chhattisgarh has basically three tiers, namely the HWCs, SHCs, PHCs and CHCs.

Health and wellness centres-sub-health centres: The SHCs now transformed into HWC-SHCs are the most peripheral and first PoC between the primary health care system and the community. They are established over a population of 3000-5000 and were previously manned by a female and male health worker. Now with the transformation of SHC into HWC-SHC, a CHO is posted at these centres. The state has 5206 SHCs which are located mainly in rural areas.

Primary health centres: The PHCs are supposed to be the first PoC between the population and MO and should serve as the first point of referral. They provide integrated curative and preventive health care to the rural population with an emphasis on preventive and promotive aspects of health care. These PHCs are established for a population of 20 000-30 000. There are around 793 sanctioned PHCs in the state.

Community health centres: The CHCs are the secondary level of health care providing referral health care to cases referred from PHCs and care to cases that are approaching directly. The CHCs are required to have four medical specialists (surgeon, physician, gynaecologist, and paediatrician) with availability of IPD, OT, X-ray and expanded laboratory facilities. There are around 171 sanctioned CHCs in the state. At the district level, a DH for a population of around one million exists and there are 25 DHs in the state.

1.1.2 Chhattisgarh and its journey towards universal health coverage

The state is committed to move towards UHC and the current government has included it as a priority in its manifesto. The state has been a pioneer in starting a large CHW programme

called the Mitanin Programme in 2002 and has made considerable efforts strengthening PHC for UHC.

An important boost to the system of health care provision came after the commencement of the National Rural Health Mission (NRHM) in 2006-2007. Under NRHM, the Central Government started allocating additional funds for strengthening primary health care services by providing additional HR, training of existing HR, and improving basic infrastructure and supplies.

More recently, a central policy of '*Comprehensive primary health care*' has been initiated in Chhattisgarh. The first AB-HWC was launched on 14 Feb 2018, in Jangla in Bijapur District of Bastar Division marking the roll-out of this initiative across the country. Around 4000 HWCs have been made functional for providing a comprehensive range of primary care services closer to where people live.

In 2018, with the help of WHO, Chhattisgarh undertook a HLMA which was useful in identifying key HWF gaps and underlying issues related to delivering quality health care services. Specific policy recommendations were made and adopted by the state. With the expansion of the primary health care team to deliver an expanded range of services, there is now a felt need to identify the next set of health workforce issues which should be addressed for improved PHC services.

In 2020, clinical skills of mid-level health providers (MLHPs) were assessed, and it was found that they were able to provide an expected level of primary care for some of the conditions. However, further strategies are needed to enhance their skills for delivering quality care on a wide range of primary health care services.

A demand-side assessment of health care services was done in Chhattisgarh to understand the community's perceptions and acceptance of health services provided through public facilities. There is now growing need to assess the functioning of the interface between communities and the health system in the context of primary health care.

The research was directed to identify strategies for better coverage and care provisioning while resolving health workforce issues and strengthening of health care facilities. This would ensure primary health services with a continuum of care approach with higher facilities and preparedness with a view to develop resilient health systems that can advance the aim of achieving UHC and health security.

The current study aims to assess primary health care service provisioning in Chhattisgarh and to suggest strategies for strengthening the health workforce and community processes.

1.1.3 Study objectives

- To assess the current provision of primary health care in Chhattisgarh, including population coverage, range of services and continuum of care.
- To assess adequacy of existing facilities and systems for ensuring the inputs necessary for providing primary health care.
- To assess adequacy of the existing system in being prepared to continue essential health

care services during emergencies.

- To examine health workforce issues in ensuring primary health care.
- To assess the role being played by community processes in enhancing access to primary health care; and
- To identify and document best practices in the field that have shown promise in improving primary health care, including continuum of care.

1.1.4 Literature review

Commitment by the country to provide CPHC led to the formulation of India's first National Health Policy in 1983. There is growing realization that investments in illness treatment alone will always be inadequate and that more funds will need to be budgeted for prevention, education, and improved health systems to adequately safeguard and promote health.

These 40 years of the declaration of Alma Ata in the country have seen various commitments by the Government to implement primary health care and more recently CPHC through the Ayushman Bharat - HWC programme under the NHM. In India's 2017 National Health Policy, the government pledged to devote a significant share of resources to primary health care. The 150 000 HWCs, which intended to become a major PoC for communities within the public health system, turned into a key initiative for achieving this goal. (2)

These centres will offer comprehensive health care, covering around 70% of outpatient treatment, including noncommunicable diseases (NCD) and mother and child health (MCH) services. They would also offer free essential medication and diagnostic services, in addition to referrals made to secondary and tertiary health care for an advanced level of care.

For provision of primary health care in rural areas, a three-tier system exists based on population norms that are used and they provide the first PoC between the health system and local population.

A study (3) collected data from five states across India covering interventions that ensured continuum of care for hypertension during the COVID-19 pandemic. It reported that among 721 675 patients registered until March 2020 and 38.4% had received drug refills through HWC-SHC or home delivery by Frontline Health Workers (FLWs) during the lockdown.

The study demonstrated the feasibility of community-level drug distribution for patients with hypertension during the COVID-19 lockdown in India through CHWs. The adaptive strategy of community-based drug distribution through HWC-SHC and home delivery appeared feasible and may help improve access to hypertension care during the pandemic and beyond.

Another study was conducted on the preparedness for delivering NCD services in primary care in terms of access to medicines for diabetes and hypertension in a district in south India. The group reported that many households depended on private facilities for diabetes and hypertension related care because of the lack of laboratory facilities and frequent medicine stock-outs at PHCs. Financial and managerial resource allocation for NCDs and prioritization of care and processes related to NCDs too was suboptimal.

The study found critical gaps in preparedness of PHCs and district health systems in organizing and managing care. Due to a lack of continuous care organized through the PHCs, patients tended to depend on expensive and often episodic care that is available in the private sector. It therefore became imperative for there to be an improved managerial and financial resource allocation towards diabetes and hypertension (and other NCDs) at the district level. (4)

A quantitative assessment using primary household surveys of high-burden areas in Chhattisgarh studied the coverage of community case management for malaria through CHWs. The study reported that in 2018, 62% of febrile cases in rural population contacted CHWs and rapid diagnostic tests (RDTs), artemisinin-based combination therapy (ACT) and chloroquine was available with 96%, 80% and 95% of CHWs, respectively. It was seen that between 2015-2018, the share of CHWs in testing of febrile cases increased from 34% to 70%, while for providing treatment for malaria, it increased substantially from 28% to 69%. The CHWs performed better when compared to other providers for treatment completion and administration of medication under direct observation to 72% cases which they treated.

This study adds to one of the most crucial but relatively less reported areas of community case management of malaria (CCMM) programme, i.e., the extent of coverage of the total febrile population by CHWs, which subsequently determines the actual case management for malaria. Mitanin-CHWs achieved high coverage and treatment completion rates that were rarely reported in the context of large-scale CCMM elsewhere. Closer to the community, well-trained CHWs with sufficient supplies of rapid tests and anti-malarial drugs can play a key role in achieving the desired malaria co-management. (5)

Another study was conducted to assess the implications of providing universal access to essential medicines in Rajasthan, India in 2011. It was based on a centralized procurement and decentralized distribution model. In terms of the three dimensions of UHC, the scheme made significant positive strides within a short period of its implementation. The key objectives of this paper were to assess the likely implication of providing universal access to essential medicines in Rajasthan, which has a population of 70 million. Primary field-level data was obtained from 112 public health care facilities using multistage random sampling.

The National Sample Survey Organization (NSSO) data and health system data were also analysed. The per capita health expenditure during the pre-reform period was estimated to be USD 5.7 and was closer to USD 50 after the intervention. The availability of essential medicines at the public facilities was found to be encouraging and the utilization of health care services at these facilities showed an increase. With additional per capita annual investment of USD 43, the scheme brought about several improvements in the delivery of essential services. It also increased utilization of public facilities in the state and, as a result achieved an enhanced efficiency in the system. Although there was an attempt to convert the scheme into a targeted one with the change in government, strong resistance from civil society resulted in such efforts being defeated and the universality of the scheme being retained. (6)

Using data from the Indian National Family Health Survey (NFHS) 2015-2016, a study investigated the intensity of engagement of FLWs with married women of childbearing age (15-49 years), its influence on utilization of MCH care services, and child health outcomes. The study reported that maternal engagement with FLWs is statistically significant and a positive predictor of MCH care utilization and child survival. Further, the level of engagement with FLWs is particularly important for women from economically poor households.

From a policy perspective, the findings highlighted that strengthening the network of FLWs in areas where they are in shortage, can help in improving utilization of MCH care services and health outcomes. Also, the role of FLWs in the government health system needs to be enhanced by improving skills, the working environment, and greater financial incentives. (7) Another study was undertaken to observe the association between supportive supervision and performance of CHWs in India, through a longitudinal multi-level analysis. The study found that among 809 CHWs, baseline proportion of better performers stood at 45%. Compared to CHWs who received lower intensity of supportive supervision, CHWs who received greater intensity of supportive supervision had 70% higher odds (AOR 1.70, 95% CI 1.16, 2.49) of better performance. This was calculated after controlling their baseline performance, CHW characteristics such as age, education, experience, caste, timely payment of salaries, anganwadi centre (AWW) facility index, motivation, and population served in their catchment area.

A test of mediation indicated that supportive supervision was associated indirectly with CHW performance through improvement in CHW knowledge. Higher intensity of supportive supervision was associated with improved CHW performance directly and through the knowledge of CHWs. Leveraging institutional mechanisms such as supportive supervision could be important in improving service delivery to reach beneficiaries and potentially better infant and young child feeding practices (IYCF) and nutritional outcomes. (8)

Another study was undertaken to assess the clinical competence of mid-level health providers in Chhattisgarh. The assessment involved a comparison of CHOs with RMAs and MOs. Standardized clinical vignettes were used to measure knowledge and clinical reasoning of providers. The overall mean scores of CHOs, RMAs and MOs were found to be 50.1%, 63.1% and 68.1%, respectively. These were statistically different ($p < 0.05$). The adjusted model also confirmed the above pattern. It was found that CHOs performed well in clinical management of NCDs and malaria. They also scored well in clinical knowledge for diagnosis. Around 80% prescriptions written by CHOs for hypertension and diabetes were found correct.

The non-physician MLHP cadre of CHOs was deployed in rural facilities under the current PHC initiative in India. They exhibited the potential to manage ambulatory care for illnesses. Continuous training inputs, treatment protocols and medicines are needed to improve performance of MLHPs. Making comprehensive primary care services available close to people is essential to any PHC. Additionally, well-trained mid-level providers will be crucial for turning it into a reality in developing countries. (9)

A study to analyse complexities in team-based primary health care for NCDs was conducted in South India. It reported main barriers to implementation as hierarchical arrangements that inhibited team-based care; amount of time required for counselling; and staff transfers. It was noted that team cohesion, additional staff and staff motivation facilitated implementation. This quality improvement research highlights the importance of building relational leadership to enable team-based care at primary care clinics in India. Redesigned organization of care and task redistribution are acknowledged as important solutions to deliver quality chronic care. However, implementing these will require capacity-building of local primary care teams. (10)

1.2 Methods

1.2.1 Study design

The study used mixed methods that included facility surveys, qualitative methods and FGDs. **Facility surveys:** Quantitative checklists were used to collect data from different type of facilities. Data from SHCs (HWCs) and PHCs was collected to understand the extent of primary health care services being provided. To find out the referral linkages of the primary care services, facilities of CHCs and DHs were included. Data was also collected on inputs and output related aspects.

- HR data for doctors, staff nurses and other relevant health staff at the facilities was collected. Data on where the health care staff was serving was captured rather than the place of their posting. This enabled the study team to capture ‘attachment’ postings for staff posted from other facilities as well as any staff which was at the time of the study not serving at the sampled facility and was therefore excluded from the total staff count. Along with collection of data, a visit to the entire facility was made to cross-check and verify the data that was provided.
- Services data for PHCs was captured for OPD, IPD, deliveries, C-sec, general surgery, hypertension, diabetes, mental illness, emergency and NCDs. Also, other services of newborn resuscitation, sick newborn treatment, ANC, chemotherapy, and dialysis, depending on the level of facility was included.
- Drugs and the data on pre-selected drugs defined for each facility level was collected. Current available stock on the day of visit was captured.
- Regarding diagnostics, both input and output related aspects of data were collected. The type and number of tests conducted was also captured during the visit.

Qualitative methods: Interviews with different stakeholders were conducted to understand the reasons for deficiencies that existed, if any and to understand the reasons to stay motivated for good performance. Information on variables was collated even though this was difficult to capture using quantitative methods. Individual perceptions were avoided to the extent possible, and effort made to capture and document under broader heads. Interviews were conducted with different stakeholders that included, specialists, MOs of DH, CHC and PHC, RMAs, CHOs, civil surgeons, staff nurses and hospital consultants.

Focus group discussions: The FGDs were held with Mitanins in the different districts. They helped understand community perceptions related to the reach and availability of primary health care. The secondary data available on community processes for various programmes was used to elaborate on key findings.

1.2.2 Sampling

Sampling for the quantitative survey: All five administrative divisions were covered to ensure geographical representation and to get a representative sample for the entire state of Chhattisgarh.

- At least two districts from each division were included in the study design
- Five HWCs were included from each district

- Two PHCs, one CHC and one DH in each of the districts was selected
- Community-level discussions with Mitans were held in all divisions

As the study progressed, based on availability of time, an additional number of districts and facilities were also covered. A total of 20 districts were covered for facility surveys and the same are listed in Table 1. The survey covered 79 HWCs, 35 PHCs, 19 CHC and 16 DHs. In three districts where medical colleges were present, data was not included.

Table 1: Districts and facilities covered under the study

District	SHC	PHC	CHC	DH
Balrampur	Chhatwa Pipraul Khajuree Baskepi Daldhoba	Sabag	Rajpur	District hospital
		Bhunsikala		
Bastar	Bodanpal Jamawada Sadra Bodonar Potanar Toyar	Adawal	Tokapal	District hospital
		Kalepal		
Bilaspur	Sewar Kaudia Sakri Kalmitar	Kargikala	Masturi	District hospital
		Seepat		
Dhamtari	Bhothali Goregao Garadi Tirra Mandraud	AklaDogri	Gujra	District hospital
		Chatod		
Janjgir	Baruka Koma Sankara Bardulla Nishtiguda	Dhorkot	Pamgarh	District hospital
		Baragaon		
Jashpur	Ichkela Chatakpur Fatehpur Sogda Keradih	Aara	Duldula	District hospital
		Kastura		
Kawardha	Bardi Kusumghata Navghata Biptara Kamthi	Bamhni	Pipariya	District hospital
		Pondi		

District	SHC	PHC	CHC	DH
Kondagaon	Madanar Alor Aanwari Hadigaon Badagaon	Lanjoda	Keshkal	District hospital
		Adenga		
Mungeli	Patthargadi Fulzar-a Zafal Temri Udga	Khudiya	Lormi	District hospital
		Pandarbhata		
Surajpur	Shivprasad Bank Madneshwar Matigadha Pachira	Salka	Bishrampuri	District hospital
		Lanjit		
Gariyaband	Baruka Koma Sankara Bardulla Nishtiguda	Khadma	Fingeshwar	District hospital
		Kochway		
Koriya	Putra Devari Salka Saraigahana Modipara	Katgodi	Sonhat	District hospital
		Mansukh		
Raigarh	Salheona Farkanara Madhopali Tarpali Nawagaon-Amapali	Sambalpuri	Pussore	
		Barra		
Rajnandgaon	Khamera Devaribhat Accholi Rengakathera Dhaurabhata	Mangta	Dongargaon	
		Tumdibod		
Korba	Chorbhatti Kotmer Naktikhar Kaldamar Pahanda	Kudmura	Katghora	
		Korkoma		
Balod		Purur	Gurur	District hospital
Bemetra		Batar	Khandsara	District hospital

District	SHC	PHC	CHC	DH
Baloda Bazaar		Sandibangla	Pallari	District hospital
Mahasaund		Khallari		
		Komakhan		
Raipur	Goirod Sarora Patewa Manabasti Dulna			District hospital

Sampling for the qualitative study: Prior to the field visits, checklists were prepared for the group and individual interviews conducted. Informed consent from all participants was taken before starting the interviews. The qualitative study was rolled-out in each group of the facilities as indicated in Table 2. Data collected through key informant interviews (KIIs) with specialists of different domains (MOs of DH, CHC and PHC; RMAs; CHOs; civil surgeons; staff nurses and hospital consultants).

Table 2: Facilities visited for qualitative interview

Name of District	Name of the facility
Bemetra	District hospital
	Community health centre
	Primary health centre
	Sub-health centre-health and wellness centre
Mahasamund	Primary health centre
Dhamtari	District hospital
	Community health centre
	Primary health centre
	Sub-health centre-health and wellness centre
Kanker	Community health centre
	Primary health centre
Balod	Sub-health centre-health and wellness centre
Mungeli	Sub-health centre-health and wellness centre

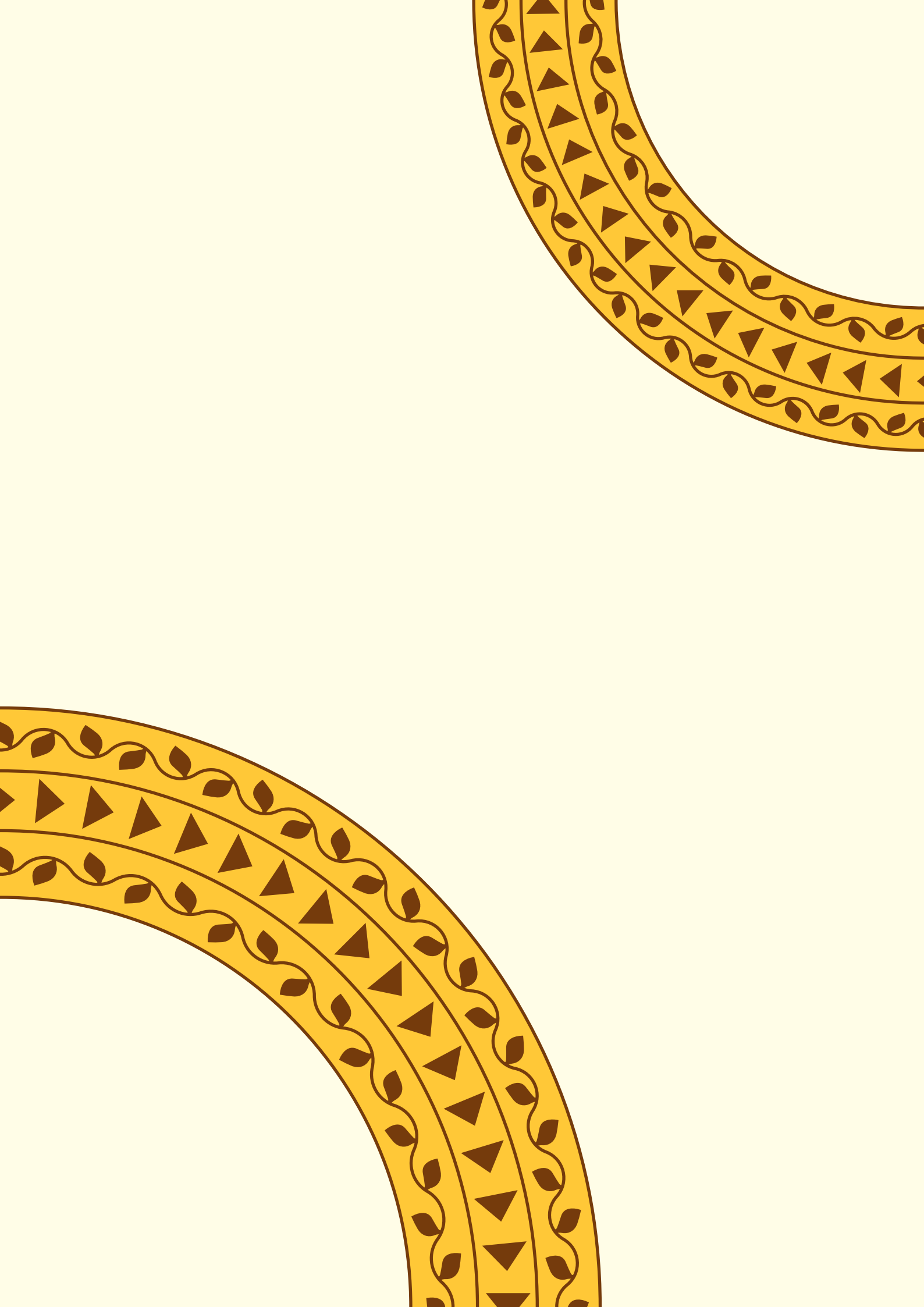
As part of the FGDs with Mitanins, a total of 12 FGDs were conducted in seven districts where 115 Mitanins participated. These covered a mix of tribal and non-tribal districts that included Sukma, Dantewada, Bastar, Mahasmund, Korba, Raipur and Surguja.

1.2.3 Data analysis methods

Descriptive comparative analysis was undertaken using cross-tabulations for quantitative data, in addition to the thematic analysis of qualitative data of interviews and FGDs.

1.2.4 Ethical considerations

Informed consent was taken verbally before all interviews for the quantitative survey and qualitative study. Ethical approval of the State Health Resource Centre (SHRC) ethical committee was also taken prior to embarking on the study.



Health and wellness centre and sub-health centre

According to WHO, primary health care is the best approach to ensure access to health care with equity and efficiency. There is global evidence that provision of primary care reduces morbidity and mortality at much lower costs. It brings drastic reduction in the need for secondary and tertiary care. Primary care has an undeniably important role to play in the primary and secondary prevention of disease conditions, especially NCDs, which are a major contributor to morbidity and mortality.

Primary health care is being considered the programmatic engine to achieve UHC and the Sustainable Development Goals (SDGs). It is critical to make health systems more resilient to situations of crisis such as the COVID-19 pandemic and to any future health emergencies. Its familiarity to the community and its health care needs, and ability to cover the bulk of these health care needs for majority of the population in the most cost-effective manner with emphasis on equity, makes it essential for a low-and middle-income country (LMIC) like India. Another important policy measure that was proposed in India's National Health Policy of 2017, is that of CPHC. Earlier in 2014-2015, a Task Force was set up by the Government of India (GoI) to roll-out CPHC. Several pilots were initiated in select states to provide CPHC through HWCs. The above pilots were funded by the NHM and subsequently, in 2018, GoI introduced HWCs as a key primary health care mechanism through its flagship health initiative of *Ayushman Bharat*. The HWCs have since been accorded top priority in NHM funding to states post 2018-2019.

A major objective of the HWCs include setting-up of health centres closer to communities while addressing many of their primary health care needs. Apart from increasing proximity to health care services for people and providing a comprehensive range of services, population-based health outcomes and continuity of care are other important dimensions of HWCs. A continuum of care approach has been visualized for an expanded range of 12 primary care services under CPHC. These services include reproductive health, pregnancy care, child and adolescent health services, management of communicable diseases, general outpatient care for simple acute illnesses and minor ailments, screening, and management of NCDs, basic management of mental health ailments, care for common ophthalmic and ENT problems, basic dental health care, geriatric and palliative health care services and trauma and emergency medical services.

The HWCs are being established by upgrading existing PHCs and SHCs across the country. They are being transformed at the SHC level and are the most important addition to the health care service delivery system because of their proximity to the population they serve. They are required to empanel the entire population under the catchment areas of their SHC and proactively provide them an expanded range of promotive, preventive, and curative health care services to address their primary health care needs. They also aim to facilitate timely detection and referral in cases where advanced level of care and management is needed. An integral component of this effort is to equip these centres to deliver a comprehensive

service package and gatekeeping function with linkages to PHCs as the first referral point. This process would primarily involve, infrastructure strengthening; augmenting of health workforce, especially with the introduction of a new cadre; assuring essential drugs and diagnostic services; and community engagement.

The most important part of the upgrade in SHCs involves HWF. To facilitate the delivery of expected services at the HWC, an important addition to the centres is upgraded as HWCs is a MLHP which is also known as the CHO. An MLHP, along with the ANM, MPW and ASHA functions as the CHW. Together they form the primary health care team of HWC. This team includes the MO of the linked PHC, who is required to mentor and monitor SHCs which are under its ambit to provide health care services to the communities it serves.

The role of MLHPs is closely related to the objectives of the CPHC itself. The MLHP is responsible for delivering various health care services pertaining to CPHC. These include an expanded range of services, including clinical management of simple cases, identifying complicated cases, and ensuring their referral, making bi-directional referral linkages with continuity of care and regular follow-up, dispensing medicines, conducting point of care diagnostic tests, leading the primary health care team in delivering services including preventive and promotive care and managing the functioning of HWC.

To play the role of MLHP, a new cadre of CHOs has been envisaged at the national level. Initially nursing graduates were being trained on a bridge course of six months that was specially designed to build the competencies needed for the MLHP at the HWCs at the SHC level. The course included theory and practical classes run at DHs designated as Programme Study Centres (PSCs). The certification was provided by the Indira Gandhi National Open University (IGNOU) after the candidates completed the stipulated study hours and passed the examination. After successful completion of the course, the trained nurses were posted as CHOs at a SHC based HWC. Later the bridge course was integrated in the routine B. Sc nursing course curriculum. Resultantly, the first batch of 1594 CHOs joined the HWCs-SHCs in the year 2021 in Chhattisgarh. Each of them had a degree in the integrated bridge course.

As of April 2022, around 2700 CHOs were working in HWCs-SHCs and a total of 3000 HWCs-SHCs were functional across the state. The remaining 300 HWCs were made functional with the help of RMAs who conducted bi-weekly clinics. Of 2700 CHOs, nearly 1594 joined the HWCs in January 2022 after completing their integrated nursing course. Around 1100 CHOs have been working for more than a year at these HWCs-SHCs. In this study, only those HWCs were purposefully sampled that were functional with a CHO for at least one year. Data was collected from 79 HWCs across the 20 districts sampled for studying HWCs. Table 3 depicts the average monthly footfall of patients at HWCs in the different districts.

This chapter provides details related to the functionality of HWCs in terms of inputs, processes, and output indicators. It also elaborates on assessing existing practices and issues related to the functioning and services of HWCs.

2.1 Assessing the services delivered and outputs of HWCs

Table 3 below indicates the average number of patients who were provided treatment services and those who were screened at the HWC-SHC level.

Table 3: District-wise HWCs-SHC monthly footfall

Districts	Average no. of patients provided treatment services	Average no. of persons screened
Gariaband	255	115
Mungeli	326	147
Raigarh	345	155
Raipur	423	190
Rajnandgaon	360	162
Kawardha	261	117
Bastar	279	126
Koriya	256	115
Korba	432	194
Kondagaon	281	126
Bilaspur	312	140
Balrampur	282	127
Jashpur	339	142
Dhamtari	332	149
Janjgir-Champa	316	153
Average	320	144

The above footfall figures include all OPD cases handled by the primary health care team at the HWC-SHC i.e., by CHO, ANM, MPW put together for the entire month. The footfall is categorized as treatment and screening. The average monthly footfall at HWCs-SHCs was 464 of which 68% were provided treatment and the remaining 32% patients were screened for NCDs like hypertension, diabetes and three common cancers, namely oral, breast and cervix. Table 4 indicates the number of people who were treated for a specific disease condition monthly at the HWC.

Table 4: No. of persons (mean) treated in HWCs per month for various ailments

Disease condition	No. of persons treated per month at HWCs
Reproductive and child health	
Antenatal care	25
Delivery cases	3
Newborn illness	1
Communicable diseases	
Diarrhoea	15
Acute respiratory infection (ARI)/pneumonia	1

Disease condition	No. of persons treated per month at HWCs
Tuberculosis follow-up	2
Reproductive tract infections	3
Skin related	25
Ear infections	6
Eye infections	3
Malaria	4
Noncommunicable diseases	
Hypertension	42
Diabetes	29
Sickle-cell disease	0
Epilepsy	0
Emergency care/injuries	
Minor injuries/burns	13
Severe dehydration	1
Other acute ailments	
Fever	51
Cold and cough	48
Aches and pains	47

While analyzing the range of services provided at these HWCs, it has been highlighted that a variety of illnesses were being treated at the HWCs-SHCs. Of the total number of patients treated at these HWCs-SHCs, around 46% reported with acute illness, 22% reported for NCDs, 19% corresponded to communicable diseases, 9% were related to RCH services and 4% were injuries. Table 5 provides details on the district-wise HWC-SHC status in delivering NCD services.

Table 5: District-wise HWC-SHCs status in delivering NCD services (hypertension screening and confirmation status)

District	Average cumulative number of persons aged above 30 years screened for hypertension per HWC (A)	Average cumulative number of confirmed cases of hypertension per HWC (B)	Confirmed cases against screened (B/A in %)
Gariyaband	945	53	6%
Mungeli	1715	61	4%
Raigarh	1201	79	7%
Raipur	1484	97	7%
Rajnandgaon	920	80	9%
Kawardha	1384	72	5%
Bastar	952	46	5%
Koriya	860	30	3%
Korba	1290	85	7%

District	Average cumulative number of persons aged above 30 years screened for hypertension per HWC (A)	Average cumulative number of confirmed cases of hypertension per HWC (B)	Confirmed cases against screened (B/A in %)
Kondagaon	987	42	4%
Bilaspur	750	31	4%
Balrampur	1266	42	3%
Jashpur	1174	69	6%
Dhamtari	1618	61	4%
Janjgir-Champa	1241	50	4%
Average	1186	60	5%

It was observed that there was lack of clarity in reporting on cases pertaining to screening of NCDs. This was seen particularly with respect to cases which were screened positive (one reading by CHO/ANM suspecting high BP) and were confirmed hypertensive cases (multiple readings of BP taken on different days of assessment by the clinician). The national standard treatment guidelines on hypertension clearly indicated that a single reading was only for preliminary screening and a minimum of two readings (above normal) were needed for confirmatory diagnosis.

On an average each HWC reported 60 hypertensive cases. When that is juxtaposed with the above 30-year population which one HWC caters to (to determine the rate in the population served), it translates to around five hypertensive individuals out of 100 persons above the age of 30. Table 6 shows the status of NCD services as delivered in the HWC-SHCs.

Table 6: District-wise HWC-SHCs status in delivering NCD services (diabetes mellitus screening and confirmation status)

District	Average cumulative number of persons above 30 years age screened for diabetes mellitus per HWC (A)	Average cumulative number of confirmed cases of diabetes mellitus per HWC (B)	Confirmed cases against screened (B/A in %)
Gariyaband	912	28	3%
Mungeli	1315	40	4%
Raigarh	1201	43	4%
Raipur	1480	52	5%
Rajnandgaon	1108	45	4%
Kawardha	1376	42	3%
Bastar	952	23	2%
Koriya	850	46	5%
Korba	1105	71	6%
Kondagaon	986	38	4%

District	Average cumulative number of persons above 30 years age screened for diabetes mellitus per HWC	Average cumulative number of confirmed cases of diabetes mellitus per HWC	Confirmed cases against screened (B/A in %)
	(A)	(B)	
Bilaspur	700	28	4%
Balrampur	1266	40	3%
Jashpur	1174	33	3%
Dhamtari	1478	45	4%
Janjgir-Champa	1241	40	3%
Total	1170	39	3%

The table above shows the diabetes situation. Random blood sugar measurement for screening performed at these centres does not seem to be the best use of resources. Again, the difference between screened-positive for diabetes (high random blood sugar) versus confirmed with diabetes needs to be recognized in reporting and followed-up for treatment adherence. On an average, each HWC reported 39 diabetic cases and when that gets juxtaposed with the above 30-year-old population that it caters to (to determine the rate in the population served), it translates to around 4% having been confirmed as diabetic. Table 7 shows that on an average about 57% of hypertensive cases received treatment from HWCs in the previous month against the total confirmed cases.

Table 7: District-wise HWC-SHC status in delivering NCD services (hypertension treatment status)

District	Average cumulative number of confirmed cases of hypertension per HWC	Average treated cases of hypertension per HWC	Treatment availed for hypertension against confirmed cases (%)
Gariaband	53	39	73%
Mungeli	61	37	61%
Raigarh	79	42	53%
Raipur	97	47	49%
Rajnandgaon	80	59	74%
Kawardha	72	38	53%
Bastar	46	29	64%
Koriya	30	17	55%
Korba	85	28	32%
Kondagaon	42	31	75%
Bilaspur	31	20	66%
Balrampur	42	10	24%
Jashpur	69	40	59%
Dhamtari	61	43	71%

District	Average cumulative number of confirmed cases of hypertension per HWC	Average treated cases of hypertension per HWC	Treatment availed for hypertension against confirmed cases (%)
Janjgir-Champa	50	29	58%
Average	60	34	57%

Table 8 shows that on an average 58% of the diabetic cases received treatment from HWCs in the previous month against the total confirmed cases.

Table 8: District-wise HWC-SHC status in delivering NCD services (diabetes mellitus treatment status)

District	Average cumulative number of confirmed cases of diabetes mellitus per HWC	Average number of treated cases of diabetes per HWC	Treatment availed for diabetes mellitus against confirmed cases (%)
Gariaband	28	19	68%
Mungeli	40	24	61%
Raigarh	43	29	69%
Raipur	52	33	63%
Rajnandgaon	45	32	72%
Kawardha	42	26	60%
Bastar	23	15	64%
Koriya	46	17	37%
Korba	71	22	32%
Kondagaon	38	14	38%
Bilaspur	28	16	59%
Balrampur	25	13	53%
Jashpur	33	29	88%
Dhamtari	39	30	79%
Janjgir-Champa	40	25	62%
Average	39	23	58%

2.1.1 Follow-up of noncommunicable disease cases

One of the most important roles of HWCs is to identify NCD cases (especially hypertension & diabetes). This is done by undertaking preventive screening of individuals over 30 years of age in their catchment area. According to the study, about 75% of the older HWCs among the target population were screened.

The HWCs on average reported around 60 hypertensive and 39 diabetic cases who sought treatment from these centres. The average follow-up rate was close to 57% i.e., the proportion of confirmed cases who turn up for their routine check-ups and collect their monthly medicines.

To facilitate follow-up of NCD cases, it is important to have a line list of all confirmed cases with their address/mobile number, date of diagnosis, current treatment plan and last date of issue of medicines detailed out monthly. It was found that a few of the HWCs did not have the line listed records of all the diagnosed NCD cases.

It would be imperative that all the NCD cases in the population of an HWC, whether returning for follow-up or not, should be listed at HWCs and their names shared with the concerned Mitantin by the CHOs. In addition, s/he should take steps if the patients are not adhering to the treatment regimen and are undertaking measures for better care management of the patient. When one of the CHOs was asked as to why he did not have a list of all NCD cases, he replied *“we do not have a separate follow-up register and I was unaware we have to maintain the line list of all NCD cases in my HWC.”*

Many CHOs were not oriented on the importance of maintaining a line list of all NCD cases. No standard format was available in any of the facilities, nor was this functionality available on the NCD application. In four of the 15 districts, no follow-up registers were provided to HWCs, while in other districts, registers were available in a format provided by the SHRC.

In districts where NCD follow-up registers were provided, they had a better follow-up mechanism.

A CHO who had maintained a line listing informed that, *“every month after a period of 15 days, I check my follow-up register to see how many patients did not turn up for follow-up in that particular month. I then prepare the village (para)- wise line list of those patients who have not come for follow-up and share that list with their concerned Mitanins (CHW). The Mitanins during their field visits go to their home and request those patients to visit HWCs and take their medicines.”*

Therefore, it is important to issue a standardized format for line listing and follow-up registers are needed so they can be distributed in all districts and their facilities. The CHOs must be oriented on the importance of follow-up of cases and the use of line lists in ensuring that patients adhere to treatment protocols and are referred to higher facilities for care if any complications arise.

2.1.2 Covering noncommunicable diseases beyond hypertension and diabetes

There is a significant prevalence of diseases like mental illness, epilepsy, and sickle-cell disease in Chhattisgarh. The HWCs should respond to these population-specific health needs but so far, progress has been slow. The CHOs need further capacity-building on detecting these illnesses and their management as their existing curriculum does not cover them in depth. Such diseases also require much stronger referral linkages or specialist consultation. A sustainable mechanism to meet this need has not emerged in Chhattisgarh so far.

One stumbling block is the lack of continuity of care between different levels of care and determining the appropriate level of care where services would be available. A mechanism is required to be established whereby screened cases which cannot be managed, or the more difficult cases can be referred to a higher facility (CHC/DH). Here, the expertise must be made available for apt diagnosis and an appropriate treatment regime. The patient would then report back to HWC and remain under the continuous care of HWC (through monthly follow-

up, drug dispensation and observation to determine any danger signs). Although there are a few instances of linkage with higher facilities, there is no system in place to facilitate the forward and backward linkages that have potential to seamlessly track the patient.

