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# ASSESSMENT OF **Quality** **of care** **for children** **IN DISTRICT** **HOSPITALS** **IN INDIA**

Published by:

**UNDP NEWBORN PROJECT**

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UNDP Newborn Project is supported under Norway India Partnership Initiative (NIPI), which provides catalytic support for trying out innovations that would make a vital and sustainable difference to the rapid scaling up of quality maternal and child health services in India. NIPI works within the framework of National Health Mission and in partnership with national and state governments. Current implementation focus is in the five EAG states of Bihar, Odisha, Madhya Pradesh, Rajasthan and Jammu and Kashmir where NIPI activities are integrated with the State Health Plans. NIPI also promotes sustainable institutional collaboration between Norwegian and Indian public and private institutions in areas related to women's and children's health.



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### Foreword

As we ring in 2015, we also enter the last lap of our race to meeting the MDG goals and target for reducing child mortality. At this critical juncture in time, when the world is moving towards a Post- 2015 Agenda for Sustainable Development, India reiterates its commitment to achieving zero preventable child mortality and accelerate the implementation of lifesaving interventions.

Facility based care is an integral part of health services provided under the National Health Mission wherein we have launched a number of interventions and strategies in order to ensure provision of promotive and preventive care. Timely recognition of signs and symptoms of onset of sickness and, prompt referrals to appropriate health facilities – all these are now rooted in a community based approach. The success of these community based programmes is linked to preparedness of referral facilities as well as the quality of services delivered.

Mortality in children, who are seriously ill as a result of common childhood diseases and referred to hospitals in time, can be brought down with appropriate emergency and inpatient care. It is an imperative for us, now, to ensure that public health facilities across levels are strengthened to meet the established benchmark of care.

With this approach, we have stepped up investment for upgrading existing health facilities through the National Health Mission (NHM). Our move towards an entitlement based approach has encouraged and enabled access to services for a large number of pregnant women and children – the resulting increasing footfalls place greater responsibility on us as flag bearers of the public health system. Maintaining quality of services delivered in public health facilities is non-negotiable to retain the trust of people, who more often than not, are from the most vulnerable and marginalised sections of the society.

I note with grave concern that assessment of quality of care for children in district hospitals has brought up a range of issues, both clinical and administrative, that require further deliberation and long term vision. I am certain that standardization of paediatric facilities and services similar to newborn care shall be taken up and addressed shortly. I look forward to implementation of the key recommendations made in this report, first as 'pilots' in the identified districts and, then scaling up pan-India, basis lessons learnt and demonstration of effectiveness.

(Dr Rakesh Kumar)





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## Preface

Achieving MDG 4 goals by 2015 is high on India's health and development agenda. Towards this end, the Child Health Division, Ministry of Health & Family Welfare has launched various initiatives in the past 3 years to accelerate child survival. These include facility based care for newborns and children with severe acute malnutrition, home based newborn care, community follow up of children with low birth weight and empowering frontline workers for management of sepsis. Remarkable progress has been made in the operationalization of newborn care units and Nutrition Rehabilitation Centres and these have rapidly expanded across the country. Having adopted various approaches under National Health Mission to improve newborn and child health it is the time to take a holistic view of paediatric care in public health facilities and strive for quality of services.

The assessment of quality of care for children in district hospitals was conducted with this purpose in 4 EAG states (Rajasthan, Madhya Pradesh, Bihar & Odisha). The assessment was unique in the sense that it focused on clinical aspects of paediatric care and involved the service providers at district hospitals as partners in the assessment process. The report from this assessment highlights various issues that require concerted action including availability of paediatric emergency care and quality of inpatient services. Under the National Health Mission we are committed to strengthen the health system for delivery of key service packages. The weaker aspects of facility based paediatric care will be given the priority that they deserve and appropriate actions taken based on the recommendations. The standardisation of sick newborn care across district hospitals and mentoring process adopted for facility based newborn care provides direction for quality improvement in paediatric care.

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### Preface

Increasing the range and availability of newborn and child health services and improving the quality of paediatric care are the key objectives being pursued by the Child Health Division, Ministry of Health & Family Welfare. A number of steps taken towards improving the quality of care, especially in the newborn period, include rapid assessments, setting up institutional mechanisms for supportive supervision & mentoring and a web based monitoring system. Similar approach is now being applied to improving quality of facility based care for children. This assessment study is an important step in this direction. It provides insight into key areas where technical strengthening is required and direction for forward movement. The assessment shows that basic infrastructure for care of children is in place in the district hospitals and provides a good platform to improve the quality of preventive and curative services. However the standards of paediatric care require reinforcement and the guidance available so far for setting up of paediatric care units needs to be reviewed.

The involvement of district level service providers, administrators and programme managers in the assessment process was aimed at providing them the catalytic role in the change process. The commitment of state governments to take the lead in the process of paediatric quality improvement is appreciable and we look forward to new models for paediatric triage & emergency care and inpatient services emerging from the four states. We hope that the quality improvement process initiated in these districts will provide learning and experiences that will facilitate shaping up of operational guidelines for facility based paediatric care and delivery of services across the country.

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स्वच्छ भारत स्वस्थ भारत  
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## LIST OF ACRONYMS

Annual Health Survey	AHS
Antiretroviral Treatment	ART
Bacillus Calmette–Guérin	BCG
Chief Medical & Health Officer	CMHO
District Early Intervention Centre	DEIC
District Hospital	DH
Empowered Action Group	EAG
Essential Drug List	EDL
Emergency Triage, Assessment & Treatment	ETAT
Facility based Integrated Management of Newborn & Childhood Illnesses	F-IMNCI
Home Based Newborn Care	HBNC
Health Management Information System	HMIS
Human resources	HR
Integrated Counselling & Testing Centre	ICTC
Intravenous fluids	IV
Indian Public Health Standards	IPHS
Inpatients Department	IPD
Janani Shishu Suraksha Karyakarm	JSSK
Kangaroo Mother Care	KMC
Millennium Development Goals	MDG
Ministry of Health & Family Welfare	MOHFW
Madhya Pradesh	MP
Newborn Care Corners	NBCC
National Health Mission	NHM
Norway India Partnership Initiative	NIPI
Nutrition Rehabilitation Centre	NRC
Out patients department	OPD
Public Private Partnership	PPP
Rashtriya Bal Swasthya Karyakram	RBSK
Reproductive Maternal Newborn Child & Adolescent Health	RMNCH+A
Severe Acute Malnutrition	SAM
Sick Child Care Units	SCCU
Specialised Newborn Care Units	SNCU
Technical Advisory Group	TAG
World Health Organisation	WHO

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# EXECUTIVE SUMMARY

## ASSESSMENT OF QUALITY OF CARE FOR CHILDREN IN DISTRICT HOSPITALS IN INDIA

### CONTEXT

Management of sick children in district hospitals is complementary to community care, and establishes the continuum across different levels of the public health system as articulated in the RMNCH+A strategy. Lack of quality paediatric care has a negative impact on care seeking by parents, thus limiting the effectiveness of health intervention packages (HBNC and IMNCI).

### PURPOSE OF THE ASSESSMENT

To evaluate the key aspects of paediatric care at District Hospitals, an assessment study was planned jointly by the MOHFW (Child Health Division) and UNDP-NIPI Newborn project. The objective was to assess the current clinical practices in District Hospitals (DH) against national standards of care; use the evidence base for development of standards & operational guidelines for paediatric facilities in the country and identify priority areas for quality improvement in selected district hospitals. Unique aspects of the assessment were the focus on clinical practices; use of a scoring system and engagement of the DH teams (paediatricians and nurses) in the assessment process.

### ASSESSMENT PROCESS

Assessment process was led by Technical Advisory Group (TAG). WHO Generic Tool for Hospital Assessment (used in similar studies in Ghana (WHO, 2011), Bangladesh (Hoque et al., 2012) was adapted for use in Indian public health settings taking into account standard guidelines contained in the F-IMNCI and FBNC packages. 13 teams comprising of 53 assessors conducted the assessment across four states (Madhya Pradesh, Rajasthan, Odisha and Bihar) in 13 districts (Raisen, Narsinghpur, Betul, Hoshangabad, Alwar, Dausa, Bharatpur, Angul, Jharsuguda, Sambalpur, Jehanabad, Sheikhpura, Nalanda) in the month of May 2014. According to Census 2011, thirteen districts have total population of more than 2 crores (20 million), estimated under five population of 27 lakhs (2.7 million) and 4.82 lakh (480,000) estimated live births each year.

### KEY FINDINGS

The assessment showed that the basic infrastructure for paediatric care and supportive services was in place. 6.8 percent of total functional beds in 13 district hospitals allocated to paediatric care in four states nearly met the IPHS recommendations. Yet there was more than 50 percent shortfall in overall paediatric bed capacity given the fact that all 13 DHs fell short of meeting the population norms (300 beds for 10 lakhs or 1 million population) in terms of hospital beds.

At the time of assessment, 11 DHs had functional Special Newborn Care Units and Nutrition Rehabilitation Centres, 12 had functional blood bank, and all 13 had DOTS and ICTC centre. 12 DHs (except Jehanabad) had separate ward for admitting children. Essential laboratory support and power back up was available in nearly all the DHs (except Jehanabad & Sheikhpura respectively). Essential drugs for paediatric care were supplied across all states although their availability for use in emergency area required attention. Overall, service users and providers reported no major financial barriers to access on account of availability and cost of transport and drugs. More than one paediatric specialist was positioned at all DHs except in Bihar. SNCUs were better staffed than paediatric wards with at least one doctor and 3-4 nurses on duty round the clock.

Newborns care corners had the required infrastructure and equipment across the four states. Breastfeeding was initiated within one hour of birth in all DHs and no breast milk substitutes were promoted.

Specialised care for sick newborns was available at all DHs except in Bihar with provision for keeping sick newborns separate from healthy babies.

Assessment of clinical practices showed that case management of sick newborns and children with severe acute malnutrition (when children were specifically admitted to Nutrition Rehabilitation Centres (NRCs) was considerably better than that of common childhood conditions such as diarrhoea, respiratory problems and fever. These two areas seem to have benefitted from the issuance of clear operational guidelines from the central government and budgetary allocation. Customised training packages and provision of mentoring support has brought increased focus on quality improvement in the NRC and Specialised Newborn Care Units (SNCU).

At the same time there were many areas of paediatric care that required considerable improvement. Reliable data on paediatric services utilisation was not available, either due to lack of age disaggregated data collection or common OPD for adults & children and lack of clear policy regarding age groups admitted to paediatric wards. This made it difficult to assess adequacy of available paediatric bed capacity, disease specific mortality rates and predicting future need.

All DHs lacked a system for triage and emergency care for sick children, resulting in considerable delay in instituting treatment. Hospital staff deployed for emergency services lacked orientation/training for managing emergencies in children & newborns. Equipment and appropriate drugs for management of paediatric conditions were not immediately available for use in emergency area although they were reportedly available in the pharmacy/store.

No paediatric inpatients were being managed in the three district hospitals in Bihar. In the remaining 10 facilities, case management of children with diarrhoea, respiratory problems and fever was not as per the recommended protocols. Irrational use of antibiotics and use of intravenous fluids in cases of diarrhoea was prevalent across remaining 10 facilities. Antibiotics were not being prescribed according to severity of condition and weight in children with respiratory infections; use of third generation cephalosporin was common. Oxygen delivery system was inadequate and oxygen saturation was not monitored. Differential diagnosis for causes of fever was seldom recorded and appropriate laboratory investigations for establishing a clear diagnosis were not undertaken. Lumbar puncture was not being performed except at 3 DHs in Madhya Pradesh. Protocols for management of malnutrition while being followed in NRCs did not extend to paediatric wards; children in outpatient department were not screened for malnutrition.

Irrational use of drugs as evidenced by frequent use of corticosteroids without clear indication, routine use of sedatives and antihistamines and giving drugs without an established or highly suspected diagnosis were common practices. No records were maintained in DHs for vital signs, child's clinical progress, feeding or treatment given. Supportive care was among the weakest component of paediatric care and a result of inadequate number of staff nurses deployed in each shift as well as inappropriate organisation of paediatric beds and nursing station. Re-assessment of admitted cases by a doctor on the same day was unlikely as they were present only during routine hospital hours. There was considerable shortfall in terms of availability of paediatricians and nurses for paediatric care.

Availability of laboratory services beyond OPD hours was limited. Tests like serum bilirubin estimation was not performed in at least 5 DHs; microbiology services, important for management of sepsis in newborns and infections in children, were available in-house only in Narsinghpur and Raipur (Madhya Pradesh). None of the DH laboratories had the provision for performing tests for electrolytes.

Food was not served in paediatric wards in Rajasthan except for the provision of milk and bread for children from BPL ('below poverty line') families; in Madhya Pradesh and Odisha the food for paediatric patients was same as that for adults.

Only limited type and number of paediatric surgeries were being performed in DHs in 3 states (except Bihar), depending on the skills and expertise of the General Surgeons posted at DH. The list of surgical procedures described in IPHS and RBSK guidelines were not available.



## WAY FORWARD

Not all is well with paediatric care, which is one of the key services package under the National Health Mission. The assessment showed that standards of paediatric care were far from being met due to a number of reasons; lack of operational guidelines and standardisation of paediatric care units being one of them. Newborn care was of better quality despite the fact that it had only been introduced in last 5 years. Facility based paediatric care requires the same kind of urgency and investments as newborn care if standards of care are to be met and mortality due to common childhood diseases is to be brought down.

**The key aspects of paediatric care that required priority attention in planning and provisioning in District and State work plans and budgets were as follows:**

- a. Establishing of paediatric triage and emergency area in all districts hospitals based on national standards and operational guidelines;
- b. Reorganisation of paediatric outpatient department and inpatient services to improve efficiency of service providers and patient monitoring;
- c. Development of skills of doctors and nurses to manage paediatric emergencies (ETAT) and common childhood conditions as per the national standards of care (F-IMNCI);
- d. Improvement of record keeping for paediatric services, both inpatient and outpatient, introduction of standard patient record formats and institution of child death audit; and
- e. Improvement in coordination between paediatric and obstetric departments for organisation of newborn care at birth and during postnatal period.

Since the UNDP Newborn project works within the mandate of NHM to pilot innovations in service delivery for mothers and children, it is proposed that Sick Child Care Units (SCCU) comprising of emergency and inpatient services be established at selected DHs as a response to assessment findings. SCCU would comprise of (1) receiving, triaging and emergency area; (2.) high dependency observation area; (3) paediatric ward, the (4) diarrhoea treatment room; and (5) isolation ward, where feasible. In the initial phase, standard operational guidelines for establishment of paediatric triage and emergency area would be developed, harmonised with IPHS standards, F-IMNCI and other child health packages. Simultaneously support would be provided for instituting the recommended standards of care in paediatric wards, capturing patient information in standard case record formats and digitising the clinical data. 'Swasthya slate' (Health Tablet), an innovation being piloted under the NIPi would also be introduced for speeding up the assessment and institution of treatment in the emergency department.

Also the concept of Family Centred Care would be introduced in order to engage parents/ caregivers in care of sick newborns and children partly to overcome the shortage of health personnel and more importantly to prepare them for care of sick children after discharge. The learning and experiences from these pilots would be shared with national and state governments.



# INTRODUCTION

## CONTEXT OF CHILD HEALTH CARE IN INDIA

**C**hild Health has received special focus in the national health programmes in India over past two decades. Child Health has been a key component of Child Survival and Safe Motherhood Programme (1992), Reproductive and Child Health Programme (1997) & National Rural Health Mission (2005); more recently new born and child health have been recognised as two key pillars of the RMNCH+A approach (2012) (MoHFW, GoI, 2013c). There is steady decline in child mortality over last five years, from 69/1000 live births in 2008 to 40/1000 live births in 2013 (Census of India, GoI, 2013b). Yet there is recognition in all quarters that India, and especially the EAG states, can make a much greater impact on child mortality within the available resources and further accelerate the rate of decline in child mortality that is critical to achieving national health goals (articulated in 12th plan (Planning Commission, GoI, 2013)) and meeting MDG 4 targets. This requires improving and consolidating the implementation of both the community level and facility based care for children under the National Health Mission.

According to WHO/CHERG 2012, newborn conditions, diarrhoea, pneumonia and underlying malnutrition contribute to nearly 78% of deaths in Indian children under five years of age (WHO, 2012). The Integrated Global Action Plan for Prevention & Management of Pneumonia & Diarrhoea 2013 (WHO, UNICEF, 2013) includes treatment of sick children at health facilities as an integral component of the three pronged approach (protect, prevent, and treat). Similarly, India Newborn Action Plan 2014 (MoHFW, GoI, 2013a) (INAP) establishes facility based newborn care as a critical component of overall newborn care continuum. Already steps have been taken in the direction of making health services accessible universally; children 0-1 years of age are entitled to hospital care, completely free of cost at all public health facilities through Janani Shishu Suraksha Karyakarm (JSSK). Children in other age groups have access to free drugs and diagnostics in most states. Under the National Health Mission, there is also an increasing emphasis on community level screening and prompt referral of sick newborns through Home Based Newborn Care Scheme (MoHFW, GoI, 2014a) and children with deficiencies, diseases, and developmental delays (through Rashtriya Bal Swasthya Karyakram, RBSK (MoHFW, GoI, 2013b). Newborns and children referred from community or primary health care facilities are often seriously ill and at high risk of dying, unless managed appropriately. Therefore, ensuring quality of care in referral health facilities is important for reducing mortality in sick children. The continuum of care approach articulated under the RMNCH+A strategy has brought the focus back on referral linkages between community and health facilities as well as different levels of public health system. The District Hospital (DH) is positioned in this continuum as second referral health facility and is often the most important unit in the district with regards to provision of specialist care under NHM. DH is also the location for specialised units such as the Sick Newborn Care Unit and Nutrition Rehabilitation Centre. With provision of infrastructure and human resources (Specialists) to deliver comprehensive care including emergency obstetric care, paediatric and newborn care and diagnostic facilities, the DH is envisaged as the hub of effective curative care for children, especially those in age group 0-5 years.

**The High Level Group Expert Group Report on Universal Health Coverage for India in its recommendations (Planning Commission of India, GoI, 2011) has highlighted the critical role played by DH in health care delivery and health professional training, both of which should be well attuned to the needs of the particular district, while conforming to national standards of health care provision. An adequately equipped and suitably staffed district hospital, backed by contracting-in of regulated private hospitals, should aim to meet the health care needs of at least 95% of the population within that district, so that only a small number would need referral to higher level tertiary care centres. This requires upgrading of DH as a high priority over the next five years.**

Global literature shows that delivery of good quality facility based healthcare has considerable potential to reduce childhood deaths in low-income countries where mortality is high. However, both anecdotal and empirical evidence also suggests that the quality of care offered in many facilities, both primary and referral, is generally of low quality (Ntoburi et al., 2010). Various studies of the quality of care given to children in developing countries have highlighted deficiencies in practice of paediatric clinical guidelines, health worker training, triage and emergency treatment systems, staffing, monitoring and inadequate supportive care and essential equipment and medication (Nolan et al., 2001). Considering that hospitals consume considerable public health resources, but relatively poor quality services offered by them limits their effectiveness and results in poor return for this investment. The huge investments in training of large cadres of community health workers and their incentivisation, supply of commodities (drugs, equipment), and supportive supervision can easily be lost if the referral institutions fail to provide an optimum level of care required by sick newborns and children. Another downside is that frontline workers can soon be demotivated if referrals made from community are not honoured or if inadequate care results in high mortality, so that referrals start to appear as a futile exercise. The community's trust in the public health system could be further eroded,

while leaving the sick newborns and children from poorest families at the mercy of private providers/hospitals, and resulting in high out of pocket expenditure for parents and further impoverishment of families.

Over last five years, strategic investments have been made into facility based new-born care at DH as one of the approaches to address neonatal mortality in sick newborns (MoHFW, GoI, 2013a, MoHFW, GoI 2013b, MoHFW, GoI 2013c). It has been assumed that DHs are already providing care to sick children; however no focussed hospital assessment for paediatric care has been carried out. In absence of national standards and operational guidelines for paediatric units, not only is there lack of uniformity in terms of facilities available but it is also difficult to assess if paediatric units are optimally staffed and functional. Thus newborn care units are emerging as islands of relative excellence in an otherwise faltering paediatric care; however they have demonstrated the potential for quality service delivery through the public health system if standards and guidelines are put in place, compliance with standards is linked to funding and outputs closely monitored at state and national level.

**Ministry of Health & Family Welfare, in 2013, described its QA approach and focus, with respect to programmes under NHM including RMNCH+A services. In this context it is considered timely to undertake a focussed assessment to review the quality of paediatric emergency and in-patient care in Dhhs and to use this evidence base to identify priority areas for quality improvement over this plan period. This is also a step towards developing standards & specifications for paediatric care in terms of infrastructure, skilled staff, equipment & commodities required to deliver emergency, inpatient and outpatient care as per the standards of care described in newborn and child care packages such as the F-IMNCI. It is expected that by reorganising and revitalising paediatric care in DHs, not only will the quality of services improve but DHs will be better positioned to function as District Early Intervention Centre and the District Knowledge Hub.**





## OBJECTIVES

### OF THE HOSPITAL ASSESSMENT STUDY

The district hospital assessment was planned and carried out jointly by the Ministry of Health and Family Welfare, Child Health Division and the UNDP-Newborn project, part of Norway India Partnership Initiative (NIPI).

The main objective of the assessment was to explore the current situation of hospital care (emergency, inpatient and outpatient) for children at district hospitals in India, especially in the four EAG states, that register the highest child mortality in the country.

Specific objectives of the assessment were to

- (1) conduct quality assessment of paediatric and newborn care (under-fives) in district hospitals positioned as second referral centres in the public health system;
- (2) compare current practices in district hospitals with national standards of care (F-IMNCI);
- (3) use the findings as evidence base for development of standards/ operational guidelines for paediatric facilities; and
- (4) identify priority areas and recommend approaches for quality improvement in selected district hospitals.



# METHODS

## SELECTION OF DISTRICT HOSPITALS FOR ASSESSMENT

**D**istrict Hospital in India is usually located at District Headquarter and is designed to provide comprehensive secondary health care services to district population at an acceptable level of quality while being responsive and sensitive to needs of the people. As the population of a district is variable, the bed strength also varies from 75 to 500 beds depending on the size, terrain and population of the district (Director General of Health Services, MoHFW, GoI, 2012). A purposive sample of 13 DHs in 4 EAG States were selected. These 13 districts are those where UNDP –Newborn project, part of Norway India Partnership Initiative (NIPI) support, is being implemented through National Health Mission in partnership with the State Governments. This project supports innovations in newborn and child health service delivery, both community and facility based,in 13 districts located across 4 EAG states.

It is assumed that the sample of 13 DHs has good generalizability as DHs across the country have been set up under similar norms as described by the Ministry of Health & Family Welfare and provide services as per the provisions and budgets specified in the national programme. However some state specific differences may be present; Sub district hospitals may be upgraded to DHs in newly formed districts while additional hospital wing or new building may come up in others.

STATES	BIHAR	ODISHA	RAJASTHAN	MADHYA PRADESH
Districts	Jehanabad	Angul	Alwar	Hosangabad
	Nalanda	Jharsuguda	Dausa	Narsinghpur
	Sheikhpura	Sambalpur	Bharatpur	Raisen
				Betul

#### RAJASTHAN

Dausa  
Alwar  
Bharatpur

#### BIHAR

Jehanabad  
Sheikhpura  
Nalanda

#### MADHYA PRADESH

Betul  
Raisen  
Narsinghpur  
Hoshangabad

#### ODISHA

Angul  
Jharsuguda  
Sambalpur

### DISTRICT PROFILE

Total population:  
>2 crores (20 million)

Estimated under five population:  
27 lakhs (2.7 million)

Estimated live births annually:  
4.82 lakh (480,000)

### Location of 13 district hospitals where assessment was conducted

### ASSESSMENT TOOL

An adapted version of WHO generic hospital assessment tools (IDOC) was used for this assessment. Adaptation of the tool was done through a consultative workshop with a technical advisory group (TAG) comprising of national experts in paediatric care, representatives of Ministry of Health & Family Welfare and UNDP Newborn project. The adaptation was undertaken in the context of India's public health system and includes specific provisions for newborn and paediatric care as described in the F-IMNCI package implemented through the National Health Mission. The adapted tool was further modified after incorporating the suggestions and feedback provided by the assessors during a two day orientation meeting that was held for training the assessors. Since the tool has been used for assessment in neighbouring country (Bangladesh) in 2009, there was a higher degree of confidence in tool's generalizability to Indian context.

Through this tool information was gathered on different aspects of care including (1) support system (drugs & equipment, laboratory services); (2) standards of care (emergency care, case management of diarrhoea, febrile conditions, cough or difficult breathing, severe malnutrition, routine new-born care, sick newborn care); (3) facilities & services in different areas of the hospital (paediatric ward, postnatal ward, surgery department, emergency department); and (4) administrative aspects (hospital administration, access to care).

### SOURCES OF INFORMATION FOR ASSESSING QUALITY

In line with recommendations for use of WHO assessment tools, one of the three following sources or their combination was used to gather information necessary for the assessment. The assessors indicated the source for each assessed variable/information by checking the appropriate box in the tool.



**Case observation:** was used to assess clinical case management amongst children admitted to the hospital and new admissions/ arrivals, wherever possible. This was complemented by review of case records, and interviewing the caretaker and discussion with the staff (both nurses and doctors).