Most of the referrals from the SHCs have been to PHCs so far. Referrals to CHC or DH are needed to address complex cases that need further expertise and advanced diagnostics. Around half the CHCs are deficient in the necessary care provisioning services which also limits the confidence of HWC teams in referring cases to them. Mitanin helpdesks in CHCs/DHs can play a role in building such continuity, but the option is yet to be leveraged.

2.1.3 Ear, nose, and throat; ophthalmic and palliative care

Although these services are much needed at the primary level and are required to be provided as part of the expanded range of services under CPHC, the HWCs are yet to initiate service delivery to address these health needs. However, a few examples of deputing ophthalmic assistants from PHC or the CHC to HWCs were also documented once or twice a month to provide services for refractive errors.

The CHOs can be further trained to empower HWCs and PHCs so they can undertake a more proactive role in provision of services for ENT, and ophthalmic care. There is little experience available in the state in organizing palliative care and different suitable models from other states which can be studied for adoption at the state level.

2.1.4 Feedback of community health workers on community perceptions of health and wellness centres

FGDs were conducted with 12 groups of Mitanins across seven districts, covering both the tribal and non-tribal districts (a total of 115 Mitanins participated). The FGDs with Mitanins revealed important feedback on services of HWCs from their community's perspective. The same is summarized below.

Community members appreciated the operationalization of the HWC closer to their homes where regular OPD care has become available through a CHO as a significant addition. Earlier the centres opened erratically and now with the posting of CHOs, they are able to provide care and manage a wider range of illnesses on the premises. Services are available at HWC for a large share of health care needs of the community they serve. Essential drugs were available most of the time at these centres and all services, including medicines were being provided free of cost. The proximity of these services through HWCs helped the community in many ways, some of which are listed below:

- larger number of people are being able to access services.
- older people are now able to access primary care services and timely treatment with less chances of delay along with saving money on care, transport, and medicines.
- people have found the services provided at the HWCs through CHOs acceptable and no issues of quality have been reported.
- the community was satisfied with the behaviour of the CHOs. They also appreciated

availability of diagnostic services like BP measurement and random blood sugar check-up at these HWC; and

- the quality of health education that was imparted was appreciated by people.

Overall, people in the community perceived HWCs as an intervention that had brought about a major improvement in their access to health care. The above FGDs were conducted for two kinds of villages, where one village was nearest to the HWC and another which was within the HWC's catchment population but located farthest to the centre. There was greater interaction of the HWC with the nearer habitations, but people from the farther hamlets were also utilizing the services of the HWC.

The community sought care for many kinds of services available at their HWC, which included OPD care for hypertension, diabetes, ANC check-up, malaria, toothache, small injuries, skin problems, infections of the eye and ear, reproductive and urinary tract etc. along with common illnesses like, diarrhoea, vomiting, stomachache, body ache, cold and cough, fever etc. These centres were also conducting deliveries and in a few HWCs, IUCD insertions were being done for birth spacing.

A range of diagnostics like BP measurement, testing for random blood sugar and malaria were being conducted. Tests like haemoglobin, HIV screening, sickle-cell screening and pregnancy tests were the other diagnostics services available in few of the HWCs that were visited. No special tests were being done at the HWCs for chronic respiratory illnesses (using breathometre).

Ailments for which HWCs usually made a referral to the higher centre of care, included complicated or high-risk pregnancies, suspected cases of TB, severe anaemia, low-birth weight or pre-term babies, severe malnutrition in children, pneumonia, animal bites (including dog bite and snakebite), stroke, mental illnesses, suspected cancer, leprosy, cataract, epilepsy, convulsions, severe injuries, and sickle-cell disease. In a few HWCs, hypertension or diabetes cases were referred to higher centres for treatment regimen. However, people did not like to be referred to higher centres for management of hypertension and diabetes, as they were challenging in terms of travel.

At one HWC, they were directed to get diabetes medicines from the DH, but people preferred services to be available directly from the HWC, including their supply of routine medicines. On a few occasions, some of the HWCs ran out of essential drugs for hypertension or diabetes, ranging from few days to couple of months. Many people continued to refer to the HWC as sub-centre ("*up-swasthya kendra*"). Some tried to call it by its English name (HWC). In the remote tribal district of Sukma, community members preferred to call the HWC as small hospital ("*Chhota aspataal*").

2.2 Assessing the essential inputs for health and wellness centres

2.1.1 Drugs and diagnostics

Maintaining a buffer stock is the fundamental principle for any inventory management on essential drugs and reagents/kits for diagnostics, as a step towards optimal service provisioning. For chronic diseases, patients must regularly take the drugs for long, often throughout their lifetime, for optimal management of these conditions and to avoid any complications. Therefore, it is important to have enough and wide range of drugs at the HWCs which are useful for treating these conditions at the primary care level. The state has centralized the procurement and distribution system of drugs under the CGMSC for online indenting of drugs and management of stocks.

Most districts have a warehouse of CGMSC at their headquarters where drugs are stocked and distributed to all levels of health facilities on regular basis. The PHCs indent drugs every quarter, whereas CHCs and DHs do a monthly indent for their requirements and supplies from the warehouse which are duly facilitated. At present, the indenting of drugs for HWCs is undertaken from their linked PHCs, and most of the time the drugs are not indented as per their requirement and the disease burden of the population/s served. Currently, there is no system for indenting drugs directly from HWCs based on their requirement and Essential Drug List (EDL). There are 114 formulations listed in EDL for 2021 for HWCs at the state which is derived from the list provided by GoI.

Each HWC is expected to have at least three months of buffer stock at their centre with respect to essential medicines. At present, the CHOs send their monthly written requirement of drugs to their linked PHC and when they go to the PHCs for their monthly/periodic meetings, these medicines are brought back to the HWC by the team using their own transport. There is no mechanism to supply these drugs directly at the HWCs. At each HWC, the CHO is required to maintain a separate stock register for the drugs which have been indented, received, and dispensed monthly.

Apart from the central supply through CGMSC, all districts have been sanctioned INR 50 000 per HWC for drugs; INR 15 000 for consumables and INR 30 000 for diagnostics under the NHM. In addition, INR 50 000 is provided as the annual untied fund of the HWC for any other needs and can be utilized as per the Jan Arogya Samiti (JAS)/state specific guidelines.

The additional amount has been provided for procuring items when central/state or district supply has gaps. Most of the districts utilize this fund to centralize local purchase of these drugs. Some districts have provided the funds to CHCs to purchase and provide the drugs to the HWCs. From CHCs, drugs are collected by PHCs or the respective HWC-CHOs directly.

Variations exist in districts on the use of this money to purchase stocked-out drugs. Some districts have rationally utilized this money and purchased important drugs which were not supplied by CGMSC, while a few have purchased many drugs which are listed in EDL, including the less important ones. Delays in the purchase of drugs are reported even with local purchase and can be attributed to the tedious process of purchase and limited capacity of the district to undertake forecasting demand and undertaking procurement as per rules.

The CHOs of HWC who have reported better availability of drugs, regularly intended the

required drug supplies, proactively followed-up for the required medicines and personally collected the required drugs from the PHC pharmacy, on their own initiative.

The availability of anti-diabetic and anti-hypertensive medicines was assessed against requirement for one month of stock available in these centres based on the average number of confirmed/diagnoses cases in 15 districts. The availability of these drugs was found to be sufficient across all the sampled facilities and the details of the same are listed in Table 9 and Table 10.

Table 9: Availability of anti-diabetic drugs at HWCs

District	Average cumulative confirmed cases of diabetes mellitus per HWC	Requirement of metformin tablets to provide one-month treatment to all diagnosed cases HWC	Average metformin in stock at HWCs	Metformin availability against requirement (%)
Gariaband	28	840	1306	155%
Mungeli	40	1200	2411	201%
Raigarh	43	1290	1456	113%
Raipur	52	1560	745	48%
Rajnandgaon	45	1350	1593	118%
Kawardha	42	1260	2672	212%
Bastar	23	690	1099	159%
Koriya	46	1380	959	69%
Korba	71	2130	2003	94%
Kondagaon	38	1140	606	53%
Bilaspur	28	840	1167	139%
Balrampur	25	750	560	75%
Jashpur	33	990	783	79%
Dhamtari	39	1170	1986	170%
Janjgir-Champa	40	1200	1318	110%
Average	39	1170	1378	118%

The availability of metformin at the HWC was assessed against the requirement of one month's stock and its availability was found to be overall sufficient. However, districts like Raipur, Kondagaon and Koriya reported the maximum shortfall of medicine amongst the 15 districts.

Table 10: Availability of anti-hypertensive drugs

District	Average cumulative number of confirmed cases of hypertension per HWC	Requirement of amlodipine tablets to provide one-month treatment to all diagnosed cases HWC	Average amlodipine in stock	Amlodipine availability against one-month requirement (%)
Gariyaband	53	1590	824	52%
Mungeli	61	1830	1117	61%
Raigarh	79	2370	1079	46%
Raipur	97	2910	945	32%
Rajnandgaon	80	2400	941	39%
Kawardha	72	2160	978	45%
Bastar	46	1380	1008	73%
Koriya	30	900	673	75%
Korba	85	2550	589	23%
Kondagaon	42	1260	1226	97%
Bilaspur	31	930	661	71%
Balrampur	42	1260	844	67%
Jashpur	69	2070	960	46%
Dhamtari	61	1830	1247	68%
Janjgir-Champa	50	1500	950	63%
Average	60	1800	936	52%

It was noted that all districts had an inadequate availability of the anti-hypertensive drug - amlodipine with the maximum shortfall in Korba, Raipur and Rajnandgaon.

2.1.2 Issues being faced

- At the time of the visit, many essential drugs for HWCs were found to be in short supply, though most were in pipeline and CGMSC had issued purchase order for the same. Regular supply of medicines continued to hamper meaningful functioning of new HWCs and ensured adherence to treatment protocols for existing cases under treatment and management of the disease condition. The non-availability of drugs has in turn damaged people's faith in HWCs and CHOs as they could not gain complete confidence of the communities, they served in. Additionally, other important drugs like i.e., amoxicillin, ciprofloxacin eye/ear drops were also stocked out.
- CGMSC should implement last mile delivery of drugs to the HWC facility and provide a login ID to HWCs to enable direct indenting. This would enable CGMSC to procure as per their requirement and reduce the time delay at the PHCs for collation of indents from all the HWCs.

- Severe shortage of diagnostic kits was observed at most of the centres that were visited. This included PoC diagnostic kits, consumables, and reagents (haemoglobin meter, uristix for albumin and sugar and solubility test kit and PoC kit for sickle-cell anaemia.)
- New EDL (2021) has been issued by the Department of Health and Family Welfare (DoHFW) enlisting 114 formulations of essential drugs for HWCs. The CHOs, MOs and CGMSC officials are required to be oriented on the new EDL which is applicable for HWCs.
- Some districts have tried to purchase the medicines locally, but the quantity is often insufficient. This would seriously impact the management of chronic diseases and continuity of care envisioned at these AB-HWCs. It would be essential to review the local purchases for rational use of the HWCs fund, avoid duplication and make the system more cost-effective.
- With the expanded care of services envisioned to be provided at these HWCs, it would be important to ensure that the required medicines and diagnostics services are available at these centres in alignment with the expanded range of services to be delivered, in addition to staff training.

2.1.3 Record maintenance at the health and wellness centres

After the upgradation of SHC into HWC, electronic tablets have been provided to facilitate online data entry daily. Apart from this, different registers are allotted for specific services to be provided at the HWC, which includes registers for OPD, NCD screening and NCD follow-up.

- At most of the centres, the CHOs said that they maintained the OPD, NCD, follow-up and medicine stock registers, whereas ANMs maintained the ANC and reproductive and child health (RCH) registers while the MPW maintained the 20-point programme registers that were mostly related to disease control and public health activities.
- Some centres were regularly maintaining NCD follow-up registers while several were not. Manual registers as mandated by the state, were being maintained as the NCD portal did not generate a list for follow-up patients monthly. While few centres received a printed follow-up register, many did not. To fill this gap, few CHOs devised their own format for the registers.
- A CHO showed her NCD follow-up register and explained how she was maintaining it. She explained, *“for NCD follow-up, I am maintaining a separate register which has a month-wise summary of all patients at one place to get a quick overview, instead of turning to each patient page to know the monthly follow-up status.”*

The CHOs felt that they had an excessive workload of entering data into the IT tablets for multiple portals and data entry points. Regarding this issue, one of the CHOs said, *“sometimes it becomes difficult for me to manage the various tasks at the centre like managing OPD, conducting outreach activities and attending meetings, along with maintaining these registers. So, I take extra time daily after OPD hours to update health records to avoid gaps.”*

- Some of the HWC staff, mostly ANMs and MPWs, found it difficult to enter data into these multiple applications and portals daily. They suggested that paper registers were easier to maintain and less time-consuming. Often these entries on different portals were seen

as duplication of their reporting work. They were not able to get a holistic view of the centres performance and found it tedious to compare their performance with that of the previous months, given that the data entry points were fed into multiple formats and portals.

Most of the CHOs were struggling with a poor functioning of these IT tablets and limited access to maintenance for their upkeep. Many CHOs also submitted their tablets to district NHM units for repairs. Presently they are using the NCD application in their personal mobile phones to upload the data and complete their reporting. One of the CHOs expressed her view on this issue and said, *“these tablets given to us are of very poor quality and most of the time they do not work. As a result, we have to spend a lot of our time on this, whereas registers are far easier to maintain.”*

- It is only recently, in 2022, that the CHOs started receiving laptops for maintaining their records to report on various portals and to perform telemedicine functions. However, there was a felt need for regular software updates and capacity-building of CHOs on new application features and functional support, keeping in view their comfort with use of digital technology.

2.1.4 Digital reporting system at health and wellness centres (AB-HWC application)

Each HWC must undertake two kinds of reporting on the AB-HWC application. The first one being daily reporting which includes gender segregated daily OPD footfall, total patients dispensed, free drugs and tele-consultations conducted. This also includes individuals screened for hypertension and diabetes.

The second one is a monthly report that includes gender segregated screening details of NCDs (hypertension, diabetes, oral cancer, cervical cancer, and breast cancer). This also lists the number of newly diagnosed cases and individuals who are on treatment. The reporting is done on the number of individuals screened for TB and are undergoing treatment. It indicates availability of key essential drugs and tests and their utilization in a particular month. This report also includes an update on the status of payment of MLHP/CHO incentive and the team-based incentive as a yes or no indicator.

2.1.5 Comprehensive primary health care-noncommunicable disease application

A population based NCD programme is being implemented under the CPHC initiative. The programme's goal is to screen all men and women over 30 years of age for NCDs of hypertension, diabetes, oral, breast and cervical cancers. Following this screening, they refer the presumptive cases to secondary and tertiary government institutions for confirmation (diagnosis), treatment, and management. Tele-consultations are often used as a follow-up mechanism for any treatment modification or follow-up.

Currently, the National Programme for the Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases, and Stroke (NPCDCS) envisions that paper-based health records are to be digitalized for all population-based health screenings conducted in the community or at the HWC for smoother and more effective treatment and adherence. This application would be used to create an electronic health record for each individual, analogous to a paper file or record. The Dell Corporation with support from Tata Trusts developed the application in

consultation with the MoHFW (NCD, NHM, e-Gov and DGHS) and other technical experts from Gol partner institutions.

2.1.6 Process followed

One part of the NCD application involves the entry of the population empaneled/enrolled under HWC following which the CHO/ANM enters the active assessment and screening data on NCDs for individuals above 30 years age.

Mitanin (ASHA)-CHWs make home visits to all families in their area to fill family folders and the Community Based Assessment Checklist (CBAC). The CBAC form is paper-based, and it collects information on various risk factors and any self-reported symptoms in persons above the age of 30 in the community. While it captures risk factors for NCDs like obesity including waist circumference ratio, tobacco consumption and alcohol use, it also captures the risk factor for respiratory diseases linked to COPD/asthma² by determining the type of cooking fuel being used at home.

The information is captured based on the self-reported and elicited symptoms of common illnesses in India e.g., TB, leprosy, eye and hearing problems, reproductive tract infections (RTI)/urinary tract infections (UTI), mental illnesses etc. The high-risk cases identified from the household-level screening with a higher risk score are referred to the facility for further investigation and consultations at the HWC. The CBAC forms from one household are part of a family folder which is also a paper-based record with a line listing of all family members.

Mitanins fill the family-folder and CBAC forms and submit them to their HWC, identifying the high-risk cases in the community. The CHOs enter this information from these forms onto the NCD application with the help of a tablet or laptop. The symptoms recorded in CBAC e.g., for TB, leprosy etc. get entered in the NCD app. When the enrolled individual visits the HWC, the CHO posted at the centre searches the names of the beneficiaries and fills-in the details of screening conducted for the aforementioned five NCDs (HTN, diabetes, oral, cervical and breast cancers). If the person's BP reads higher than the 140/90 mmHg cut-off, the application displays the status of the beneficiary as "refer to PHC." A similar process is followed for patients who are suspected with diabetes.

2.1.7 Role of the noncommunicable disease app in ensuring continuity of care across levels of care for chronic diseases

The illustration of the role of the NCD app is described with the help of an example of hypertension. This describes the process after data entry for NCD screening in the app:

If a beneficiary's BP entry reads higher than the stipulated normal of 140/90 mmHg cut-off, the app displays the status of the patients as "refer to PHC". The CHO then advises the screened person (presumptive case) to go to the linked PHC to obtain a confirmed diagnosis and an assessment by the clinician. But when the beneficiary reaches the PHC where s/he is referred, their staff may begin with initiating the screening process again and ask the patient to return after few days for another measurement of their BP to get a confirmed diagnosis.

2. India has a disproportionately high burden of chronic respiratory diseases. The increasing contribution of these diseases to the overall disease burden across India and the high rate of health loss from them, especially in less developed low ETL states, highlights the need for focused policy interventions to address this significant cause of disease burden.

The PHC clinician is expected to open the NCD app and enter the diagnosis so that the CHO can see the updated and confirmed diagnosis of the patient and if the treatment has been initiated. However, the app does not record the medicine prescribed, its dosage or frequency. Thus, even if the PHC-MO makes the required entry in the application, its current design does not provide the CHO with the necessary information or any follow-up actions or instructions. In such cases, the app design fails to address its primary objective of ensuring continuity of care between different levels of care i.e., coordinates between the upward referral (HWC to higher facility) and downward referral (from CHC/PHC to HWC for continuous follow-up through future).

- Ideally, after the treatment regime has been decided at the PHC and prescription provided, the HWC should take over from there for continuation of treatment and follow-up to ensure adherence to treatment. But the NCD app design fails to enable this. In actual practice, the HWCs or PHCs do not see the NCD app as an enabling mechanism. It does not help in continuity of care by tracing the care provided to the patient. The CHOs fill it because they are repeatedly told to do so by NHM officials as a mandate for ensuring functionality. Whereas the MOs or RMAs at the PHCs rarely open the NCD app or make any entries.

Similar is the case when patients get referred to CHCs or DHs. The health officials never ask the patient if s/he has been referred by an HWC. They treat each patient as a routine OPD case and do not facilitate future follow-ups from the HWCs. This means that the patient is asked to come back to the CHC for medicines and check-ups every month and this poses access problems for patients who face a distance barrier in making repeat visits to facilities that are far from their home.

- In actual practice, many of the presumptive cases (high BP recorded during screening) do not go to the PHC or higher facilities. This gets reflected in the number of hypertension cases detected at the HWCs and the patients who are undergoing treatment. On an average, HWCs screened around 75% of their target population (persons above 30 years of age) with BP measurement but listed less than 35% of the expected hypertension cases. The NCD app does not inform the CHO whether the referred individual has gone to the referred facility for accessing higher level of care or not. The CHO also does not see the treatment which has been initiated at the higher facility as it is usually not being entered by the PHC-MO.
- Often, the patient may come back to the HWC and get confirmed as a case of hypertension based on his/her second measurement. Many CHOs chase the presumptive cases more proactively by calling them again to the HWC. They ask the concerned Mitadin who in turn convinces the individual to go for a second check-up at the HWC. This helps the detection and diagnosis of cases. The CHO would then decide the treatment or consult the MO at the PHC to decide the treatment protocol. Even when the CHO does the second BP measurement and confirms the case as hypertensive, there is no provision in the NCD app for the CHO to record this and initiate the treatment. The issue persists if the confirmation is completed over a teleconsultation as the CHO does not have the mandate to prescribe the medicines.

In some instances, the patients do go to the PHC and get diagnosed. If the Mitadin gets to know about this during her community visit, she is often able to close the loop by linking the patient

with the HWC again. However, these efforts need to be supplemented by ensuring adequate supply and availability of drug of choice at the HWC-SHC to ensure treatment adherence.

2.1.8 Role of the noncommunicable disease app in ensuring monthly follow-up of chronic disease cases

After the CBAC and NCD screening data are filled, the NCD app provides a list of individuals with high BP measurement during screening. The CHOs can potentially use this at any given time to check whether each of those individuals have undergone a second measurement for confirmation. In actual practice, the CHOs rarely used this list as they are mostly unaware of this feature being available on the application.

The NCD app also has a provision to show the list of on-treatment cases of hypertension. However, that list is very much incomplete as the clinicians at the PHCs rarely enter this part in the app. Thus, the HWC does not get a reliable list of confirmed hypertension cases of its population who need follow-up every month.

There is another design gap in the NCD app when it comes to follow-up. Once a patient is shown on-treatment, there is no provision for further entries when s/he visits the HWC or higher facility for follow-up. The NCD app thus does not provide for monitoring regularity of check-ups of a patient or any changes in medication which have been made or which have any adverse effect of previous medicines. It does not provide an option to update the status of the patient for each follow-up visit i.e., whether the patient has adhered to the treatment regimen prescribed or whether the BP was under control. A CHO cannot even check (through this app) whether a particular patient has missed the current month's follow-up, or if the medicine had to be changed because the condition was not controlled, nor were any side-effects of medication reported and recorded.

The NCD app design is highly focused on the screening of individuals. It neglects the diagnosis, management, and follow-up components, especially at the higher levels of care above the PHC.

2.1.9 Alternative mechanisms to coordinate upward and downward referrals or “the HWC window”

The implementers in Chhattisgarh realized that the NCD app was not working for coordinating the upward and downward referrals of individuals between facilities and/or follow-up in the community. There was a perception that the doctors at the PHCs were unwilling to do app-based entries for every patient who was referred. The solutions devised to overcome this issue entailed appointing a Data Entry Operator at the higher facilities/ DHs/CHCs so that the entries could be done for cases confirmed and to issue a prescription from those facilities.

A window (HWC “*khidki*” i.e., HWC window) was envisaged in each CHC/DH where the above operator (termed as HWC helpdesk facilitator) was placed. These positions were sanctioned to the state under the NHM annual RoPs from 2020 onwards. The above innovation was implemented by only a few districts, but many districts did not recruit anyone for the above positions.

- However, the experience has not been positive in implementing these special windows.

The operator does enter some information for some of the patients in the application, but it does not have anything to do with maintaining continuity of care by coordinating the downward referral. The HWCs are expected to send their referrals with ‘referral slips’ so that the HWC window can get to know that the case is a referral from a particular HWC. The use of these referral slips was not seen in actual practice. The HWC window is not able to identify who among the beneficiaries at the DHs/CHCs are being referred by the HWC. Thus, the referral to the higher facilities is also not well coordinated. It was understood from the field visits that most of the CHOs were not aware of such a mechanism or its purpose.

- Most of the referrals from these HWCs were to link PHCs where such a mechanism was not put in place or established between the facilities. At the DHs, it is very difficult for the HWC window to identify the specific HWC referrals out of all patients coming to the DH to seek care. The CHOs have limited motivation to fill-in the referral slips and their understanding of the importance of coordinating the referral was poor. They were also not aware of the options which were available for referral. However, the idea of a HWC window holds promise to implement it on a wide scale and in a well-planned manner, following which the results can be studied further.

2.1.10 Noncommunicable disease card, another mechanism for documenting follow-up and coordinating upward and downward referrals

Most NCD cases that received medicines from HWCs were not issued any cards nor was any diary being maintained for the drugs issued to patients on monthly basis. There was also no follow-up being done. Clearly, the NCD cards/diaries could serve as a useful method to improve the following:

- follow-up of confirmed cases
- coordinate upward and downward referrals
- list medicines which have been prescribed along with their dosage
- record any side-effects noted or change in medication
- maintain a record of the readings undertaken.

In addition, the patient will have a record of treatment for which a booklet/diary has been suggested for the purpose. The same should record each visit of the patient, relevant measurement (BP reading for a hypertension case), and medicine given, its dosage and quantity issued. If a referral is required to be made to a higher facility, it should be recorded by the CHO on the card and presented by the patient at the window at the higher referred facility. The doctor/s (at higher facility) should write the diagnostic tests conducted and their measurements along with the treatment regimen to complete the diagnostic framework.

The CHO could use the instructions indicated by the prescribing MO for future follow-up and medicine disbursement. A couple of designs of the NCD card are available in the state but are no longer being printed or used for NCD cases. This practice can be restarted, and it would help in ensuring that digital communication through the app is supplemented with a record that stays with the patient who sought care and can be used as a future reference. This should be expanded to all the follow-ups being undertaken by the CHOs and the primary health care teams at the HWCs and in the community.

2.1.11 Software issues in the noncommunicable disease app

At many of the centres visited, the tablets purchased do not have the necessary configuration to run the NCD app smoothly. A bigger problem reported relates to the multiple versions of the NCD app which are updated frequently from central level (GoI). Moreover, the CHOs are required to keep updating the versions frequently, sometimes with limited access to the internet. This makes things difficult for the CHO and ANMs to work with the newer features of the application with frequent upgradations. It often leads to reorienting themselves to the newer interface leading to a lot of time being invested, in addition to the data entries which they are supposed to make.

It was also brought to notice during the interactions that the updated version was not supported by some of the older tablet configurations. So much so few even had a complete device breakdown.

2.1.12 Assessing costs and benefits of the noncommunicable disease app

Based on the abovementioned issues, the NCD app was not designed to fulfil the purpose of facilitating the forward and backward linkages for follow-up of chronic disease cases and their management. Even though the application attempted to coordinate upward and downward referrals, it failed to achieve that in practice. There was no evidence on how it was helping the HWCs in facilitating any secondary or tertiary level care to patients. It did help the central government in getting numbers of those screened under HWCs, which were filled in by the CHOs and the population, which had been empaneled under each centre.

On the cost side, the manual entry in the app took up a lot of time for the CHOs and ANMs, especially where internet connections were limited. The various mid-level managers working on CPHC also lost valuable time in monitoring the latest app version's downloads and in ensuring that data entries, follow-up on gaps, and training of CHOs was duly completed. This inevitably took away the attention for the more basic issues of ensuring necessary drugs or tests.

2.1.13 Assessing costs and benefits of the portal-based reporting

A CHO was found to spend considerable time on filling portal-based reports and updating patient records. However, the data generated was not utilized for addressing health needs of beneficiaries. In this scenario, few of the important issues to consider are:

- only limited data was available in the public domain, with the portal facing frequent functional issues for few months (July - Aug 2022)
- quality of data was poor, with limited monitoring and feedback to health care providers.
- pressure from central level led to over-reporting performance; and
- mid-level managers found it very difficult to make use of the data to improve functionality.

2.1.14 Challenges in the referral system

In the case of disease conditions which could not be addressed at the HWC level, patients got referred to the higher centre for treatment. The role of the CHO was to give a proper referral slip to such patients and send them to the appropriate higher health care facility for treatment. Here, specialized care was available. The CHO usually referred high-risk cases

like pregnancy, severe newborn illnesses and other complex cases to secondary or tertiary centres. The patients suspected with hypertension and diabetes were sent to the PHC/CHC (whichever was closest) for initial confirmation of diagnosis and treatment initiation and identification of the best treatment regimen.

- When it came to challenges in the current referral system, one of the CHOs opined, *“when they advised patients to visit the higher centre, most requested that medicines or injections be administered to them at the HWC itself. This was mostly due to difficulty in accessing the same or their inability to visit the centre since no one was available to accompany them. Some preferred going to the private sector or quack as they were located closer to them.”*
- Another CHO who facilitated a teleconsultation of the patient with the hub at the DH and where the patient was referred, informed, *“when I referred that patient to the DH, he found it difficult to meet the same doctor who asked him to visit the DH as he was not present that day. When the patient visited the DH, no one was there to help him, despite the DH being a large facility with several departments.”*
- Lack of patient-friendly signages or appropriate guidance when the referral was being provided caused inconvenience to the patient, which was especially valid in the case of the elderly who required care and had to be accompanied to these centres.
- At the CHCs and DHs, a “Mitadin helpdesk” was established. Here, Mitadins were assigned days based on rosters to guide and help patients in navigating the hospitals for treatment, especially for childbirth and any other newborn related health issue. Currently, there is no mechanism to ensure treatment at the higher centre for the cases referred by the HWC on priority. Here, they are provided treatment as general OPD patients. It is difficult for CHOs to track these patients post their treatment and ensure follow-up in the community as they do not get details of the referred patient.
- Even in most CHCs and DH, disease-specific specialist care and diagnostic facilities are hard to come by. However, to ensure better management of the HWC referral cases, the plan is to develop an HWC window at every CHC/DH where guidance and treatment assurance is provided to patients along with an identification of a speciality-wise referral. This will help the CHOs to make a direct referral to the patient, where ever specific services are available.

During the COVID-19 pandemic, making referrals from the PHCs to higher centres was even more challenging. Regarding this, a CHO recalled, *“during the pandemic, COVID-19 sample testing was being done at the PHC, so the patients were hesitant to go there when I referred them, thinking they will also get tested. Some patients could not get the services from the CHC as it was converted to a COVID care centre, and they did not have regular OPD.”*

A major challenge, reiterated by many of the service providers in the referral system was with regard to the **follow-up of referral cases**. This happened because some patients would not visit the higher centre for a consultation even when advised. At present, the NCD app or any other IT app, does not facilitate a mechanism to track the patient when s/he is referred to a higher centre. Some patients return back to the HWC to show the test reports which were from a higher facility.

- The CHOs reported that tracking these patients posed a huge challenge, as no follow-up mechanism existed for downward referral. A few CHOs further informed that when they referred a patient from the HWC to PHC, they usually informed the MO/RMA who was in charge of the PHC beforehand regarding the patient and his/her condition. However, the same could not be facilitated when the patient got referred to secondary level centres like CHC and DH, as there was no nodal person who was nominated in these higher facilities and no app was there to facilitate the same.
- One of the CHOs suggested, *“it would be better if there was a system in which whenever there was a referral case, they could initially inform the higher centre so they could make necessary arrangements for the referred patient. Also, there would be someone to receive them at the higher centre. This is presently happening for delivery cases, but the same should be for all cases that get referred from lower facilities.”*

2.1.15 Telemedicine (specialist consultation)

The delivery of CPHC requires some patients to be assessed by specialists. Telemedicine has been introduced in a big way to help the patients coming to HWCs in getting specialist consultation for their concerns. Teleconsultation is a mandatory service to be provided at all HWCs. Each HWC has been provided with a user ID and password which is used to login into the portal (www.esanjeevni.in). This can be done through tablets or laptops which have been provided to the CHOs.

Model for teleconsultation

The teleconsultation system must be provided through a hub and spoke model. Under this, DHs have been designated as hubs while HWCs are the spokes. Recently, CHCs have also been designated as hubs. In many of the districts, one MO or specialist has been designated to work at the hub while in few districts a specialty-wise roster for teleconsultation has been planned. The timing for teleconsultation in most districts generally coincides with the OPD timing of the facilities. Each HWC has been accorded a daily target of ensuring teleconsultations and most CHOs reported that they conducted 15-25 teleconsultations a month.

For facilitating teleconsultation, the CHOs filled in the detailed clinical history, vitals and examination details in the software and sent a request for the specialist’s advice. They had the option of uploading any documents like the old reports of patients. If specialists were available at the hub, they accepted the request of consultation and reviewed the patient’s details. Post the specialist’s review s/he could connect with the concerned CHO through video conferencing and discuss the patient’s problem with the CHO and patient. The specialist advised further management or generated a prescription with the required medicines and management. The CHO then dispensed the prescribed medicine/s to the patients, if the same was available at the HWC. If appropriate care could not be provided by the CHO, the patient was requested to be referred to a higher level of care.

Results achieved through e-Sanjeevani teleconsultations

In some cases, among the consultations that involved a video call, the patients may have felt a sense of assurance after talking to the specialist. This could help the HWC gain the trust of the community where quality care for an expanded range of services could possibly be accessed.

However, such cases were relatively less common, and the assurance therefore short-lived. In most cases, the specialist would request the patient to be referred to the higher facility for the necessary physical examination, diagnostic tests and in-person consultation.

- Many patients however did not go to the higher referral facilities due to the longer distances that had to be travelled to access these services. Moreover, those patients who were able to go to the higher facility many a times did not find the specialist who was consulted and were seen by a different doctor. A large number of cases required advanced diagnostic tests or drugs that were not available in HWCs. Thus, teleconsultation was unable to reach a logical conclusion in confirming the diagnosis or starting the treatment.

One of the CHOs responded to this situation by saying, *“when we do the teleconsultation for any patient, the most common advice by doctors is to refer to the DH or CHC. That is the tough part, because the patient neither wants to go to the higher centre, nor wants his treatment at the HWC.”*

- Another major concern related to availability of specialists in the hubs. The best situation possible in the state was to have one specialist who could be available in each district per day. The specialist may be able to give two to three hours of time and provide consultation to around 10-15 cases a day. This translated into a required capacity of around 300 consultations daily for the entire state. With around 3000 HWCs in the state, the capacity to undertake such volumes was insufficient. In CHCs of Chhattisgarh, very few specialists were available and making them hubs would imply the same limitation.

In many of the DHs, the specialists were not willing to undertake this role and responsibility. The process was often delayed and resulted in poor quality of care when it did not result in treatment provisioning for the patient. In addition, this did not result in any professional satisfaction for the doctor. A case was noted when a nurse was placed at the hub at a DH. She was initiating prescriptions for all specialties without any doctor consultation. In many cases, a data entry operator entered details on the portal and mentioned the advice as “Refer to DH” i.e., to send the patient physically to the DH.

The study found that there was often a mismatch between the specialist available and the type of disease/condition which the patient was suspected with. Some districts followed a fixed-day specialist roster, and this could help reduce this service delivery mismatch to a certain extent. Few CHOs found the teleconsultation beneficial in obtaining a prescription for patients when the CHO was underconfident for initiating treatment.

- Even though teleconsultations did not yield much benefit for the patients coming to HWCs, there was a huge amount of pressure from the central government to increase these consultations with the hubs. To fulfil these targets, HWCs and districts devised several local arrangements. When CHOs did not find a patient suitable for teleconsultation, they entered simple cases like cough or cold, aches and pains etc. in the e-Sanjeevani portal to achieve the requisite numbers. Sometimes the patient would get harassed as s/he had to wait for the entry to be completed in the system. Slow internet connection and portal problems posed significant challenges for everybody involved, especially the CHOs.

- There were a number of cases entered into the teleconsultation portal which would not require teleconsultation with the specialists at all. Several times, the entire transaction turned out to be a facade. This practice was observed in a number of HWCs and was informally confirmed with the team members. Often it was observed that there was neither an eligible patient nor a doctor to provide these consultations. The entry was made by the CHO for any patient, irrespective of whether a specialist consultation was required in the case or not. Often enough, there was no doctor at the other end. Usually, a data entry operator or nurse at the hub entered the advice which was provided to the patient entered by the CHO. This showed that the teleconsultations were being done to report the desired numbers and they did not bring much benefit to the community visiting these centres for care.

However, based on the observations it was noted that these teleconsultations could be useful for early identification and management of patients with mental illnesses. These illnesses usually did not require any laboratory tests for confirmation and the doctor could assess the patient based on their conversation. But the staff at HWCs was yet to be trained to identify cases of mental illnesses and provide consultations with ensured privacy. This area if prioritized by the PHC team, could provide positive results with the help of teleconsultations, and ensure that the required medicines were provided with the help of the linked MO at the PHC.

2.1.16 Linkages between HWCs and government health insurance schemes

The current study found that there were hardly any referrals from the HWCs to higher facilities which were covered under the other pillar of Ayushman Bharat - the Pradhan Mantri Jan Arogya Yojana or under the state scheme. Most of the patients visiting these HWCs required ambulatory or outpatient care and their referrals to higher centres for management were also for an advanced level of care for the same. The deliveries, especially for the high-risk cases were being referred to CHCs or DHs. Cases with serious injuries rarely turned up, at HWCs as they directly proceeded to higher public or private facilities.

The HWCs did act as gatekeepers for primary care and prevented bypass of patients to higher facilities without a consultation with the PHC team. The role of gatekeeping however was limited mainly for outpatient care. The HWC and PMJAY have been designed to complement each other by covering different domains of the health care services but their inherent programme design did not allow enough possibilities for them to have common linkages and pathways for integrating the care continuum. The conditions that showed high utilization rates under PMJAY were mostly for inpatient care and often not the ones for which the patient would approach the HWCs. The other issue identified related to health insurance schemes not being perceived as effective in financial protection. This reduced the faith of the HWC staff in recommending patients to access services under such schemes as there could be a possibility of high out-of-pocket-expenditure (OOPE).