**Records:** Assessors tried to obtain information on number and type of cases admitted to district hospital by reviewing hospital records and facility based reporting into national health information management system. However the lack /poor quality of hospital records and data was a challenge faced by the assessors uniformly across all states and health facilities.

**Interviews:** Assessors conducted interviews with hospital staffs (N=13, Paediatricians/ medical officers and nurses) and caregivers (N=10, whose children were admitted to paediatric ward and SNCU) using a semi-structured questionnaire. The purpose was to understand/ capture the providers' perspective on quality of paediatric care and their views on how to bring sustainable changes towards improvement of quality. Interviews were also used to understand how standard paediatric /newborn care was delivered especially because of inadequate information in patient records and how caregivers' perceived the quality of care provided.

## ASSESSORS

Assessments were conducted by 53 assessors organised in 13 teams. The assessors in this study included the national level technical experts, mostly paediatricians, with a public health perspective (well versed with the national policies and child health programme); doctors (paediatricians) and staff nurses from the 13 DHs and representatives from the State Governments and Ministry of Health and Family Welfare. Each team comprised of four to five members including both doctors and nurses from DHs specifically oriented for the task and led by at least one member from the national level, well versed with clinical guidelines care as well as the public health approach to newborn and paediatric care in the country. Thus the teams were a combination of professionals with different skills, experience, knowledge and perspective and undertook a distinct role, such as paediatricians assessing the case management, nurses assessing the nursing care, and programme managers the administrative aspects of DH.

**The unique aspect of the team of assessors was that the staff members (doctors & nurses) who are directly involved with the delivery of paediatric care at DHs were part of the team. The intent was to bring together people and resources that would be most effective in making the needed change. Bringing district hospital teams together and engaging them in the assessment process under the guidance of national level expertise would foster discussion, bring more meaningful participation and acceptance of differing perspectives than if conducted by an external set of assessors.**

## TRAINING OF THE ASSESSORS

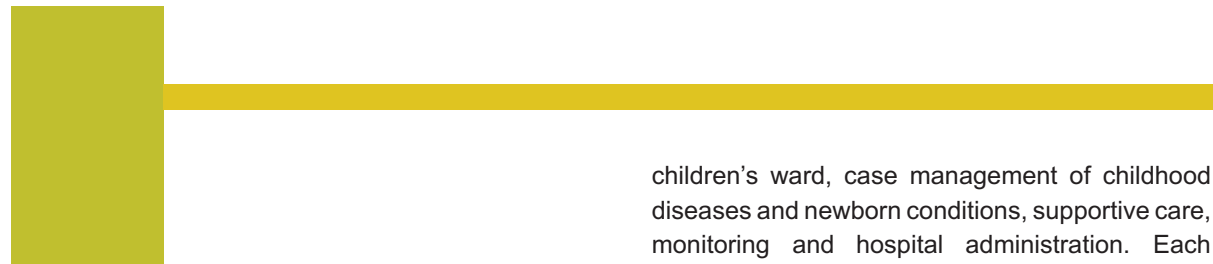
The assessors were trained to use the tool during a 2 days pre-assessment training workshop in order to develop common understanding and agreed rules for data recording. Group discussion format was used to identify any variation with the government mandated norms and national guidelines. Suggested changes were incorporated in the assessment tool prior to finalizing and was shared with each member of the team.

## HOSPITAL VISIT

The assessment of the 13 DHs was held in the months of May 2014. Parts of the questionnaire requiring collation of facility specific data were sent to DHs prior to the visit. Each team assessed one DH, spending two days at the facility. Doctors and nurses from DHs included in the teams as assessors, visited the facility other than their own. At the completion of assessment visit, debriefing session was conducted with hospital administration to provide immediate feedback on the strengths, weakness, and opportunities for improving hospital care of under fives.

## BIAS

While data on infrastructure (facility inventory) and care giver responses represent point-in-time observations, the information collected from medical records and structured interviews with providers is retrospective in nature and potentially more subject to bias.



The quality of information collected from the hospital suffers from the fact that there are few details that are maintained and even less is fed into the national data collection (HMIS). Also information on reported clinical practices by health service providers could possibly be biased. The management of paediatric conditions in inpatient /paediatric ward observed during the facility visit provided a method for triangulation but the entire spectrum of cases were not admitted at given point of time in each of the facilities. The quality of documentation on case records also affected the assessment of practices being followed.

Inter-assessor differences in scoring cannot be ruled out, although the scores were finalised by consensus of the team members based on their individual observations.

## **ETHICAL CONSIDERATION**

Hospital assessment study in 13 districts documented the existing practice and situation at public health facilities. Approval for health facility assessment and data collection was obtained from Ministry of Health and Family Welfare of Government of India. Letters were issued by Child Health Division, Ministry of Health & Family Welfare to State Health Mission Directors prior to team visits, to inform them regarding the study and seeking their support in facilitating the hospital visits. Since Quality Assurance is part of the Government policy, ethical approval for this particular activity was not sought. However, the identity of staff and care givers interviewed during the assessment has been kept confidential and no personal identifiers have been recorded. Personal information has been excluded from data entry and analysis.

## **DOCUMENTING AND SCORING THE HOSPITAL ASSESSMENT**

After adaptation, the final hospital assessment tool (Annexure 2) comprised of 12 sections including general hospital information, hospital support systems, organisation of the emergency care and

children's ward, case management of childhood diseases and newborn conditions, supportive care, monitoring and hospital administration. Each section included a range of questions in order to generate an overall picture of the section and questions pertaining to case management were scored based on how well the DH met the national standards, as detailed in the F-IMNCI. The tool provided space for written comments of personal observations and assessors were encouraged to document these in order to supplement their assigned scores.

For individual and overall scoring, points from 5 to 1 were awarded: 5 for good practice complying with standards of care, 4 showing little need for improvement to reach standard care, 3 meaning some need for improvement to reach standards of care, 2 indicating considerable need for improvement to reach standards of care and 1 for services not provided, totally inadequate care or potentially life-threatening practices. At the end of each section, a summary table provided the scores based on overall findings in that particular theme.

Scoring (on scale of 1 to 5) for individual indicator/variable was based on individual perceptions of the assessor (paediatricians, nurses, programme managers). Scoring for each summary section was dependent on the findings from relevant variables. In order to determine an overall score for the district hospitals, the data was analysed using basic statistical methods such as frequency distribution (mode) and the mean (average).

## **DATA ENTRY AND ANALYSIS**

Data were entered by hand into a printed format during the visit. Completed assessment tools from all the assessors were received at the state and national offices of UNDP-NIPI new born project and scrutinized for data discrepancy by the Monitoring & Evaluation unit. The data was entered and compiled at state and national offices in a Microsoft Excel format. Data was analysed using Microsoft Excel.

# IV. RESULTS

## 1.OVERVIEW OF CHILD HEALTH STATUS IN 13 DISTRICTS

According to Census 2011, the thirteen districts included in the assessment have a total population of more than 2 crores (20 million) with an estimated under five population of 27 lakhs (2.7 million) and 4.82 lakh (480,000) estimated live births each year. Nalanda has the largest under five population of 482, 787 and Sheikhpura the smallest with 96, 572 children (Table 1).

Only one (Raisen) out of thirteen districts is included amongst the 25% lowest performing districts (termed as high priority districts), as per the ranking provided by the Government of India using a composite index (MoHFW, GoI, 2013).

In all four states, three rounds of Annual Health Survey (AHS) has been conducted (baseline in 2010-11; first updation round in 2011-12& second updation in 2012-13(Census of India, GoI, 2013)) that included data on child mortality and other child health indicators. The data from AHS 2012-13 (Table 2)shows that Nalanda and Sheikhpura in Bihar, Raisen in Madhya Pradesh fare worse than the state average in terms of under-five mortality and three districts in MP (Betul, Hoshangabad, Raisen) have neonatal mortality rate higher than the state average. On the positive side, comparison of data from three rounds of AHS shows that all 13 districts recorded a decline in newborn, infant and child mortality during this period. This finding highlights the potential for further accelerating the change process if appropriate and context specific inputs for strengthening of community and facility based care are provided in these districts while also addressing the key social determinants of health.

## 2.HOSPITAL LAYOUT, PROVISION & UTILISATION OF NEWBORN AND CHILD HEALTH SERVICES

### Availability of hospital beds for paediatric care

All 13 districts had a functioning DH located at district headquarter with total number of beds ranging from 100 (in Sheikhpura, Bihar) to 487 (in Alwar, Rajasthan). A total of 3171 functional hospital beds were available across 13 districts hospitals with 216 beds were in paediatric wards constituting about 6.8 percent of total bed strength. Additional 76 beds were available in Nutrition Rehabilitation Centre (NRC) and 155 beds in Specialised Newborn Care Unit (SNCU) making a total of 452 beds for paediatric and newborn care in 13 study districts. (Table 3) Maternal and Child Health Wings were under construction in 6 DHs and this would further add 600 beds to the available bed capacity, with 12-15 percent to be allocated each for paediatric care and newborn care (Maternal Health Division, MoHFW, GoI, 2013). Limited data (sourced from hospital records, HMIS) shared by some of the districts showed that there was no direct relation between under-five population, availability of hospital beds for paediatric care and utilisation of existing services.



The Indian Public Health Standards (IPHS) Guidelines for DHs (101-500 bedded), revised 2012 has estimated a requirement of about 300 beds for a district having 10 lakhs population, based on the assumption of the annual rate of admission as 1 per 50 population and average length of stay in a hospital as 5 days (Director General of Health Services, MoHFW, GoI, 2012). Further, it is proposed that 10 beds respectively be allocated to paediatric ward in 101-200 bedded DH; 20 in 201-300 bedded DH; and 40 in 500 bedded DH (Director General of Health Services, MoHFW, GoI, 2012). The objective would be to achieve a minimum norm of 500 beds per 10 lakh population in an average district. Approximately 300 beds could be at the level of District Hospitals and the remaining distributed judiciously at the CHC level (Planning Commission of India, GoI, 2013). Accordingly, the total requirement for DH beds as per IPHS was calculated in Table 4 and compared to existing bed strength. There was a 50 percent shortfall by IPHS standards in the total beds as well as beds available for paediatric care at the level of DHs. Although the number of beds allocated for paediatric care out of total beds (currently) was as per the IPHS norms in Rajasthan, Madhya Pradesh and Odisha, the overall paediatric bed capacity was inadequate at all DHs since they were far short of total bed capacity based on the population norms (300 beds for 10 lakhs or 1 million population).

**Beds in paediatric wards constituted 6.8 percent of total bed strength available in 13 district hospitals. The total bed capacity at the district hospitals fell short of requirement based on the population norms (300 beds for 10 lakhs or 1 million population). By IPHS standards there was a 50 percent shortfall in the total hospital beds as well as beds available for paediatric care at the level of DHs.**

#### Availability of human resources (HR)

The IPHS guidelines 2012 recommended 29 doctors & 45 nurses for 100 bedded DH;

50 doctors & 135 nurses for 300 bedded DH and 68 doctors & 225 nurses for 500 bedded DH. Two paediatric specialists were proposed for 100 bedded DH, 3 for 200 beds, 4 for 300-400 beds and 5 for 500 bedded DH (Director General of Health Services, MoHFW, GoI, 2012). The deficit of specialists, doctors and staff nurses in India's health sector is well documented. This was reflected in the shortfall in the numbers of medical officers, nurses and paediatricians 'in position' in DHs.

The HR status at the time of the visit is shown in table 5. Overall there was a 65 percent shortfall in the numbers of medical officers in position and 48 percent shortfall of nurses by IPHS standards. The shortfall of nurses was least in Dausa (6%), followed by Betul (25%) and Alwar (28%). Bihar had the highest shortfall of nurses, close to 90 percent, and those that were 'in position' were 'on deputation'. Raisen and Angul were the only two facilities with recommended number of paediatricians available for paediatric care. In Rajasthan, the shortfall was spuriously low as the numbers represent the combined strength of paediatricians serving the paediatric wards and SNCU. Effectively only half of them are available for out and inpatient paediatric services. Hoshangabad and Narsinghpur too had only one paediatrician in position responsible for delivering paediatric services while the SNCU at the same facilities had four paediatricians exclusively for newborn care. In Bihar, there was one paediatrician each in position in Nalanda and Sheikhpura and the lone position in Jehanabad was vacant. The paediatrician in Nalanda provided services mainly to SNCUs; OPD services were provided by doctors from the medical college and no paediatric admissions were made.

It was obvious that the scenario for paediatric care was quite different from newborn care component wherein 3-4 doctors (including paediatricians and medical officers trained in newborn care) and 8-15 nurses (varying across states) had been sanctioned exclusively for SNCU, thus making it possible for doctors and nurses to be available round the clock.

In comparison, the paediatric wards were short staffed and the doctors had the additional responsibility of attending to OPD and providing emergency care.

**Overall there was 65 percent shortfall in the numbers of medical officers in position and 48 percent shortfall of nurses at current bed strength by IPHS standards.**

**Compared to the current bed strength at the Special Newborn Care Units, the paediatric wards were short staffed and the doctors had the additional responsibility of attending to outpatients and providing emergency care.**

### Utilisation of paediatric health services

There was lack of reliable data on service utilisation. No data on use of paediatric outpatient services was available in DH at Sheikhpura and Jehananbad where a common OPD for adults and children was conducted. Raisen and Hoshangabad in Madhya Pradesh shared aggregated data for adult and paediatric outpatients and inpatients.

The unvalidated data shared by the districts showed that attendance in the outpatients department (OPD) of DHs was high but OPD turnout varied across DHs even within the same state. While there was no validated data from previous years to corroborate the trend, availability of free drugs and diagnostics in the public health facilities under various central and state government schemes is apparently bringing more patients to public health facilities according to the health service providers. However, conversion of OPD consultations to inpatients was much lower. In DH Dausa, where paediatric OPD attendance was quite high (81,000 visits reported during 2013-14; unvalidated data), admissions came to less than 4 percent (3170 patients 2013-14; unvalidated data) of the total OPD and this percentage included newborns admitted to SNCU, who were most often referred from the labour room/postnatal ward rather than OPD.

Lack of data on the utilisation of services available in the DH is a constraint in assessing the adequacy of available beds and services or to predict future need. Where data was available, the lack of clear policy with regards to age limit for admission to paediatric wards made analysis difficult. It must however be recognised that DHs do not function

in isolation and availability of paediatric services and their quality at other levels of the health system (eg; CHC, SDH) would influence utilisation of services in the DH, which essentially is a second referral facility. Other factors that appeared to have had a bearing on service utilisation included proximity to the capital city or medical college (high number of referrals from DH Dausa), and availability of the paediatrician. No full time paediatrician was available in DH Jehananbad and a single paediatrician in position at DH Nalanda was deployed in SNCU. No admissions had been made to the paediatric ward for more than a year in all the three DHs in Bihar, so they were deemed non-functional for the purpose of assessment of certain paediatric care components.

**Lack of reliable data on service utilisation was a constraint in assessing the adequacy of available beds and to predict future need. Where data was available, the lack of clear policy with regards to age limit for admission to paediatric wards made analysis difficult. No admissions had been made to the paediatric ward for more than a year in all the three DHs in Bihar.**

### Layout of rooms or wards in health facility

In terms of infrastructure availability for paediatric care, 8 DHs had separate OPD for children, while 12 of them (except Jehanabad) had separate paediatric ward. The paediatric ward in DH Hoshangabad was air-conditioned, that in DH Raisen was newly constructed and spacious providing a comfortable environment. Four DHs (Alwar, Bharatpur, Betul, and Sambalpur) had a separate room or ward for admitting infectious cases. None of the district hospitals except in Jharsuguda had separate arrangement (such as an examination room) for addressing the cases of physical and or sexual abuse.

Not having a separate room or ward for admitting infectious cases has implications for cross infections or hospital acquired infections for which currently no surveillance is being carried out in the

DH. In India, very few studies have been conducted in public health facilities that would provide an estimate of risk for acquiring infections in hospital settings. However, many children admitted to hospitals had infections which are easily transmitted (including diarrhoea, measles, and respiratory infections), more so when under nutrition and micronutrient deficiencies are prevalent amongst Indian children in this age group. Further, in DH setting where staff deployment (staff nurses, auxiliary staff) is limited and sanitation not of the highest standards, the risk of hospital acquired infections is likely to increase manifold. Not having a separate examination room for addressing child abuse is of concern. In the context of various media reports highlighting an increase in the incidence/reporting of cases of child abuse, it is important not only to make adequate provisions at the health facility but also to sensitise the medical personnel on this issue.

#### **Availability of services at DHs**

In terms of provision of special units for children (besides the paediatric ward), 11 out of 13 DHs had functional SNCU (for sick newborns) and NRC (for children with severe acute malnutrition). In Jehanabad and Sheikhpura districts, the infrastructure for SNCU was in place but the units had not been operationalised at the time of visit. Similarly, in Dausa DH, beds were allocated for NRC but with no provision for kitchen or play area, running water and other amenities and therefore considered non-functional. In Angul, the NRC was not located at DH and therefore not included in the analysis. All 13 DHs had a DOTS centre and Integrated Counselling & Testing Centre (ICTC); 12 DHs had a functional Blood Bank each (except DH Sheikhpura in Bihar) and 7 DHs had a functional Antiretroviral Treatment (ART) centre.

**8 DHs had separate out-patients department for children, while 12 of them (except Jehanabad) had separate paediatric ward. Four DHs (Alwar, Bharatpur, Betul, and Sambalpur) had a separate room or ward for admitting infectious cases. Not having a separate room or ward for admitting infectious cases has implications for cross infections or hospital acquired infections for which currently no surveillance is being carried out in the DH. None of the district hospitals except in Jharsuguda had separate arrangement (such as an examination room) for addressing the cases of physical and or sexual abuse.**

**11 out of 13 DHs had functional Special Newborn Care Units and Nutrition Rehabilitation Centres.**

### 3. HOSPITAL SUPPORT SYSTEM AND LABORATORY FACILITIES

#### Availability of hospital support systems

District Hospitals were provided support under National Health Mission to ensure 24x7 power backup. Continuous (24x7) electricity and water supply was available in the emergency area of 9 DHs and in the paediatric ward of 7 DHs. Power backup was available in 12 out of 13 DHs.

All 4 DHs in Madhya Pradesh had continuous electricity supply; in Rajasthan, Odisha (Angul) and Bihar (Sheikhpura) power backup was only available in areas considered to be critical such as the Emergency area but not the paediatric wards and outpatients department. SNCUs, that run a large number of equipment such as radiant warmers, monitors and oxygen concentrators on electric power, had provision for a separate generator in most sites (except Sambalpur). Generator was reported to be out of order in one facility (Bharatpur) at the time of visit. The generator in Dausa would not auto start and had to be switched on manually resulting in a lag period.

Of all DHs, 9 had 24x7 running water available in Emergency area, while only 7 had running water available in paediatric ward. Two DHs in Rajasthan (Dausa and Bharatpur) did not have running water in most areas of the hospital as they faced acute water shortage with limited supply being maintained through tankers. Availability of soap and disinfectant (for hands) was also limited and only half of the DHs were observed to have soaps available at the washbasins at various sites (paediatric ward, labour room, SNCU, Emergency area) at the time of visit. Hospital staff when specifically asked about the reasons, attributed the scarcity, at least in some measure to soaps being taken away by care givers.

In all the DHs, there was no appropriate mechanism to contact the duty doctor as hospital wards were not connected by landline/ telephone to other areas such as the Emergency Department, laboratory and pharmacy. Emergency call/s made to the doctor were recorded in the call book at few DHs (Bharatpur, Jharsuguda). During the routine hours, calls were made through staffs' personal mobiles to doctors' personal mobile while an

ambulance was sent to doctors' residence in off duty hours/ emergencies. Complaint box was found placed in the emergency area in DHs Jharsuguda, Sheikhpura and Raisen and in the paediatric ward in Jharsuguda.

Biomedical waste management was inadequate across DHs, more so in Rajasthan and Bihar, where all the DHs lacked proper segregation of waste. Single waste disposal bins were observed in most waste disposal sites such as the wards, labs, and pharmacy, with no segregation of waste at point of generation. Mechanisms for destruction of needles and disposal of sharps was not present at the point of use; rather they were placed at nursing stations or where personnel were stationed. Proper mechanism for disposal of sharps at the point of use was not in place in paediatric wards and Emergency area in Dausa, Betul, Narsinghpur and Sambalpur.

Hospital support systems needed to be strengthened. Continuous electricity supply through generators was required for all parts of the hospital, especially for Emergency department. Non-availability of running water in all areas of the hospital was of great concern as this had serious implications for observing the 'standard precautions' that includes hand washing with soap and water ; hand disinfection (with 70% alcohol preparation) could be an option given that frequent hand washing is not feasible. Despite availability of adequate financial resources with DHs and the flexibility to spend it for gap filling, it was observed that availability of soap at point of use was limited across DHs. Although scarcity of soap could partly be attributed to care givers taking it away, however this was an unlikely explanation for areas like the labour room and SNCU, where the entry of parents/attendants was limited. Lack of due emphasis on hand washing as a standard precaution was likely to be one of the reasons that supplies are not replenished timely and as per the need. Also use of sterile gloves was perceived to be sufficient as a precaution for asepsis and precluded the need for washing hands before donning them.

Appropriate mechanism for communicating with duty doctors were not in place making the system dependent on use of personal mobile phones, and in general limiting communication and slowing down the overall process of care.

**9 out of 13 district hospitals had 24x7 running water available in emergency area, while only 7 had running water available in paediatric ward. There was limited availability of soap and hand disinfectant in all treatment areas. Non-availability of running water in treatment areas of hospital was of great concern as this has serious implications for observing the 'standard precautions'.**

**None of the district hospitals had an appropriate mechanism to contact the duty doctor as hospital wards were not connected by telephone to other areas such as the Emergency department, laboratory and pharmacy.**

#### Availability of laboratory tests

Given that all DHs provide emergency obstetric care, trauma care and advanced newborn care, essential tests are required to be performed and results promptly made available for patients admitted beyond the OPD hours. Laboratory support was available across all DHs except Sheikhpura where services were provided through Public Private Partnership (PPP) mode, which also has been discontinued and no lab investigation facilities were available at the time of the visit. In-house microbiology services (sample culture), important for management of sepsis (in newborns) and infections in children, were available only in Narsinghpur and Raisen (Madhya Pradesh). Rapid Diagnostic Test (RDT) for malaria was available across all 4 states; auto analysers were in use for processing of blood samples. There were few or no financial barriers to getting essential laboratory test performed in Rajasthan and Madhya Pradesh, and few DHs in the other two states. (Table 6)

The key issues assessed regarding laboratory support were the range of tests performed,

availability of services 24x7 and reliability of test results. The assessment showed that only in 2 out of 13 DHs (Betul and Alwar) a range of essential laboratory tests were available and their results delivered in a timely fashion to the ward/emergency area, while this aspect needed improvement in all other locations. Availability of serum bilirubin level test is one such example. Although SNCU was functional in 11 DHs, S. bilirubin estimation was not performed at all in the laboratory in 5 DHs (Angul, Sambalpur, Jharsuguda, Jehanabad, Sheikhpura); in those that did perform the test, transcutaneous bilirubinometer was used or samples sent out to private labs after the routine hospital hours. Although positioned in sufficient numbers, laboratory technicians were deployed mainly in morning shift leaving little cover for evening and night shifts. Use of personal protective gear such as gloves during sample collection was observed to be grossly lacking in certain facilities (eg; Dausa).

**Laboratory support was available across all DHs except Sheikhpura. In-house microbiology services (sample culture) were available only in Narsinghpur and Raisen (Madhya Pradesh). The key issues regarding laboratory support were the range of tests performed, availability of services 24x7 and reliability of test results. Although SNCU was functional in 11 DHs, S. bilirubin estimation was not performed in 5 DHs. Laboratory technicians were deployed mainly in morning shift leaving little cover for evening and night shifts. Use of personal protective gear such as gloves during sample collection was lacking in certain facilities.**

#### Availability of essential drugs

Since every facility is required to display the Essential Drug List (EDL) and make them available free of cost (for mothers and infants under JSSK and NHM free drugs service), availability of medicines in DHs was adequate. Wherever certain drugs were not available, there was provision under NHM for making local purchase.



EDL was available in 6 DHs and drugs on the list were adequate for management of most common paediatric conditions in 4 out of 13 DHs. In 10 out of 13 DHs, appropriate drugs for management of paediatric conditions was not immediately available for use in paediatric ward and emergency area although they were reportedly available in the pharmacy/store. Since Emergency Departments in all DHs are currently not geared towards management of paediatric cases/ emergencies in particular, this location lacks the most in availability of drugs for use in paediatric cases. (Table 7)

In many DHs, basic equipment such as thermometer, torch, weighing machine, oxygen masks and tubing, paediatric drip set, pulse oxymeter, nebuliser, resuscitation tray were not available in the paediatric treatment areas (ward, emergencies) (Table 8) Where these were available, they were either under lock and key or store and hardly ever put to use. The service providers (nurses) shared their fear of equipment being stolen, or replaced by non-functional ones, both by the care givers and other hospital staff. Only in two DHs, Betul and Bharatpur, paediatric care equipment were available for use and in working order. Service providers using the equipment were not aware of the arrangements for Annual Maintenance Contract (AMC) (Table 9). In some cases the down time was quite long and unpredictable, especially when the equipment was transported to state capital (such as in Rajasthan, DH Dausa).

Although the assessment indicates availability of essential drugs in the health facility, their availability at correct location needs attention in all states. Another important finding emerging from the assessment is the limited availability and use of paediatric care equipment, their functionality and arrangements for annual maintenance.