2.1.17 Cohesiveness of the primary care team at the health and wellness centre

For the efficient performance of HWC in providing a wide range of services under the CPHC umbrella, it is important for the primary health care team to maintain good coordination and communication amongst them. The primary health care team at the HWC-SHC comprises of a CHO, RHO-M, RHO-F and a second ANM. Apart from them, the Mitanins also form an important part of this CPHC team. On an average, there are 13 Mitanins under each HWC SHC and they

are supervised by a MT. These MTs form an important link between the HWC staff, and the community and they supervise at-least 2-3 HWC-SHCs. At present the state has over 3250 MTs to supervise approximately 5200 SHCs.

- The HWCs where two ANMs had been deployed reported lesser issues related to ANM functioning. Their roles entailed one ANM getting involved in outreach related work and the other helping the CHOs to conduct OPDs at the facility. In these centres, the CHOs expressed satisfaction with the support provided by ANMs and MPWs at their centre. One of the CHOs responded by remarking, *“team coordination is really good and the ANM and MPW are very supportive. Whichever activity we plan at the centre, we do it together.”*
- In centres where only one ANM and one MPW were posted, there were reportedly more issues with team coordination and work allocation. At these centres, CHO’s primary role was facility-based i.e., to conduct OPD. Here, the ANM’s role was to conduct outreach services and provide services related to RCH. The MPWs were mostly involved in disease control programmes and public health preventive work in the community. In these centres, the CHO expected the ANMs and MPWs to help them manage the OPD at the facility, whereas the ANMs expected the CHOs to help them conduct deliveries and perform other outreach work.
- However, there were issues related to role clarity and responsibilities which they were expected to perform individually and as an entire team. The CHOs were supposed to do the OPD clinics and ensure data entry in the NCD app. It was assumed that most of their time would be devoted to updating data on activities undertaken. The ANMs were mostly involved in implementing outreach activities (immunization and ANC) and conducting institutional deliveries.

At the HWCs where residential facilities had been provided to CHOs, they helped ANMs conduct deliveries but in many of the HWCs visited, there was no extra place to stay for CHOs, even though space was available for ANMs to stay on the premises. Thus, with this current arrangement at most HWCs, CHOs can help ANMs to conduct deliveries during the daytime i.e., working hours of HWCs. One of the CHO responded with, *“it is in the HWC that the ANM and MPW are staying, while I have to stay outside in a rented room. During night deliveries it becomes difficult for me to come over at the centre and help the ANM. who wants me to assist her in all the deliveries along with my other HWC work.”*

- The Block and District level officers also perceive that CHOs are only undertaking OPD related work and are not involved in conducting deliveries, which is the mandate of the ANMs. There is some confusion at the CHOs end about their role. Most of them assumed that their work was limited to conducting OPDs and follow-up of NCD patients at the facilities. Resultantly, they did not get involved with MCH related services and outreach activities.
- The skills of CHOs to provide the expanded range of services for CPHC was another issue as most of these trainings were yet to be concluded. In addition, the required drugs and diagnostic supplies had to be ensured. Many of the CHOs were fresh nursing pass-outs and lacked practical experience in undertaking deliveries. They needed further hands-on training on delivery and intrapartum care for pregnant women.

At some of these centres, the power dynamics struggled, especially between the CHOs and ANM who too were quite prominent. The CHO, a newly recruited health care provider was required to head the HWC, where an ANM had already been providing care for a long period of time and has a link for the community they served. The CHO's designation included the title of an 'Officer' which often denoted a superior position in the hierarchy of the system. The ANMs are likely to feel indifferent and find it unfair to treat a CHO as their boss, given the contractual nature of their appointment.

The study also found a gender and age dimension to the conflict around hierarchy of staff at these HWCs. Most of the CHOs were young women and ANMs who were generally older and more experienced in this field, found it difficult to accept them as their new team leader. On the other hand, the male CHOs faced less opposition from ANMs. In addition, this was also dependent on how confident a CHO was in performing his/her duty. When CHOs were new, they often lacked clarity about their roles and responsibilities, were unsure of their place at the HWC and not fully confident of their technical skills.

- With lesser experience of managing a team, this further reduced their chances of gaining acceptance as leaders of HWC. The issue of being underconfident also related to the non-familiarity with local area, the people, and their language. If a CHO was posted in a remote place where he did not know anybody, he was more likely to feel underconfident in asserting himself as the leader of the HWC. In comparison, the ANMs, who had been health care providers in that particular area were well known by the community they served.
- The relationship between CHOs and the existing male MPWs also had several inherent issues which were noted. The male MPWs tried to assert their autonomy and usually wanted to maintain status quo in terms of the amount of time they spent at the HWC and the tasks they performed. However, it was common to find that the male MPWs and CHOs found an equilibrium where the male MPW helped the CHO for a few tasks on select days. The male MPWs often found it difficult to accept the CHO as their team leader and the gender related dynamics played a big role. If a CHO was underconfident in performing her tasks, the male MPWs gained an upper hand.

Another issue which caused conflict related to control over untied funds being provided to HWCs. As the SHC got transformed into an HWC, the CHO was required to become a bank signatory for the bank account of the HWC in which the untied fund was deposited. Earlier the ANM was the authorized signatory but now according to the new guidelines, CHOs were required to be designated as a signatory. The process of the transfer of authority is still underway in most districts. Regarding the issue on utilization of untied funds, a CHO communicated, *"the coordination with ANM is not as good as it should be. I face an issue utilizing untied funds since the ANM tends to disagree. There is a requirement for many items, but I cannot purchase them even though we have some untied funds left. So, I made a list and gave it to the block medical officer."*

- The ANMs on the other hand resented the inclusion of CHO in decision-making regarding the untied fund. The district officials are aware of the concerns around the power dynamics and one of them expressed his views, *"yes, it exists in some places as the ANM is senior in terms of experience, and the CHO is a new entrant placed above her in hierarchy. Sometimes the ANM will dominate the CHO as she has more experience. We try*

to counsel them that they have to coordinate with each other and work as a team for the facility to perform better.”

- There are HWCs where the conflict between the CHO and the ANM/MPW is visible, and it hampers the day-to-day functioning. There is clear division in the tasks assigned to them. While the ANM continued with her earlier tasks, the CHO shouldered the OPD and NCD screening. It was also observed that in majority of older centres these conflicts reduced over a period of time and an equilibrium was reached. The power dynamics and the work of HWC did not suffer much once they work at the same facility. There were some examples of cohesive primary care teams functioning optimally in certain centres.

2.1.18 Mitanins and their relationship with health and wellness centres and the community health officers

Mitanins are also part of the primary health care team as they act as a linkage between the community and health care facility, which is the first contact with the health system. They are the major channel of communication for creating community awareness and mobilization. The CHOs reaffirmed that the Mitans were very helpful in the follow-up of chronic cases, organizing activities and community visits. CHOs have the opportunity to interact with the Mitans regularly and enjoy good understanding around their respective roles.

For the follow-up of patients, Mitans played a very important role as most of them were from the same communities they served. They earned people’s trust in the course of several years that they worked with them. So, when Mitans encouraged people to visit HWCs for follow-up or routine care, many people in the community do so. Further, during the COVID -19 pandemic, they played a crucial role in NCD patient follow-up and in supplying medicines from HWCs to the patients as they were hesitant to visit health facilities.

2.1.19 Incentives

Staff at SHC-HWCs were given two types of incentives based on their performance. One was the performance-based monthly incentive which was meant for the Community Health Officer, and which was disbursed monthly. The other was a team-based incentive meant for the ANM, MPW and Mitans (CHW) and this was supposed to be disbursed every six months as per state directives.

In half the districts, the CHOs received their incentives on time while in others it was delayed. In one of the blocks, CHOs received only 20-30% and that too very late because of which they lacked motivation to work. One of the CHOs mentioned, *“the distribution of incentives in our block has been a problem since June 2021 when the new incentive format was introduced. Ever since we only get incentives of around INR 2000-3000 a month and that too with a gap of around three to four months. We have complained regarding the same to our Block officials. They advised us to focus on our work and not incentives.”*

Another common issue related to the inclusion of Mitans (CHW) in the team incentives. Most of the CHOs did not know that Mitans (CHW) could also receive the team-based incentives.

2.1.20 Infrastructure at health and wellness centres

As per and state directives, funds were provided for infrastructure upgradation of HWCs and to construct a room for wellness activities within the same premises. In Chhattisgarh, the model SHC is a two-story building with provision for SHC staff to stay on the floor built above the HWC. With good infrastructure available, often this amount was utilized in renovating the existing building and making structural adjustments which were required as per the norms.

However, it was observed that there were major gaps in availability of running water at these HWCs. The state government mandated that all SHCs have a running water connection under the Jal Jeevan Mission. It is thus required to be ensured that each HWC receives the benefit of this provision. In addition, most of the HWCs did not have an additional room for which funds were sanctioned by NHM in the programme implementation plans (PIPs) planned in the last four years. This was a missed opportunity to increase infrastructural space at these HWCs. Table 11 provides the district-wise infrastructure status of HWCs.

Table 11: District-wise Infrastructure status of HWCs

Districts	Branding vs. target	Running water availability	Toilet
Gariaband	34%	Running water-90%	100%
Mungeli	66%	Running water-65%,	59%
Raigarh	44%	Running water-47%	80%
Raipur	35%	Running water-93%	86%
Rajnandgaon	37%	Running water- 90%	100%
Kawardha	63%	Running water-60%	100%
Bastar	49%	Running water-15%,	46%
Koriya	63%	Running water-25%	88%
Korba	44%	Running water-40%	95%
Kondagaon	66%	Running water-86%	93%
Bilaspur	78%	Running water-56%	100%
Balrampur	63%	Running water-60%	100%
Jashpur	18%	Running water- 56%	89%
Dhamtari	60%	Running water- 90%	100%
Janjgir-Champa	59%	Running water- 64%	91%

In tribal districts, a number of HWCs (around 10-15%) did not have reliable access to electricity. They can be equipped with solar panels to meet the demand of the health facility during the day and of the staff residing at these centres during the night.

2.1.21 Summary of findings

- In April 2022, a total of 3000 SHC-HWCs were functional with 2700 being functional with CHOs in place and an additional 300 being made functional with the help of RMAs running biweekly clinics. This translates to 56% of the total SHCs in the state being transformed as HWCs.

- The average monthly footfall of patients in HWCs was around 464, of which 68% accounted for those who received treatment at these HWCs and 32% screened for common NCDs.
- The HWCs transformed in the initial years of the programme screened around 80% of its target population for NCDs particularly for hypertension and diabetes.
- Looking at the NCD epidemiology in the state, on an average each HWC covering around 4000 population should have 330 cases of NCDs that includes 220 hypertension and 110 diabetic cases. Currently, on an average, each of the HWCs has diagnosed around 100 NCD patients (60 HTN and 40 diabetes) i.e., around one third of the total NCD cases.
- The reason for lower detection of NCD cases against the number of people screened could be attributed to not screening the suspected individuals for a minimum two times, and therefore the screened positives cases were not included in the list of diagnosed cases for follow-up.
- However, of the total number of diagnosed NCD cases, around 60% beneficiaries were receiving treatment from their HWCs regularly.
- For simple acute illness, currently these HWC are catering to around 31% of total health needs of the catchment population. The range of these acute illnesses for which treatment is provided at HWCs include fever, cold and cough, aches and pains, skin ailments and infections, diarrhoea, and minor injuries.
- CHWs and communities regarded HWCs as a major addition to providing them access to their health care needs. They appreciated the services being provided by HWCs and strongly preferred the services to be directly available at HWCs for most of the common ailments. They also found it difficult to access higher facilities when referred by HWCs.
- The state prepared a list of essential drugs for HWCs, and the current EDL (2021) which has 114 drug formulations for HWCs which are required to be available at these centres.
- At present, the drugs for HWCs are indented and received from their linked PHCs. The CGMSC is in the process of developing a login ID for the HWCs individually. This would allow CHOs to indent the drugs required for their HWCs themselves. Also, CGMSC would be required to supply the drugs directly to HWCs, thereby reducing the delays.
- The buffer stock for HWC essential drugs has been specified and they are required to maintain the stocks. However, during the study it was observed that some of the essential drugs were stocked-out in many HWCs.
- In addition, there were variations in districts on the flexibility to use untied funds for purchase of essential drugs which were unavailable or being supplied by the PHC.
- In many of the centres that were visited, there was a shortage of important diagnostics kits, their consumables, and reagents at HWCs i.e., haemoglobin meter, uristix for albumin & sugar and solubility test kit and POC kit for sickle cell anemia.

- To enable daily and monthly reporting of HWC performance on the portal, electronic tablets have been supplied to staff at the HWCs. Functional issues were observed at these centres as the quality of these tablets was often poor. Moreover, majority of the centres faced challenges with regard to updating the recent versions of the application.
- Some of the HWC staff (mostly ANMs and MPWs), also found it difficult to operate these tablets for data entry and required trainings.
- The NCD application was introduced at the HWCs to undertake the electronic enrolment of all the population empaneled under every centre transformed as an HWC. It recorded the details on the number of screenings undertaken for NCDs, number of patients who were diagnosed and those for whom treatment was initiated. The version of this application was updated frequently, and new features added due to which CHOs and ANMs handling the app found it difficult to operate and understand all its features. The team was not regularly appraised of the changes incorporated with every update in the application. This was an important aspect since it ensured same understanding and digital literacy for the team.
- In addition, once the patient got referred to the PHC and if the data on treatment initiated was not entered in the MO portal at PHCs, then the patient was not considered under treatment in the CPHC NCD app at the HWC level.
- In addition, the NCD app's dashboard at HWC provided the line list of individuals screened and referred to the higher centre along with the number of patients put on treatment but it did not provide the list of individuals required to be followed-up for a confirmatory diagnosis or for initiating treatment. To provide the specialist consultations at HWCs and to link them with higher levels of care, teleconsultations were initiated at the HWCs. The telemedicine capacity at hubs was constrained due to limited availability of specialist doctors and non-availability of doctors to provide consultations at the stationed hub.
- During these telemedicine sessions, many patients were advised additional diagnostic tests which were often not available at the HWC-SHC, and the patient was required to travel to the nearest hospital or a higher care centre. The patients found it difficult to travel to the facilities they were referred to.
- In addition, the prescriptions advised during telemedicine, mostly by specialists were not available at HWCs. In such scenarios, either the patient left that treatment or bought it from a private shop.
- Thus, the use of telemedicine was very limited as in most sessions, it was observed that often the patient was advised to seek care at a higher centre.
- In addition, for each of the HWCs there was a fixed target of conducting at least 10 telemedicine sessions per day and this target-based approach killed the real objective of telemedicine. Later, the target was brought down to 25 per month which too was high for a HWC to fulfill practically.
- In many of the districts, the CHOs were not receiving timely incentives and often they were paid only partial incentives. Many districts still did not include Mitans in their

HWC's team incentives.

- On the aspect of team management and coordination, there are issues related to the ambiguity in the roles and responsibilities of the CHOs and ANMs. There was also some confusion with the CHOs about their function as most of them assumed that their role was facility-based in terms of conducting OPDs and following-up of NCD patients. In other words, they did not get involved in MCH related services and other outreach activities for public health functions of the team.
- Certain issues related to power dynamics between CHOs and ANMs persist. This is mostly because CHOs are a new cadre of health care workers who are newly posted at these centres. On the other hand, senior ANMs found it difficult to adapt to the new work dynamic of reporting to a team leader who was a new staff member at the very same centre where they were providing services for the past several years.
- At the centres where only a single ANM and one MPW was posted, the issues with team coordination were more pronounced. In those centres, the CHO would expect the ANMs and MPWs to help them manage the OPD, whereas the ANMs expected the CHOs help them conduct deliveries and complete other work.
- Mitanins play a very important role in regular follow-up of NCD cases in the community, as most of them belong to the communities they serve and have earned their trust.
- During the COVID-19 pandemic, they played a more crucial role in community-based NCD patient follow-up, providing drugs from HWCs, since the patients were hesitant to visit the health facilities.

2.1.22 Recommendations

A. Strengthen HWCs for the 'refer less, resolve more' approach: A key finding of the study was that when HWCs referred a screened individual for a confirmed diagnosis and treatment, the referral did not always materialize in most cases. The telemedicine model tried was found to be ineffective and the likelihood of it working for a wide range of health needs was also limited. Suggestions to build the scope and ability of HWCs to deliver on more counts:

- HWCs must diagnose and treat many diseases and cases commonly occurring in their area. To do this, they must strengthen capacity-building for enhancing skills of CHOs for early detection and management of diseases as per the expanded range of service packages.
- Build a system that ensures availability of mandated essential medicines and diagnostics at all HWCs through the year.
- Enhance the range of services provided at HWCs so they can play a larger role in identifying and managing complicated pregnancies, severe anaemia, pneumonia, common mental illnesses, leprosy follow-up and disability prevention, epilepsy, management of injuries and other medical emergencies, animal bites (including dog bite and snakebite) and sickle-cell disease.

- Train PHC teams to play a better role in handling acute problems and equip them to support and stabilize patients prior to referral for management to higher levels of care.
- Ensure HWCs improve their handling of chronic illnesses like epilepsy or sickle-cell disease by continuing medication and its adherence after treatment prescription is given by doctors at the PHC/CHC.
- Train to quickly identify side-effects of medicines which impact patients and facilitate timely referral.
- Shift emphasis of the programme from the current, central pressure and emphasis on telemedicine, NCD screening, NCD app entries, HWC portal entries and yoga or other “wellness” activities. Make changes in the programme’s emphasis as well as its monitoring design.
- Provide treatment for a wide range of primary health care needs, availability of medicines, ensuring every individual who is screened positive undergoes subsequent confirmatory diagnosis and provided with a treatment plan; and
- Make upward referrals that are coordinated as per advised clinical care and regular check-ups and facilitate treatment adherence.

B. Upgrade and improve transport-based continuity of care: The existing methods to ensure coordination by the HWC for referrals to higher facilities have not shown results so far. A good way to ensure and facilitate linkages could be through free referral transport to these higher centres. Thailand has successfully implemented this strategy in centres like HWCs to support referrals and ensure minimal patient hardship. The same can be adapted to suit the needs of Chhattisgarh. Additionally, the following recommendations are proposed:

- Provide each PHC a vehicle to transport patients who need referral to the specific centre for further management and care. The vehicle could be provided with weekly fixed days. It need not focus on emergencies but on facilitating referrals from HWCs to higher centres for consultations and advanced diagnostic check-ups. Later, it could be dropped back to its HWC (same day), depending on requirement and management as advised by specialists.
- Prioritize consultation to patients at higher centres and facilitate their movement within the facility to ensure appropriate care. The priority window and health staff accompanying these patients should be adequately trained so they receive the care they are being referred for; and
- Replicate the method by engaging these vehicles and hiring them under the Rashtriya Bal Swasthya Karyakram (RBSK) programme to facilitate their transport on select days.

C. Set up Mitadin helpdesk-based continuity of care across facilities: Each hospital in the state at the level of CHC or higher has a dedicated Mitadin helpdesk. This can be

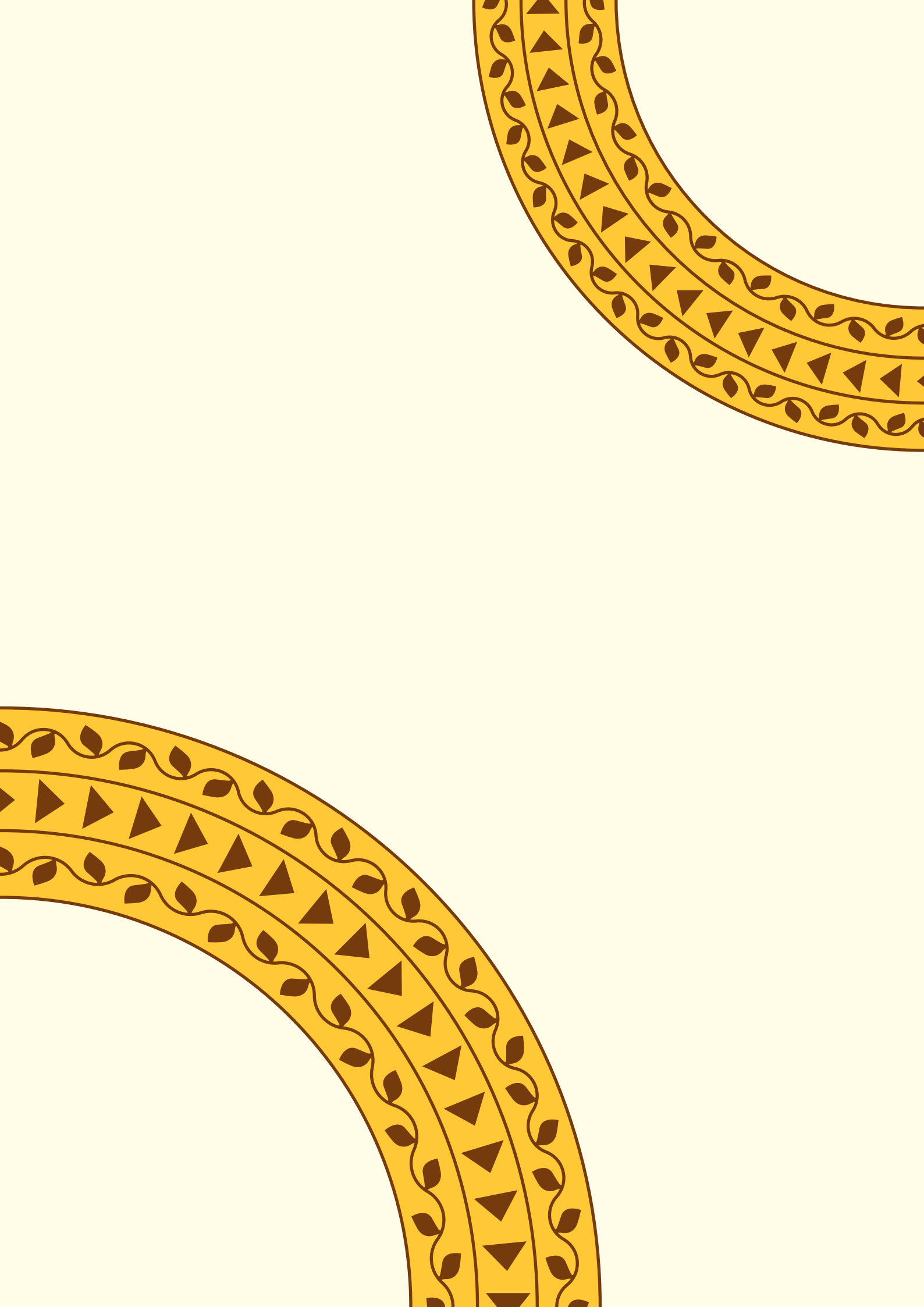
leveraged to close the loop for HWC referrals at higher centres. For this, the CHO/ANM at the HWC would be required to coordinate with the Mitadin helpdesk over phone for each referral to ensure the relevant specialist is available on the select day, in addition to the referral slips.

D. Orient the CHOs on continuity of care: The CHOs need additional orientation on a range of important aspects enumerated below:

- Coordinate upward referrals (to higher centres of care with concerned specialist) and downward referrals (for follow-up care in the community and treatment adherence).
- Ensure each screened individual is provided optimal care and assessment at a higher level to confirm diagnosis and after diagnosis to initiate cases confirmed with the disease on treatment.
- Bring each chronic disease case on treatment back to the HWC every month for follow-up and refilling of medicines for the next 30 days.

E. Make team-building an ongoing process: The idea of having a primary care team must be emphasized within the team. Apart from CHO, ANM and the male MPW, the Mitadins and MT must be considered as part of the team and included in the team activities. Additionally, the following steps must be taken:

- Reorient CHOs to ensure that the designated team-based incentive includes Mitadins as per current guidelines and include them in the monthly incentive submission reports.
- Modify allocation of team incentives to increase amount of incentive pertinent for ANMs and MPWs, based on the wide array of tasks they undertake; and
- Organize team-building exercises to resolve any conflicts and help the team to set common goals and coordinate planning to undertake assigned tasks.



Primary health centres

A PHC caters to a rural population of 20 000 in tribal areas and 30 000 in other areas. It is mandated to provide basic curative services for a wide range of common illnesses, health care services related to maternal, newborn and child health along with preventive and promotive health care services for varied health care needs of the communities.

There are 793 PHCs functional in Chhattisgarh. A PHC is expected to be headed by an MBBS doctor known as Medical Officer (MO). Other staff that are sanctioned include the RMA, pharmacist, staff nurses, LTs, LHVs, ward boys and facility caretakers. Information on availability of these HR in the sample PHCs is collected and updated regularly.

As part of the current study, key services available at the PHC were studied. They included RCH services; hypertension, diabetes, and mental illness; primary management of emergency and injury cases; inpatient care and deliveries; availability of essential medicines in PHCs; and diagnostics at PHCs. Performance of PHCs was compared against existing benchmarks for various types of services at the PHC level.

3.1 Key findings

3.1.1 Population per PHC

The average population being covered per PHC was around 26 000 in the state. This roughly matched with the normative number of PHCs required to cater to the state's population, including tribal areas.

3.1.2 Availability of round-the-clock services

Around 60% of functional PHCs were providing services 24x7 to conduct deliveries and manage primary care for emergencies.

3.1.3 Bed capacity

The norms of beds for a PHC to provide inpatient care as per IPHS is six beds (two essential and four desirable). Most PHCs (49%) had six beds and around 23% had 10 or more beds and around 28% PHCs had three-four operational beds for inpatient care.

3.1.4 User fees

Most PHCs charged a user fee of INR 5-10 for OPD as per the RKS/JDS committee. This varied with the kind of services being provided. All PHCs were providing services free for pregnant women under JSSK. PHCs had a limited number of diagnostic tests available but most were

free of cost. Around 20% PHCs were not charging any user fees for OPD as well.

3.1.5 Health Workforce

Several cadres of the health system hierarchy at the HWC-CHCs were studied.

- **Medical officers and rural medical assistants:** At the time of formation of the state, the directorate of health had a limited number of MOs to be posted at the PHCs. To address this challenge, the state government started a three-year course to train medical professionals to serve in rural areas. The course enrolled students after higher secondary education. The students who completed three years of diploma were used to manage the PHCs. Hence a new cadre of RMA was created after surrendering one post of MO at the PHCs. This cadre was known as Rural Medical Assistants (RMAs). At every PHC one to two RMAs were posted. With the recent recruitments of MOs and a scheme that mandated a bond to serve in rural areas post completion of MBBS, many centres now have MOs posted at these centres. Out of the total 35 PHCs visited for this study, 42% had MOs posted, of which around half were posted under the bond scheme. All the PHCs visited had at least one RMA posted, and more than half (63%) had two RMAs in position.
- **Staff nurses:** Availability of staff nurses showed wide variation amongst these centres. There were three PHCs that were visited which had either no staff nurse or LHV posted and in three other PHCs only one nurse was positioned. The LHV cadre is meant to supervise and support the ANMs, however in the absence of staff nurses, they performed the tasks of nurses.
- **Pharmacists:** Around 75% PHCs had a pharmacist in position.
- **Lab technicians:** Only 62% of the PHCs visited had a LT in position. The lack of LTs at the PHC level severely affected decision making and a conclusive diagnosis for patients who did not get the required services at the SHCs. Around 257 PHCs were found to be functional across the state where the post of a LT had not yet been sanctioned from the regular budget. As per the earlier IPHS 2012 norms, it is required to position one LT at the PHCs to conduct the necessary laboratory investigations. This was an important concern highlighted by MOs at the PHCs during interactions. Lack of an appropriate diagnostic test facility was an important concern, and this often led to increased referrals to higher centres.

At the PHCs without LTs, a few rapid tests were being conducted by the ANMs at the facility. There were frequent shortages of various testing kits at these facilities. In addition, these PHCs did not have the funds to purchase the required test kits since they could not utilize their untied funds for purchase. They often ended up referring patients to higher centres. Also, to purchase any item from Rogi Kalyan Samiti (called Jeevan Deep Samiti in Chhattisgarh) money required the signatory from the block level (mostly BMOs) to approve the fund utilization, which increased the dependence and delays, thus PHCs often resorted to not purchasing from these funds.

3.1.6 Staff for accounting and logistics

Managing finances and undertaking procurement at the PHC level was another challenge which was reported. No staff was given the responsibility of these specific roles. Each PHC had a staff called PHC accounts and data assistant (PADA) who could record and report. However, it was found that most of them were working in CHCs instead of PHCs. This created a gap in PHCs.

3.1.7 Services

Outpatient care (OPD): The average OPD of the sampled PHCs was around 506 every month. The OPD varied widely amongst these centres from 230-1300 a month. The daily OPD of these PHCs also ranged from nine in certain centres to 55 per centre per day (considering 25 working days a month). This is below the prescribed level for MOs by the IPHS 2012 of attending on an average 75 patients every day. Table 12 gives comparison of OPD in a PHC that functions with and without an MO.

Table 12: Comparison for OPD in PHC with and without MOs (n=35)

Service	Average OPD of PHCs with MO	Average OPD of PHCs without MO	% PHCs with MO above benchmark OPD of 500/month	% PHCs without MO above benchmark OPD of 500/month
OPD	545	472	46	35

The PHCs with MOs had an average monthly OPD of 545, whereas those without MOs had an average monthly OPD of 472.

- The PHCs were providing a wide range of outpatient services through MOs and RMAs posted there. Where regular MOs were posted, it was reported that patients were now being treated at the facility itself. Earlier they were being referred to higher centres for care. At one of the PHCs, the presence of the MO had facilitated the management of a case of eclampsia in-house. In addition, it was reported that cases with severe anaemia had now started receiving iron-sucrose injections at the facility itself under the supervision of the MOs. In addition, management of medical emergencies which required immediate attention like poisoning were also being attended to at these PHCs with MOs. Observations of the OPD and interactions with the regular MOs revealed that many of the patients returned for follow-up as they felt satisfied with their services and gained trust of the beneficiaries who visited.
- Some of the MOs posted under the regular cadre improved overall leadership at the PHC and its functioning. This was reflected in them being able to facilitate and arrange a greater number of drugs and diagnostic tests at the PHC. According to an MO from the regular cadre, posted in a PHC, “*shuru me jab main aayatha to bahunt saare test aur dawaiyaan nahi hoti thi, par maine apne block se dhire se dawaiyaan arrange karwayi aurab kit-based tests bhi yahi karwane se patient bhi khush hote hain*” (initially when I was posted here, there were very few medicines and tests available, but I arranged medicines slowly from the block and now kit-based tests are done here. This has made patients happy).

- The availability of an MO helped in handling medico-legal cases (MLC) reported at the facility. According to an RMA posted in a PHC, “MO sir ke rehne se ab medico legal cases bhi handle ho jate hai kyunki hum in cases ko nahi dekh sakte.” (With the MO being available at the PHC, he also handles the MLC which we are not authorized to handle).
- The results of posting new MOs under the bond scheme at PHCs however showed mixed results. These MOs felt that they were posted at the centre for a short period of time and many of them did not want to put an effort in improving services at the PHC. They tended to be wary of the leadership and administrative duties which were to be performed. In addition, RMAs, and other staff members at the PHC also thought of the contractual MO to be a temporary employee and tried to continue as they were previously without the MO. This was supplemented by the absenteeism of the bonded MOs and lack of dedication as they utilized this bond-period for their PG entrance exam preparation.

Another important systemic challenge regarding role of MOs (regular as well as bonded) at the PHCs was attributed to their being attached to the CHCs or other higher levels of care for at least a few days of the week. This sometimes led to disruption of services at the PHCs where they were posted. In a few CHCs, there may be a valid reason in case of shortage of doctors. However, this practice was found to be a norm rather than an exception. When MOs did not work full-time at their designated PHCs, the benefits of their posting mostly disappeared. It also promoted absenteeism.

- However, a few regular MOs enjoyed working at the PHCs demonstrating their leadership role and how they could help improve conditions at the PHC to improve service delivery. On the other hand, a larger share of MOs preferred to work at CHCs as there were many reasons for them to be attached to the CHC rather than work full-time at PHCs. One of the reasons was that they could learn from their peers and senior specialist doctors at the CHC. They often feared that working at a PHC would not result in full utilization of their skills as none of the PHCs had an adequately functional laboratory to support the physician. This had an adverse effect on their motivation to work at the PHCs. The lack of availability of essential medicines also limited the treatment which they could provide. One of the doctors under the bond narrated an incident that the absence of basic emergency drugs to treat poisoning cases at the PHC did not allow him to address such cases and he had to refer them to the CHC. This led to non-utilization of skills of the MO at these centres and limited them in the treatment that they could provide for a wide array of illnesses.
- A suggestive action which could be undertaken to reduce absenteeism for MOs under bond by posting them at CHCs with the senior doctors and BMO to supervise them and facilitate their practical learning.

3.1.8 Range of services at the primary health centres

Reproductive and child health services: ANC is the most common and frequent service being provided by the PHCs which also includes identification of HRPs, providing iron and folic acid (IFA) etc. However, the service related to resuscitation for newborns was provided at less than 50% of the PHCs. Most of the PHCs (78%) had not treated any cases of pneumonia in the preceding month. Table 13 provides comparison of basic services in the PHC with and without MOs.

Table 13: Comparison of other basic services in the PHC with and without MOs (n=35)

Services with benchmark of value of services	PHCs with MO performing benchmark services	PHCs without MO performing benchmark services	% PHCs with MO above benchmark	% PHCs without MO above benchmark
Newborn's resuscitation (at least one resuscitation per month)	7	8	47	40
Sick newborns treated (at least one per month)	9	7	60	35
Pneumonia cases treated (at least one per month)	5	3	33	15
Total ANC done (>30 ANC) per month	9	9	60	45

The presence of MOs showed impact in terms of treating sick newborn children. There were 33% PHCs with MO and 15% PHCs without MO treated at least one pneumonia case last month.

Hypertension, diabetes, and mental illness: To assess the range of services being provided at the PHCs, the data for treatment of different diseases was collected. It was found that treatment for hypertension and diabetes was provided in all PHCs sampled, but the number of patients being treated differed widely from just one to two cases to more than 100 cases a month at these facilities. It was found that the PHCs with a stronger linkage with HWCs under them, were performing better. Most PHCs had not yet identified and treated any cases of mental illnesses. Table 14 provides data that compares the above diseases that are seen in PHCs with and without MOs.

Table 14: Comparison of leprosy, epilepsy, hypertension, and diabetes cases in PHC with and without MOs (n=35)

Services with benchmark of value of services	No of PHCs With MO performing benchmark services	No of PHCs without MO performing benchmark services	% PHCs with MO above benchmark	% PHCs without MO above benchmark
Leprosy cases treated/ drug provided (at least one)	6	4	40	20
Epilepsy cases treated (at least one)	3	2	20	10

Services with benchmark of value of services	No of PHCs With MO performing benchmark services	No of PHCs without MO performing benchmark services	% PHCs with MO above benchmark	% PHCs without MO above benchmark
Hypertension treatment (medicine) provided above benchmark of 45 patients/month	6	8	40	25
Diabetes treatment (medicine) provided above benchmark of 30/month	6	8	20	30

Primary management of emergency and injury cases: There is a felt need that PHCs are required to undertake primary management of various injuries or emergencies like poisoning, animal bites, road traffic accidents, etc. Most of the PHCs were able to manage wound injuries and dog-bites. It was also observed that for management of emergencies, the PHCs with MOs were performing better than PHCs without MOs. Table 15 provides comparison of management or primary cases in PHCs with and without MOs.

Table 15: Comparison of management of primary cases in PHC with and without MOs

Services with benchmark of value of services	No of PHCs with MO performing benchmark services	No of PHCs without MO performing benchmark services	% PHCs with MO above benchmark	% PHCs without MO above benchmark
Primary management of wounds (at least 10 per month)	9	12	60	60
Primary management of road traffic accidents/fracture (at least five per month)	6	7	40	35
Minor surgeries - draining of abscess (at least five per month)	3	4	20	20
Primary management of cases of poisoning (at least one per month)	2	1	13	5
Primary management of cases of dog bite (at least eight per month)	5	2	33	10

Inpatient care and deliveries: It is well- known and documented that IPD care leads to catastrophic health expenditure for households, therefore the availability of basic IPD services is essential at the level of PHC. In the 35 PHCs sampled across 16 districts, the monthly IPD admissions ranged from two to 76. A larger share of these IPD admissions was attributed to institutional deliveries. The other evident causes were reported to be severe dehydration and malaria. It was observed that the PHCs which did not perform well in conducting OPDs also usually performed poorly in providing IPD services. Table 16 gives a comparison of IPD and delivery cases in PHCs with and without MOs.

Table 16: Comparison of IPD and delivery cases in PHC with and without MOs

Services	PHCs with MO	PHCs without MO	% PHCs with MO achieving benchmark	% PHCs without MO achieving benchmark
IPD admissions (At least 30 per month)	5	7	33	35
Deliveries (at least 10 per month)	7	8	47	40

It was noted that IPD at the PHCs with a MO posted was same as the PHCs without MOs. This would be attributed to bulk of the inpatient care at PHCs that was being provided for maternal care. Clearly, the availability and performance of nurses seemed to play a larger role than the availability of MOs.

The deliveries being conducted in the sample PHCs ranged from zero to 54 in a month. This was also reflected in the performance per nurse which showed a wide variation from zero deliveries to as many as 24 deliveries per nurse every month at a PHC.

Availability of essential medicines at the primary health centres: Availability of stock of medicines available at the sample PHCs was assessed for 25 most frequently prescribed and utilized essential drugs. Out of 35 centres, in 10 PHCs more than 10 (40%) of these drugs were found to be ‘out of stock’ on the day of visit. There was only one PHC where all the 25 drugs were present. Most PHC staff reported that the availability of drugs had worsened from mid-2021 onwards in comparison to 2020-2021. Buffer stocks were defined for each drug at the PHC but only a few pharmacists or MOs knew about it. During the discussion when it was pointed out, they responded that fixing a quantity or maintaining a buffer stock was of limited value unless CGMSC drug warehouses had sufficient stocks and made it available at the facility level when required.

The mechanism to purchase these drugs locally, was not functioning at any of the PHCs visited. This ensured that availability of essential medicines was ensured at the facility when CGMSC did not have them in stock, even at their warehouses. The untied fund designated for the PHC was inadequate to undertake such purchases. In addition, the CMHO or BMO office did not allocate any funds to the PHC for locally purchasing drugs which were currently not in stock in the system but were essential and had to be available at the facility. Although most CMHOs procured a few drugs through local purchase, none of them were given to PHCs.

Diagnosics at primary health centres: In Chhattisgarh, diagnostics services are meant to be provided by the public facilities and none of these have been outsourced. However, in practice, PHCs perform a very limited range of diagnostics tests. In Chhattisgarh, a PHC is expected to provide 25 tests. For study purpose, the team selected six types of tests as tracer services on diagnostics that were required to be available at the PHCs - haemoglobin, complete blood count (CBC), urine albumin, blood sugar, sputum microscopy and malaria rapid test were enquired.

The availability of these tests varied within the sampled PHCs. No PHC was found to be providing all the six tests. CBC was not available at any PHC. Haemoglobin test was available at 33, blood sugar at 32, urine testing and malaria at 30 and sputum AFB in 24 sampled centres. The diagnostic tests were assessed against the benchmark as per the OPD of the PHC and is summarized in Table 17. Majority of the PHC were able to achieve benchmark testing for malaria (86%) followed by haemoglobin (74%) and urine testing.

Table 17: Availability of basic laboratory tests with benchmarks in primary health centres

Tests	No of PHCs that had tests available	No of PHCs that achieved benchmark for test (n=35 PHCs)	% PHCs that achieved benchmark
Haemoglobin testing (17 per 100 patients)	33	26	74
Complete blood count (9 per 100 patients)	0	0	0
Urine testing (ex-albumin) (7 per 100 patients)	30	19	54
Blood sugar (random/ fasting/PP) (4 per 100 patients)	32	4	11
Sputum AFB (2 per 100 patients)	24	18	51
Malaria (36 per 100 patients)	30	30	86

It was also observed in the field that many PHCs have been supplied digital haemoglobinometers with a one-time supply of reagents (strips). The PHCs were often left to buy the needed reagents/consumables from their own facility funds. Many PHCs were unable to purchase the required quantities and had to either shift to the Sahli’s method or stop performing the tests. The lack of LTs in one-third of PHCs further weakened service delivery for even the basic parameters.

At the state level, the package of tests necessary at the PHC should be defined in accordance with the 63 tests mandated at the PHC. Further, a mechanism to ensure regular supply of reagents or consumables must be established. National standards suggest that 63 tests should be made available at PHCs. Using numbers to denote the range of diagnostics services can be misleading. e.g., CBC has been shown here as a single test whereas national standards count that as multiple tests according to the specific parameter being reported. Thus, the list of 25

tests given here is almost the same as the list of 63 tests mentioned in the national guidelines. The recommendation for basic diagnostic tests that should be available at the PHC, and the equipment required for the same is presented in Table 18. It is recommended that the state should aspire to provide at least these tests at PHCs, beginning from those where regular doctors are posted.

Table 18: Tests recommended at the primary health centre level

S. No.	Name of test
1	Malaria rapid test
2	Malaria slide microscopy
3	Complete blood count (CBC)
4	Erythrocyte sedimentation rate (ESR)
5	Blood sugar
6	Blood pressure
7	Sickle-cell disease
8	Sickle-cell disease (point of care)
9	Haemoglobin
13	Urine microscopy
10	Urine -albumin and sugar
11	Urine pregnancy test (UPT)
12	HIV test
14	Urine analysis
15	Latex slide agglutination and tube agglutination (WIDAL test)
16	HBsAg (Hepatitis B) test
17	Rapid plasma regains RPR test for syphilis
18	Sputum AFB
19	Blood grouping and Rh typing
20	Liver function test (LFT)
21	Renal function test (RFT)
22	Lipid profile
23	Stool microscopy
24	Hanging drop test for vibrio cholerae
25	Water testing kit

Each PHC should be provided a haematology and biochemistry analyser.

3.1.9 Summary of findings

- Around 60% PHCs were providing 24x7 services.
- All PHCs provided free services to pregnant women and seven (20%) were not charging user fees for OPD as well.

- Around 42% PHCs had MOs posted, of which half were deputed through bond postings.
- RMAs were available in all PHCs. Their presence continues to be an important factor providing stability in service delivery at PHCs and ensuring a minimum level of functionality.
- Around 75% PHCs had a pharmacist and 62% had a LT positioned at the facility.
- Non-availability of diagnostic tests severely affected decision-making and arriving at a conclusive diagnosis. This led to referral to higher centres. Shortage of point-of-care diagnostic kits was common along with high dependence linked CHC/DH for conducting these tests and providing kits.
- Average OPD of the PHC was around 500 a month, while daily OPD of these centres varied from nine to 55 a day (considering 25 working days a month).
- Comparison of services in PHC with and without MOs showed that that PHCs with MO are performing well in terms of continuity of care, emergency management and providing MLC services. Where MOs are present, cases of anaemia were being provided iron sucrose at the PHC itself. Emergency handling of poisoning cases as well as MLCs was also done at PHCs with MOs.
- It was found that the MO posted under bond tenure lacked ownership, played limited supervisory role during his/her tenure, and often engaged in absenteeism. Often MOs who were serving the bond period, from the PHCs were attached for CHC postings leading to non-availability of doctors at PHCs when a patient arrived. This did not help the PHC gain public confidence in its services.
- In the PHCs, IPD ranged from two to 76 a day. Most IPDs were institutional deliveries which were conducted at these centres. In addition, underperformance in the OPD of a facility was often reflected in the low performance in treating IPD cases as well.
- Range of institutional deliveries conducted in the PHCs varied from zero to 54 in a month. The PHC with the highest available nursing staff was found to be performing a minimum of nine deliveries per staff nurse monthly.
- Range of diagnostic tests and kits to check haemoglobin followed by blood sugar was available in majority of the PHCs while CBC was not available at any of the centres. Digital haemoglobinometers were supplied to PHCs but recurring reagents/consumables had to be managed from the facility's own funds, which were often limited.
- ANC was the most common health service being provided, while other services like resuscitation of newborns, caring for a sick child or service related to treatment of dehydration was provided by fewer PHCs. Services whenever available were mostly at places where MOs were deputed.
- It was found that treatment for hypertension and diabetes was provided in all PHCs. Those that were well connected with their linked HWCs were performing better. Very few cases of mental illness, leprosy and pneumonia were being treated at the PHCs.

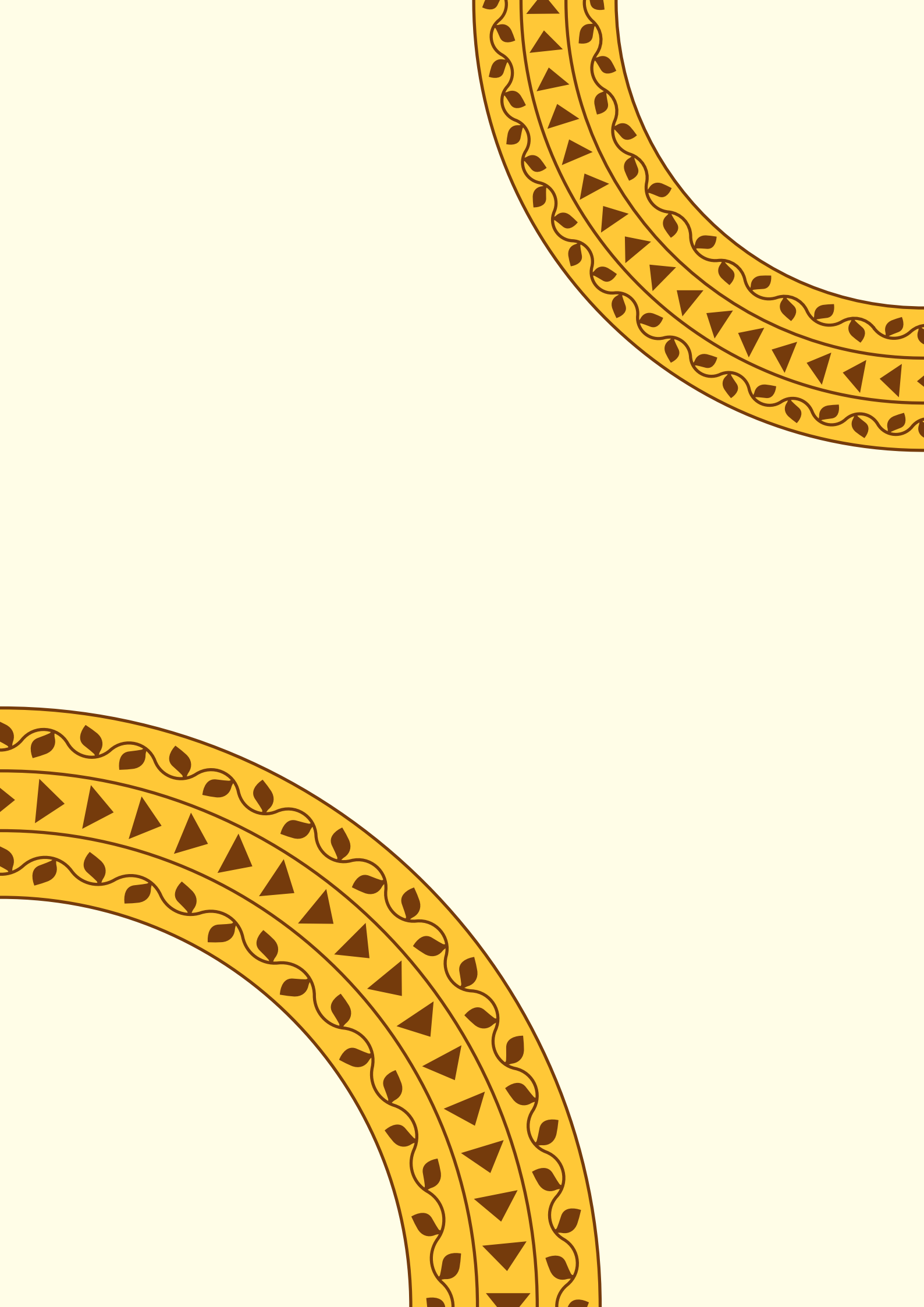
3.1.10 Key issues found in the primary health centres

- **Attachment and posting of MOs:** Posting of regular MOs at PHCs was a recent trend in Chhattisgarh and showed benefits in providing an expanded range of services. It reduced the need for referrals to CHCs or other higher centres for care. The temporary attachment of MOs to CHCs was observed as a common practice which was leading to hinderance of regular services at the PHCs. Posting contractual MOs (on bond) at PHCs often resulted in negligible benefit in increasing services of PHCs. Such MOs were more likely to be attached to CHCs or be absent from duty. They exhibited less affinity for the PHC they were posted at, and the situation was worse in non-tribal districts.
- **Patchy quality of diagnostics across PHCs:** Adequate diagnostic service availability was found to be a weak aspect across PHCs in Chhattisgarh. Only a handful of tests, usually rapid/kit-based tests were provided in PHCs. More than one-third of PHCs did not have an LT which adversely impacted service delivery and timely diagnosis.
- **Shortage of drugs:** There were serious gaps in availability of basic drugs, and it was highlighted that the situation in 2021-2022 was worse than the previous year. It related to overall gaps in procurement of drugs centrally by CGMSC and distribution at these centres.
- **Inconvenient referrals:** Many of the referrals were made from PHC to CHC for addressing primary health care needs of people and should have been avoided. Being referred to a farther centre often posed problems for patients as they had to spend additional time and money to get appropriate care and treatment. Many referrals never materialized as patients often chose to seek care from local untrained/informal providers. At the same time, there were referrals for necessary secondary care. Such referrals lacked necessary support in terms of availability of referral transport or communication between PHC and CHC/DH to facilitate coordination for patients referred for advanced level of care and management.
- **Variation in the quality of PHC performance:** A wide variation was seen in the performance of PHCs that was assessed in terms of number of patients treated and range of services provided at the centres. Factors that determined quality of PHC performance:
 - systemic factors affected most PHCs e.g., gaps in central procurement of drugs and consumables, coverage of state's PHCs by posting regular MOs.
 - district and block level leadership by health officials resulted in better support to PHCs; and
 - PHC-level leadership and staff motivation allowed a PHC to rise above some of its inherent constraints.

3.1.11 Recommendations for improving overall performance of the primary health centres

- **Have a vision for the PHC that positions it at a level higher than the HWCs:** Most SCs are getting upgraded to HWCs with posting of CHOs. There is an increased likelihood of all PHCs having a regular MO. A vision needs to be developed for each PHC to provide leadership and mentoring support to the linked HWCs in its area. This means that a PHC should have the capacity to manage referrals from HWCs and facilitate the CHOs.

- **Ensure no gaps or waiting periods in the appointment of MOs:** A regular MO is required to be posted at each PHC. The Directorate of Health Services (DHS) demonstrated success in recruiting regular MOs. The preference of posting should be given to PHCs which are farther from existing CHCs and DHs or are located in hard-to-reach tribal areas.
- **Invest in MOs who are serving a bond:** In order to ensure that MOs perform and gain an understanding of public health systems, one option could be to post them at CHCs where they can be supervised better. In addition, at the time of joining, they should be provided an orientation on their role and functions within the public health system. This policy is gradually losing its relevance as the recruitment of regular MOs has been implemented in the state and vacant positions are being filled. It can eventually be phased out.
- **Review the process of attaching MOs with CHCs:** One suggestion that was made strongly was to prohibit the attachment of PHC MOs to CHCs. This is to ensure regular functioning of the PHC centres as a first point of referral from the SHCs and ensure continuum of care.
- **Make available diagnostics round-the-clock:** There are around 260 PHCs in the state where an LT's position is not sanctioned. These posts must be sanctioned and filled. The attachment of LTs to CHCs should not be permitted under any circumstances. All PHCs should be provided an automatic haematology (three part) and biochemistry analyser (semi-auto) so they can perform better. This can be facilitated from the funds being provided under XV-FC grants and PM-ABHIM funds. Priority should be given to PHCs where a regular MO has been posted and an LT is in position. Range of tests available in PHCs should be expanded and notified as per Gol mandate of at least 63 tests and beyond. Systems should be put in place to ensure regular and timely availability of necessary reagents, rapid tests, and consumables.
- **Provide in-service training to bridge gaps in skills:** MOs and RMAs need to be trained through short courses to diagnose better and treat an expanded range of illnesses. Some areas in which training should be accorded high priority include treatment of sick newborn, management of high-risk pregnancy particularly with hypertension or diabetes, prevention of birth asphyxia, RTIs, pneumonia in children, common mental disorders, NCDs including epilepsy and sickle- cell disease. It covers management of emergencies like poisoning, trauma, and accidental injuries for immediate patient stabilization. Nurses and ANMs at the PHCs need to be better trained in management of birth asphyxia and initiating KMC for low-birth-weight babies and identifying mental health issues including post-partum depression.
- **Ensure provisioning for adequate supplies of drugs at all times:** The EDL 2021 is adequate to address most primary health care needs at PHCs but their availability in all PHCs has to be ensured, along with having adequate buffer stocks.
- **Provide full-time ambulances:** Each PHC should be provided with a full-time ambulance so that necessary referrals to CHCs or DHS can be made with the assurance that the transport facility and associated care is available 24x7.



Primary health care capacity to respond to health emergencies

In recent decades, the world has experienced many global health challenges, including the latest COVID-19 pandemic. An increase in the number of pandemic-like events have highlighted the need and alerted governments across nations for better preparedness to tackle future emergencies. It has resulted in a global realization to build a strong and resilient health system. However, there is still need for the country's e-health systems to be equipped in a way that they can respond adequately and in good time to health emergencies. A robust PHC can play a key role in ensuing appropriate response.

Emergency preparedness requires health systems to have the ability to cater to increased demands during any emergency. It requires health systems to be capable (together with the larger community) to prevent, protect against, quickly respond to, and recover from health emergencies. It encompasses preparedness and not merely response to events. A core principle is that existing systems must be strengthened to integrate emergency preparedness without creating a parallel system for emergencies alone.

The preparedness was assessed using a checklist that covered infrastructure; roles and responsibilities; workforce capacities; capacity-building; continuity of essential services; surveillance; committees; transport mechanism; mitigation measures; supply chain; and monitoring.

4.1 Emergency preparedness: Lessons from the COVID-19 pandemic

4.1.1 Role played by PHC teams at PHCs, HWCs and SHCs in COVID-19 related duties

During the first wave of the COVID 19 pandemic, most of the CHOs were involved in contact tracing and community surveillance in order to identify and isolate suspected cases. During this first wave, RMAs were leading the team from PHCs and CHOs who were helping them in doing the same work at the HWC level.

Apart from this, they undertook surveillance for suspected cases in the catchment community. They were involved in visits to quarantine centres and contributed to imparting education on COVID and related preventive measures. CHOs performed COVID related duties in the population under their respective HWC catchment area and were involved in contact tracing, community surveillance along with maintenance EHS.

As the RMAs were more experienced and had acquired better clinical skills, they were posted for various COVID related duties at different levels of care, including COVID hospitals and COVID isolation wards.

As the vaccination for COVID-19 was rolled-out, the PHC teams were engaged in providing vaccination to the eligible population. The initiation of vaccination and the second wave of COVID coincided. Most CHOs and ANMs were conducting vaccination sessions and were engaged in providing COVID related services. During this time, they were also doing screening and COVID testing. Visits were made to villages that were equipped with rapid COVID testing kits to screen suspected patients for COVID-19.

Symptoms of patients under home isolation were monitored. Few PHCs got converted into COVID-care centres so that RMAs and CHOs could treat mild cases and monitor severity of symptoms. They were given standard treatment protocols to treat or refer patients based on their condition. This showed that primary health care cadres like CHOs could play an important support role during a pandemic.

4.1.2 Impact on routine services

The pandemic had considerable adverse effect on essential primary health care services provided at the HWCs and PHCs. There was a steep decline in the regular OPD as people were hesitant to visit these centres. Initially, there were gaps in supply of PPE kits, gloves and N-95 masks and many high-risk situations had to be managed because there was panic, confusion and misinformation in the minds of people.

The CHOs pointed out that due to COVID restrictions, the main challenge was to conduct follow-up for hypertensive, diabetic and ANC cases as they could not touch the patient. They provided drugs through a window created in the facility. The patients were reluctant to visit the facilities because they feared getting tested for COVID and had to face stigma or isolation if found positive. The referral services were also impacted as many of the higher centres were scared to provide services, more so since several of them had converted into COVID care centres. The situation was worse for chronic disease patients, which required regular follow-up. In many cases their treatment suffered due to a variety of reasons leading to many patients with chronic diseases taking a decision to stop visiting these centres.

In the abovementioned scenarios, the CHWs (Mitans) played a crucial role by convincing people to visit their centre to bring/replenish their routine medicines. At many HWCs, Mitans collected drugs from the HWCs and brought them to the homes of these patients. In many centres this helped in maintaining continuity of treatment, especially for chronic ailments.

4.1.3 Current capacities of primary care team on emergency preparedness

While working on the current pandemic, the primary care teams gained many skills which can be used for similar medical emergencies.

Contact tracing: Primary care teams developed their capacities on contact tracing to identify and isolate contacts. Though they learnt these skills to manage their existing and extended responsibilities during the pandemic, many could now be replicated in similar public health conditions.

Surveillance, screening, and testing: PHCs and HWCs developed the capacity for surveillance, screening, and testing of suspected cases with the help of rapid antigen kits. The ANMs and MPWs can play a key role in the testing process. For syndromic surveillance, Mitans CHWs

played a central role. However, the state was not able to pay CHWs for their work in the context of the pandemic. Other than this gap, the state was well-equipped on this count. Undoubtedly, these skills can be utilized by primary health care teams to facilitate early identification of any disease/illness which is sporadic in nature, or which can pose a threat to their community.

Monitoring COVID-19 cases in home isolation: This aspect of COVID-19 treatment is still weak. The decentralized nature of the task requires Mitanin CHWs to be better trained and equipped (pulse oximeters) and better supported and paid. They would require continued support from CHOs and PHC RMA/MOs to fulfil this role.

Referral transport: COVID positive cases at home may require quick shifting to a hospital for inpatient management if the monitoring shows deterioration of symptoms. The existing referral transport capacity was not enough to transport such cases quickly to hospitals or ensure bed availability at higher facilities. The 108 fleet should be expanded to cater to these needs during emergencies.

Ensuring essential health care services during a pandemic: The state was able to continue certain services like immunization and ANC during most of the pandemic period. The deliveries got shifted from higher levels of care to lower (more rural) facilities, closer to the community. These services could be continued due to the SHC, HWC and PHCs, where basic care and medication along with trained health care professionals were available. These facilities ensured that communities were apprised of COVID-19 appropriate behaviour. Curative care services however suffered during the pandemic. The formal private sector remained non-functional for most of 2020, even for basic services. The higher government facilities had to divert a lot of their capacity to COVID management and care as the disease was still evolving. Health workers were scared and patients too experienced barriers in accessing care. The different lockdowns created their own set of delays and difficulties. There was fear and stigma of being tested positive and this prevented people from seeking care at the facilities. The situation at urban centres was worse.

Curative care services were still being provided to a large extent at the HWCs. The Mitanins facilitated in providing medicines to patients with hypertension and diabetes. Preparing for this would require having adequate health workers to manage emergency care alongside routine EHS.

Logistics management: Oxygen concentrators were supplied to many PHCs, and their staff too was given basic training on how to use the equipment. However, regular drills were needed to enable and facilitate their use for routine health conditions like coronary obstructive pulmonary disorder (COPD), asthma and to advance its use at the time of need.

4.1.4 Assessment of preparedness

In the current study, the team tried to assess Chhattisgarh health system's preparedness status with respect to emergencies. Key findings from the assessment are enumerated below.

Infrastructure: Government health facilities have been provided enough funds to build and augment existing wards, isolation rooms, emergency wards, ICUs, and high dependency units at various levels to cater to any future emergencies or events. Most DHs now have dedicated wards that can be used during an upsurge of cases or any other health calamity. These beds/wards/rooms are currently being used for providing IPD care to regular patients. They also

help provide and contribute to additional bed strength. Most districts and blocks identified buildings/hostels that could be potentially used for isolation of cases during an emergency.

Roles and responsibilities: During any type of emergency, it is important to have role clarity as to who will perform what task. This will help address all aspects related to emergencies at the same time and reduce any duplication of effort and conflict. Role clarity will lead to more optimal utilization of staff capacities and help place right people on right job undertaking tasks that are pre-determined for them. Committees and teams are now formed at every level with duties and tasks assigned. Similar orders could be utilized in future to delineate tasks more clearly in the event of any emergencies that may take place later. However, this would mandate that drills, refreshers and updates for the teams be done from time-to-time and get updated on recent health treats.

Workforce capacities: It was found that during the pandemic, existing health staff had to be repurposed and redeployed for COVID-19 management duties, including those that were performed in dedicated COVID hospitals. This resulted in reduced availability of staff and services for essential or routine health care in existing public facilities. During this time, the state was able to allow the districts to hire short-term staff, especially nurses, LTs, hospital workers, microbiologists etc. Some staff at the PHCs were allocated pandemic related tasks like contact tracing or phone-based follow-up with cases that were in home isolation. The burden of deliveries and other patient care increased within PHCs. The CHCs were unable to provide care to large numbers and majority of the population that was scared to travel to towns due to the spread of COVID-19 in urban areas. However, there was no additional staff at the PHCs.

At present, the health department has managed to fill most of the vacancies in the critical cadres such as MOs (UG doctors), nurses, LTs etc. But still, the existing staff capacity will not be adequate if an emergency has to be managed while maintaining the EHS in the public sector.

Transport system: Referral transport is an important component of emergency care provisioning during any type of situation. Their availability even during non-emergency times is essential for ensuring timely transport and continuity of care. During the pandemic, for transporting COVID positive patients, the same transport system of 108/102 was used which transported other emergency cases. This hampered the transport of needy patients by the same system. Hence for future emergencies, it may be important to consider a transport system that does not affect the carrying capacity of other emergency patients. The team found that the system of transport was the weakest link in the emergency management system. It is therefore suggested that all PHCs be provided dedicated ambulances stationed with them to facilitate timely care.

Monitoring: During any emergency, monitoring of the situation, affected communities and individuals and casualties is extremely important. During the peak of the pandemic, monitoring of individuals under home isolation was poor. The main limitation was availability of well-equipped staff, compared to the size of the task which had to be performed in a limited time frame. Monitoring of already diagnosed cases required a well-designed process with an adequate staff capacity which was well equipped. This had to be supplemented with defined protocols for tracking, treatment, and referral with clear role division amongst health care providers and community health workers.

Capacity-building: For building the capacity of health care workers, various trainings were provided to all cadres of staff through offline, online and hybrid modes. During any emergency or calamity, there is an immediate need to provide training to all personnel engaged in management of the situation. It was observed that during previous health emergencies like dengue outbreak, despite being previously trained, the staff required a quick refresher to undertake necessary actions. Hence, it is recommended that the management protocols of diseases/disasters be kept handy. A system can be made to update protocols periodically and their access be made available to all health care providers.

Continuity of essential health care services: During an emergency, all the attention of the staff and authorities is drawn towards its management, including all resources. Often, the continuation of other essential services tends to get neglected. Ongoing efforts will have to be made to ensure essential services remain in focus despite the emergency.

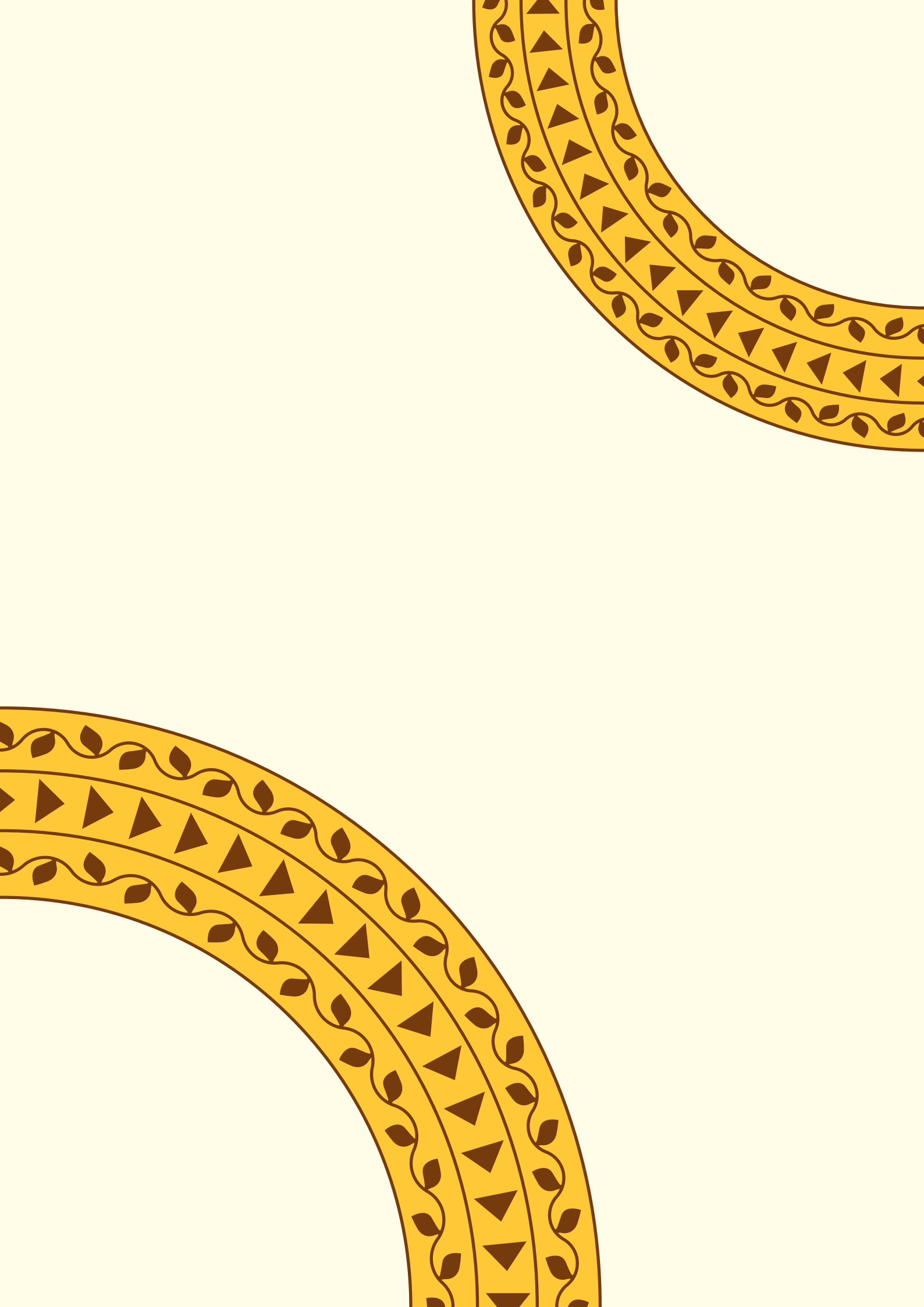
Epidemiological surveillance systems: With the revised IDSP platform and recent developments in technology that make it possible to detect any health hazard or to identify an emergency, the systems are now well prepared to capture these outliers. The ability to identify and analyse information for taking decisive action requires improvement.

Mitigation strategies: With different types of emergencies, it is important to devise mitigation strategies which would be most suitable. The risk assessments for various emergencies that lie beyond the health-specific domain are required for planning holistic mitigation strategies.

Supply chain: No preparedness in health is complete if there are inadequate supplies of drugs and other essential commodities. During the COVID-19 pandemic, procuring the required items was a big challenge. The special provisions which are available during any health emergency are required to be pre-defined and should be immediately put in place in case any needs arise.

4.1.5 Recommendations

- **Engage additional health workforce:** Required system capacities must be simultaneously managed to handle emergencies and ensure continuity of essential primary health care. One way could be to have at least two ANMs in each HWC apart from a male MPW.
- **Equip, train, and pay Mitanin-CHWs for their role in emergencies:** This must include monitoring of home isolation cases; identifying any upsurge of disease in the community and reporting of the same.
- **Conduct periodic drills:** The drills must be actioned with HWC and PHC teams to further refine and streamline their roles and responsibilities in emergencies.
- **Expand the existing capacity of referral transport for emergencies:** Have a well-oiled system that takes charge of positioning ready and functional ambulances that are manned by staff that is trained to respond to referrals and emergency scenarios.



Referral transport for maternal and child health and emergencies

A well-functioning primary care system requires well-established forward and return referral linkages for those needing secondary care. Referral transport is a necessary component to facilitate referral linkages between HWCs and their linking of PHCs to CHCs. The need for referral transport is more relevant in case of Chhattisgarh due to the existing levels of poverty and absence of subsidized public transport. The state has various forms of referral transport which include:

- 102 ambulances also called as Mahtari express to cover maternal and sick infant transport.
- 108 ambulances also called Sanjeevani express to cover emergencies, and
- Ambulances available at the district/block level from local funds.

The 102 and the 108 ambulances are managed through public private partnerships (PPPs) where an agency selected through the tendering process runs a fleet of ambulances and operates a centralized 24x7 call centre to coordinate its functioning. Referral transport for maternal and infant needs (102) covers the following kinds of referral transport:

- transporting women for institutional delivery from their home to a government health facility.
- dropping the mother and newborn back home after the delivery at a government health facility.
- bringing sick neonates and infants to government hospitals, including SNCUs and NRCs for treatment.
- providing inter-facility transport if a government facility refers a maternal/infant case to a higher government facility; and
- bringing pregnant women from home to public hospital for ANC, especially in the case of high-risk pregnancies.

Currently, 102 has a fleet of 370 vehicles stationed at selected delivery points, usually DHs and CHCs. These are regular vehicles (Tata Sumo) that do not have any equipment or oxygen cylinders for emergency requirement. Each vehicle has a driver and an emergency technician. The vehicles belong to the Government and a private agency is engaged to manage the operations. The agency is paid a fixed amount for every vehicle per month subject to its performance of average four trips a day being achieved.

In the month of April 2022, the total number of institutional deliveries in the state stood at around 36 000. However, the cases brought by the 102 ambulances were only 33% of this number. In the months for which the data was analysed, the 102 service could not cater to more than 40% of the institutional deliveries conducted in public facilities across the state. Bringing deliveries to hospitals has to be a top priority for the 102 service but a big gap still remains. There is concern with regard to the prioritization being undertaken by the 102 ambulances in practice, especially with respect to identifying and transporting pregnant women. Of all trips made, the drop-back to the residence was highest in number (37%). While trips for ANC constituted 24% of total trips, it was not known whether they were specially being undertaken for high-risk pregnancies. Third party monitoring reports on services of 102 repeatedly showed that the agency was exaggerating the number of trips to fulfil the minimum performance norms. [38]

Thus, more than 60% deliveries availing services at public hospitals were not being provided free referral transport. The inter-facility transport was poor and high-risk pregnancies were not adequately covered. The coverage for sick newborns was poorest and included referrals to the SNCU, and later follow-up and discharge. Coverage of 102 ambulance for infants being referred to NRCs was almost nil.

The protocol regarding the referral chain for delivery cases was a concern. High-risk pregnancies were required to be taken to FRUs where emergency obstetric care was available. Instead, the 102 ambulances would first take them to the nearest government facility, which could be a SHC or PHC where no emergency obstetric care was available. The 102 ambulance operators did not have a list of functional FRUs, and this often resulted in delays for inter-district transfer of complicated cases. The 102 ambulances transported the case to PHC, then to CHC and finally to DH and if services were still not available, then to a medical college hospital situated in a different district. This lack of information and coordination caused avoidable and unnecessary delays which contributed to many maternal and neonatal deaths.

Apart from poor prioritization of cases, problems in referral protocol and performance gaps of the private agency running 102 services remains and the overall capacity of the fleet also poses constraints. With 370 ambulances and performance benchmark of four trips per day per vehicle, the maximum number of beneficiaries that can be transported annually is around 528 000. However, the actual requirement for transportation was 2.5 times higher than that, which was an estimated 1 332 436 beneficiaries per month as indicated in Table 19. If the state aims to provide referral transport to children identified for referrals under RBSK, this needs to increase to around three times the current capacity.

The state had reported 4 72 082 institutional deliveries in government institutions in 2021-2022. In addition, there are an estimated 22 000 SNCU admissions and 14 000 NRC admissions every year.

Table 19: Estimation of referral transport need for maternal and infant health care

Purpose of transport	Expected annual number
Bringing 90% institutional deliveries from home to hospital (assuming 10% will prefer using their own means)	424 874

Purpose of transport	Expected annual number
Dropping 90% institutional deliveries from hospital to home (assuming 10% will prefer using their own means)	424 874
Inter-facility transfers of 10% institutional deliveries (complicated cases)	47 208
Bringing high-risk pregnancies to hospitals for ANC check-ups (15% of total pregnant women)	102 000
Referrals to SNCUs about 30% of SNCU admissions (referred from other institutions i.e., out born)	6600
85% of SNCU admissions to be dropped back home (assuming 15% mortality in SNCUs)	17 600
Four follow-up visits of SNCU graduates (assuming 70% follow-up rate)	49 280
Bringing sick newborn to hospitals (10% of newborns)	68 000
Bringing other sick infants to hospitals	48 000
Dropping home sick newborns and infants	116 000
Bringing admissions to NRCs	14 000
Dropping home cases discharged from NRCs	14 000
Total	1 332 436

To summarize findings from the above, to cover MCH needs, the existing 102 fleet should be expanded from around 370 vehicles to around 800 vehicles.