**Although the assessment indicates availability of essential drugs in the health facility, their availability at correct location needs attention in all states. In 10 out of 13 DHs, appropriate drugs for management of paediatric conditions was not immediately available for use in paediatric ward and emergency area.**

**Another important finding was the limited availability and use of even the basic paediatric care equipment, their functionality and arrangements for annual maintenance in the paediatric treatment areas.**

## 4. PAEDIATRIC CARE LAYOUT, FACILITIES, AND STAFFING

All district hospitals, except Jehanabad, had a separate ward for children, with number of paediatric beds varying from 12 in Narsinghpur to 42 in Alwar. In addition there were at least 10 beds allocated to NRCs, for treatment of severely malnourished children. (Table 3)

Paediatric care was organized in a separate wing in DHs of Dausa and Bharatpur, which allowed more efficient deployment of HR and better monitoring, although this is not the case presently. There is a separate Children's Hospital in Alwar (adjacent to Zenana (women's) Hospital), which houses the OPD, ward, NRC, and pharmacy. The paediatric ward in most district hospitals comprised of a number of rooms, each with 4-6 beds. This arrangement was appropriate in terms of preventing overcrowding and cross infections; however due to limited number of staff nurses deployed in each shift, location of nursing station outside the rooms and absence of see-through glass partitions between the rooms, monitoring was difficult. Moreover, no particular thought had been given to keeping the seriously ill children in the room opposite to or close to nursing station, except for DH Betul, where the sickest children received closer attention and children undergone surgical procedures were kept in a separate room. (Table 10)

Hygiene and sanitation facilities varied across districts, but were found to be wanting in most DHs. Provision of routine supplies such as soap for hand washing was found missing or inadequate in the ward. Cleanliness of toilets, access to running water and appropriate space near the ward for mothers to wash themselves and their child was found to be optimum in only Alwar, Jharsuguda and Raisen.

In Dausa, there was no seating arrangement for care givers as a result of which more than one adult care giver was found resting on patients' beds. None of the DH had paediatric beds with safety grill or sideboards.

While the windows had meshes to keep out insects, there were no mosquito nets for use by individual patients. (Table 10)

Paediatric ward staffing left much to be desired. Doctors were available only during routine hospital hours and were on call for rest of the day. In DHs across 4 states, outpatient services were generally available in two shifts, morning (0800- 12.00/13.00) and evening (16.00-18.00/ 17.00-19.00) and 9.00-11.00 on Sundays. In Betul, Raisen, Narsingpur the doctor on duty in SNCU during the night shift attended the paediatric cases presenting in the Emergency Department. Most DHs had 2-3 staff nurses deployed in paediatric ward in each shift. The number of staff nurses came down to just 1 or 2 during evening and night shift and on weekends/holidays; Sambalpur had only 1 nurse on duty in every shift. In Jharsuguda, nurses were posted in common for maternity and paediatric ward. An observation made during the visit was that the nurses were engaged in activities other than nursing care (such as manning the registration counter) resulting in wasteful deployment of limited human resources.

Lack of availability of adequate number of staff is of concern. The number of nurses allocated to paediatric care may have significant implications for supportive care and monitoring provided to paediatric inpatients, which is described in sections below.

**Due to limited number of nurses deployed in each shift, location of nursing station outside the rooms and absence of glass partitions between the rooms, monitoring was difficult. Nurses were engaged in activities other than nursing care resulting in wasteful deployment of limited human resources. No particular thought had been given to keeping the seriously ill children in the room opposite to or close to nursing station. Doctors were available only during routine hospital hours and were on call for rest of the day.**

**There was no seating arrangements for care givers, as a result of which more than one adult care givers were resting on patients' beds.**

## 5. EMERGENCY CARE

None of the DHs had a system for triage for sick children, which requires that children are assessed for severity/ priority signs immediately on arrival. All DHs had a separate area/department for managing emergencies (located in the Trauma Centre in Dausa, Bharatpur and Alwar); however there was no separate area or arrangements for receiving seriously ill children. All patients, irrespective of age group and presenting complaints, seeking care at DH beyond the routine hospital hours presented to the emergency room/ area. In case of newborns and children no assessment was made or active management undertaken in the emergency area as there was no staff member trained in Emergency Triage, Assessment & Treatment (ETAT) guidelines (MoHFW, GoI, 2009). Staff on duty sent information to Medical Officer / Paediatrician on call and directed care givers to transfer the child to paediatric ward or newborn unit, located at a distance from the emergency area. Precious time was lost during transfer since care givers were not familiar with hospital layout. Lack of communication system (such as intercom) confounded this problem, such that no advance preparation was made to receive the child in paediatric ward or the newborn care unit. Care to sick children was further delayed if they presented beyond routine hospital hours. With just one or 2 staff nurses on duty through the evening and night hours, immediate attention to seriously ill children was unlikely. This scenario was observed across DHs in all four states. (Table 11)

Staffing of emergency department in all DHs in terms of service providers was limited to one Medical Officer and one nurse in each of the three shifts. A records clerk/pharmacist was available in morning shift in 10 DHs and in 6 DHs in afternoon shift. Paediatrician present within hospital premises during routine working hours attended the paediatric emergencies; however they were on call at other times. Except for few paediatricians trained in F-IMNCI and Medical Officers in Advanced Life Support, none of the other staff working in emergency department were trained in Emergency Triage and Treatment (ETAT).

(Table 12)

The assessment of layout and staffing of emergency area demonstrated the lack of triage and emergency care leading to significant delay in institution of treatment after reaching the facility, increasing the likelihood of case fatality in very sick children. This delay became longer when children presented beyond routine hospital hours. Invariably the sequence of events described for admission of seriously ill children involved a number of steps including presentation to OPD/ emergency department, OPD registration (during routine hours), advise for admission, inpatient registration, transfer to the paediatric ward by caregivers and institution of treatment by a nurse after reaching the ward. While the overall infrastructure such as rooms, beds, monitors and ventilators, were in place in the emergency department in a few DHs (eg. Sheikhpura and Dausa), they were not optimally used. Assessment of paediatric drugs and equipment indicated that these were lacking more often in emergency area as compared to inpatient areas and the emergency services were not geared towards handling of paediatric cases. The assessment further highlighted the lack of availability of staff trained in paediatric care in the emergency area. The Emergency department/ area was manned in rotation by medical officers posted at DH and specialists 'on call'. Professionals trained in handling paediatric emergencies were not available, all the time, in the hospital premises.

**None of the DHs had a system for triage for sick children; no assessment was made or active management undertaken in the emergency area. Staffing of emergency department in all DHs in terms of service providers was limited to one Medical Officer and one nurse in each of the three shifts. Professionals trained in handling paediatric emergencies were not available even in the hospital premises after routine hospital hours leading to delay in institution of treatment.**

## 6.CASE MANAGEMENT OF COMMON DISEASES

A secondary referral unit, such as the DH receives sick children with diverse clinical presentation; some children are extremely sick and need lifesaving treatment. After triage and emergency care is provided, the child needs to be assessed in detail and appropriate management instituted.

**Cough or difficult breathing:** Pneumonia is the leading cause of death in India in children under five years of age (CHERG, 2012). Children with specific diagnosis of pneumonia or those with symptoms of fever, cough and respiratory distress are frequently referred to DH for management as the provision of radiography is usually available only at this level.

The quality of care assessment shows that severity of pneumonia was not correctly assessed clinically. Chest X – ray was usually carried out but correct use for diagnosis and treatment was lacking in 6 out of 10 DHs. Prescribing appropriate antibiotics only in children with clear indication and administering correct doses for pneumonia according to severity and weight was not followed by most doctors/paediatricians. Since child was not always weighed at the time of admission, the doses were arbitrarily decided; use of third generation cephalosporin was common even though use of penicillin derivatives plus aminoglycoside combination is recommended in the national guidelines.

Oxygen delivery system was inadequate with absence of nasal prongs and equipment for administration of warm and humidified oxygen in 9 out of 13 DHs. Most of the time oxygen masks were used. Because of absence (both due to non-availability & non-use) of pulse oximeters; oxygen saturation was not monitored.

Nebulisers were available in paediatric ward in 7 DHs and Salbutamol Respiratory Solution in 5 DHs; however their use was not observed during the visit. Patient monitoring was not undertaken in severe cases and where the patients were checked, no records were maintained therefore verification was not possible. Treatment of tuberculosis in children was as per national guidelines in 5 out of 10 DHs. (Table 13)

**Diarrhoea:** is the second leading cause of child mortality in India and is especially common in children between 6 months and 2 years of age (CHERG, 2012). Children referred to DH for assessment and management are likely to be moderate to severely dehydrated or have co-morbidities like severe malnutrition. None of the DH laboratories had the provision for performing tests for electrolytes (sodium and potassium levels) or stool culture. Dehydration was not correctly assessed in 9 out of 10 facilities; if assessment was undertaken it was not recorded on case sheets. This had implications for appropriate treatment of children with dysentery and severe malnutrition. Paediatric drip sets that can prevent over-hydration or rapid administration of fluids but were not available in 5 out of 13 facilities. Adequate rehydration plan based on the severity of dehydration was observed only in 1 out of 10 DHs. Use of ORS in children admitted to DH was not observed and intravenous fluids were being administered to all children. Although anti-motility drugs were not prescribed in 6 out of 10 DHs, irrational use of antibiotics was rampant across all 10 facilities. Children received antibiotics even if there was no indication, such as in watery diarrhoea. Interview with mothers revealed that feeding history was not taken and no specific feeding advice given to mothers. Since age appropriate food was not served in 5 DHs, sick children admitted to paediatric ward were not fed adequately. (Table 13)

**Management of fever** in children requires application of skills for differential diagnosis, facilitated by availability of laboratory, radiology and other diagnostic services.

Across the 4 states where assessment was conducted, common causes of fever requiring hospitalisation include malaria, dengue, meningitis, encephalitis, typhoid, measles and pneumonia. As presented in Table 13, assessment of fever considering differential diagnosis of common causes was inadequate in 9 out of 10 DHs. Review of case records indicated that differential diagnosis of likely conditions was seldom recorded, and appropriate laboratory investigations were not undertaken in most cases across all DHs. Use of RDT kits for diagnosis of malaria was observed in Madhya Pradesh. Lumbar puncture was not being performed at DHs in Rajasthan, Odisha and Narsinghpur in Madhya Pradesh, making diagnosis and treatment of meningitis presumptive. As definite diagnosis was seldom established in cases of fever, doctors greatly relied on poly-therapy (multiple antibiotics and antimalarial) for treatment. While severe malaria and measles were correctly managed in 3 out of 10 DHs, Dengue Haemorrhagic Fever and meningitis were less likely to be managed as per standard protocols in all DHs. Absence of separate isolation facilities put malnourished and unimmunised at risk of contracting infectious diseases. Appropriate assessment, differential diagnosis, and management of other severe febrile conditions such as mastoiditis, urinary tract infection, septic arthritis and osteomyelitis lacked across all DHs.

**Malnutrition** remains one of the most common underlying cause of morbidity and mortality in children under five years in India (WHO, 1999). The high case fatality rates among severely malnourished children can be reduced by treating them at health facilities according to standardised protocols.

Assessment showed that management of malnutrition, when children were specifically admitted to NRCs, was considerably better than other childhood conditions (Table 21). NRCs were functional in the 3 DHs in Bihar using public private partnership mode. Standard guidelines were followed for the management of infections and micronutrient supplementation in most NRCs.

One area of concern emerging from the assessment was infrequent day and night time feeding of admitted children in 8 DHs due to limited number of staff nurses posted in night shift. As a result there was slower weight gain than anticipated, despite hospital stay. Other areas requiring improvement were the management of associated complications such as hypoglycemia and hypothermia in 11 DHs, providing sensory stimulation in 8 DHs, and correct management of dehydration and electrolyte imbalance in 7 DHs (Table 13).

Overall, the assessment highlighted that the management of malnutrition was better compared to other conditions. Thrust from the national level on implementation of operational and technical guidelines, customised training package, and close monitoring of NRCs, seemed to have resulted in improved knowledge and skills with regards to management of severe malnutrition as compared to other childhood conditions. However, it was unfortunate that the protocols for management of malnourished children did not extend beyond the NRC. Children admitted to paediatric wards and presenting in outpatient department were not screened for malnutrition.

Nearly all the children admitted to NRCs were those without medical complications and therefore not in line with the admission criteria laid down in the national operational guidelines. This approach would work if the sick & malnourished children, after treatment of complications in paediatric ward were transferred to the NRC. However, there was little coordination between these two units. At the same time it was evident that NRCs were not geared towards the care of children with medical complications due to unavailability of the (full time) doctor and full complement of nurses round the clock and their location away from the paediatric ward or emergency area (eg; Bihar). Therefore the positioning of NRCs in the overall strategy for malnutrition management in children needed to be reviewed at the national level.

**Prescribing antibiotics without clear indication and administering dosages arbitrarily without taking into account the severity of pneumonia and body weight was noted. Use of third generation cephalosporin was common. Oxygen delivery system was inadequate in 9 out of 13 DHs. Oxygen saturation was not monitored both due to non-availability & non-use of pulse oximeters.**

**None of the DH laboratories had the provision for performing tests for electrolytes or stool culture. Dehydration was not correctly assessed or recorded; intravenous fluids was administered to all children admitted with diarrhoea. Although anti-motility drugs were not prescribed in 6 out of 10 DHs, irrational use of antibiotics was rampant across all 10 facilities.**

**In cases of fever, differential diagnosis was seldom recorded, and appropriate laboratory investigations not undertaken. Doctors relied on poly-therapy due to failure to establish a definitive diagnosis.**

**Nearly all the children admitted to NRCs were those without medical complications. Management of malnutrition in NRC was considerably better than other childhood conditions. However, protocols for management of malnourished children did not extend to children admitted to paediatric wards. Children were not screened for malnutrition in the outpatient department.**



## 7. SUPPORTIVE CARE

Nutritional needs of admitted children, promotion of breastfeeding, use of parenteral (IV) fluids and blood transfusion were assessed as part of supportive care. All DHs were found to be providing inadequate supportive care. While breastfeeding was continued, meeting nutritional needs according to age and ability to feed and providing sufficient caloric requirement orally or through NG feeding (for children too sick to feed) required improvement across all DHs. Food was not served in paediatric wards in Dausa, Alwar, Bharatpur even when provision existed in the same DHs for free diet to pregnant mothers under JSSK. Milk and bread was being provided for children belonging to BPL ('below poverty line') families in Rajasthan and to all paediatric patients in Sambalpur. In other two states the cooked food was the same as for adults and failed to meet age-specific requirements of paediatric patients under five years of age.

Although blood banks were present in all DHs that currently admitted paediatric cases, small number of total units of blood units issued were used in children. For example in Dausa, during the period January to April 2014, a total of 420 units of blood had been issued, of which 8 units had been issued for children 0-1 years and 16 units for children 1-5 years. Availability of paediatric bags was a cited as constraint as also the paediatricians' lack of coordination with pathologists positioned in blood banks. Monitoring of flow rate and adverse reactions was not recorded in case sheets as noted in DH Dausa.

Appropriate drug treatment needed improvement in all hospitals. Irrational use of drugs as evidenced by frequent and injudicious use of corticosteroids, routine use of sedatives and antihistamines and giving drugs (such as antibiotics) without an established or highly suspected diagnosis were common practices.

In 9 of 10 DHs, most of the admitted children were administered IV fluids, even when not indicated and used as a calorie source (IV glucose) beyond initial phase of stabilisation. (Table 13)

All DHs were found to be providing inadequate supportive care. Food provided in the hospital failed to meet age-specific requirements of paediatric patients under five years of age. Irrational use of drugs as evidenced by frequent and injudicious use of corticosteroids, routine use of sedatives and antihistamines and giving drugs (such as antibiotics) without an established or highly suspected diagnosis were common practices.

In 9 of 10 DHs, most of the admitted children were administered IV fluids, even when not indicated and used as a calorie source beyond initial phase of stabilisation.

## 8. NEONATAL CARE

**Essential newborn care & resuscitation:** Birth asphyxia is an important cause of neonatal deaths in India and it is estimated that 5-10 percent of newborns require assistance in breathing at birth (Lee et al., 2011). Training of staff in skilled birth attendance and newborn resuscitation finds due emphasis in the national programme and implementation. Presence of NNSK trained staff in the labour room 24x7, is envisaged for facilities designated as delivery points. From the assessment it was evident that required infrastructure and equipment (radiant warmer, ambu bag and masks, suction machine, oxygen delivery system) was available in NBCC; however guidelines for resuscitation and essential newborn care were not always practised and documented in 10 out of 13 DHs. Even when newborn was resuscitated, the event was not recorded making it difficult to assess the number of newborns assisted for breathing during a specified period. In 9 out of 13 DHs, doctors/paediatricians on call were not informed in time in high risk deliveries due to lack of coordination and communication between Paediatrics and Obstetrics Departments. Recently national guidelines made Vitamin K administration mandatory for all births taking place at health facilities, but was not being followed at 4 DHs. Administration of birth dose of vaccines such as polio, hepatitis B and BCG was also not completed in all newborns discharged in 4 out of 12 DHs.

On the positive side, breast feeding was initiated within one hour of birth and skin contact ensured in 7 DHs and breast milk substitutes were not promoted in any of the DHs. (Table 14)

Functionality of NBCC varied across DHs; resuscitation trays were not organised and readily available for use at all times. At few sites, soiled (used) mucus extractors and nasogastric tube (presumably for administering oxygen) were present in the resuscitation tray and essential drugs such as epinephrine and Vitamin K were missing.

Hand-washing and observation of other cleans such as clean surface for delivery were compromised and found to be in need of improvement in 8 out of 13 DHs. Clean (sterile) instruments were used in 7 out of 13 DHs. Nothing was applied to the cord in 10 out of 13 DHs (Table 14). Across labour rooms, nurses, both male and female, were not using plastic aprons or any protective gear during delivery. Sterile gloves were worn, but at the cost of hand washing. Biomedical waste management, which is critical in labour rooms, lacked in DHs of Rajasthan.

**Care of the sick newborn:** Specialised care for sick new born was available at 11 DHs with functional beds varying from 12-26. Most DHs (except Dausa, Angul) had provision for keeping sick newborns separate from healthy babies. None of the DHs had facilities for rooming-in sick babies with their mothers. Provision of a separate area/room for breast feeding or Kangaroo Mother Care (KMC) was made in SNCUs in Madhya Pradesh but were yet to be made functional.

SNCUs were better staffed than paediatric wards with one doctor on duty round the clock, except DH Dausa, Alwar and Jharsuguda where doctors were on call during evening and night shifts. National guidelines recommend presence of at least 3 nurses per shift for a 12 bedded unit and posts are accordingly sanctioned in annual budgets. Many SNCUs did not meet this requirement during night hours, while two DHs in Odisha, Angul and Sambalpur, had only two staff nurses even in morning shift. Larger units such as 26 and 21 bedded units in Alwar, Bharatpur respectively required to deploy more staff nurses as per the bed strength. SNCU Dausa, working at a reduced capacity (6 beds) at time of visit, would have required more staff nurses had all 17 beds been made functional.

Only Madhya Pradesh deployed the recommended numbers of doctors and staff nurses in all its SNCUs in addition to Data Entry Operators and Laboratory Technicians.

Overall care of sick newborns in SNCU scored higher than the care of sick children in paediatric ward (Table 21). The SNCU in Raisen was accredited by National Neonatology Forum, whereas SNCU in Narsinghpur, Hoshangabad and Alwar were in the process of being accredited. Aspects that required quality improvement in SNCUs across the states were diagnosis and management of neonatal sepsis, feeding of preterms and low birth weight babies & KMC, diagnosis and management of jaundice based on serum bilirubin levels (rather than the visual assessment of jaundice being made by treating clinicians). Procedures like lumbar puncture and exchange transfusion were seldom carried out at SNCUs except in Madhya Pradesh; use of pulse oxymeters for monitoring the administration of oxygen was not uniform across SNCU and were found to need improvement in 5 of 11 DHs. (Table 15)

Involving mothers/ caregivers in care of preterms (feeding, Kangaroo Mother Care) is important for ensuring optimal care after discharge. Yet none of these units had developed separate space for feeding, breast milk expression and demonstration of KMC as recommended in national guidelines (MoHFW, GoI, 2014).

Since SNCUs were tended by 2-3 staff nurses per shift, observation of standard precautions was critical to prevent cross infections amongst newborns, more so when there were no separate inborn and out born units.

Adequate hand washing procedures and hand disinfection (using 70% alcohol hand rubs where frequent hand washing was not feasible) were not followed. Use of antibiotics and IV fluids irrespective of diagnosis, was routinely practiced. Sepsis screening and investigations to establish the cause of jaundice were not undertaken in all cases. Management of sepsis was based on clinical suspicion and third generation antibiotics frequently used.

Administration of effective antibiotics according to age & weight of newborn needed improvement in 4 of 11 DHs. The guidelines for initiation and duration of phototherapy were also not adhered to; testing of S. bilirubin beyond the first day was not undertaken in many cases. Doctors relied on clinical assessment or transcutaneous bilirubinometer even when these are known to be unreliable in newborns already receiving phototherapy.

**Care in postnatal ward:** Continuum of care, from labour room to postnatal wards needs to be ensured in order to reduce neonatal mortality in the first week of life, especially where mothers stay for 48 hours post-delivery. As indicated in Table 16, hygiene in terms of maintenance of toilets and access to running water and appropriate place for mothers to wash herself and the baby's clothes were found to need improvement in 11 out of 13DHs. There was no separate room for sick newborns to room in with their mothers in 11 DHs; nor was there an arrangement for keeping the preterm or low birth weight babies in the section near the nursing station for direct observation in any of the 13 DHs. The overall care for newborns in the postnatal ward across DHs scored an average of 2.5/5 (Table 21) highlighting the need for considerable inputs to improve standards of care.

**Breastfeeding was initiated within one hour of birth and skin contact ensured in 7 DHs and breast milk substitutes were not promoted in any of the Dhs.**

**SNCUs were better staffed than paediatric wards with one doctor on duty round the clock, except in DHs Dausa, Alwar and Jharsuguda where doctors were on call during evening and night shifts.**

**The guidelines for initiation and duration of phototherapy were also not adhered to; testing of S. bilirubin beyond the first day was not undertaken in many cases.**

**Hygiene in terms of maintenance of toilets and access to running water and appropriate place**

**for mothers to wash herself and the baby's clothes were found to need improvement in 11 out of 13 postnatal wards.**

**There was no separate room for sick newborns to room in with their mothers in 11 DHs; nor was there an arrangement for keeping the preterm or low birth weight babies in the section near the nursing station for direct observation in any of the postnatal wards.**

## 9. MONITORING

Overall, monitoring of children while admitted to paediatric ward was found to be a low scoring component of care across all DHs (Table 21). No records were maintained (in case sheets) for vital signs, child's clinical progress, feeding or medications administered; standard patient record formats were either not in use or these remained uncharted. If the condition of the child deteriorated or mortality took place in the hospital, it would not be possible to confirm whether medications and intravenous fluids had been administered, in correct dosages and as per prescribed frequency due to absence of record keeping. (Table 17)

Appropriate re-assessment of all admitted children by nurse was found to need improvement in 9 of 10 hospitals. Doctors were present only during routine hours and then available 'on call' in case of an emergency. This means that re-assessment of a child admitted during routine hours, by a doctor on the same day was not likely to take place. Further, nutritional assessment was not undertaken in outpatients and in-patients routinely in most hospitals (9 of 10 DHs); therefore few referrals or admissions to NRC (co- located at DH at many sites) were made through routine monitoring of sick children presenting to health facility. While children admitted to NRC received care as per standards to some extent, nutrition/feeding history was not taken (or recorded) for children admitted to paediatric ward and other areas of the hospital. Counselling mothers regarding optimal feeding practices was also not practised. Thus management of malnutrition was limited to the admissions made specifically with the diagnosis of SAM in the NRCs but not beyond them. (Table 17)

**No records were maintained (in case sheets) for vital signs, child's clinical progress, feeding or medications administered; standard patient record formats were either not in use or these remained uncharted.**

**Re-assessment of a child admitted during routine hours, by a doctor on the same day was not likely to take place. Further, nutritional assessment was not undertaken in outpatients and inpatients routinely, therefore few referrals or admissions to NRC (co- located at DH at many sites) were made from amongst sick children presenting to health facility.**

## 10. HOSPITAL ADMINISTRATION

Awareness of and familiarity with updated treatment guidelines and protocols is important to be able to put them into practice. Library facility was not available at any of the DHs and key resources and reference material (national guidelines, textbooks, training packages, wall chart, job aides) were not found with the service providers. (Table 18). Wall charts on newborn resuscitation were present at Alwar, Narsinghpur, Bharatpur, and Jharsuguda.

Audits and regular staff meetings serve as an important platform to review the hospital data with respect to utilization of new born and child health services, causes of facility based death and discuss any critical gaps in service delivery as identified through child death review. However, no such practice existed at any of the DHs except for child death audits performed at Angul and Jharsuguda and death review held by CMHO at DH Raisen.

In general, the situation regarding the availability of essential drugs was good across health facilities while referral transport needed improvement in 7 out of 13 facilities (Table 24). The focus that NRHM has brought to these two aspects of care through schemes like JSSK have resulted in positive change, although referral transport was most often used for referrals between health facilities than for transport of sick children from home to health facility.