5.1 Recommendations for 102 ambulances (maternal and child transport)

- Increase fleet of 102 ambulance to around 800 vehicles.
- Provide order of prioritization for 102 ambulances when competing demands are there for a vehicle and to classify cases as severe (all deliveries, sick newborn referrals) and others (drop-backs etc.)
- Specify referral protocol for delivery of high-risk pregnancies which may be directly from home to nearest functional FRU irrespective of district boundary. The list of functional FRUs should be provided by the Directorate of Health to 102.
- Facilitate repeat trainings for EMT staff on patient management during transportation and active support from on-call doctor.
- Coordinate and link with higher levels of care to intimate arrival of patient with brief patient history for immediate patient management.

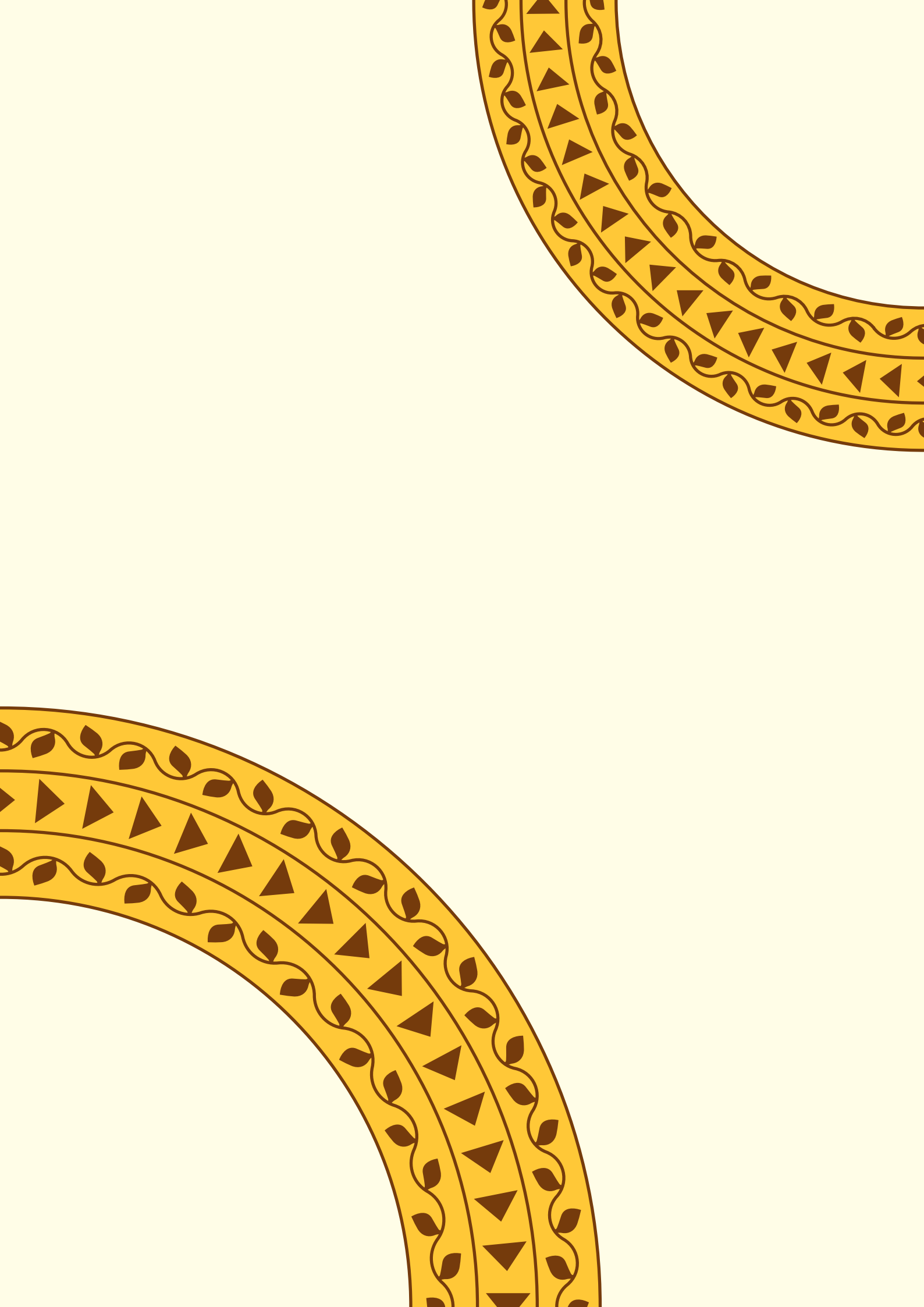
108 emergency transport services

The 108 service is meant to transport emergency cases. It has a fleet of 270 Basic Life Support (BLS) and 30 Advanced Life Support (ALS) ambulances in the state. Each ambulance carries oxygen and has an emergency technician apart from the driver.

The current analysis of 108 ambulances showed gaps in prioritization of emergency calls and identification of patients, which call for immediate attention. Chhattisgarh has a very high rate of accidents and mortality related to accidents. These include road accidents, animal bites, drowning, falls and electrocution. The state has a high incidence of suicides per unit population and many insecticides poisoning cases. Accidents and poisoning constitute leading causes of mortality at present. Therefore, the role of 108 to prioritize the abovementioned emergencies over other cases, is the need of the hour. It was found during the study that many of the referrals being transported were not of emergency nature.

Other ambulances: Some CHCs and most DHs have a few additional ambulances stationed at their premises and procured through donations or bought with CSR funds or state schemes like the European Commission funding. These ambulances are many times used for transporting goods (drugs, consumables etc.) or health staff rather than for patients who need this facility.

Many hospitals use them to transport patients for planned activities like sterilization and cataract surgeries, monthly ANC check-up campaigns (Pradhan Mantri Surakshit Matritva Abhiyan or PMSMA) etc. which are conducted on fixed days. These ambulances serve various kinds of transportation needs. Currently, there are no established norms for these vehicles, and they need to be continued to be treated as miscellaneous purpose vehicles that a hospital must have. They cannot be depended upon for routine or emergency referral transport need of patients.



Referral linkages with community health centres and district hospitals

Almost all PHCs refer patients to higher centres at some stage. Many of these referrals from PHCs occur because they do not have the essential basic drugs or diagnostic testing capacities to confirm diagnosis, or health-care providers are not confident in treating the illnesses. Many of these referrals can be avoided or reduced if the overall capacity of PHCs is strengthened.

On the other hand, referrals are necessary for secondary and tertiary care for managing diseases. It is important to understand that the care is being provided at the CHC and DH for two reasons:

- CHCs and DHs are important providers of primary care for the population living close to them; and
- their capacity for managing referrals from PHCs needs to be matched.

In the absence of CHCs and DHs failing to provide secondary care, there would be adverse consequences for PHC services. A functional system of referral linkages with capable CHCs can help PHCs attract more patients. If PHCs do not have a back-up, a patient perceiving the illness to be severe will bypass the PHCs.

6.1 Community health centres

There are 171 sanctioned CHCs in the state and all of them are functional. Out of these, 32 are designated as FRUs providing round-the-clock specialty services like emergency obstetric care.

For understanding the different aspects of services provided by CHCs, a facility survey was conducted from 19 CHCs from different districts of the state. This helped understand the probable reasons of high and low performances based on interviews and interactions with doctors and other staff.

6.1.1 Health workforce in community health centres

The HR data shows that on an average one CHC had five doctors in position. This is against the sanctioned strength of six doctors (two UG and four specialist doctors). The availability of doctors in the sample CHCs ranged from two to 10 doctors while one-fourth of CHCs still had less than four doctors. This showed that though CHCs now had an adequate number of doctors, gaps remained in distribution of doctors between CHCs.

Most doctors in CHCs were UG, while specialists constituted only 12% of total doctors available in CHCs. However, their proportion should be 66% according to sanctioned numbers and

proportion. The UG-MOs were posted against vacant specialist posts in CHCs. This showed that even though majority of CHCs had enough doctors they still lacked specialist skills expected at the CHC level for patient management.

Most MOs posted in CHCs were from the regular cadre. This was one of the positive aspects of HR availability at the CHCs.

6.1.2 Outpatient care

The outpatient services and range of services it offered are a good measure of knowing the care available at a hospital. For OPD services, data from 19 CHCs showed that the average OPD of the CHC is around 2000 per month, however the range of OPD at the CHC varied widely from one district to another and ranged from 800 to more than 3000 a month.

On comparing the OPD of CHCs in relation to the available number of doctors, the team found that the average number of OPD came to 16 OPD per doctor per day. While there was a wide variation in this ratio, the minimum OPD in the CHC worked out to three per doctors per day and with a maximum of 63 per doctors per day, assuming 25 working days in a month.

There were nine CHCs where the OPD was more than the benchmark of 2000 a month. In addition, seven out of 19 CHCs were able to achieve a benchmark OPD of 20 per doctors per day. Table 20 mentions how many OPDs per doctor were held at the CHCs.

Table 20: OPD services in CHCs achieving benchmark values

Service	Total CHCs with OPD of 2000 and above	Total CHCs with OPD of >20/doctor/day
OPD	9 (47%)	7 (37%)

It was observed that adding more doctors did not always translate in an increased number of OPD patients. For example, with 10 doctors at CHC Lormi, less than 3000 OPD was reported per month. This indicated that placing additional doctors beyond five or six added little to no incremental value in terms of their facility outputs. It may be more useful to distribute the MOs more equally between CHCs and ensure that a minimum number of doctors and specialists were available uniformly.

In addition, it was felt that there should be more specialist services available at the level of the CHCs to cater to the needs of the secondary and tertiary health care requirements, including those referred by PHCs and SHCs. Saturation of all PHCs with MOs should be ensured so that tertiary care facilities are less pressurized. Also, only patients who needed specialized care must be referred to and treated by DHs and medical colleges.

6.1.3 Diagnostics

For assessing diagnostic performance at CHCs, 12 types of basic tests were selected out of the 34 tests expected at the CHC level in Chhattisgarh. It was found that none of the sampled CHCs were conducting all the 12 tests. The three tests namely sputum AFB, malaria test and widal test were performed by all CHCs and a detailed availability of the tests at the CHCs is

shown in Table 21.

Diagnostic tests were assessed against a benchmark as per OPD of the CHC and are summarized below. [12] Majority of the CHCs were able to achieve benchmark testing for blood sugar and haemoglobin (84%) followed by malaria (74%)

Table 21: Availability of diagnostic tests in CHCs and achievement against benchmark values

Tests	No of CHCs performing the test	No of CHCs achieved benchmark	% CHCs achieved benchmark
Blood sugar (10 per 100 patients)	18	16	84
Haemoglobin (9 per 100 patients)	18	16	84
Malaria (3 per 100 patients)	19	14	74
Sputum AFB (1 per 100 patients)	19	12	63
X-ray conducted (2 per 100 patients)	15	11	58
Widal test (3 per 100 patients)	19	10	53
ECG no. (2 per 100 patients)	6	0	0
Ultrasonography (1 per 100 patients)	1	1	5
HbA1C (3 per 100 patients)	2	0	0
Complete blood count (7 per 100 patients)	16	4	21
Renal function test (2 per 100 patients)	7	1	5
Liver function test (2 per 100 patients)	8	1	5

Most CHCs were charging user fees for tests which ranged between INR 20 to 100 which were below the private market rates.

6.1.4 Inpatient care

A CHC is expected to have 30 beds and 19 CHCs and these were included in this study. Out of them, it was observed that only two CHCs had a provision of 15 beds for inpatient care.

The average IPD was 210 per month as indicated in Table 22. It however, ranged from 53 per month to 703 per month within the districts. When the IPD was compared with the available bed strength, it was observed to have varied from just two to 32 between CHCs.

Table 22: IPD services in CHCs achieving benchmark values

	Total CHCs with benchmark IPD of 200 and above
IPD	7 (37%)

There were 37% CHCs that were catering to an IPD above the benchmark of 200 per month.

6.1.5 Deliveries

CHCs provide 24*7 services for delivery. The data from 19 CHCs showed that the number of deliveries being conducted ranged from eight to 164 per month with an average of 55 deliveries per centre. This translated into the fact that the average delivery load of the facilities ranged from only one per day to a maximum of five per day.

The number of staff nurses and monthly number of deliveries conducted per CHC is given in Annexure Table 49. This shows that the average number of deliveries conducted per staff nurse were around nine per month.

Table 23: CHCs achieving benchmark for delivery service

	Total CHCs with delivery of 55/month and above (n=19)
Delivery	8 (42%)

6.1.6 Caesarean section

Since many complicated and high-risk pregnancies are referred to the CHC, they are required to provide emergency obstetric care including caesarean sections. It is to be noted that out of the 19 CHCs only four had a gynaecologist in position, of which only two CHCs reported caesarean deliveries in the last one month preceding the study. The Katghora CHC has a full complement of gynaecologist, EMOC trained and LSAS trained staff along with anaesthetist, but they have not conducted any caesarean section. The remaining two-third of CHCs did not have the requisite specialists to provide this service.

The doctors trained on these skills had lost confidence as these were not utilizing them in practice. It is required that another training or posting with a mentor be planned so that they can be re-trained to conduct surgeries, even without supervision. This would require to be supplemented with the necessary equipment and other infrastructure to facilitate these procedures.

Table 24: CHCs with availability of human resource for caesarean sections

District	CHC name	Total caesarean sections	Gynaecologist	EMOC trained	Anaesthetist	LSAS trained
Raigarh	Pussore	0	1			1
Mungeli	Lormi	15	1			
Kondagaon	Keshkal	0		1		1
Korba	Katghora	0	1	1	1	1
Raipur	Tilda	11	1		1	
Bilaspur	Masturi	1				1

Among the CHCs with the required specialists, there was a wide variation in performance in C-sections conducted. It ranged from nil in Keshkal and Katghora to 15 per month in Lormi.

6.1.7 General surgeries

Data from the 19 CHC indicates that most of the CHCs were not performing general surgeries. Only one CHC had a surgeon positioned who performed around 150 surgeries a month.

This highlights the fact that the DH is the only public health facility in the entire district where surgeries are being conducted.

6.1.8 Hypertension, diabetes, and mental illness

The NCDs for which data was collected in CHCs included hypertension, diabetes, and mental illnesses.

While some CHCs are providing treatment to very few NCD patients, the others catered to more than 800 cases in a month. Patients with mental illness were reported in only seven CHCs and it was observed that they were mostly referred to higher centres for confirmatory diagnosis and treatment. A few CHCs could also provide services for mental illness with doctors coming from DH on fixed days. It was observed that less than 50% CHCs were performing above benchmark values as detailed in Table 25.

There were no directions provided on the role of CHCs or other health facilities like PHCs and SHCs in the management or follow-up of patients undergoing treatment.

Table 25: CHCs achieving benchmark for HTN, diabetes and mental illness service

Services with benchmark	Total CHC with cases above benchmark (%)
Hypertension (at least 140 cases per month)	7 (37%)
Diabetes (at least 130 cases per month)	5 (26%)
Mental Illness (at least 4 cases per month)	5 (26%)

6.1.9 Poisoning, animal bite and fracture cases

CHCs should provide treatment and management of emergencies which arise due to poisoning, animal bites and trauma cases. Out of the three emergencies listed, it was found that animal bites were most frequently managed at the CHCs followed by poisoning cases. Cases with trauma, especially fractures were being referred to the higher centres of care on most instances.

CHCs often do not see their role in managing emergencies. This is because most of the times, they reported that they stabilized the patients and referred them to the higher centres due to lack of specialist care and limited facilities to manage surgeries.

Table 26: CHCs achieving benchmark for poisoning, animal bite and fracture cases

Services with benchmark values	Total CHC with cases above benchmark (%)
Poisoning cases (at least 5 cases per month)	10 (53%)
Animal bite (at least 5 cases per month)	11 (58%)
Fracture cases (at least 5 cases per month)	7 (37%)

6.1.10 Drugs

Out of the total number of 141 drugs which are required to be available at the CHCs, 37 types of drugs were assessed and the total quantity of drugs available at the facility on the day of visit recorded. Out of 19 CHCs, based on the information collected, it was observed that more than 50% drugs were stocked-out at the three facilities.

6.2 Community Health Centres

6.2.1 Summary of findings

- The doctors available at the CHCs ranged from two to 10 doctors. Most doctors in the CHC were MBBS while specialists were available at very few CHCs (12%).
- At most places, MOs were posted more than their sanctioned strength, utilizing the vacancy of specialist in these places.
- The average OPD of the CHC was around 2000 a month while the average OPD per doctor per day was 16.
- Out of 12 types of tests recorded, it was found that all CHCs were providing a range of diagnostic services, conducting at least half the tests.
 - Tests of sputum AFB, malaria and widal were being conducted by all the CHCs; and
 - At majority of CHCs, USG followed by HBA1C, and ECG were not available.
- The IPD in CHC ranged from 53 per month to 703 per month.
- Number of deliveries in the CHCs ranged from eight to 164 per month, i.e., average delivery load of one to five per day which was not dependent on the number of staff nurses of the facility.
- Out of the 19 CHC, only three reported to be conducting caesarean- section for deliveries.
- On the account of conducting surgeries, CHCs were mostly non-performers.
- However, for the management of hypertension and diabetes, a few districts reported around 800 patients undergoing treatment in a month.
- The management and support for mental illness cases being screened in the field was not yet being provided at the CHCs due to non-availability of trained HR at the higher referral centres.

- CHCs played a limited role in the management of emergencies. Most of the times they reported that cases are stabilized at the CHC prior to referral to the higher centre, owing to lack of facilities to manage surgeries at most of these centres.
- At only one CHC, a surgeon had been posted who performed around 150 surgeries a month. Animal bites were the most frequently managed emergencies at the CHCs followed by poisoning. Trauma and fracture cases were being referred most of the time.

6.2.2 Key issues and recommendations for CHCs

- **Rationalize distribution of MOs:** Though there are enough MOs for CHCs overall, their distribution needs to be rationalized to ensure each CHC gets at least four MOs.
- **Recruit CHC MOs with specialist skills:** Most CHCs do not have specialists and it is unlikely that through the regular recruitment, enough specialists can be recruited in near future. District Mineral Fund (DMF) can be used to recruit specialists for CHCs, especially in tribal/hard-to-reach areas. Additionally, the following can be followed:
 - re-instate the PG diploma in family medicine without further delay.
 - design and offer short courses to address specific gaps regarding health needs of communities being served.
 - for patients with mental illnesses, define the role of CHCs so they are equipped to provide treatment.
 - ensure each CHC has at least one MO trained in diagnosing and treating mental illnesses: and
 - strengthen skills to manage emergencies, especially for trauma cases and always provide required instruments and equipment.
- **Gynaecologist-anaesthetist combination for FRUs:** For CHCs that are supposed to be FRUs, the gynaecologist-anaesthetist combination must be ensured. The state has better availability of gynaecologists, but anaesthetists are in severe shortage. This can be resolved to some extent through better distribution of anaesthetist who are already available and can be matched with the complementary team of doctors and surgeons to ensure their skills are fully utilized. The DMF should be used to prioritize these cadres to be recruited for filling the gap in FRU CHCs. The UG doctors trained in LSAS can be retrained or mentored to carry out the anaesthesia role in FRUs.
- **Strengthen diagnostics:** Diagnostics are weak in most CHCs. Majority of them are not able to conduct biochemistry related tests. User fees are also being charged. Lack of a system for procuring reagents continues to be the main challenge. Consider following the below:
 - model of Hamar Lab has been piloted by few CHCs in the state and the same can be replicated in all CHCs in a time-bound manner with FRU-CHCs accorded priority; and
 - Provide USG in all CHCs on priority to FRU-CHCs. The CHCs can be designated as hubs for PHCs to perform tests. This would facilitate more treatments at the level of PHCs and without the patient being required to travel to the higher centre to undergo diagnostic tests.

- **Provide regular supply of drugs:** There are gaps in central procurement and timely distribution to the centres. The availability of drugs was adequate in the year 2020-2021 but became poorer in year 2021-2022. Evaluate reasons and suggest ways to address the issue.
- **Arrest the wide variation in performance:** There is wide variation in the performance of CHCs in terms of the number of patients they handle and range of illnesses they diagnose and treat. The weaker CHCs will need multiple interventions (listed above) with monitoring for a long period before they can come up to the required performance level.

6.3 District hospitals

The DHs are important facilities to support referrals from PHC. The DH is the only place in a district where specialist doctors and essential diagnostics are available and most CHCs do not have such resources.

For understanding the different aspects of services provided by DHs, data was collected from 16 DHs in Chhattisgarh. To understand the probable reasons of good and low performances, interviews and interactions with doctors and other staff members were conducted.

6.3.1 Outpatient care

Outpatient services and the range of services they offer are a good measure of knowing the care available at a hospital. For OPD services, data from 16 DHs showed that the average OPD per DH was around 7000 a month. However, the range of OPD of different DHs varied from around 3000 to 13 000 per month.

The human resource data showed availability of doctors in these hospitals varying from 17 MOs in Baikunthpur DH to 57 in Raipur DH. When OPD numbers of the DH were compared with the number of doctors available, the hospitals with more doctors were not the ones having more caseload per doctor. The average number of OPD was 10 per doctor per day assuming there were 25 working OPD days a month. There were 50% of the DHs where the caseload per doctor was less than 10 patients a day.

Table 27: DHs achieving benchmark for OPD service

Service with benchmark	No of hospitals (%)
OPD of < 10 patients per doctor/day	08 (50%)
OPD of >=10 patients per doctor/day	08 (50%)

Availability of doctors in DHs increased because of the recent recruitments of regular MOs as well as the posting of contractual doctors under the bond scheme. The numbers increased for UG, and PG doctors compared to earlier staff available. Though many DHs now have the necessary specialists, the bulk of the increase in number of doctors working at DH level has been for UG doctors. This increase, however, did not result in increase in OPD numbers. Availability of more UG doctors in hospitals reduced the load on specialists for emergency

care and management of patients. Cases were often handled first by the UG MOs and then the available specialists who provide consultation when required.

A significant finding was that some of the better performing DHs in terms of OPD cases per doctor per day were from tribal districts. One possible reason to explain the difference in rural and urban areas could be linked to dual practice by DH doctors which reduces their availability at DH. The tribal districts had poor presence of private sector, and this reduced the chances of dual practice.

Those DHs where doctors had been posted for a long time (Dhamtari) were able to attract more OPD patients as the reputation of doctors was an enabling factor. Qualitative interviews indicated that the newer DHs with freshly appointed doctors were not performing well. The same was the case where mushrooming of private hospitals was taking place. The districts where both the above factors applied were likely to be worst performing were Bemetara and Balod. Another reason related to size of urban population around the DH. The administrators of the hospitals informed that the availability and presence of bond doctors over the years increased. However, many times they would proceed on leave without pay or be absent for long periods without prior intimation. More rigorous monitoring of bond doctors was therefore required to ensure that service delivery did not suffer due to lack of availability of doctors on regular basis.

Poor performing DHs failed to leverage the presence of specialists. Specialists in these DHs often do not get necessary support in terms of required equipment etc. They provide consultation for general cases including minor ailments and only few cases are related to their specialties. This reduced their motivation to provide care. In addition, some of the DHs did not advocate regarding the presence of specialists and their associated health care services to the community and the patients visiting these facilities. These specialists were often made to sit in a single room for consultation and their presence was least noted. Specialists were often unwilling to attend evening OPDs, which were handled mostly by UG doctors. Specialists who were available through the bond scheme were also giving less than optimal results. The quality of leadership available in different DHs determined the amount of effort specialists put in. Some DHs seemed to have an excess number of UG MOs.

The Department of Health (DoH) issued instructions recently for maintaining separate OPD registers by each doctor to track daily patients treated by them. However, its implementation was found to be weak.

6.3.2 Diagnostics

Data was collected on 16 types of basic tests expected in DHs. Only Raipur DH (that upgraded 'Hamar Lab') is providing all 16 tests, whereas there were three DHs which were not providing four or more tests:

- thyroid function test was not being provided by most of the DHs (14 DHs).
- electrophoresis was not available at eight DHs followed by HBA1C (7 DH).
- Bastar DH was performing well in all types of diagnostics and several tests were being conducted; also, X-rays were available in all DHs; and
- The USG was not available in three DHs though it is an essential service for ANC, especially when supported by services of a gynaecologist.

The diagnostic tests were assessed against a benchmark as per patients in the DH and is summarized in the following table. A majority of the DH were able to achieve benchmark testing for X- ray followed by USG.

Table 28: Diagnostic test availability and achievement of benchmark in DHs

Tests	Total DH performing tests	No of DH achieved benchmark	% DH achieved benchmark
X-ray (4 per 100 patients)	16	14	88
USG (2 per 100 patients)	13	8	50
HB (18 per 100 patients)	16	6	38
Sputum AFB (2 per 100 patients)	14	6	38
Blood sugar (20 per 100 patients)	15	3	19
Malaria (6 per 100 patients)	16	3	19
ECG (4 per 100 patients)	14	2	13
CBC (14 per 100 patients)	16	0	0
RFT (4 per 100 patients)	16	9	56
LFT (4 per 100 patients)	16	8	50
Widal test (10 per 100 patients)	16	0	0
Lipid profile (3 per 100 patients)	16	2	13
Electrophoresis (3 per 100 patients)	8	0	0
HbA1C (6 per 100 patients)	9	1	6
Thyroid function test (2 per 100 patients)	14	2	13

The study noted that critical diagnostics lacking at DH will affect the entire district and in turn impact the patients who were being referred for advanced level of care. It will therefore be important for DHs to provide tests like electrophoresis, HBA1C and thyroid function tests as essential services.

The state government wants to provide free essential diagnostic tests in all DHs by strengthening their labs as Integrated Public Health Labs. Chhattisgarh has chosen to name such upgraded labs as “Hamar Labs”. It was found that those DHs where Hamar Lab was in place performed better in the number of tests available and patients tested. However, the supply of reagents in these hospitals remained an issue of serious concern. At the facility and district level, concerns about the availability of reagents in the required quantity persisted. At many places the reagents had been purchased by the CMHO by contacting the suppliers of these diagnostic machines. Few other observations are listed below.

- In a few places majority of the equipment was lying idle for months due to non-availability of reagents. Most DHs were charging user fees; and
- The situation of Hamar Labs was uncertain with respect to ‘free’ testing. The diagnostic charges in the DHs were below market rates but could still be seen as a financial barrier for the poor e.g., INR 100 being charged for CBC.

6.3.3 Inpatient care

An inpatient care service relates to the number of patients admitted for more than 24 hours in the hospital. The team found that the number of IPD beds in the 16 DHs ranged from 50-397 beds. Most DHs were running at the sanctioned bed strength or above. The IPD of the DH ranged from 350 a month in Gariyaband DH to 2700 a month in Bastar DH. The average IPD per DH was around 1000 per month. There were only two DHs with IPD of above 1000 cases every month. When the IPD per doctor was calculated, it was found that only three DHs had more than 50 IPD/doctor/month.

Table 29: DHs achieving benchmark for IPD service

Service with benchmark	Total DH with IPD of 1000 and above	Total DH with IPD of >50/doctor/month
IPD	4 (25%)	3 (18%)

6.3.4 Deliveries

The DHs were expected to provide 24*7 delivery facilities. Expected deliveries of the entire district would get divided between various centres with a sizable number of deliveries taking place at the DHs, especially those considered to be at risk. The data from 16 DHs showed that the number of deliveries in these DHs ranged from 39 (Gariyaband) to 461 (Bastar) per month and around 70% DHs were delivering 100 or more cases a month.

Except for four DHs (Raipur, Kondagaon, Dhamtari and Bilaspur) which had just two to three gynaecologists, the remaining 12 DHs had a single gynaecologist posted.

Table 30: DHs achieving benchmark for delivery service

Service with benchmark	Total DH with 100 and more deliveries a month	Total DH with 5 and more deliveries a day/ gynaecologist
Deliveries	4 (25%)	4 (25%)

Caesarean section deliveries: The DHs were expected to provide emergency obstetric care for complicated pregnancies. Data from the 16 DHs showed that caesarean sections were being conducted in all of them. The number however varied from three (Bemetara, Jashpur, Gariaband) to 138 (Raipur) per month in the different DHs. The same is indicated in Table 31.

Although all DHs reported that caesareans were taking place in the DHs, there were four DHs which reported less than 10 caesareans in a month. Also, these four DHs were performing C-section on elective basis and as emergency care. Many DHs conducted the C-sections only in the daytime and referred most of the cases requiring C-section to medical college hospitals or the private sector.

Table 31: Number of C-sections and human resource in DHs

DH name	Total caesarean sections last month	Blood bank/blood storage - total units issued in the previous month	No of gynaecologists	No of anaesthetist
Raipur	138	130	6	2
Bastar	109	274	1	1
Kondagaon	86	194	2	2
Bilaspur	77	94	3	3
Dhamtari	41	142	2	1
Mungeli	37	126	1	1
Balod	28	86	1	1
Surajpur	24	242	1	1
Janjgir	24	99	1	1
Balodabazar	20	165	1	0
Kawardha	19	257	1	0
Baikunthpur	14	366	1	0
Balrampur	7	76	1	1
Gariaband	3	48	1	0
Jashpur	3	91	1	0
Bemetra	3	63	1	1

The table clearly shows that the emergency obstetric care was not adequately available in the state. There were several reasons behind this shortage of staff. Only one gynaecologist was available in most of the DHs. This reduced the chances of C-sec being conducted at night. Even when the gynaecologist was available and willing to provide services, anaesthetists were limited in number. For example, in Dhamtari there was only one anaesthetist, who was required to manage all the surgeries taking place from OBG, surgery as well as orthopaedics. Hence, for a facility to be functional for emergency OBG procedures, a greater number of anaesthetists had to be posted. There were few places where the LSAS trained doctors were available, but they were not doing anaesthesia related work due to lack of confidence and consistent practice to perform requisite surgeries.

6.3.5 General surgeries

Data on surgeries for the 16 DHs showed a wide variation between districts. The type of surgeries that were conducted were mostly less complicated operations like hydrocele, hernia etc.

Table 32: DHs achieving benchmark for surgery

	Total DH with 200 and more surgeries a month
General surgery	4 (25%)

6.3.6 Cataract operations

With no ophthalmologist available below district level, the number of cataract surgeries being performed in the DH was important. All DHs were equipped for eye OTs to perform regular cataract surgeries. Among the 16 DHs studied, except for Janjgir, all had one or more ophthalmologists posted in the facility. Dhamtari DH was found to be performing well. With at least three days of surgery a week, 80% DHs were performing barely five or less surgeries a day, which was considered very low as compared to the number of ophthalmologists present. Table 33 gives the tally of surgeries.

Table 33: DHs achieving benchmark for cataract surgery

	Total DH with 100 and more cataract operations a month
Cataract surgeries	6 (37%)

Interviews were conducted with well-performing doctors as well as those who were under-performing. The reasons cited for the lack of performance was linked to non-availability of infrastructure facilities to manage complicated cases. This was mostly because no ICU set-up was available which led to referrals of cases to higher centres (mostly to private hospitals) from the public sector.

However, conversations with well-performing doctors (ophthalmologists) showed that with similar facilities and budget availability, surgeon motivation led to high performance. Many surgeons avoided additional workload by finding reasons to reject cases. To improve the performance of low-performing ophthalmologists, capacity-building efforts were recommended to improve their confidence. The other factor that was found to be hindering the number of surgeries, related to the experience of many surgeries taking place in makeshift OTs leading to several problems. Also, there was a shortage of OT technicians and ophthalmic assistants in the DHs.

6.3.7 Hypertension, diabetes, and mental illness

Data was collected for services for NCDs in DHs. This included hypertension, diabetes, and mental illnesses. It is assumed that the complicated or uncontrolled cases of hypertension and diabetes would reach the DHs for their treatment. While there were some hospitals providing treatment to 200 and above patients, there were still hospitals where these cases hovered to less than 50 cases a month. Similar was the case for people undergoing treatment for mental illnesses. There were four DHs where a psychiatrist was available and one DH where these services were being insourced on a weekly basis. To create capacity to provide such services in all DHs, the state arranged training of UG MOs from NIMHANS so that treatment for mental illness could be included. This way, at least one MO per DH was trained.

In practice it was also observed that some of the trained MOs were no longer available in the DH as they left for pursuing PG or were transferred to other facilities. Although the transferred MO could then provide services in a different facility, the existing DH became deficient in services. It was suggested that in each DH, three to four MOs could be trained in mental health, so that services did not get disrupted due to transfer, leave etc. Table 34 indicates DHs and the number of cases receiving treatment for key NCDs.

Table 34: DHs achieving benchmark for hypertension, diabetes, and mental illness

Services with benchmark values	Total DH with cases achieving benchmark
Hypertension (at least 300 per month)	6 (37%)
Diabetes (atleast 350 per month)	6 (37%)
Mental Illness (atleast 200 per month)	6 (37%)

6.3.8 Chemotherapy and dialysis

The DHs were found to be in the process of getting strengthened for provision of dialysis and chemotherapy services so that the burden of patients could be reduced. This would help reduce the dependence of patients on private hospitals.

The data on chemotherapy in 16 DHs found that 10 DHs did not treat a single patient in the month prior to the study; four DHs treated less than 10 patients a month; and two DHs of Jashpur and Surajpur provided chemotherapy to more than 10 patients a month. This showed that chemotherapy services and cancer care were still at an early stage in the DHs of the state. For provision of free dialysis services under the National Free Dialysis Programme - Jeevan Dhara, six DHs were found to be providing services. Out of the sample 16 DHs, only two had operationalized the scheme. Another four DHs were also providing dialysis services by using donated dialysis machines or DMF or CSR funds. Jashpur DH was providing services to a larger number of patients (146 per month). See Table 35 for DHs reporting chemotherapy and dialysis.

Table 35: DHs reporting chemotherapy and dialysis services

	No of DH reporting any cases	Total DH with cases (%)
Chemotherapy	6	37%
Dialysis	6	37%

On visit to DH Bemetara, it was found that despite receiving a dialysis machine through donation, no services had been initiated. The doctors expected a dedicated ICU set-up for the said unit with dedicated manpower and special training. While training was still required, it was learnt from conversations with better performing DHs that the dialysis services could be made feasible with existing resources in case dialysis machines were provided.

6.3.9 Emergency treatments: Poisoning, animal bite, fracture, and injuries

Most of the DHs were handling minor fracture cases, animal bites in large numbers and poisoning cases. Burn cases were handled infrequently at these hospitals. Table 36 gives the update on cases of poisoning, animal bite, fracture and burns in the DHs.

Table 36: DHs achieving benchmark for poisoning, animal bite, fracture and burn cases

Service with benchmark	Total DH with cases achieved benchmark
Poisoning cases (at least 15 cases per month)	8 (50%)
Animal bite (at least 50 cases per month)	8 (50%)
Fracture cases (at least 50 cases per month)	6 (38%)
Burn cases (at least 3 cases per month)	7(44%)

6.3.10 Drugs

An assessment of 32 types of essential drugs in the DHs was undertaken and drugs available on the day of visit recorded. Out of 16 DHs, it was observed that there were four DHs with more than 50% drugs stocked out. Amongst drugs for diabetes, insulin was not available in five DHs, glimepiride was not available in four DHs and in none of the DHs visited, the quantity available was above the designated buffer stock.