Essential laboratory support, while available at the health facility with few financial barriers, needed improvement in terms of its availability 24x 7 and the range of diagnostic tests performed. The confidence in laboratory results varied across states and districts. For example, in Rajasthan, the service providers expressed their confidence in accuracy /validity of laboratory test results where samples were processed through automated analyzers but not in other cases, such as S. bilirubin levels, that varied significantly and made it difficult to take clinical decisions based on laboratory values.

**Library facility was not available at any of the DHs and key resources and reference material were not found with the service providers.**

**Referral transport was most often used for referrals between health facilities than for transport of sick children from home to health facility.**

**Essential laboratory support, while available at the health facility with few financial barriers, needed improvement in terms of its availability 24x 7 and the range of diagnostic tests performed.**

## 11. ACCESS TO HOSPITAL CARE

Based on the account shared by the care givers, it was apparent that before reaching public health facilities they consulted traditional practitioner and tried traditional medicine for the reasons that these were easily available, cheaper and locals had faith in them. However, when no improvement in condition was observed, the child was brought to public health facilities for allopathic treatment. Lack of awareness, inability to assess the severity of condition, and lack of follow-up by community workers after discharge from primary health care facilities were some of the reasons reported by parents for delayed presentation. However, when advised by first level health workers, parents brought their children to hospitals without much delay.

Lack of transport to hospital or cost of transport was not cited as a reason for delayed referral. However, care givers were not aware of the provision of free transportation facilities for sick newborns and infants from home to health facility (under JSSK scheme). Many of them used public transportation or hired commercial vehicles to reach DHs.

Hospital fee did not pose a major barrier to hospital care for majority of patients in 7 of 10 DHs (Table 19). Drugs were provided free of cost and care givers did not report any particular incidence where they paid for services. No hospital registration fee was charged from pregnant women and children in Madhya Pradesh. In Rajasthan, outpatient and inpatient charges were INR 10 per patient for children in general paediatric section but there were no registration fee charged from pregnant women and newborns admitted to SNCUs. However, the care givers were not aware of the services that their children were entitled to 'free of cost' under **Janani Shishu Suraksha Karyakram**. Overall, there were no major financial barriers on account of availability and cost of transport and essential drugs. This demonstrated that various policies adopted within NHM such as

making provision of free transportation, drugs and diagnostics as well as abolishing user fee for certain population groups (pregnant women, children) had significantly reduced the financial barrier to access care in public health facilities. However, challenges remained with referrals from periphery to DHs, as the mechanism was neither streamlined nor was there a standard pattern for informing higher level facilities of the treatment offered at referring health facility. In Hoshangabad, Narsinghpur, and Sambalpur referral slips/notes provided to patients referred from government health facilities were found. Patients referred from first level facilities were not assessed and classified as per IMNCI guidelines. Referral notes stating the condition, reason for referral and any treatment given or discharge summary were not provided.

It was observed that most of the DHs had readily available referral transport and since no cost was involved for the caregivers, it had the potential for misuse. Referrals were made from DH to tertiary health facilities in quite a few instances, while keeping only a few beds operational at the DH. This would lead to overburdening of tertiary level health facilities as well as under utilisation of services at DHs. In order to ensure judicious use of referral transport, the conditions under which referral was to be made needed to be clearly laid down and endorsed by the higher authority in the hospital (eg; CDMO/ADMO). Communication needed to be established with tertiary level facilities before physically shifting the patient so as to avoid inordinate delay in providing care to seriously ill children and informing doctors about the treatment already provided at DH.

**Parents reported lack of awareness, inability to assess the severity of condition and lack of follow-up by community workers after discharge from primary health care facilities as the reasons for delayed presentation. When advised by first level health workers, parents brought their children to hospitals without much delay.**

**Overall, there were no major financial barriers to accessing services on account of availability and cost of transport and essential drugs. However, care givers were not aware of the provision of free transportation facilities for sick newborns and infants from home to health facility (under JSSK scheme).**



Referrals mechanism from periphery to DHs was neither streamlined nor was there a standard pattern for informing higher level facilities of the treatment offered at referring health facility.

Ready availability of free transport had the potential for misuse. Unnecessary referrals lead to overburdening of tertiary level health facilities as well as under utilisation of services at DHs. In order to ensure judicious use of referral transport, the conditions under which referral was to be made needed to be clearly laid down and endorsed by the higher authority in the hospital.

## 12. PAEDIATRIC SURGERY AND REHABILITATION

Paediatric surgery at DHs has not been given due consideration as part of paediatric care till date. Guidelines for DHs, IPHS standards, 2012 (Director General of Health Services, MoHFW, GoI, 2012) provides a list of paediatric surgical procedures (including incision and drainage, inguinal herniotomy, exploratory laprotomy, neonatal intestinal obstruction/resection/atresia gastrostomy, colostomy umbilical hernia/epigastric hernia, torsion of testis among others) to be made available. No assessment has been made till date to estimate the number and types of procedures generally performed at DHs, and additional requirements in terms of staff and facilities. In light of the recently launched RBSK, referrals to DHs for various surgical condition are likely to increase. Therefore paediatric surgery and rehabilitation was included as one of the components of paediatric care assessment.

Assessment indicated that paediatric surgeries were performed in DHs in 3 states (except Bihar). The number of surgeries performed varied across states depending on the pro-activeness of the surgeon posted at the DH (Table 20).

Most of the procedures performed were routine surgeries including reduction of fractures, incision and drainage for abscesses, treatment of phimosis / circumcision, and laparotomy for appendectomy. Largest number of surgeries were performed at Bharatpur and Dausa in Rajasthan. In general, the quality of paediatric surgery and rehabilitation was found to be low in all health facilities.

Surgery departments were not particularly geared for management of children and had no special orientation regarding preoperative care and post-operative monitoring, child specific needs for feeding and pain relief. The most frequent score for paediatric surgery was 1/5 indicating that services were not adequate or not available. Better coordination was required between Surgery and Paediatrics Departments in order to involve paediatricians in care and over sight of paediatric cases and addressing their age specific medical needs. Preparedness of DHs to offer surgeries for most common paediatric conditions required to be enhanced and monitored.

In light of the recently launched RBSK, referrals to DHs for various surgical conditions are likely to increase. No assessment has been made till date to estimate the number and types of procedures generally performed at DHs and additional requirements in terms of staff and facilities.

Surgery departments are not particularly geared for management of children and had no special orientation regarding preoperative care and post-operative monitoring, child specific needs for feeding and pain relief.

## 13.OVER ALL SCORES

The average scores for 16 different aspects of facility based care along with the average scores for 13 individual DHs are presented in **Table 21**. The scores have been presented in two ways: (1) as average of all the individual scores and (2) as the most frequent score (mode<sup>1</sup>) given to a particular aspect of care or to individual DH. In most instances, the average scores closely match the most frequent score (mode). The section below describes the quality of care in individual DHs and different aspects of care in terms of the 'most frequent score' and 'average score'.

Assessment of 16 different aspects of care included in the table were broadly classified as (1) support system (drugs & equipment, laboratory services); (2) standards of care (emergency care, case management of diarrhoea, febrile conditions, cough or difficult breathing, severe malnutrition, routine newborn care, sick newborn care); (3) infrastructure and provisions for care (in paediatric ward, postnatal ward, surgery department, emergency department); and (4) administrative aspects (hospital administration, access to care).

In terms of the support system, essential drugs were available free of cost in the district hospitals. However, availability and functionality of paediatric care equipment was inadequate across all DHs, resulting in combined average score (for drugs + equipment) of 2.8 and most frequent score of 3. Laboratory support was available in 11 DHs, offering limited range of diagnostic tests, mostly during routine working hours and no reliability of test results. Laboratory services across district hospitals most often scored a 3 and average score of 2.5.

Emergency care and management received a score of 2 indicating considerable need for improvement to reach standards of care. Organisation of paediatric wards and facilities scored an average of 2.4 indicating the need for considerable improvement.

Routine newborn care and case management of sick new born (SNCU) were scored as 4 indicating need for little improvement. Yet areas that called for attention were labour room practices (5 cleans), availability of NSSK trained personnel and biomedical waste management. Care of newborns in postnatal ward scored low (most frequent score of 3 and average score of 2.5) proving to be a weak link in quality of newborn care at health facilities.

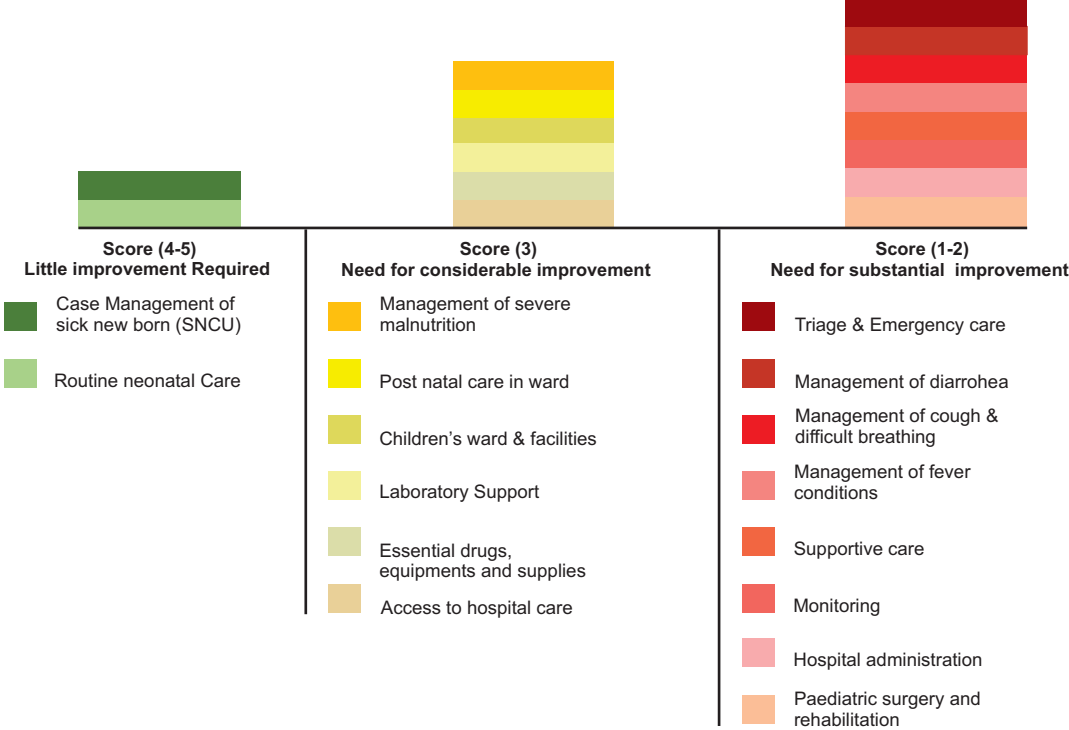
Case management of children with common childhood illnesses (diarrhoea, fever, cough or difficult breathing) scored 2 in most DHs indicating the need for considerable improvement. Care of children with severe acute malnutrition received an overall score of 3, which is higher than that for other conditions, but still indicates the need for some improvement.

Two other areas of paediatric care that were critical to survival of a sick child irrespective of the nature and cause of illness, were supportive care and monitoring. Both these aspects of care were totally inadequate, scoring a 2 (average score of 2.2 and 1.9 respectively). Paediatric surgery and rehabilitation was not available at many DHs (average score 1.6) despite an anticipated increase in demand for surgeries in the backdrop of RBSK and District Early Intervention Centre (DEIC).

Access to care in DHs received most frequent score of 3 and average score of 2.5. The removal of financial barriers to a great extent by offering free drugs, diagnostics and transport and abolishing user fee for nearly all services, has improved the access to care by those from BPL families and others groups as reflected in the interviews with the care givers and providers. Judicious use of referral transport, rational deployment of available staff within the DH, grievance redressal, hygiene and biomedical waste management require administrative attention across all DHs.

<sup>1</sup>Mode refers to statistical mode.

# Cumulative score of quality of care by different aspects of care



# Cumulative score of quality of care by different health facilities (N=13)

	Areas assessed	Overall score (mode)
BIHAR	Jehanabad	●
	Nalanda	●
	Sheikhpura	●
MADHYA PRADESH	Hoshangabad	●
	Betul	●
	Narsinghpur	●
	Raisen	●
RAJASTHAN	Alwar	●
	Bharatpur	●
	Dausa	●
ODISHA	Angul	●
	Jharsuguda	●
	Sambalpur	●

Score (4-5) Little improvement Required	●	Score (3) Need for considerable improvement	●	Score (1-2) Need for substantial improvement	●
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Nine DHs including Alwar, Bharatpur, Dausain Rajasthan, Betul, Narsighnpur, Raisen, Hoshangabad in Madhya Pradesh, and Angul, Jharsuguda in Odisha achieved 3 as the most frequent score, and average scores ranging from 3.00 for Betul to 2.5 for Narsinghpura and Hoshangabad. This score indicates that these facilities require significant improvement to achieve standards of paediatric care. Nalanda in Bihar and Sambalpur in Odisha received 2 as the most frequent as well as the average score indicating considerable need for improvement to achieve recommended standards of care. The two DHs in Bihar namely Jehanabad and Sheikhpura, with non-functional paediatric wards and SNCU scored 1, indicating that services were either not provided or totally inadequate.