6.4 District hospitals

6.4.1 Summary of key findings

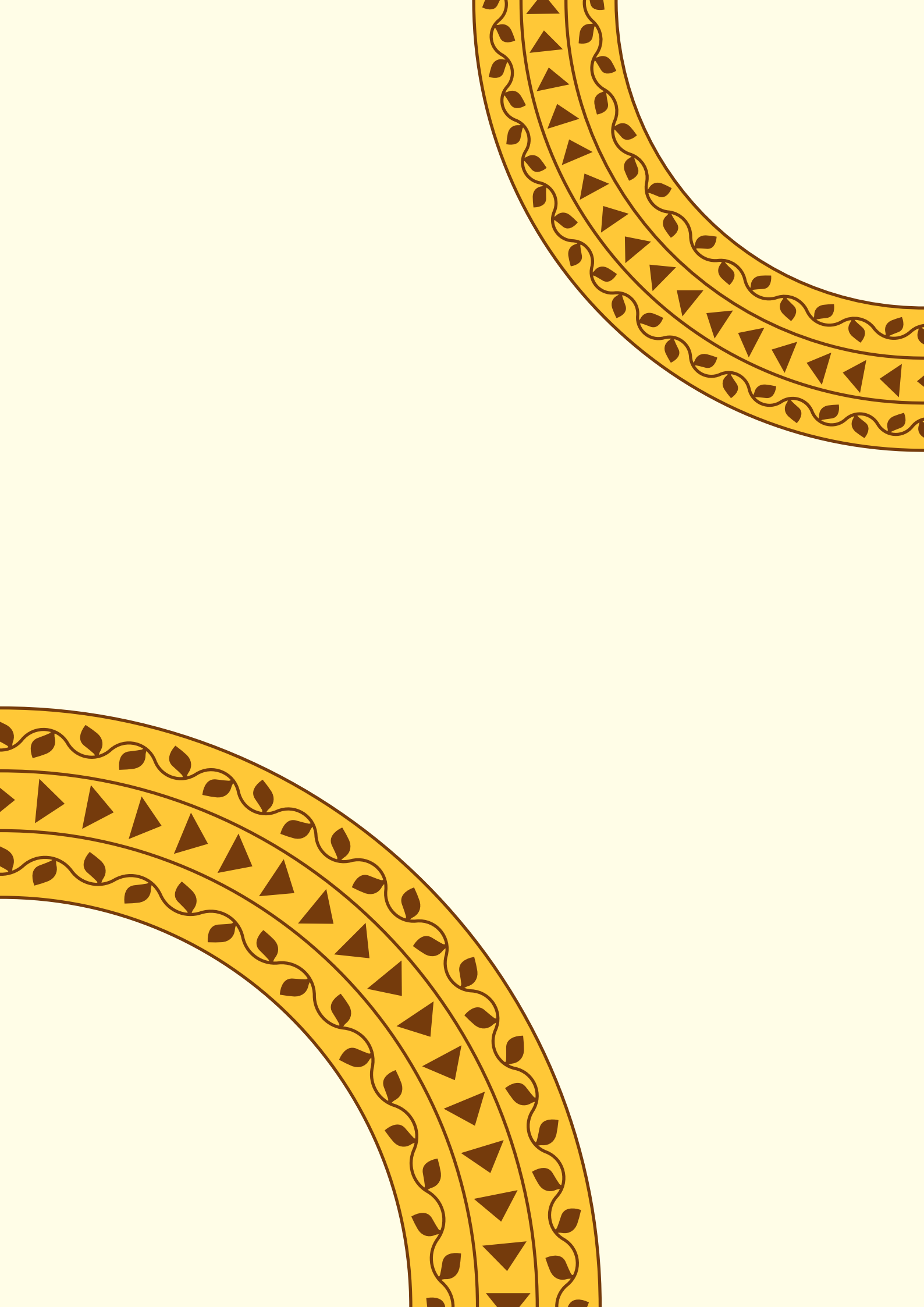
- Average OPD per DH was around 7000 ranging from around 3000 to over 13 000 a month.
- Availability of doctors in DH varied from 17-57 with average number of OPD of 10 cases per doctor per day.
- Availability of doctors in DHs increased and led to reduction of caseload for specialists, especially regarding emergency duties, which were mostly undertaken by MOs now.
- Variation in OPD numbers between the different DHs related to the geography of the district, density of public and private facilities available, population of the city where the DH was located, and factors related to administrative leadership.
- Many districts with 10 or above OPD per doctor per day were in tribal districts where there was less availability and presence of private sector. Motivation of staff and availability of required infrastructure were important factors in catering good number of OPDs for which patients visited hospitals.
- Bonded doctors were likely to go for leave without pay or were absent for long periods without prior intimation.
- Many specialists posted under bond had not received separate rooms or chambers and neither were any name boards available for them. Further, special/specific instruments were unavailable for their specialty. Hence these specialists were also tending to general cases of cold, cough and fever and not those related to their specialties.
- Absenteeism of doctors without prior information was another issue reported during visits.

- The evening OPD was mostly managed by two to three MOs.
- Raipur DH designated Hamar Lab to provide all 16 types of tests.
- Thyroid function test, electrophoresis and HBA1C were not provided by most DH.
- USG was not available in three DH which was an essential service for ANC. The absence of such diagnostics at DH affected the entire district. Also, DHs were tasked with providing tests like electrophoresis, HBA1C and thyroid function tests.
- The average IPD of the DH was around 1000 per month and ranged from 350 to 2700 per month.
- Normal deliveries in the DH ranged from 39 to 461 per month.
- C-secs were being conducted in all DHs and ranged from three to 138. Although all DHs reported caesareans, four reported less than 10 a month. Most DHs were found to be performing C-secs on elective basis in the day, pointing to emergency obstetric care availability being less than 10%.
- Main reason of low caesarean was non-availability of sufficient staff. Mostly one gynaecologist was available in the DH, and a single anaesthetist assigned to take care of all surgeries in OBG, surgery and orthopaedics. These were mostly minor operations (like hydrocele, hernia, etc.) in the DH.
- Almost all DHs are equipped for eye OTs to perform regular cataract surgeries which range from 12-300 a month. With at least three days of surgery a week, 80% were performing only five or less than five a day, which was very low.
- Hypertension and diabetes patients treated per month in a DH varied from 50-200.
- There was variation in number of cases of mental illness treated in different DHs. Many trainings of medical doctors through NIMHANS were conducted to provide care for mental illnesses. In practice, it was found that few trained persons left for PG or were transferred, resulting in disruption of services.
- There were 10 DHs which did not provide chemotherapy to a single patient in the previous month while another six treated few patients.
- The data found that services of chemotherapy were in their initial stages of being implemented and needed further strengthening. Well-established linkages with other health care facilities were needed.
- Under the National Free Dialysis Programme, Jeevan Dhara, there were only two districts that were found to be operational. However only six DHs were providing the same.
- Animal bites were handled by all DHs in large numbers. About one to two cases of poisoning were managed in the best performing hospitals.

Key issues and recommendations for district hospitals

- **Rationalize number of MOs:** Many DHs seem to be having excess number of UG MOs. These must be rationalized in line with the current OPD load. Additional regular MOs can be posted at PHCs to allow them to have an MO in position, and it is suggested to do this on rotation basis.
- **Introduce and strengthen specialist skills in DHs:** For each specialty, DH-wise priority for filling-up specialist positions must be decided as per their caseload and priority for providing services in remote and hard-to-reach areas. The specialists being recruited must be posted against that priority list for each specialty, by using transparent counselling and location systems. At least two anaesthesia and gynaecology specialists per DH should be prioritized to ensure basic health care needs are managed. In addition, paediatrics, medicine, surgery, ophthalmology, and orthopaedics surgery are other specialties which should be available to address the secondary and tertiary health care needs. As a stop-gap arrangement, while gaps in regular recruitments are addressed, supplementary funding should be utilized from DMF to recruit necessary specialists for DHs while additional incentives are provided for their retention.
- **Prioritize mental health:** For diagnosing and treating mental illnesses, each DH should have two to three MOs trained through NIMHANS collaboration. Each day at least one MO should be available to identify patients with mental health conditions and who need appropriate support for management. Skill-building is also required for managing emergencies.
- **Provide dialysis and chemotherapy at all DHs:** All those wanting to avail of dialysis and chemotherapy services must be accommodated without delay or inconvenience.
- **Strengthen diagnostics as an ongoing process:** The model of Hamar Lab that has been piloted by select DHs in the state should be replicated in all DHs in a time-bound manner. User fees should be removed for all diagnostic tests which are being undertaken. USG should be expanded in all DHs and CHCs to facilitate better management of cases. A routine system must be set up for supply and replenishment of reagents in a time-bound manner as per requirement of facilities.
- **Address the issue of procuring drugs:** There are gaps in central procurement and supply of the required number and quantities of essential and specialized medicines. The availability was however adequate in FY 2020-2021 but deteriorated in 2022.
- **Conduct better monitoring:** Improved monitoring will lead to greater consistence in the performance of DHs. Presently, there is wide variation in their performance especially in the number of patients they cater to, and the range of illnesses treated. Low performing DHs will need multiple interventions and would require monitoring over a longer period to achieve desired performance benchmarks. Some of these measures include:
 - availability of specialist services to be communicated by DHs to community members and other health care facilities in the district.
 - each specialist to be provided a designated consultation/examination room along with necessary equipment. Also, appropriate diagnostics and drugs to be made available as per their specialty.

- dual practice of doctors must not hamper service provisioning at DHs. Furthermore, existing policy of the state on regulating private practice by government doctors needs to be enforced. In the long run, the state must move towards prohibiting all dual practice by doctors while simultaneously increasing their salaries and/or non-monetary incentives. Private hospitals utilizing government doctors too should be barred from the state's health insurance scheme DKBSSY; and
- study the impact of incentivization of doctors under DKBSSY on their performance (services).



Current health workforce issues in Chhattisgarh

Since its inception as a state in 2000, Chhattisgarh has had a major shortage of doctors and nurses. When the state was formed, it had only one medical college. There were many vacancies in crucial clinical cadres.

In 2018, WHO provided technical support for addressing HWF gaps. Given the advantages HLMA³⁴ offers in clarifying HWF issues, WHO supported a HLMA for Chhattisgarh. The HLMA was initiated in September 2018 in collaboration with the State Health Resource Centre (SHRC), a technical organization providing support to the state for implementing public health programmes and providing policy directives. The HLMA also helped the state identify key HWF issues.

This exercise supported identifying of gaps in production as well as attracting specialists to government jobs. The gap in case of UG doctors was not in production or attraction but in organizing recruitment drives regularly and as per examination cycles of the colleges. In case of nurses, there was a glut of production with paradoxically high vacancy rates and gaps in recruitment administration. Once the gaps were identified, efforts were made by the DoH to rectify the same. Several policy changes were introduced, and recruitment drives organized in a time-bound manner.

7.1 Improvements in HWF

The cadre-wise changes from the August 2018 level (when HLMA was started) are summarized below:

7.1.1 Undergraduate doctors (Medical officers)

- By August 2021 the number of UG doctors increased by 51% with addition of 717 doctors. This improvement could be attributed to increase in organizing the recruitments drive on regular basis and undertaking at least one drive that was undertaken annually.
- The total UG doctors working in the state were 2133 against 2495 approved posts. The policy implementation brought down the vacancies dramatically from 43% to 15%.

3 https://www.who.int/docs/default-source/searo/india/publications/policy-brief-health-labour-market-analysis9-july-2020.pdf?sfvrsn=102d865d_2

4 https://www.who.int/docs/default-source/searo/india/publications/policy-brief-health-labour-market-analysis9-july-2020.pdf?sfvrsn=102d865d_2

- This could also be attributed to the department which ensured that it increased its management capacity to handle large recruitment drives.
- Transparent allocation of posting based on merit after recruitment helped the state to have more rational distribution of UG doctors, especially in tribal and rural areas. In tribal areas the increase of UG doctors was 28% and in rural areas the increase was 32% whereas the least increase was in urban areas as most of the approved posts were already filled.

7.1.2 Specialist doctors

- By August 2021, the number of specialist doctors increased by 203% with addition of 424 specialists. Total specialist doctors working in the state were 633 against 1857 approved posts.
- The above increase was due to two main reasons, namely there was progress in completing due promotions; and flexible salaries that were implemented by districts.
- The change in the policy for direct recruitment of PG doctors into specialist cadre came into force in June 2021. Thereafter, many posts of specialist doctors were advertised and the selection process for the same is still on.
- The recent change in policy allowing direct entry of PG doctors in specialist cadre may help in attracting more specialists in future and cater to increased requirement in the state.

7.1.3 Staff nurses

- By August 2021, the number of staff nurses increased by 47% with addition of 1808 nurses.
- The quality assurance drive resulted in around one-fourth of the private nursing schools being required to improve their quality and education standards.
- Eventually, 13 schools (around 10% of total) which did not improve were barred from taking new admissions.

7.1.4 Community health officers

- By August 2021, the number of CHOs increased by 60% with addition of 1611 CHOs.
- Implementing the regional quotas helped some of the remote districts to get more CHOs.
- Nationally, it was decided to add CHO courses into the existing B. Sc nursing curriculum that helped the state get enough potential candidates for the post of CHOs on yearly basis.
- Innovative in-service trainings were initiated for CHOs joining the HWCs. Most of them

were trained by SHRC on standard treatment protocols for primary health care services. The training protocols were designed keeping in mind the role of CHOs at HWCs. The pre and post-test assessment of CHOs showed 35-40% improvement in CHOs scores.

7.2 Current HWF gaps in Chhattisgarh

7.2.1 Specialist doctors

- Despite the impressive jump in number of specialists, a considerable gap remained with 66% vacancies.
- The success in improving availability of specialists so far has been largely limited to DH level and CHCs have severe shortage of specialists.
- The short training courses for UG doctors needs to be scaled-up and backed by incentives.
- The approach to use flexible salaries to attract specialists is mostly limited to recruiting doctors for DHs and can be extended for more specialists at CHC level too.
- The PG diploma course in family medicine for UG doctors has been delayed and is expected to start in August 2022.
- One of the HLMA recommendations was to have a transfer policy to ensure tribal areas have enough doctors. The policy suggests a mandatory fixed term (5-7 years) posting in rural and remote areas for each doctor. But this recommendation is yet to be implemented.

7.2.2 Undergraduate doctors

- The recommended transfer policy to help tribal areas in getting more doctors is yet to be approved.
- Continuous skill building of recruited doctors is needed.
- There is enough scope to improve the performance of UG and specialist doctors in terms of their outputs i.e., average footfall (OPD and IPD) per doctor, medical procedures, and surgeries.
- An increase in the CRMC incentives and salaries of health care workers was proposed but is yet to be implemented.
- UG doctors on bond may not be suitable to build strong services in PHCs.

7.2.3 Staff nurses

- Continuous skill building for recruiting nurses will be needed.
- Further recruitment drives are needed for filling new contractual posts.

7.2.4 Rural medical assistants

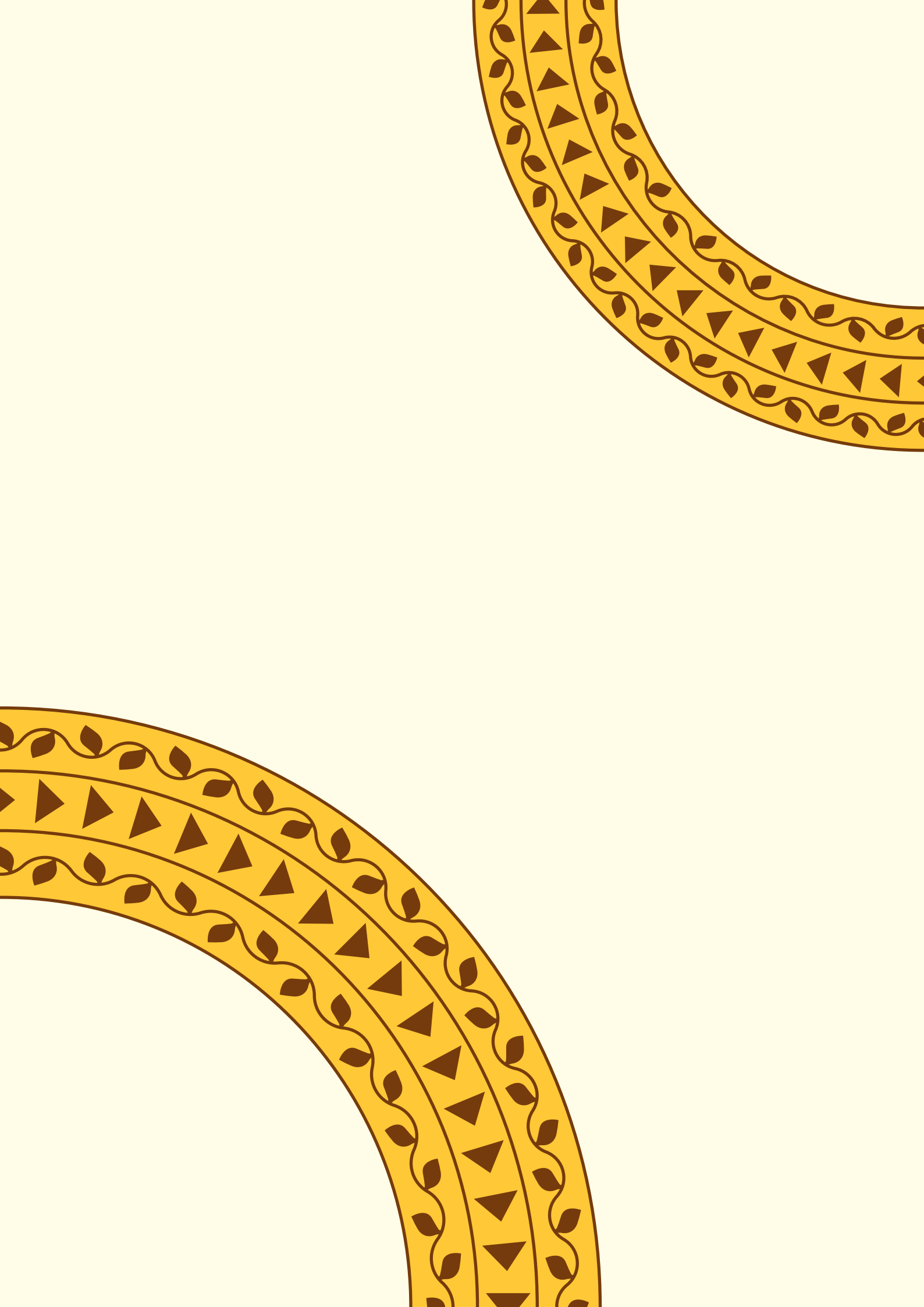
- Creating avenues for promotion (career progression pathway) for RMAs.
- Converting contractual RMAs to regular positions.

7.2.5 Community health officers

- Clinical skills of CHOs need to be strengthened with in-service trainings, capacity-building and continued mentoring.

7.2.6 Recommendations

- Increase salaries to attract specialist doctors from other states including through use of flexible resources at district level for hiring on annual contracts.
- Increase the value of incentives for those working in remote, tribal, and hard-to-reach areas.
- Introduce a transfer policy to ensure that tribal areas have enough doctors. The policy suggests a mandatory fixed term (5-7 years) posting in rural and remote areas for each doctor.
- Multi-skill UG doctors and train them in specialist skills through short courses and provide them incentives and recognition.
- Provide continuous skill-building of recruited doctors to improve their clinical skills and performance.
- Undertake further research to understand determinants of performance of health workforce including specialists, UG doctors, health administrators (CMO, BMO and Hospital Superintendents).



Community processes for primary health care

Community participation and engagement are central to the very concept of primary health care. Its very purpose is to empower people to understand their health needs and identify underlying causes for better decision-making and implementation of solutions locally.

The CHWs play a crucial role in achieving community participation and helping the community make informed choices. They play several roles to deliver the PHC closer to the communities by expanding outreach of services to underserved populations, providing feedback on people's health needs, and organizing communities for collective action on health and its social determinants. In addition to CHWs, community participation involved building platforms for community learning and action on health and social determinants for improved quality of life.

Chhattisgarh started its state-wide CHW programme in 2002. The programme has around 71 600 women CHWs known as Mitanins. The programme was the key reference for the national programme of Accredited Social Health Activist (ASHA) CHW programme under the NRHM in 2005-2006. However, Mitanins are now part of the ASHA programme and are funded by NHM. Many of its original design features were retained like selecting Mitanins over habitations/hamlets and not on population norms; not paying them as workers but treating them as volunteers who receive work-based incentives. For selection of Mitanins, it is not mandatory to have educational qualification.

The state has nearly 20 000 Village Health Sanitation and Nutrition Committees (VHSNCs), one for each of the revenue villages. The VHSNCs serve as platforms for wider community action on health and social determinants and draw participation from the local Panchayati Raj Institutions (PRIs), women's groups, other frontline workers, and youth groups.

Methods: Information was collected on the role of Mitanins from government documents, programme guidelines and training materials. Secondary data was collected on different components of their work from the programme monitoring reports and the same were analysed.

Qualitative information was collected on specific aspects that included the relationship between Mitanins and HWCs; work of Mitanins on social determinants of health; accountability; and health rights action by Mitanins. This data was collected through 12 interviews with Mitanins who were drawn from a mix of tribal and non-tribal districts.

8.1 Expected role of community processes in the primary health centres

Mitanins are expected to play multiple roles, the most prominent of which are enumerated below.

Health education: CHWs are expected to provide health education to community, families, and individuals. It focuses on the preventive and promotive aspects of health and involves interpersonal communication for behavioural change through home visits and community meetings.

Direct delivery of curative care: CHWs are expected to identify and treat common simple illnesses at home and/or community level. This includes diarrhoea, malaria, skin infections, minor injuries, aches etc. The CHWs identify pneumonia in children and sickness in newborns and treat them when referrals are not feasible.

Linkage with formal health care services: The CHWs identify, refer, and accompany individuals or families for facilitating their appropriate linkage with formal health care services. This includes facilitating immunization, ANC, family planning services and institutional deliveries. They identify presumptive cases of TB, leprosy and cataract and refer them for confirmation and required care. They also follow-up on cases of TB and leprosy and refer complicated cases of communicable diseases like diarrhoea, pneumonia, or malaria. Their role has expanded further with changing epidemiological needs and health policies. More recent inclusions under the service-linkage role relate to facilitating screening and follow-up for hypertension, diabetes, and mental illnesses.

Action on the social determinants of health (SDOH): CHWs organize the community and vulnerable groups for collective action on SDOH. These actions could relate to drinking water, nutrition, food safety and social security programmes, opposing gender-based violence (GBV) etc. For impact and results, community meetings are organized with several stakeholders.

8.2 Analysing coverage of PHC services by Mitanins

The analysis of population and illness coverage achieved by Mitanin CHWs have been classified into several components that are explained below.

Maternal health: Mitanins participate in the care of pregnant women - from detecting their pregnancy to post-partum home visits. They advise pregnant women and their families on diet and care during pregnancy. In 2021-2022, about 86% pregnant women received such advice from Mitanins at least once. They linked pregnant women with ANC services and helped identify high-risk pregnancies.

A study in April 2022, showed that 12% of pregnancies were identified as high-risk by Mitanins which was closer to the expected proportion of HRPs in the catchment population. They linked high-risk pregnant women with at least one check-up by a doctor. The proportion of high-risk pregnant women who could access such check-ups was around 62%. They also promoted institutional deliveries in government facilities and accompanied women to hospitals. Nearly 85% of all deliveries in Chhattisgarh took place in institutions in 2021-2022 with Government facilities accounting for over 80%. A recent study showed that a Mitanin was present for nearly 84.3% deliveries of rural mothers.

Home-based newborn care: In this role, Mitanins are expected to make a minimum of six home visits for newborns during the first 42 days of life. Recent research showed that 74% newborns received these designated six home visits from the Mitanins. Another 22% newborns received between one to five home visits, whereas 4% newborns did not get any visits. The coverage of different important messages ranged 74% to 90%. Around 95% of the newborn were screened by Mitanins for signs of sickness. Mitanins identified 12.9% of newborns as sick. Of the identified sick newborns, 48.1% were referred by Mitanins to health facilities, whereas 34.7% were treated directly by Mitanins by using amoxicillin. Early initiation of breastfeeding was reported for 85.4% newborns and skin-to-skin contact was practiced for 63.6%.

Home-based young childcare (HBYC): In this role, Mitanins are expected to make quarterly home visits for children under the age of three. Recent research indicated that, 85.1% children who were 7-36 months of age received at least one home-visit from a Mitanin within the preceding three months. The coverage of households with messages from the Mitanins ranged from 70-89.5%. Complementary feeding was initiated for 66% children at six months of age and the rate was 87% at eight months of age. Around one-third of children were fed less than three times a day. Around 41% households had added oil in the child's food the preceding day.

Receiving advice from Mitanins was effective in reducing delay in initiation of complementary feeding, increasing frequency of feeding, bringing in greater diet diversity, addition of oil, and weighing and consumption of food that was received from the government's supplementary nutrition programme. Mitanins were contacted in 73%, 69% and 61% cases of diarrhoea, fever, and respiratory infections found in children. Among those contacting a CHW for diarrhoea, 87.7% received oral rehydration. For ARI cases identified in children below five years of age, Mitanins treated 64% with amoxicillin and referred the rest to health facilities.

Water-borne diseases: On the prevention front, Mitanins educated families on causes of diarrhoea, typhoid, and hepatitis. A campaign is carried out in early summer every year to teach and propagate the benefits of handwashing. They organize community action to improve access to safe drinking water. This includes identifying out-of-order tube well hand-pumps and asking for timely repairs. Mitanins have helped in identifying remote habitations inhabited by particularly vulnerable tribes that lack access to safe drinking water and demand their improvement. Another area of Mitanin action is to test the water for fecal contamination using hydrogen sulfide paper kits.

In urban areas, Mitanins ensured involvement of local women's health committee (Mahila Arogaya Samiti) and several elected councilors in the activity. This helped communities monitor the quality of drinking water they used and demanded requisite repairs in water supply lines. Reports based on the testing done by Mitanins were shared by the Health Department with the Urban Administration and Public Health Engineering (the departments responsible for water supply). This process is repeated each year since 2014. While the proportion of contaminated sources was as high as 53% in the first report (2014), it came down to 13% by 2019 and has not increased since then. This is acknowledged as a good practice indicating collaboration between the health and urban departments.

On the treatment side, Mitanins promote and provide oral rehydration for diarrhoea cases. According to a study conducted in 2018, Mitanins were contacted for helping treat 64% diarrhoea cases, of which about 85% received ORS.

Hepatitis E has been a problem in urban areas though there have been no big outbreaks in the last five years. Mitanins have played an active role in identifying the outbreak, educating on prevention and identification of symptomatic cases, advising on home-based care (HBC), and advising when to seek hospital care.

Malaria: On the prevention side, Mitanins promote collective community action around vector larvae control and self-care advice. The most important preventive intervention has been to promote use of mosquito bed nets in malaria endemic areas. Recent household surveys in the high-burden areas of Bastar reported bed net usage rate as 77% in early monsoon season (July) and 59% in winter season (December).

In malaria detection, Mitanins carry out testing at community/home level by using rapid tests for febrile persons. Around two-thirds of the febrile persons in the community met with Mitanins and about 75% of the total malaria cases reported in the state are now through testing done by them. They treat the detected cases using Artesunate Combination Therapy (ACT) for *p. falciparum* cases and Chloroquine for *p. vivax* ones. They follow-up for ensuring treatment completion. A study in 2018 reported a treatment completion rate of 72%. Mitanins identify the cases showing severe symptoms and refer them to health facilities for treatment of complicated malaria.

For covering afebrile malaria, a campaign named ‘Malaria Mukt Bastar’ was initiated by the state’s health department. Mitanins were part of the testing teams and they contributed to 81% of the total persons tested in the first five rounds of the campaign from February 2020 to December 2021. Mitanins followed up the positive cases for three days of treatment completion. The treatment completion rate measured in the household survey ranged from 77-95% in different rounds depending on availability of anti-malarial medicines with Mitanins.

Tuberculosis: Mitanins identified persons with symptoms including through active search and taking them to microscopy centres (PHC/CHC/DH). In 2021, around 75% of the sputum tests were related to Mitanin referrals. Mitanins also carried out home-based follow-up of cases under treatment to improve treatment adherence. The referrals of symptomatic persons for microscopy came down during the pandemic. The worrying aspect however was that the detection of cases fell by 40% in 2020 from 2019 levels and this situation did not fully recover till 2021.

Leprosy: Mitanins carry out active search annually by examining individuals. Due to the active search done by them, Chhattisgarh continues to detect the highest number of cases in the country. They refer presumptive cases to health facilities for complete diagnosis. Around 78% cases diagnosed for leprosy in 2021 were through such Mitanin referrals. They also advise cases on treatment adherence and self-care for prevention of disability.

Share in outpatient care: Apart from prevention, screening, and referral, Mitanins act as trained health care providers at the community level for acute illnesses like cold and cough, diarrhoea, malaria, skin infections, minor injuries, minor aches etc. They have a drug kit that covers these ailments. They received multiple rounds of training in detecting and treating simple acute illnesses. A household survey in 2019 reported that Mitanins accounted for 17% of the total outpatient care episodes treated in the state. In 2021, this proportion increased to 21%. The share of Mitanin in outpatient treatment was found to be high in tribal and rural areas.

Noncommunicable diseases: In the area of NCDs, Mitanins started working on the preventive side of hypertension and diabetes. They educated communities on risks associated with use of tobacco, excessive salt intake and processed junk foods. The campaign against tobacco was impactful. Chhattisgarh reported a very high rate of orally chewed and applied tobacco use. Mitanins also targeted adolescents by promoting peer educators in schools. They facilitated screening for early detection of new cases of hypertension and diabetes by referring them to HWCs. The most important role Mitanins played related to home-based follow-up to improve treatment adherence. They also advised confirmed cases to go for monthly check-ups at health facilities.

A large-scale experimentation in Chhattisgarh was undertaken to equip Mitanins to undertake BP recording using digital monitoring machines. This experiment included 3700 urban Mitanins and 8000 rural Mitanins. A skill assessment of urban Mitanins showed that 89% of trained Mitanins were able to achieve a desirable score. A household survey in urban slums has shown that populations with a Mitanin equipped to measure BP had much higher rates of identifying hypertension, better follow-up (whether blood pressure was measured in previous month), and treatment adherence as compared to slums where Mitanins did not have the instrument and training for BP measurement.

Sickle-cell disease: This disease poses a big challenge in Chhattisgarh with a prevalence of 0.6% or more at the population level. Mitanins promoted screening and testing for sickle-cell by referring suspected individuals. They were trained to advise families on the difference between being a sickle-cell carrier and suffering from sickle-cell disease. This can help the carrier's undue anxiety followed by unnecessary and inappropriate health care. Those with the disease required medical support and Mitanins advised them to take regular treatment. The efforts of Mitanins were more successful in urban areas where treatment was available in nearby government hospitals. Urban Mitanins helped in identifying and providing linkages with treatment of 2400 cases of sickle-cell disease and are actively following them up. In rural areas, the last two years have seen a paucity of screening tests (solubility test).

A large share of screened positive individuals was unable to access confirmatory tests and diagnosis. To overcome the above gap, Chhattisgarh emerged as a pioneer state in conducting a pilot project to integrate PoC tests (lateral flow competitive assay known as HemoTypeSC). These tests were backed by strong evidence including multicenter studies in India by the National Institute of Immuno-Haematology (NIIH), Mumbai which is an ICMR body. Based on the pilot, the state included the above test in its list of essential tests to be procured from 2021 despite the procurement process not being successful so far.

Mental health: Added in 2019, mental health was the latest addition to the curriculum of Mitanins. Two rounds of refreshers were done in 2020 and 2021. The role of Mitanins in mental health includes:

- educating communities and families on how to reduce stigma.
- providing health education to overcome the widespread belief that mental illnesses have supernatural causes and cures.
- improving human rights situation of the mentally ill by freeing them from bondage and harmful faith healing treatments.
- identifying presumptive cases of mental illness and convincing families to get treated from hospitals and accompanying them to DHs for treatment; and
- stepping up home- based follow-up of cases under treatment.

Surveillance and preparedness for emergencies: The COVID-19 pandemic provided concrete experience to Mitanins providing them real life experience in how to further improve their role in a health emergency. Mitanins were expected to conduct several tasks related to the pandemic, including promoting behaviour change, door-to-door visits for surveillance of relevant symptoms and monitoring cases under home isolation. Many of these tasks carried significant risks including stigma. Mitanins risked spoiling their trust in the community when they pushed people to get tested. They faced stiff targets in surveillance when they brought in people for testing. In the latter phase, tasks related more to promoting vaccinations. They were also called upon by government authorities/district administration to perform additional tasks.

Undoubtedly, Mitanins were key to delivering EHS during the pandemic. However, since the focus of the authorities was to manage the pandemic situation, in many cases their work on essential health care often took a backseat. A notable exception was continuation of the campaign against malaria, where the health department pushed it from the state level. Mitanins took medicines from HWCs and provided them for treating hypertension and diabetes, especially when they were not turning up at the health facilities due to fear of COVID infection. Mitanins also treated many simple acute illnesses at community level. Efforts of ANMs and Mitanins were key to continuation of routine child immunization, ANC, and institutional deliveries at the SHC and PHC levels during the pandemic.

The central government announced an incentive of INR 1000 a month for the Mitanins during the pandemic, but the state government was able to pay them only for three months. Thus, most of the work done by Mitanins during the pandemic remained unpaid.

Action on social determinants and inter-sector action: Mitanins provide necessary leadership to VHSNCs and involve PRIs for action on wide-ranging aspects of social determinants and related services. The state implemented a programme called Swasth Panchayat Yojana through them to build participation of local elected bodies (panchayats) in health. It included action on combating GBV, improving access to safe drinking water, vector control, and access to food security and nutrition programmes of the government and to social security entitlements. In a survey, 58% VHSNCs reported action on food security over the preceding six-month period. Mitanins used annual public dialogue events (Jan Samwad) to raise issues related to right to health and its social determinants. They demanded better health care services. Around 160 such events took place annually, covering most parts of the state. Mitanins also negotiated for better services for patients whom they accompanied to health facilities.

Mitanin (ASHA) and Mitanin Trainers (ASHA facilitators) as part of the primary care team of HWCs: Mitanins are now part of the primary care teams of the HWCs where MTs play an active role. Mitanins received training on their role in HWCs wherein they were called to inform people about services offered at the HWC, especially in places where a new HWC was established. They were tasked with referring individuals with different ailments to HWCs; mobilizing those above the age of 30 to get screened for NCDs at HWC; taking up home-based follow-up of confirmed cases of chronic diseases; promoting treatment adherence and making regular visits to HWCs for check-ups and taking medicines.

The Swasth Panchayat Yojana has been adapted to include community engagement in the context of HWCs. Community engagement events have been organized to assess the services

of HWCs from the patient's perspective and a dialogue is conducted with the primary care team to make services more responsive.

Several FGDs were conducted in multiple districts to assess the experience and perspective of Mitanins regarding HWCs. The feedback from community perspective on services of HWC are described in the chapter on HWCs in this report. Another important aspect that the FGDs took up related to the relationship between Mitanins and HWCs.

Mitanins too viewed the HWCs as a major improvement in the health sector, especially in terms of improving patient-centric services. Those living closer to the HWCs visited the HWC frequently, often two to three times a week. The Mitanins who lived further away also visited the HWC two-four times a month. Clearly, adequate contact had been built between the Mitanin and HWC. Mitanins would often accompany patients to the HWCs, bringing high-risk individuals above the age of 30 for NCD screening and completing the CBAC forms and sharing them with the HWC. At most HWCs, a monthly meeting would be held where all Mitanins belonging to its area would attend and share their updates.

For a follow-up of chronic disease cases (hypertension, diabetes, mental illnesses, sickle-cell disease), Mitanins undertook home visits to counsel patients. They performed these tasks on their own, using guidance from instructions received from their MT and learnings from the annual refresher trainings. However, it was found that, often, HWCs (CHO/ANM) did not provide the list of such patients to Mitanins. Rather, the Mitanins would list the persons under treatment for chronic ailments and bring those lists to the CHOs. In many of the HWCs visited, the CHOs were not very knowledgeable about the role played by Mitanins. Infact, they perceived Mitanins to be only responsible for filling CBAC forms; and bringing individuals above 30 years of age for screening.

It was noted that the role Mitanins played for home-based follow-up on persons diagnosed with hypertension or diabetes was often ignored. Mitanins reported that their biggest challenge was to convince "difficult" cases to visit the HWC for regular follow-up and for them to adhere to the prescribed treatment. In a few HWCs, Mitanins reported receiving support from CHOs in overcoming this challenge. But, in a majority of HWCs, Mitanins felt they got little support from HWCs in counselling patients and facilitating treatment. They were disappointed when individuals were referred to higher centres from HWCs. The shortage of drugs and diagnostic tests at HWCs also drew a similar reaction from Mitanins.

In most districts, Mitanins were not being paid their designated "Team incentive". This incentive is based on overall performance of HWC, and the entire team was entitled to it based on their level of performance. Unfortunately, most CHOs do not include Mitanins while claiming the team incentive. Thus, while ANM and CHO get this incentive, Mitanins tend to be left out.

The relationship between the Mitanin and primary health care team in several places was found to be unequal. Mitanins felt greater ownership for the HWC but, it was often not the case with the health staff at the SHC. Often times, Mitanin meetings took place in HWCs but the CHOs did not interact with them.

Additionally, Mitanins faced systemic challenges with regard to poor availability of CBAC forms which were printed at the state level but got delayed with their distribution.

Availability of medicines: According to state guidelines, Mitanins are expected to have 13 medicines (18 formulations) and a rapid test (malaria). For each formulation, an annual quantity was required that was decided and demand was accordingly placed with the CGMSC. An assessment of quantity of medicines received by Mitanins in comparison to the estimate is given in Table 37.

Table 37: Comparison of estimated versus received medicines by Mitanins

S.N.	Name of drug in Mitanins kit	Approved estimated quantity for 2021-2022	Quantity received by Mitanins from CGMSC in 2021-2022	% of quantity received
1	Paracetamol tab 500 mg	72 035 000	44 575 613	62%
2	Paracetamol syrup 60ml	3 601 750	3 646 910	101%
3	ORS sachets (large)	5 762 800	6 852 751	119%
4	Chloroquine Tab	14 000 000	15 911 867	114%
5	ACT (>15 years)	400 000	233 395	58%
6	ACT (9-14 years)	150 000	98 320	66%
7	ACT (5-8 years)	100 000	85 736	86%
8	ACT (2-4 years)	75 000	7 9522	106%
9	ACT (0-1 year)	50 000	81 057	162%
10	Bivalent R.D. Kits (malaria rapid test)	500 000	66 2371	132%
11	Metronidazole tablet	7 203 500	4 935 732	69%
12	Antacid tablet	4 322 100	4 961 804	115%
13	Permethrin lotion	864 420	642 393	74%
14	Povidone iodine ointment	864 420	627 040	73%
15	Amoxycillin tab (dispersible) 250mg	6 483 150	0	0%
16	Zinc tablet	7 203 500	7 051 338	98%
17	Ciprofloxacin eye/ear drop	576 280	21 520	4%
18	Cotrimoxazole tablet (400+80mg)	2 881 400	371 379	13%
19	Gentian violet 0.5% solution	432 210	0	0%

Source: CGMSC website

The above information on quantity given to Mitanins is based on CGMSC's records. The pattern showed broadly matched the feedback from Mitanins on receiving these medications from the health care facility.

It showed that while many of the medicines received by the Mitanins were adequate, especially anti-malarial drugs, there was less-adequate supplies of amoxicillin, gentian violet and ciprofloxacin eyedrop against the quantities approved by CGMSC. For cases which required amoxicillin, supplies available from previous year were being utilized. But the shortage of

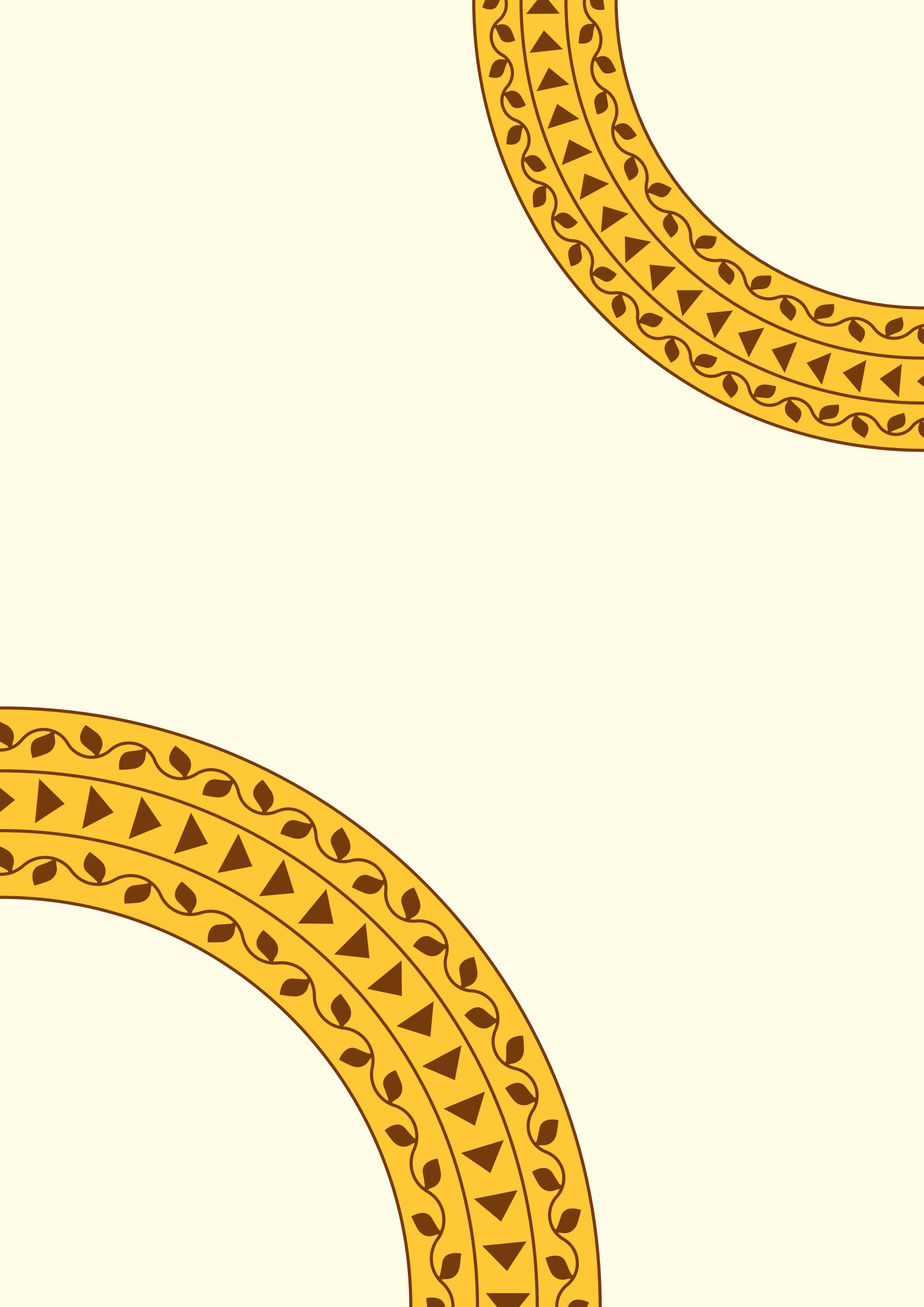
above medicines did result in gaps to provide care in remote areas with poor feasibility of referrals.

Timely use of Mitanins and payments: A time motion study showed that in 2020, rural Mitanins put in an average of 25 hours of work in a week whereas it was 34 hours for urban Mitanins. [37] This is close to full-time work of 35 hours a week for any employee working 5 days a week for 7 hours daily. The average incentive earned per hour of work by Mitanins was 40% short of the minimum wage in the state. [37] Around half the tasks undertaken by Mitanins did not carry any incentive and many tasks offered a paltry sum of money as incentive. They earned an average of INR 4400 in 2021 but had to incur OPPE while fulfilling their tasks and the mean expenditure was found to be INR 269 a month in rural and INR 240 a month in urban areas. A major share of this expenditure was on transportation while accompanying patients to health facilities. [37]

8.3 Recommendations

- **Have a forward-looking vision for Mitanin (ASHA) CHWs:** The plan must entail training, equipping, and supporting them to play a substantial role for each component of the CPHC. The roles CHWs can play should be aimed at ensuring continuum of care for various health care needs of the communities they serve. This should include preventive and promotive aspects including health education, helping the HWC in identifying presumptive cases, treating simple ailments, mobilizing people to access care from HWCs and following-up chronic disease cases (hypertension, diabetes, sickle-cell disease, epilepsy, mental illnesses). Mitanins must also facilitate individuals to navigate multiple levels of care that involve upward and downward referrals, as also additional systems support from HWCs and higher facilities.
- **Expand the skills of CHWs:** In order to achieve the above vision, their soft skills must be further enhanced. It will be useful to increase payments in the context of their expanding role in CPHC. The approach suggested therefore is of promoting better skills, more services and increasing payments for Mitanins.
- **Facilitate better service delivery and management of health facilities:** Mitanins in Chhattisgarh are usually the first contact for many individuals with different health care needs. They help achieve high coverage rates in the community by providing care to newborns and identifying sick newborns, fever, malaria, and diarrhoea cases etc. The smaller population size that a Mitanin looks after (one-third of ASHA) is a key factor that helps achieve desired contact with families. This indicated the need to reduce the population per ASHA nationally by increasing the number of ASHAs. Another factor that helped Mitanins achieve better population coverage related to better availability of medicines, including rapid malaria tests and anti-malarial drugs. Availability of amoxicillin (250 mg dispersible tablet), ciprofloxacin eye/ear drop, and gentian violet must be improved to treat skin problems in newborns and for wounds and mouth ulcers. The existing HWC team incentive needs to be paid to Mitanins along with other team members.
- **Equip all Mitanins with BP monitors:** The monitors should preferably be digital along with required batteries for operationalization. The pilots conducted so far showed that

this could add a lot to the effectiveness of current efforts on hypertension and stroke-prevention. These instruments can indeed facilitate the role of Mitans to undertake a community-based assessment or follow-up of cases.



Summary of Recommendations

9.1 Health and wellness centres

- **Strengthen skills of CHOs in disease management:** A key finding of the study was that when HWCs referred a screened individual for diagnosis, the referral may not materialize in majority of the cases. The telemedicine model tried so far was found to be ineffective and the likelihood of it working for a wide range of health needs poor. The HWCs must therefore be able to diagnose and treat a large proportion of diseases and cases commonly occurring in their area. To undertake the same, HWCs will require strengthening the skills of CHOs in disease management; building a responsive supply chain system; and ensuring availability of designated medicines/diagnostic services (reagents and equipment).
- **Provide an expanded range of services:** The said services must enhance capacity of HWCs to play a role in identifying and managing complicated pregnancies, common mental illnesses, leprosy follow-up and disability prevention, epilepsy, management of injuries and other medical emergencies. It includes severe anaemia, pneumonia, animal bites (dog bite and snake bite) and sickle-cell disease. In case of acute problems, they can be trained to play a better role in stabilization before referral. In case of chronic illnesses like epilepsy or sickle-cell disease, HWCs can support treatment adherence after the prescription is generated by doctors at the PHC/CHC.
- **Ensure quality of care for an expanded range of services:** Currently there is central direction and emphasis on improving services related to telemedicine, NCD screening, NCD app entries, HWC portal entries and yoga or other wellness activities. The aspects that need more emphasis are that the HWC should provide treatment for a wide range of primary health care needs and ensure availability of essential medicines. It must make sure that each screened positive individual undergoes a subsequent confirmatory diagnosis and those confirmed with a certain illness get regular check-ups and required medicines for treatment adherence. Above aspects will need to be changed in the programme's directives and its monitoring system.
- **Have transport-based continuity of care to form an integral part of the health system:** Existing methods to ensure and coordinate HWC referrals to higher facilities have failed. A good way to ensure and facilitate the linkage can be by providing free referral transport for intra-facility transfers. Thailand has been very successful in running similar centres like HWCs by using this strategy to support referrals. Each PHC should be provided a vehicle to take patients requiring referral to the specific higher centre. The vehicle can have weekly fixed days for the HWCs under the PHC. This vehicle should not focus on emergencies but on taking the routine referrals from HWCs to higher centres for OPD check-ups and be dropped back the same day. One option for arranging the vehicle can

be to hire it. Such a hiring method has been successfully used under RBSK.

- **Make referrals hassle-free:** Have the Mitadin helpdesk-based continuity of care to work and through that make referrals easier and more productive. Each hospital in the state at CHC or higher level has a Mitadin helpdesk. It can be leveraged to close the loop for HWC referrals. For this, the CHO/ANM at the HWC needs to coordinate with the Mitadin helpdesk over phone for each referral.
- **Orient CHOs on continuity:** This must include the need for coordinating upward and downward referrals; importance and method of ensuring that each screened individual reaches the appropriate care and management of the lifestyle related disease conditions. Also, each screened person must get the appropriate assessment needed for confirmation, and each confirmed case should be duly initiated on treatment. It would be important to see how each chronic disease case on treatment comes back to the HWC every month for check-up and receive medicines for the next 30 days.
- **Make team-building an ongoing effort:** Apart from the CHO, the ANM and the male MPW, the Mitadins MT should be considered part of the team. The CHOs must be oriented to ensure that the designated team-based incentive reaches Mitadins as per current guidelines. The design of team incentives must be modified to increase the incentive applicable for ANMs and MPWs. Team-building exercises and a relevant platform must be created so that conflicts can be resolved, and the team guided on setting common goals and achieving them collectively.

9.2 Primary health centres

- **PHCs to act as a level above HWCs:** As most SCs get upgraded to HWCs with posting of CHOs, there is an increased possibility that PHCs will have a regular MO in position. Simultaneously, a vision will be required for each PHC to provide leadership and support to HWCs in its area. This means that a PHC should have the capacity to manage the referrals from HWCs.
- **Post regular MOs at each PHC:** The Directorate of Health Services has demonstrated success in recruiting regular MOs and preference must be given to PHCs situated further away from the existing CHCs and DHs.
- **Invest in bonded MOs and make them more aligned to needs of CHCs:** The bonded MOs who are posted to CHCs need to be better supervised and exposed to providing care in public health care settings. At the time of joining, they should be provided an orientation on their role. This policy is gradually losing relevance as the recruitment of regular MOs has picked up in the state. It can eventually be phased out.
- **Prohibit attachment of MOs with CHCs:** This tends to weaken the existing service delivery and places more burden on CHCs with patients having to travel larger distances to seek care.
- **Strengthen diagnostics and health workforce:** Through the 260 PHCs in the state where even a LT position is not sanctioned, vacant posts must be filled at the earliest. No attachment of LTs to CHCs should be permitted. All PHCs should be provided automatic

haematology (three part) and biochemistry analysers (semi-auto). Preference must be given to PHCs with regular MOs posted. The range of tests available in PHCs can be expanded and notified to the community and JAS as a platform which must be utilized. Arrangements should be made for availability of necessary reagents, rapid tests, and consumables.

- **Impart in-service training to bridge gaps in skills:** MOs and RMAs need to be trained through short courses to diagnose and treat a wide range of illnesses. Some areas in which training should be given high priority include treatment of sick newborn, management of high-risk pregnancy particularly hypertension, prevention of birth asphyxia, RTIs, pneumonia in children, common mental disorders, many NCDs including epilepsy and sickle-cell disease and management of emergencies, particularly poisoning and trauma. Nurses and ANMs in PHCs need to be better trained in management of birth asphyxia and initiating of KMC for low-birth-weight babies.
- **Ensure availability of EDL 2021:** To address most needs of PHCs, the availability of EDL 2021 must be ensured in all PHCs. Both CGMSC and PHCs must adhere to their defined buffer stock levels for all drugs.
- **Make ambulances available:** Each PHC should be provided with a full-time ambulance so that necessary referrals to CHCs or DHs are able to reach there.

9.3 Capacity to respond to health emergencies

- **Provision for additional HR:** This will help build the required capacity to simultaneously manage emergencies and ensure continuity of essential primary health care. One way to do this would be to have at least two ANMs in each HWC apart from a male MPW.
- **Equip, train, and pay Mitanin CHWs in health emergencies:** Their role must include monitoring of home isolation cases.
- **Facilitate periodic drills with HWC and PHC teams:** These teams must perform optimally to manage emergencies and clear task assignments.
- **Upgrade usage of referral transport:** Expand the existing capacity of referral transport for emergencies and upgrade them depending on feedback from users.

9.4 102 ambulances for maternal and child transport

- **Increase fleet:** The 102 ambulances must be increased to approximately 800 vehicles to keep pace with requests and increase in population.
- **Prioritize usage:** Provide an order of prioritization for 102 patient transport when competing demands are made for a vehicle i.e., to facilitate classification of cases as severe (all deliveries, sick newborn referrals) and others (drop-back referrals etc.).
- **Establish protocols:** Referral for delivery of high-risk pregnancies must be established directly from home to nearest functional FRU, irrespective of district boundary. The list of functional FRUs should be provided by the Directorate of Health to 102/108, including

their call centres and health facilities that lie in the jurisdiction.

- **Facilitate inter- and intra-district transport:** Cases which need a high level of care and management should be taken up on case-to-case basis and routing to be worked out accordingly.

9.5 Community health centres

- **Rationalize MOs:** Distribute and rationalize MOs to ensure each CHC gets at least four MOs even though there may be enough MOs for CHCs overall.
- **Help develop specialist skills:** Facilitate the honing of specialist skills in CHC-MOs. Most CHCs do not have specialists and it is unlikely that the regular recruitment can provide specialists in near future. The DMF should be used to recruit specialists for CHCs. In addition, the PG diploma in family medicine should be started without further delay along with short courses designed to address specific service delivery gaps.
- **Define role of CHCs with respect to mental illness cases:** They must be equipped to provide accurate diagnosis and management. Each CHC should have at least one MO trained in diagnosing and treating mental illnesses. Skill-building is also required for management of emergencies and trauma care.
- **Encourage gynaecologist-anaesthetist combination for FRUs:** For CHCs that are supposed to be FRUs, the gynaecologist-anaesthetist combination must be ensured. The state now has better availability of gynaecologists, but anaesthetist remain in acute shortage. This situation can be augmented through better distribution of available anaesthetist. The DMF should prioritize these cadres (especially anaesthetist) and recruit them to fill the gap in FRU-CHCs. Capacity-building and retraining of doctors who have acquired the skill set in the past must be ensured. The UG doctors trained in LSAS must be retrained or mentored to carry out the role of anaesthesia in FRUs.
- **Improve overall diagnostics:** Presently this is a weak area in most CHCs. Majority of them are not able to provide biochemistry tests. User fees are being charged and there is practically no uniform system for procuring reagents.
- **Replicate the model of Hamar Lab:** These labs have already been piloted by few CHCs in the state. It should be done in a time-bound manner. Also, the FRU-CHCs should be prioritized, and USG provided in all CHCs with priority to FRU-CHCs.
- **Ensure regular supply of drugs:** Gaps in central procurement and timely distribution were noted and although availability was adequate in 2020-2021, the same worsened in 2022.
- **Fix the wide variation in performance of CHCs:** This variation was seen in terms of number of patients they catered to daily and the range of illnesses they diagnosed and treated. The low performing CHCs will need multiple interventions (detailed in Chapter 7 above) and require monitoring over a longer period for improved performance level.

9.6 District hospitals

- **Augment number of MOs in alignment with current OPD load at the DHs:** Indeed, many DHs were estimated to have an additional number of UG-MOs. Additional regular MOs can be posted at the HCs to ensure all PHCs have an MO in position and their role in service provisioning is strengthened. Also, ensure that PHCs are equipped with the required diagnostic equipment and essential medicines to facilitate optimal delivery of health care services.
- **Recruit specialists in DHs by using a transparent merit- based counselling system:** Prioritize the posting of at least two anaesthesia and gynaecology specialists per DH. Paediatrics, medicine, surgery, ophthalmology, and orthopaedics surgery are the other key specialists that each DH should have. The DMF can be used to recruit necessary specialists for DHs, as a stop-gap arrangement till regular recruitments are finalized. For diagnosing and treating mental illnesses, each DH should have two-three MOs trained through NIMHANS collaboration, so that on each day at least one MO is available for mental health. Skill-building is also required for management of emergencies and trauma care. Further, all DHs should provide dialysis and chemotherapy services free of cost.
- **Strengthen diagnostics:** The model of Hamar Lab has been piloted by a few DHs in the state. The model should be replicated in all DHs in a time-bound manner. User fees should be removed, and USG expanded in all DHs. Further, a robust supply chain system should be established for supply of reagents.
- **Identify gaps in the central procurement of drugs:** This should be done so that there is time-bound supply of essential medicines and consumables to all public health facilities. The state should undertake advanced forecasting of required drug supplies and streamline delivery to the last mile through HWCs.
- **Step-up monitoring of DHs:** It will be important to identify suitable interventions for low-performing DHs and address issues related to variation in their performance. This will be true, especially in terms of number of patients they cater to and the range of specialist care, including surgeries they perform.
- **Address other issues of concern:**
 - communicate availability of specialist services in the DH to the community and JAS platform that can be utilized by primary health care teams to spread awareness.
 - provide each specialist a separate consultation/examination room along with necessary equipment as per their specialty to diagnose and treat patients.
 - support them with appropriate diagnostics and drugs in required quantities.
 - ensure that dual practice of doctors does not hamper service provisioning at DHs. Also enforce the existing policy of the state on regulating private practice by government doctors; and
 - in the long run, the state must move towards prohibiting all dual practice by

doctors while simultaneously increasing their salaries or non-monetary incentives. Additionally, private hospitals utilizing government doctors should be barred from the state's health insurance scheme, DKBSSY.

9.7 Health workforce

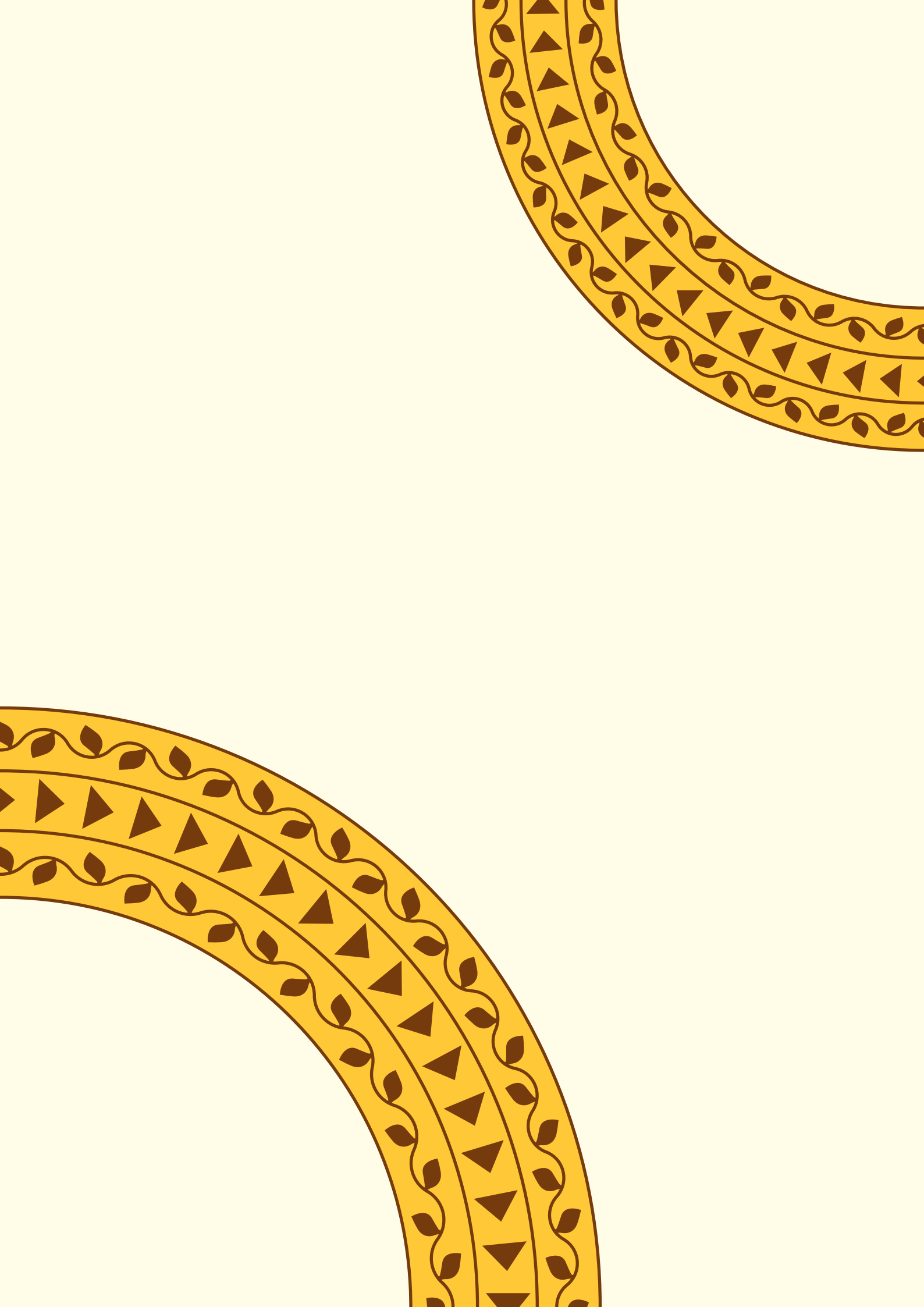
- **Expand the corpus of specialist doctors:** Increase salaries and non-monetary benefits to attract specialist doctors from other states, including use of flexible resources at district level for hiring on annual contracts or supplementing existing incentives. Incentivize doctors working in remote tribal, hard-to-reach and conflict affected areas.
- **Introduce a transfer policy:** This will help tribal areas to have enough doctors through the policy that suggests a mandatory fixed term (5-7 years) posting in rural and remote areas for each doctor.
- **Provide continuous capacity-building of recruited doctors:** Focus on improving clinical skills and performance based on a training needs assessment of current practices and identification of areas which require strengthening. Multiskilling UG doctors by training them in specialist skills through short courses and providing them with an incentive or recognition is much needed.
- **Undertake timely assessments to improve performance:** Further assessment must be done to identify key determinants for better performing health workforce including specialists, UG doctors, health administrators (Chief Medical Officer, Block Medical Officer, Hospital Superintendents).

9.8 Community process

- **Have a vision for Mitanin (ASHA) CHWs:** This must entail training, equipping, and supporting them or have ASHA CHWs play a major role in each component of CPHC. They must strive for continuum of care for various health care needs or CPHC components. It should cover preventive and promotive health education, help HWCs in identifying presumptive cases, treat simple ailments, mobilize people to access care from HWCs and follow-up chronic disease cases (hypertension, diabetes, sickle-cell disease, epilepsy, mental illnesses). Mitanins can facilitate individuals to navigate multiple levels of care that involve upward and downward referrals, requiring additional systems at HWCs and higher facilities.
- **Expand skill sets of Mitanins to achieve the above vision:** Let ASHA facilitators play a role in improving these skills and provide them necessary support. Fulfilling them will require an increase in payments. It will be useful to locate increase in payments in the context of their expanding role in the CPHC. The approach should promote better skills, provide an expanded range of services, and increase payments for Mitanins. The smaller population size that a Mitanin looks after (one-third of ASHA) is a key factor that helps achieve desired contact with families. This indicates the need to reduce the population per ASHA nationally by increasing the number of ASHAs. Another factor that helped Mitanins achieve better population coverage is the better availability of medicines, including rapid malaria tests and anti-malarial drugs. In addition, it is important to improve availability of amoxicillin (250mg dispersible tablet) with Mitanins; Gentian

violet to treat common skin problems in newborns and wounds and mouth ulcers; ciprofloxacin eye/ear drops.

- ***Incentivize Mitanins:*** The HWC team must make the incentives paid to Mitanins at par with others.
- ***Equip all Mitanins with BP measurement instruments:*** The pilots done so far clearly indicate that this can improve the effectiveness of current efforts for early identification of hypertension and stroke-prevention.



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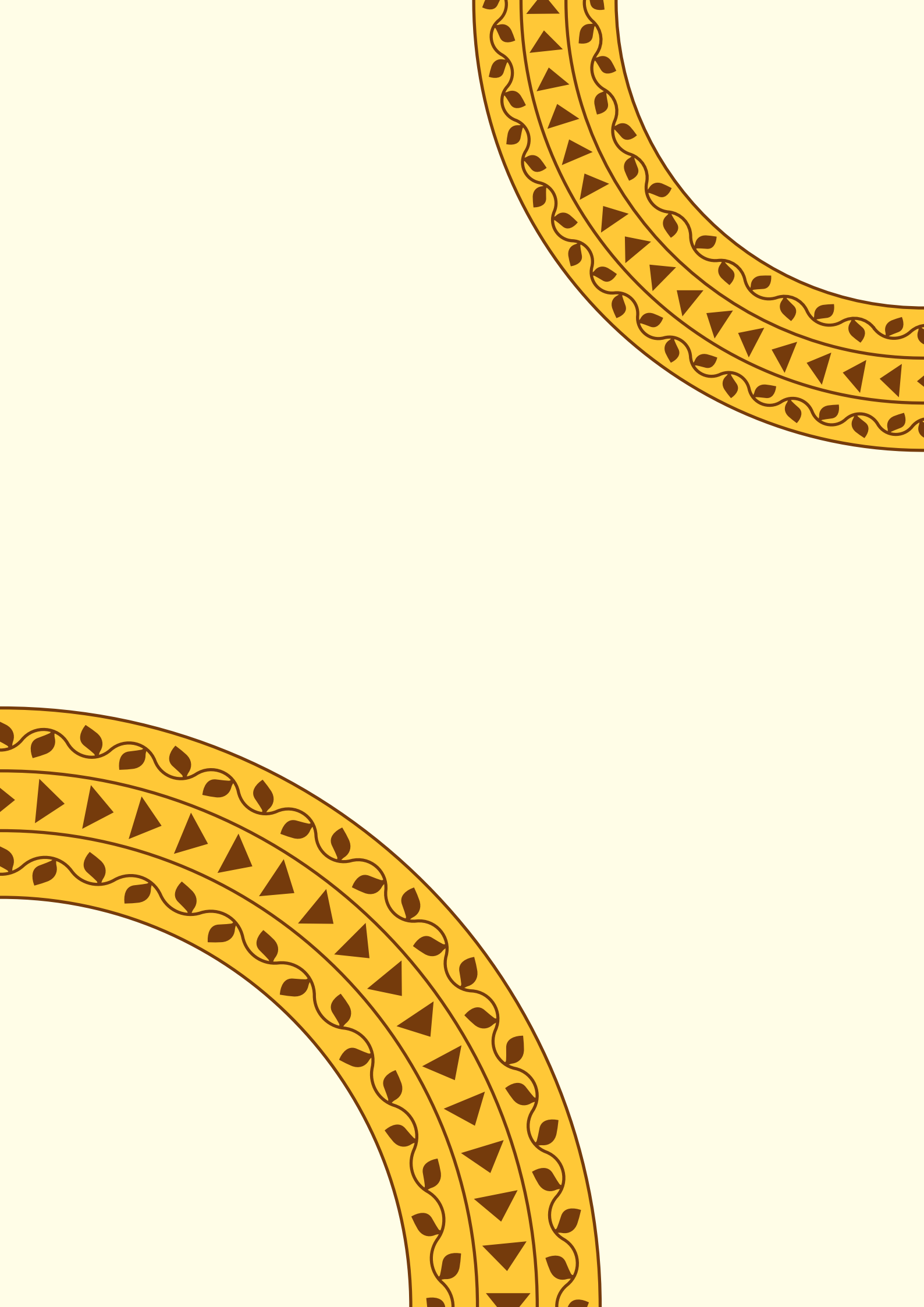
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Annexures

Table 38: MOs, RMAs and OPD numbers in PHCs

District's name	PHC's name	No of MOs posted	Type of posting of MOs	No of RMAs posted	Total OPD of last month	Per day OPD
Jashpur	Aara	1	Bond	1	234	9
Janjgir-Champa	Dhorkot	1	Contractual	1	261	10
Dhamtari	AklaDogri	1	Bond	1	280	11
Gariyaband	Kochway	1	Regular	1	302	12
Mungeli	Khudiya	1	Bond	1	304	12
Bilaspur	Kargikala	1	Contractual	2	350	14
Bastar	Adawal	1	Regular	1	448	18
Rajnandgaon	Mangata	2	Bond	1	491	19
Mahasamund	Khallari	1	Regular	2	511	20
Korba	Korkoma	1	Regular	2	537	21
Raigarh	Barra	1	Bond	1	616	24
Korba	Kudmura	2	Regular & bond	2	665	26
Mahasamund	Komakhan	2	Bond	2	690	27
Gariyaband	Khadma	1	Bond	1	1115	45
Bilaspur	Seepat	1	Regular	2	1377	55
Surajpur	Lanjit	0	0	1	230	9
Janjgir-Champa	Baragaon	0	0	1	232	9
Jashpur	Kastura	0	0	1	285	11
Bemetara	Batar	0	0	1	301	12
Balrampur	Sabag	0	0	2	302	12
Balrampur	Bhunsikala	0	0	1	325	13
Bastar	Kalepal	0	0	1	347	14
Rajnandgaon	Tumdibod	0	0	1	402	16
Balodabazaar	Sandi bangla	0	0	1	405	16
Kawardha	Pondi	0	0	2	432	17
Surajpur	Salka	0	0	1	453	18
Dhamtari	Chatod	0	0	2	484	19
Kondagaon	Adenga	0	0	2	486	19
Koriya	Katgodi	0	0	2	519	21
Raigarh	Sambalpuri	0	0	2	523	21

Kawardha	Bahmni	0	0	2	572	23
Koriya	Mansukh	0	0	2	658	26
Kondagaon	Lanjoda	0	0	1	659	26
Mungeli	Pandhar- bhatta	0	0	1	841	34
Balod	Purur	0	0	1	987	39

Table 39: MOs, OPD and IPD numbers in PHCs

District name	PHC name	MO	Total OPD of last month	Total IPD last month
Dhamtari	AklaDogri	1	280	2
Gariyaband	Kochway	1	302	6
Rajnandgaon	Mangata	2	491	6
Janjgir-Champa	Dhorkot	1	261	8
Bastar	Adawal	1	448	9
Mungeli	Khudiya	1	304	11
Jashpur	Aara	1	234	15
Korba	Korkoma	1	537	21
Bilaspur	Kargikala	1	350	27
Gariyaband	Khadma	1	1115	27
Korba	Kudmura	2	665	35
Mahasamund	Khallari	1	511	44
Bilaspur	Seepat	1	1377	64
Mahasamund	Komakhan	2	690	71
Raigarh	Barra	1	616	76
Dhamtari	Chatod	0	484	2
Jashpur	Kastura	0	285	3
Janjgir-Champa	Baragaon	0	232	5
Bastar	Kalepal	0	347	7
Surajpur	Lanjit	0	230	11
Bemetara	Batar	0	301	11
Kondagaon	Lanjoda	0	659	16
Kawardha	Pondi	0	432	17
Kondagaon	Adenga	0	486	19
Balrampur	Sabag	0	302	22
Balodabazaar	Sandi Bangla	0	405	22
Raigarh	Sambalpuri	0	523	23
Mungeli	Pandharbhatta	0	841	27
Kawardha	Bahmni	0	572	32
Surajpur	Salka	0	453	37
Balrampur	Bhunsikala	0	325	51
Rajnandgaon	Tumdibod	0	402	55
Balod	Purur	0	987	61
Koriya	Katgodi	0	519	68
Koriya	Mansukh	0	658	76

Table 40: MOs, staff nurses and delivery numbers in PHCs

District name	PHC name	MO	Staff nurses/ LHV	Total deliveries last month	Deliveries/ SN or LHV
Dhamtari	AklaDogri	1	3	0	0
Mahasamund	Khallari	1	2	4	2
Rajnandgaon	Mangata	2	4	4	1
Bastar	Adawal	1	4	5	1
Korba	Korkoma	1	1	7	7
Janjgir-Champa	Dhorkot	1	1	8	8
Mungeli	Khudiya	1	2	8	4
Jashpur	Aara	1	2	9	5
Bilaspur	Kargikala	1	3	12	4
Gariyaband	Khadma	1	3	15	5
Raigarh	Barra	1	3	19	6
Gariyaband	Kochway	1	2	25	13
Korba	Kudmura	2	4	26	7
Mahasamund	Komakhan	2	2	29	15
Bilaspur	Seepat	1	6	54	9
Balodabazaar	Sandi bangla	0	3	0	0
Balrampur	Sabag	0	3	0	0
Raigarh	Sambalpuri	0	2	0	0
Dhamtari	Chatod	0	4	2	1
Janjgir-Champa	Baragaon	0	0	2	NA
Kondagaon	Lanjoda	0	5	4	1
Surajpur	Lanjit	0	0	4	NA
Balod	Purur	0	5	7	1
Bastar	Kalepal	0	4	7	2
Kondagaon	Adenga	0	3	7	2
Surajpur	Salka	0	3	7	2
Jashpur	Kastura	0	2	8	4
Bemetara	Batar	0	0	10	NA
Koriya	Katgodi	0	4	11	3
Kawardha	Pondi	0	2	12	6
Balrampur	Bhunsikala	0	2	14	7
Rajnandgaon	Tumdibod	0	2	15	8
Koriya	Mansukh	0	4	19	5
Mungeli	Pandharbhatta	0	3	23	8
Kawardha	Bahmni	0	1	24	24

Table 41.a: Diagnostic test numbers and achievement status of benchmark values in PHCs

District name	PHC name	Haemoglobin testing	Achieved benchmark (17 per 100 patients)	Complete blood count (CBC)	Achieved benchmark (9 per 100 patients)	Urine testing (ex-albumin)	Achieved benchmark (7 per 100 patients)
Balod	Purur	180	Yes	0	No	57	No
Balodaba- zaar	Sandi Bangla	0	No	0	No	0	No
Balrampur	Bhunsi- kala	55	Yes	0	No	5	No
Balrampur	Sabag	13	No	0	No	7	No
Bastar	Adawal	77	No	0	No	10	No
Bastar	Kalepal	55	No	0	No	8	No
Bemetara	Batar	19	No	0	No	43	Yes
Bilaspur	Seepat	642	Yes	0	No	217	Yes
Bilaspur	Kargikala	90	Yes	0	No	78	Yes
Dhamtari	Chatod	103	Yes	0	No	52	Yes
Dhamtari	Akla Dogri	0	No	0	No	0	No
Gariyaband	Kochway	80	Yes	0	No	65	Yes
Gariyaband	Khadma	14	No	0	No	16	No
Janj- gir-Champa	Baragaon	22	No	0	No	7	No
Janj- gir-Champa	Dhorkot	15	No	0	No	0	No
Jashpur	Aara	50	Yes	0	No	20	Yes
Jashpur	Kastura	13	No	0	No	0	No
Kawardha	Bahmni	31	No	N	No	20	No
Kawardha	Pondi	18	No	N	No	25	No
Kondagaon	Lanjoda	52	No	0	No	42	No
Kondagaon	Adenga	48	NO	0	No	57	Yes
Korba	Kudmura	62	No	0	No	41	No
Korba	Korkoma	54	No	0	No	38	No
Koriya	Katgodi	82	No	0	No	17	No
Koriya	Mansukh	73	No	0	No	94	Yes
Mahasa- mund	Ko- makhan	136	Yes	0	No	21	No
Mahasa- mund	Khallari	66	No	0	No	0	No
Mungeli	Pandhar- bhatta	53	No	0	No	44	No
Mungeli	Khudiya	44	No	0	No	32	Yes
Raigarh	Barra	62	No	0	No	68	Yes

Raigarh	Sambal-puri	27	No	0	No	8	No
Rajnandga-on	Tumdibod	83	Yes	N	No	3	No
Rajnandga-on	Mangata	50	No	N	No	4	No
Surajpur	Lanjit	71	Yes	0	No	5	No
Surajpur	Salka	45	No	0	No	50	Yes

Table 41.b: Diagnostic test numbers and achievement status of benchmark values in PHCs

District name	PHC name	Blood sugar (random/fasting/PP)	Achieved benchmark (4 per 100 patients)	Sputum AFB	Achieved benchmark (2 per 100 patients)	Ma-laria	Achieved benchmark (36 per 100 patients)
Balod	Purur	123	Yes	5	No	62	No
Balodabazaar	Sandi Bangla	296	Yes	0	No	9	No
Balrampur	Bhunsikala	16	Yes	6	Yes	109	Yes
Balrampur	Sabag	14	Yes	3	No	50	No
Bastar	Adawal	10	No	3	No	52	No
Bastar	Kalepal	8	No	4	No	38	No
Bemetara	Batar	0	No	0	No	22	No
Bilaspur	Seepat	290	Yes	74	Yes	113	No
Bilaspur	Kargikala	12	No	0	No	54	No
Dhamtari	Chatod	169	Yes	2	No	54	No
Dhamtari	Akla Dogri	0	No	0	No	0	No
Gariyaband	Kochway	210	Yes	8	Yes	49	No
Gariyaband	Khadma	72	Yes	3	No	12	No
Janjgir-Champa	Baragaon	142	Yes	11	Yes	0	No
Janjgir-Champa	Dhorkot	50	Yes	0	No	0	No
Jashpur	Aara	39	Yes	3	No	13	No
Jashpur	Kastura	0	No	0	No	0	No
Kawardha	Bahmni	59	Yes	2	No	12	No
Kawardha	Pondi	155	Yes	4	No	30	No
Kondagaon	Lanjoda	79	Yes	0	No	28	No
Kondagaon	Adenga	45	Yes	0	No	38	No
Korba	Kudmura	210	Yes	118	Yes	44	No
Korba	Korkoma	246	Yes	0	No	3	No
Koriya	Katgodi	230	Yes	14	Yes	54	No
Koriya	Mansukh	310	Yes	23	Yes	58	No
Mahasamund	Komakhan	366	Yes	15	Yes	25	No
Mahasamund	Khallari	59	Yes	7	No	50	No
Mungeli	Pandhar-bhatta	125	Yes	5	No	49	No
Mungeli	Khudiya	125	Yes	0	No	13	No
Raigarh	Barra	206	Yes	2	No	7	No
Raigarh	Sambalpuri	234	Yes	2	No	103	No
Rajnandgaon	Tumdibod	117	Yes	7	No	21	No
Rajnandgaon	Mangata	70	Yes	0	No	8	No
Surajpur	Lanjit	33	Yes	4	Yes	62	No
Surajpur	Salka	70	Yes	6	No	0	No

Table 42: Other basic services number in PHCs

District name	PHC name	MO	No of newborns resuscitation	No of sick newborns treated	Total ANC done
Bilaspur	Kargikala	1	0	3	9
Mahasamund	Khallari	1	2	1	14
Gariyaband	Kochway	1	9	3	16
Rajnandgaon	Mangata	2	0	0	17
Raigarh	Barra	1	0	2	25
Korba	Korkoma	1	1	1	32
Bastar	Adawal	1	0	0	35
Gariyaband	Khadma	1	1	26	41
Dhamtari	AklaDogri	1	0	0	43
Jashpur	Aara	1	0	0	51
Mahasamund	Komakhan	2	1	1	51
Bilaspur	Seepat	1	2	2	62
Mungeli	Khudiya	1	0	0	69
Korba	Kudmura	2	1	5	73
Janjgir-Champa	Dhorkot	1	0	0	251
Janjgir-Champa	Baragaon	0	0	0	93
Balod	Purur	0	0	0	84
Surajpur	Lanjit	0	0	0	60
Kondagaon	Adenga	0	1	0	56
Kawardha	Pondi	0	1	1	49
Koriya	Katgodi	0	1	6	44
Kawardha	Bahmni	0	0	0	44
Rajnandgaon	Tumdiobod	0	3	0	41
Kondagaon	Lanjoda	0	0	0	32
Jashpur	Kastura	0	0	1	24
Raigarh	Sambalpuri	0	0	1	22
Surajpur	Salka	0	0	0	22
Bemetara	Batar	0	1	3	19
Koriya	Mansukh	0	3	5	15
Dhamtari	Chatod	0	2	0	15
Bastar	Kalepal	0	0	0	10
Balodabazaar	Sandi Bangla	0	0	0	9
Mungeli	Pandharbhatta	0	1	1	8
Balrampur	Bhunsikala	0	0	0	7
Balrampur	Sabag	0	0	0	0

Table 43: Hypertension, diabetes, leprosy, and pneumonia numbers in PHCs

District name	PHC name	MO	Pneumonia cases treated	Leprosy cases treated/ drug provided	Epilepsy cases treated	Hypertension treatment (medicine) provided	Diabetes treatment (medicine) provided
Raigarh	Barra	1	0	3	0	11	3
Jashpur	Aara	1	1	0	0	32	5
Gariyaband	Kochway	1	1	0	0	7	6
Mungeli	Khudiya	1	0	1	0	24	10
Rajnandgaon	Mangata	2	0	0	1	64	17
Bastar	Adawal	1	0	0	0	15	20
Korba	Korkoma	1	0	5	0	24	22
Korba	Kudmura	2	2	4	0	25	22
Dhamtari	Akla Dogri	1	0	0	2	20	24
Mahasamund	Komakhan	2	0	0	0	57	30
Janjgir-Champa	Dhorkot	1	0	9	0	30	32
Gariyaband	Khadma	1	4	0	2	85	32
Bilaspur	Seepat	1	0	0	0	46	52
Mahasamund	Khallari	1	1	0	0	69	53
Bilaspur	Kargikala	1	0	1	0	166	136
Jashpur	Kastura	0	0	0	0	23	2
Balrampur	Bhunsikala	0	0	0	0	5	4
Balrampur	Sabag	0	0	0	0	5	6
Surajpur	Lanjit	0	0	0	0	5	6
Bemetara	Batar	0	0	0	0	12	8
Balod	Purur	0	0	0	0	22	8
Dhamtari	Chatod	0	0	0	0	26	9
Baloda Bazaar	Sandi Bangla	0	0	0	0	19	15
Bastar	Kalepal	0	0	0	0	22	21
Kondagaon	Adenga	0	0	0	0	30	24
Raigarh	Sambalpuri	0	0	4	0	59	24
Mungeli	Pandharbhata	0	13	0	1	26	25
Janjgir-Champa	Baragaon	0	0	7	0	26	34
Surajpur	Salka	0	0	0	0	41	36
Koriya	Katgodi	0	2	0	0	69	37
Kawardha	Bahmni	0	0	12	0	71	40
Koriya	Mansukh	0	8	0	0	83	41
Rajnandgaon	Tumdibod	0	0	0	0	62	57
Kondagaon	Lanjoda	0	0B	0	0	101	61
Kawardha	Pondi	0	0	6	2	118	65

Table 44: Primary management of minor cases (numbers) in PHCs

District name	PHC name	MO	Primary management of wounds no	Primary management of Road traffic accidents/ fracture no	Minor surgeries - draining of abscess	Primary management of cases of poisoning	Primary management of cases of dog bite
Rajnandgaon	Mangata	2	40	0	0	0	1
Dhamtari	AklaDogri	1	0	2	0	0	1
Bilaspur	Kargikala	1	9	1	0	0	2
Bastar	Kalepal	1	3	6	0	0	2
Gariyaband	Kochway	1	10	3	4	0	2
Gariyaband	Khadma	1	19	3	5	0	2
Janjgir-Champa	Dhorkot	1	4	2	0	0	5
Korba	Kudmura	2	30	14	0	0	7
Raigarh	Barra	1	19	5	2	0	8
Jashpur	Aara	1	14	8	3	0	8
Mungeli	Khudiya	1	3	1	0	0	14
Korba	Korkoma	1	6	1	0	0	16
Bilaspur	Seepat	1	12	4	5	1	28
Mahasamund	Komakhan	2	11	26	0	0	4
Mahasamund	Khallari	1	48	9	10	1	3
Surajpur	Lanjit	0	10	0	0	0	0
Balrampur	Bhunsikala	0	4	2	0	0	0
Surajpur	Salka	0	1	1	0	0	1
Bemetara	Batar	0	2	1	0	0	1
Kondagaon	Adenga	0	10	3	0	0	1
Balodabazaar	Sandi Bangla	0	3	5	1	0	1
Jashpur	Kastura	0	22	3	4	0	1
Kawardha	Bahmni	0	3	0	0	0	2
Balrampur	Sabag	0	10	2	0	0	2
Kondagaon	Lanjoda	0	16	8	2	0	2
Dhamtari	Chatod	0	56	0	5	0	2
Janjgir-Champa	Baragaon	0	5	0	0	0	3
Koriya	Katgodi	0	16	10	8	1	3
Raigarh	Sambalpur	0	39	6	2	0	4
Koriya	Mansukh	0	14	2	3	0	4
Mungeli	Pandhar-bhatta	0	11	4	35	0	4
Rajnandgaon	Tumdibod	0	23	6	0	0	5
Bastar	Adawal	0	5	9	0	0	7
Kawardha	Pondi	0	9	3	0	0	11
Balod	Purur	0	26	84	8	0	33

Table 45: Drugs

District names	PHC name	Number of drugs stockout	%
Balrampur	Bhunsikala	0	0
Mahasamund	Khallari	3	12
Koriya	Katgodi	4	16
Mungeli	Khudiyia	4	16
Bastar	Kalepal	4	16
Mahasamund	Komakhan	4	16
Dhamtari	AklaDogri	5	20
Jashpur	Aara	5	20
Rajnandgaon	Mangata	5	20
Bastar	Adawal	5	20
Balrampur	Sabag	6	24
Korba	Korkoma	6	24
Bilaspur	Seepat	7	28
Kawardha	Bahmni	7	28
Raigarh	Sambalpuri	7	28
Rajnandgaon	Tumdibod	7	28
Surajpur	Salka	7	28
Kondagaon	Lanjoda	8	32
Balodabazaar	Sandi bangla	9	36
Dhamtari	Chatod	9	36
Janjgir-Champa	Baragaon	9	36
Kondagaon	Adenga	9	36
Koriya	Mansukh	9	36
Mungeli	Pandharbhatta	9	36
Korba	Kudmura	9	36
Bilaspur	Kargikala	10	40
Gariyaband	khadma	10	40
Gariyaband	Kochway	10	40
Raigarh	Barra	10	40
Jashpur	Kastura	11	44
Kawardha	Pondi	11	44
Balod	Purur	12	48
Janjgir-Champa	Dhorkot	12	48
Bemetara	Batar	14	56
Surajpur	Lanjit	15	60

Table 46: Total OPD and doctor numbers in CHC

District	CHC name	Total OPD last month	Number of doctors	Total OPD/ doctor/ day
Dhamtari	Gujra	969	7	3
Koriya	Sonhat	826	6	6
Mungeli	Lormi	2482	10	10
Raigharh	Pussore	1920	7	11
Bemetara	Khandsara	1140	4	11
Balrampur	Rajpur	1457	5	12
Korba	Katghora	2482	8	12
Jashpur	Duldula	1804	5	14
Balodabazar	Pallari	2355	6	16
Balod	Gurur	2125	5	17
Raipur	Tilda	3313	7	19
Kondagaon	Keshkal	1934	4	19
Kawardha	Pipariya	2182	4	22
Tokapal	Tokapal	2310	4	23
Gariyabandh	Fingeshwer	1435	2	29
Rajnandgaon	Dongargaon	2621	3	35
Janjgir-Champa	Pamgarh	1847	2	37
Bilaspur	Masturi	2800	3	37
Surajpur	Bishrampur	3169	2	63

Table 47: Total OPD, IPD and IPD bed numbers in CHC

District	CHC name	Total OPD last month	Total IPD last month	Total IPD beds
Surajpur	Bishrampur	3169	53	30
Bastar	Tokapal	2310	62	30
Bemetara	Khandsara	1140	75	48
Gariyabandh	Fingeshwer	1435	114	30
Dhamtari	Gujra	969	117	30
Bilaspur	Masturi	2800	125	30
Balrampur	Rajpur	1457	129	30
Balod	Gurur	2125	140	30
Raigarh	Pussore	1920	148	15
Janjgir-Champa	Pamgarh	1847	152	30
Jashpur	Duldula	1804	158	30
Koriya	Sonhat	826	194	30
Korba	Katghora	2482	228	30
Mungeli	Lormi	2482	281	78
Kondagaon	Keshkal	1934	283	30
Rajnandgaon	Dongargaon	2621	331	30
Raipur	Tilda	3313	375	26
Balodabazar	Pallari	2355	391	30
Kawardha	Pipariya	2182	133	15

Table 48 a: Diagnostic tests numbers and adequateness as per OPD

District	CHC name	No of tests available	X-ray conducted	Achieved benchmark (2/100 patients)	Ultraso-nography conducted	Achieved benchmark (1 per 100 patients)	ECG no.	Achieved benchmark (2/100 patients)	Haemo-globin	Achieved benchmark (9/ 100 patients)	CBC	Achieved benchmark (7/100 patients)	Blood sugar	Achieved benchmark (10 per /100 patients)	Sputum AFB	Achieved benchmark (1/ 100 patients)
Surajpur	Bishrampur	9	60	No	0	No	7	No	584	Yes	215	No	509	Yes	18	No
Rajnandgaon	Dongar-gaon	9	120	Yes	0	No	0	No	392	Yes	34	No	450	Yes	52	Yes
Jashpur	Duldula	8	67	Yes	0	No	5	No	178	No	106	No	183	No	16	No
Gariyabandh	Fingeshwer	8	0	No	0	No	0	No	215	Yes	15	No	537	Yes	9	No
Dhamtari	Gujra	6	0	No	0	No	0	No	211	Yes	15	No	132	Yes	1	No
Balod	Gurur	8	0	No	0	No	0	No	413	Yes	35	No	230	Yes	64	Yes
Korba	Katghora	4	254	Yes	0	No	0	No	775	Yes	0	No	0	No	278	Yes
Konda-gaon	Keshkal	7	142	Yes	0	No	0	No	366	Yes	200	Yes	468	Yes	22	Yes
Bemetara	Khand-sara	5	26	Yes	0	No	0	No	311	Yes	0	No	185	Yes	5	No
Mungeli	Lormi	9	74	Yes	141	Yes	6	No	1152	Yes	124	No	882	Yes	87	Yes
Bilaspur	Masturi	9	11	No	0	No	0	No	980	Yes	980	Yes	1537	Yes	32	Yes
Balodabazar	Pallari	10	123	Yes	0	No	5	No	578	Yes	104	No	348	Yes	30	Yes
Janjgir-Champa	Pamgarh	8	59	Yes	0	No	5	No	333	Yes	30	No	286	Yes	49	Yes
Kawardha	Pipariya	7	68	Yes	0	No	0	No	180	No	55	No	825	Yes	13	No
Raigharh	Pussore	10	76	Yes	0	No	23	No	364	Yes	123	No	245	Yes	79	Yes
Balrampur	Rajpur	9	0	No	0	No	0	No	456	Yes	389	Yes	223	Yes	70	Yes
Koriya	sonhat	5	45	Yes	0	No	0	No	0	No	205	Yes	325	Yes	42	Yes
Raipur	Tilda	5	65	No	0	No	0	No	909	Yes	0	No	818	Yes	45	Yes
Bastar	Tokapal	7	32	No	0	No	0	No	317	Yes	154	No	223	No	17	No

Table 48 b: Diagnostic tests numbers and adequateness as per OPD

District	CHC name	RFT	Achieved benchmark (2 per 100 patients)	LFT	Achieved benchmark (2 per 100 patients)	Malaria	Achieved benchmark (3 per 100 patients)	Widal test	Achieved benchmark (3 per 100 patients)	HbA1C	Achieved benchmark (3 per 100 patients)
Surajpur	Bishrampur	0	No	0	No	86	No	130	Yes	9	No
Rajnandgaon	Dongargaon	4	No	8	No	1632	Yes	62	No	0	No
Jashpur	Duldula	0	No	0	No	244	Yes	232	Yes	0	No
Gariyabandh	Fingeshwer	2	No	2	No	23	No	21	No	0	No
Dhamtari	Gujra	0	No	0	No	14	No	5	No	0	No
Balod	Gurur	8	No	3	No	1025	Yes	25	No	0	No
Korba	Katghora	0	No	18	No	305	Yes	584	Yes	0	No
Kondagaon	Keshkal	0	No	0	No	300	Yes	54	No	0	No
Bemetara	Khandsara	0	No	0	No	126	Yes	45	Yes	0	No
Mungeli	Lormi	0	No	0	No	412	Yes	46	No	0	No
Bilaspur	Masturi	148	Yes	253	yes	1100	Yes	510	Yes	0	No
Balodabazar	Pallari	11	No	34	No	152	Yes	75	No	0	No
Janjgir-Champa	Pamgarh	0	No	0	No	136	Yes	78	Yes	0	No
Kawardha	Pipariya	0	No	0	No	63	No	34	No	0	No
Raigarh	Pussore	13	No	16	No	36	No	69	Yes	0	No
Balrampur	Rajpur	10	No	10	No	354	Yes	230	Yes	5	No
Koriya	sonhat	0	No	0	No	264	Yes	260	Yes	0	No
Raipur	Tilda	0	No	0	No	25	No	19	No	0	No
Bastar	Tokapal	0	No	0	No	177	Yes	39	No	0	No

Table 49: Deliveries and staff nurses in CHCs

District	CHCs' name	Total deliveries last month	Total staff nurses	Total deliveries per SN	Total deliveries per day
Dhamtari	Gujra	8	21	0	0
Balod	Gurur	14	10	1	0
Koriya	Sonhat	20	7	3	1
Surajpur	Bishrampur	29	9	3	1
Balrampur	Rajpur	29	0	-	1
Raigarh	Pussore	31	7	4	1
Gariyabandh	Fingeshwer	33	7	5	1
Rajnandgaon	Dongargaon	35	10	4	1
Bastar	Tokapal	35	4	9	1
Kawardha	Pipariya	37	9	4	1
Jashpur	Duldula	41	10	4	1
Bemetara	Khandsara	60	12	5	2
Korba	Katghora	61	10	6	2
Janjgir-Champa	Pamgarh	69	4	17	2
Raipur	Tilda	85	12	7	3
Bilaspur	Masturi	85	10	9	3
Kondagaon	Keshkal	88	16	6	3
Balodabazar	Pallari	118	16	7	4
Mungeli	Lormi	164	21	8	5

Table 50: Hypertension, diabetes, and mental illness numbers in the CHCs

DH name	CHC name	Hypertension	Diabetes	Mental illness
Bemetara	Khandsara	18	14	0
Dhamtari	Gujra	72	15	0
Raigharh	Pussore	65	21	0
Balod	Gurur	21	26	0
Surajpur	Bishrampur	260	28	0
Kondagaon	Keshkal	76	62	0
Korba	Katghora	93	74	0
Janjgir-Champa	Pamgarh	120	80	0
Koriya	Sonhat	141	82	0
Bastar	Tokapal	16	182	0
Bilaspur	Masturi	0	280	0
Raipur	Tilda	1	-	0
Kawardha	Pipariya	241	111	1
Gariyabandh	Fingeshwer	140	105	2
Mungeli	Lormi	207	204	6
Rajnandgaon	Dongargaon	183	208	15
Jashpur	Duldula	121	106	16
Balrampur	Rajpur	49	22	17
Balodabazar	Pallari	851	851	20

Table 51: Other services numbers in the CHCs

DH name	CHC name	Poisoning cases	Animal bites	Fracture cases
Jashpur	Duldula	0	0	0
Balod	Gurur	1	0	0
Surajpur	Bishrampur	10	0	0
Janjgir-Champa	Pamgarh	18	0	0
Bilaspur	Masturi	6	0	10
Balrampur	Rajpur	2	2	0
Raipur	Tilda	2	3	-
Bemetara	Khandsara	0	6	0
Kawardha	Pipariya	2	8	2
Koriya	Sonhat	4	11	0
Dhamtari	Gujra	0	16	0
Raigarh	Pussore	5	19	10
Kondagaon	Keshkal	9	21	5
Gariyabandh	Fingeshwer	7	24	1
Rajnandgaon	Dongargaon	5	29	20
Bastar	Tokapal	11	29	24
Balodabazar	Pallari	5	46	12
Mungeli	Lormi	19	89	15
Korba	Katghora	-	-	-

Table 52: Number of stock-out drugs in CHCs

District name	CHC name	Number of drugs stock- out	%
Rajnandgaon	Dongargaon	8	21
Jashpur	Duldula	5	13
Bilashpur	Masturi	13	35
Mungeli	Lormi	11	29
Korba	Katghora	12	32
Koriya	Sonhat	5	13
Balrampur	Rajpur	10	27
Janjgir-Champa	Pamgarh	18	48
Raigarh	Pussore	13	35
Kondagaon	Keshkal	13	35
Durg	Kumhari	17	45
Balodabazar	Pallari	12	32
Balod	Gurur	23	62
Batar	Tokapal	18	48
Kawardha	Pipariya	16	43
Dhamtari	Gujra	16	43
Gariyabandh	Fingeshwer	16	43
Raipur	Tilda	11	29
Surajpur	Bishrampur	26	70
Bemetara	Khandsara	25	67

Table 53: OPD and no of doctors in the district hospital

DH name	Total OPD of last month	No of doctors	Total OPD per doctor/day
Kondagaon	2921	41	3
Bilaspur	8034	52	6
Bemetra	5164	28	7
Gariaband	3273	18	7
Janjgir	5389	31	7
Balrampur	4913	30	7
Balod	5365	27	8
Raipur	12 774	57	9
Balodabazar	7511	29	10
Kawardha	6376	25	10
Mungeli	7012	29	10
Jashpur	7480	26	12
Surajpur	12 331	32	15
Bastar	10 890	28	16
Dhamtari	13 342	32	17
Baikunthpur	9738	17	23

Table 54 a: Diagnostics tests availability, numbers, and adequacy as per OPD in district hospitals

DH name	X-ray	Achieving benchmark values	USG	Achieving benchmark values	ECG	Achieving benchmark values	HB	Achieving benchmark values	CBC	Achieving benchmark values
Dhamtari	1148	Yes	284	Yes	179	No	2650	Yes	959	No
Gariaband	303	Yes	0	No	0	No	873	No	848	No
Kawardha	539	Yes	4	No	187	No	987	No	908	No
Baikunthpur	838	Yes	0	No	27	No	1853	Yes	1173	No
Mungeli	677	Yes	315	Yes	240	No	2182	No	2182	No
Bastar	3660	Yes	849	Yes	257	Yes	4521	Yes	2679	No
Kondagaon	486	Yes	147	No	5	No	474	No	1054	No
Surajpur	683	Yes	191	No	89	No	1438	No	1249	No
Janjgir	932	Yes	390	Yes	80	No	1099	Yes	404	No
Bilaspur	434	Yes	240	Yes	235	No	885	No	626	No
Jashpur	785	Yes	406	Yes	69	No	573	No	1625	No
Balrampur	708	Yes	0	No	0	No	195	No	784	No
Raipur	283	Yes	283	Yes	273	Yes	2594	Yes	1440	No
Balodabazar	473	Yes	543	Yes	105	No	1619	Yes	1234	No

Table 54 b: Diagnostics tests availability, numbers, and adequacy as per OPD in district hospitals

DH name	Blood sugar	Achieving benchmark values	Sputum AFB	Achieving benchmark values	RFT	Achieving benchmark values	LFT	Achieving benchmark values	Malaria	Achieving benchmark values
Dhamtari	922	No	247	Yes	836	Yes	269	No	170	No
Gariaband	1565	Yes	48	No	280	Yes	270	Yes	249	No
Kawardha	448	No	156	No	436	Yes	436	Yes	45	No
Baikunthpur	0	No	72	No	492	Yes	356	Yes	4	No
Mungeli	689	No	61	No	1872	Yes	4564	Yes	271	No
Bastar	1398	Yes	562	Yes	567	Yes	389	Yes	664	Yes
Kondagaon	744	No	344	Yes	152	No	150	No	311	No
Surajpur	1008	No	0	No	437	No	243	No	291	No
Janjgir	581	No	117	Yes	195	Yes	105	No	298	Yes
Bilaspur	975	No	0	No	168	No	179	No	235	No
Jashpur	1237	No	321	Yes	576	Yes	498	Yes	604	Yes
Balrampur	414	No	43	No	141	No	141	No	282	No
Raipur	2290	Yes	150	Yes	1364	Yes	1364	Yes	72	No
Balodabazar	550	No	111	No	312	No	320	Yes	286	No

Table 54 c: Diagnostics tests availability, numbers, and adequacy as per OPD in district hospitals

DH name	Widal test	Achieving bench-mark values	HbA1C	Achieving bench-mark values	TFT	Achieving bench-mark values	Lipid profile	Achieving bench-mark values	Electro-phoresis	Achieving bench-mark values
Dhamtari	160	No	28	No	0	No	14	No	18	No
Gariaband	263	No	0	No	0	No	19	No	0	No
Kawardha	27	No	7	No	0	No	12	No	12	No
Baikunthpur	232	No	11	No	0	No	44	No	4	No
Mungeli	303	No	0	No	0	No	81	No	0	No
Bastar	389	No	0	No	0	No	246	Yes	0	No
Kondagaon	420	No	0	No	0	No	100	No	3	No
Surajpur	215	No	0	No	0	No	76	No	0	No
Janjgir	43	No	0	No	0	No	13	No	1	No
Bilaspur	200	No	17	No	200	Yes	17	No	0	No
Jashpur	19	No	16	No	0	No	453	Yes	0	No
Balrampur	275	No	4	No	0	No	1	No	0	No
Raipur	95	No	236	Yes	530	Yes	640	No	3	No
Balodabazar	168	No	0	No	0	No	47	No	53	No

Table 55: Diagnostics tests availability, numbers, and adequacy as per OPD in district hospitals

DH name	Total IPD last month	Total IPD beds	IPD per bed	No of doctors	IPD/doctor
Baikunthpur	1761	129	7	17	104
Bastar	2764	397	14	28	99
Dhamtari	1665	233	14	32	52
Surajpur	1402	200	14	32	44
Jashpur	916	100	11	26	35
Mungeli	951	100	11	29	33
Kawardha	639	200	31	25	26
Kondagaon	976	100	10	41	24
Balrampur	710	100	14	30	24
Balodabazar	661	100	15	29	23
Janjgir	637	200	31	31	21
Gariaband	350	60	14	18	19
Balod	467	100	21	27	17
Bemetra	470	50	11	28	17
Bilaspur	549	100	18	52	11
Raipur	592	175	30	57	10

Table 56: Deliveries in district hospitals

DH name	Total deliveries last month	No of gynaecologists	Deliveries per day	Deliveries/day/gynaecologists
Bastar	461	1	15	15
Jashpur	216	1	7	7
Mungeli	182	1	6	6
Kawardha	157	1	5	5
Surajpur	122	1	4	4
Kondagaon	243	2	8	4
Balodabazar	118	1	4	4
Balod	110	1	4	4
Baikunthpur	96	1	3	3
Balrampur	90	1	3	3
Janjgir	80	1	3	3
Dhamtari	159	2	5	3
Bemetra	54	1	2	2
Bilaspur	155	3	5	2
Raipur	273	6	9	2
Gariyaband	39	1	1	1

Table 57: Caesarean section numbers, gynaecologists, and anaesthetists in district hospitals

DH name	Total caesarean sections last month	Blood bank/blood storage - total units issued last month	No of gynaecologists	No of anaesthetists
Raipur	138	130	6	2
Bastar	109	274	1	1
Kondagaon	86	194	2	2
Bilaspur	77	94	3	3
Dhamtari	41	142	2	1
Mungeli	37	126	1	1
Balod	28	86	1	1
Surajpur	24	242	1	1
Jangir	24	99	1	1
Balodabazar	20	165	1	0
Kawardha	19	257	1	0
Baikunthpur	14	366	1	0
Balrampur	7	76	1	1
gariaband	3	48	1	0
Jashpur	3	91	1	0
Bemetra	3	63	1	1

Table 58: General surgery numbers and total surgeons posted in district hospitals

DH name	General surgery	Total surgeons
Mungeli	506	1
Raipur	460	2
Bastar	398	2
Balodabazar	231	3
Baikunthpur	112	1
Kondagaon	93	1
Dhamtari	79	2
Janjgir	78	1
Kawardha	58	1
Balod	37	1
Surajpur	34	1
Gariaband	24	1
Jashpur	23	1
Bilaspur	19	1
Balrampur	19	1
Bemetra	4	1

Table 59: Cataract surgeries numbers and total ophthalmologists posted in district hospitals

DH name	Cataract operations	Ophthalmologists
Dhamtari	300	2
Baikunthpur	198	1
Surajpur	137	1
Balrampur	123	2
Kondagaon	116	2
Raipur	114	3
Balod	94	1
Balodabazar	76	1
Mungeli	70	1
Bastar	63	1
Bilaspur	52	1
Bemetra	42	2
Gariaband	31	1
Kawardha	18	1
Jashpur	12	1
Janjgir	0	0

Table 60: Hypertension, diabetes, and mental illness in district hospitals

DH name	Hypertension	Diabetes	Mental illness
Dhamtari	522	1101	890
Raipur	461	504	463
Janjgir	61	239	383
Balodabazar	412	1388	325
Bastar	356	334	323
Mungeli	224	168	298
Baikunthpur	189	104	194
Bemetra	151	100	166
Kawardha	224	156	110
Jashpur	83	64	109
Bilaspur	464	354	50
Balod	175	402	35
Balrampur	57	73	25
Gariaband	94	126	8
Kondagaon	18	23	3
Surajpur	1383	928	1

Table 61: Number of chemotherapy cases in district hospitals

DH name	No of chemotherapies done last month
Jashpur	22
Surajpur	16
Dhamtari	8
Balod	2
Bemetra	2
Bilaspur	1
Gariaband	0
Kawardha	0
Baikunthpur	0
Mungeli	0
Bastar	0
Kondagaon	0
Janjgir	0
Raipur	0
Balodabazar	0
Balrampur	0

Table 62: Number of dialysis cases managed in district hospitals

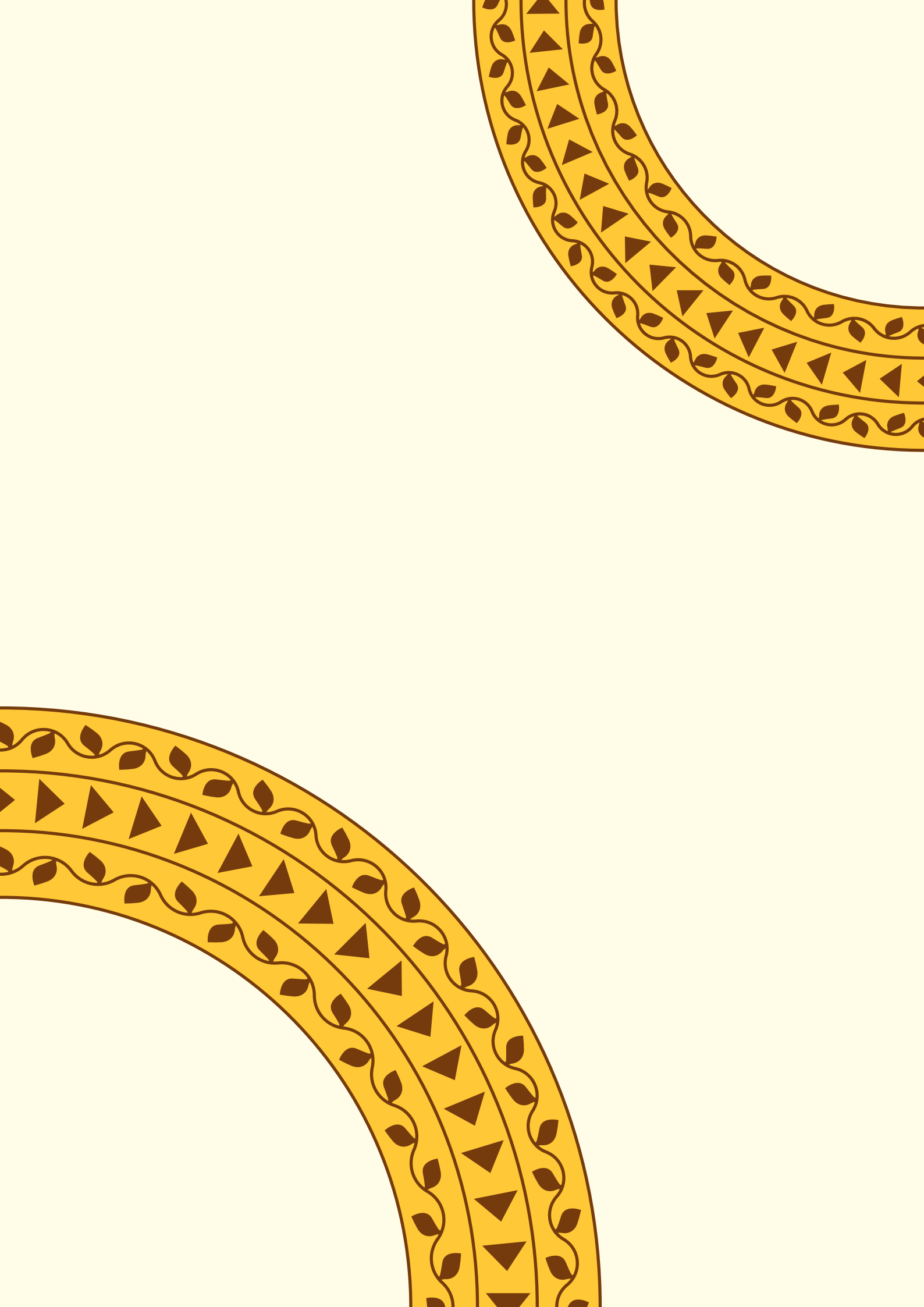
DH name	Dialysis done (no.)
Jashpur	146
Balrampur	34
Bastar	25
Surajpur	22
Baikunthpur	17
Kondagaon	17
Dhamtari	0
Gariaband	0
Kawardha	0
Mungeli	0
Janjgir	0
Bilaspur	0
Raipur	0
Balodabazar	0
Balod	0
Bemetra	0

Table 63: Number of services related to other cases in district hospitals

DH name	Poisoning cases (IPD)	Animal bite cases (IPD)	Fracture cases (IPD)	Burn cases (IPD)
Bastar	54	61	499	15
Balrampur	11	1	58	7
Dhamtari	17	101	90	5
Kawardha	19	288	38	4
Kondagaon	29	0	116	3
Mungeli	19	74	47	3
Surajpur	0	67	4	3
Balodabazar	39	3	100	2
Balod	15	7	55	2
Gariaband	10	34	43	2
Baikunthpur	-	338	34	1
Janjgir	51	10	11	1
Jashpur	9	2	3	1
Bilaspur	8	537	10	0
Raipur	5	290	150	2

Table 64: Drugs stock-out status in district hospitals

District	Number of drugs stock-outs	%
Surajpur	24	75.0
Balod	18	56.3
Balrampur	17	53.1
Raipur	16	50.0
Bastar	15	46.9
Gariaband	14	43.8
Jashpur	13	40.6
Kondagaon	12	37.5
Jangir	12	37.5
Bilaspur	12	37.5
Balodabazar	12	37.5
Dhamtari	11	34.4
Kawardha	7	21.9
Mungeli	7	21.9
Baikunthpur	4	12.5
Bemetra	10	31.2



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