## Quality of care in District Hospitals in Madhya Pradesh

















































S. No.	Areas assessed	Hoshangabad	Betul	Narsinghpur	Raisen
1	Essential drugs, equipment & supplies	●	●	●	●
2	Laboratory support	●	●	●	●
3	Emergency care	●	●	●	●
4	Children's ward and facilities	●	●	●	●
5	Management of cough and difficult breathing	●	●	●	●
6	Management of diarrhoea	●	●	●	●
7	Management of fever conditions	●	●	●	●
8	Management of severe malnutrition	●	●	●	●
9	Supportive care	●	●	●	●
10	Monitoring	●	●	●	●
11	Routine neonatal care	●	●	●	●
12	Post natal care in ward	●	●	●	●
13	Case management of sick new born	●	●	●	●
14	Paediatric surgery and rehabilitation	●	●	●	●
15	Hospital administration	●	●	●	●
16	Access to hospital care	●	●	●	●




Score (4-5) Little improvement Required	Score (3) Need for considerable improvement	Score (1-2) Need for substantial improvement
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## Quality of care in District Hospitals in Rajasthan

S. No.	Areas assessed	Alwar	Bharatpur	Dausa
1	Essential drugs, equipment & supplies			
2	Laboratory support			
3	Emergency care			
4	Children's ward and facilities			
5	Management of cough and difficult breathing			
6	Management of diarrhoea			
7	Management of fever conditions			
8	Management of severe malnutrition			
9	Supportive care			
10	Monitoring			
11	Routine neonatal care			
12	Post natal care in ward			
13	Case management of sick new born			
14	Paediatric surgery and rehabilitation			
15	Hospital administration			
16	Access to hospital care			

## Quality of care in District Hospitals in Odisha

S. No.	Areas assessed	Angul	Jharsuguda	Sambalpur
1	Essential drugs, equipment & supplies			
2	Laboratory support			
3	Emergency care			
4	Children's ward and facilities			
5	Management of cough and difficult breathing			
6	Management of diarrhoea			
7	Management of fever conditions			
8	Management of severe malnutrition			
9	Supportive care			
10	Monitoring			
11	Routine neonatal care			
12	Post natal care in ward			
13	Case management of sick new born			
14	Paediatric surgery and rehabilitation			
15	Hospital administration			
16	Access to hospital care			

Score (4-5) Little improvement Required 	Score (3) Need for considerable improvement 	Score (1-2) Need for substantial improvement 
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## Quality of care in District Hospitals in Bihar

S. No.	Areas assessed	Jehanabad	Nalanda	Sheikhpura
1	Essential drugs, equipment & supplies	●	●	●
2	Laboratory support	●	●	●
3	Emergency care	●	●	●
4	Children's ward and facilities	●	●	●
5	Management of cough and difficult breathing	●	●	●
6	Management of diarrhoea	●	●	●
7	Management of fever conditions	●	●	●
8	Management of severe malnutrition	●	●	●
9	Supportive care	●	●	●
10	Monitoring	●	●	●
11	Routine neonatal care	●	●	●
12	Post natal care in ward	●	●	●
13	Case management of sick new born	○	●	○
14	Paediatric surgery and rehabilitation	●	●	●
15	Hospital administration	●	●	●
16	Access to hospital care	●	●	●

Score (4-5) Little improvement Required	Score (3) Need for considerable improvement	Score (1-2) Need for substantial improvement
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## 14. QUALITY OF CARE: CARE GIVER AND PROVIDER PERSPECTIVE

Interviews were conducted with 20 service providers, including medical officers, paediatricians and nurses, employed in the 13 DHs and 18 care givers whose children were admitted to paediatric ward at the time of the visit. No interviews with care givers were conducted in the 3 DHs in Bihar as there were no paediatric inpatients.

### Perception of mother/caregiver

Most care givers (N=18) rated the availability of space for beds and cleanliness to be 'as or better than expected', while availability of toilets and place to wash was rated 'as expected'. Care givers were of the opinion that the number of nurses available to look after sick children, level of care in terms of frequency with which doctors/ nurses checked the children, completeness of examination (N=8) and time spent in examining met care givers' expectations. (Table 22)

The attitude of doctors and nurses was rated as polite, helpful by 14/18 and 11/18 respondents respectively, whereas the attitude of other staff was rated as 'good or bad at different times' and 'helpful' by nearly equal number of respondents. Most care givers reported discharge information being given to them, being informed about the medications and dosages and number of days for which this had to be continued. However, 50 percent of care givers reported knowing the number of days the medication had to be given and 40 percent reported being informed about the follow up appointments. Care givers reported the need for improvement in procedures followed in OPD, information regarding need for admission and the follow-up instructions communicated to them. (Table 22)

### Health providers' views on children's ward

Interviews were conducted with 20 service providers including doctors and nurses, and those involved with different aspects of paediatric care (SNCU, paediatric ward, OPD). In the one to one interview, more service providers rated the accommodation (space/beds), toilets and washing

facilities for children and caregivers to be inadequate. Cleanliness of the ward was reportedly 'satisfactory' and food given to the children was described as 'inadequate' or 'satisfactory' in equal measure. However, very few providers rated these aspects to be 'good'. (Table 23)

According to health providers, the nature of disease, late presentation at the hospital and lack of staff for care and monitoring were the most common causes of death in DHs. Very few providers attributed child deaths to insufficient drugs and inadequate equipment. None of the providers were of the view that death occurred was due to wrong treatment given to patients (Table 23). Availability of drugs, oxygen, blood, IV fluids, and laboratory tests was described to be satisfactory by the majority of service providers. At the same time most providers reported that the number of staff available to care for sick children to be 'inadequate', especially the availability of nursing staff during night shift and weekends. The time available to them for caring for individual patients (in the best way) was also thought to be 'inadequate'. Most providers were satisfied with the information/ explanation that they provided to families, time taken to explain about child's illness and thought that care givers' view of the services provided to be satisfactory. More service providers were of the view that they possessed the required training and knowledge for managing illnesses in children and that majority of their colleagues were generally satisfied with their work in hospital. (Table 23)

**According to health providers, the nature of disease, late presentation to the hospital and lack of staff for nursing care and monitoring were the most common causes of death in DHs. Availability of drugs, oxygen, blood, IV fluids, and laboratory tests was described to be satisfactory by the majority of service providers. The time available to doctors for caring for individual patients (in the best way) was also thought to be 'inadequate'. More service providers were of the view that they possessed the required training and knowledge for managing illnesses in children.**

## V. DISCUSSION

The assessment carried out in 13 DHs in 4 states provides a substantiation of quality of care for children in the public health system. While rapid assessments have been carried out for newborn care units (SNCUs, NBSUs) in several states, there has been no attempt in the recent past to undertake similar assessments for paediatric care. This assessment report provides evidence of major gaps in organisation of triage and emergency care for children, paediatric wards and services, availability and use of appropriate equipment and functionality of hospital support system. At the same time it is obvious that progress that has been made in terms of provision of essential drugs free of cost, availability of patient transportation and reduction of financial barriers as a result of entitlement approach adopted within NHM. With basic infrastructure and logistics in place, there is scope for improvement of paediatric care, which requires the same commitment and clarity of vision as the newborn component. However hygiene and overall maintenance of paediatric wards and DH in general leaves much to be desired as does the practice of standard precautions (such as hand washing and use of protective personal gear) for preventing transmission of infections both in laboratory and the treatment areas.

Encouraging findings from the hospital assessment are the significant footfalls in the public health facilities, which in turn present opportunities to save lives by delivering quality services and timely management of complications. Also there does not appear to be dearth of financial resources necessary to do so; interaction with DH authorities and service providers did not bring up the lack of resources, supplies or commodities as a significant barrier. However mobilisation of available resources within the DH to paediatric department was influenced by interpersonal dynamics between authorities in charge (CMHO) and doctors in paediatric department. Recruitment of doctors, especially paediatricians (eg; in Bihar) and adequate number of nursing staff is a continuing challenge.

One of the challenges is the near total lack of data regarding age and case specific fatality rates that would provide an objective assessment of standard of care and comparison across facilities (after adjusting for case-mix). Although facility based reporting is now enabled in National Health Management Information system (HMIS), the data on childhood diseases (diarrhoea and ARI) and mortality is far from complete or accurate. Facility based newborn and child death audits have not been initiated (exceptions are Jharsuguda, Angul); nor is there an established review mechanism (except at DH Raisen). This further precludes remedial actions and planning for paediatric services.

In terms of clinical standards, essential newborn care at time of birth, care for sick newborns (in SNCU) and severely malnourished children scored better than standard paediatric care for common conditions such as fever, diarrhoea, cough and difficult breathing. This is likely a reflection of shifting focus on newborn care since 2011, when operational guidelines were issued by MOHFW and budgetary provisions made for setting up of newborn care facilities (NBCC, SNCU) and training of personnel. The quality of newborn care services can be attributed to the fact that staffs deployed in SNCUs are exclusive to these units, trainings & observership have been conducted at teaching hospitals and supportive supervision provided through National and State New born Resource Centres. However the newborn care continuum needs to be extended to the postnatal period with special focus on improving infrastructure, hygiene and newborn care practices in postnatal wards. Facility based management of children with malnutrition has similarly

benefited from publication of operational guidelines and specialised trainings of staff involved in care of children in nutrition rehabilitation centres (NRC) and equivalent facilities. In Bihar, where paediatric inpatient services are not available, the NRCs are functioning through the public private partnership model that has ensured adequate number of staffs in these units.

Supportive care and monitoring of children admitted to the DH is the weak link resulting from inadequate number of nurses deployed for paediatric care. Paediatric surgery is limited in the range of operations performed and requires to be developed further keeping in view the range of surgeries to be performed in DH (Director General of Health Services, MoHFW, GoI, 2012) and the most common surgical conditions referred to DH for management under RBSK.

One of the important reasons for there being no uniform pattern for organising paediatric emergency care and inpatient and outpatient services is the lack of clear operational guidelines in this regard. Relative improvement in quality of new born care, which was established much later than paediatric care, seems to have benefitted immensely from issuing of national operational guidelines and standards of performance. Monitoring of facilities and service provision has been facilitated by the national guidelines as they provide a benchmark against which to assess them and identify gaps. There are no specific operational guidelines for setting up of paediatric care units except for the broad recommendations made in IPHS 2012. As a result certain Dhs do not have provision for separate paediatric outpatient services (subsuming children into the category of adults) and DHs in Bihar failed to draw attention to the fact that paediatric inpatient services had not been made functional. This also underlines the need for age and gender disaggregated data from DHs and clearly defining the age group that is eligible for admission into paediatric facilities.

Aspects of paediatric care emerging as areas for priority attention in planning and provisioning in District and State work plans are as follows:

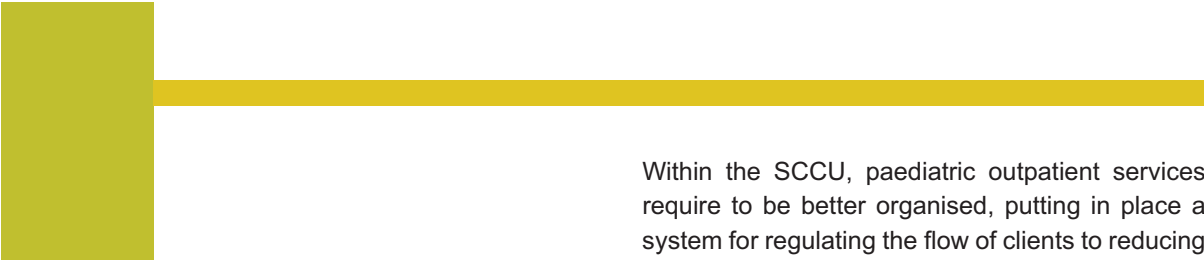
- (I) Establishing of paediatric triage and emergency area in all districts hospitals based on national standards and operational guidelines;

- (ii) Reorganisation of paediatric outpatient department and inpatient services to improve efficiency of service providers and patient monitoring;
- (iii) Development of skills of doctors and nurses to manage paediatric emergencies (ETAT) and common childhood conditions as per the national standards of care (F-IMNCI);
- (iv) Improvement of record keeping for paediatric services, both inpatient and outpatient, introduction of standard patient record formats and institution of child death audit; and
- (iv) Improvement in coordination between paediatric and obstetric departments for organisation of newborn care at birth and during postnatal period.

#### **(I). Establishing of paediatric triage and emergency area in all districts hospitals**

One of the most conspicuous gap in paediatric services is the lack of emergency triage and treatment across all 13 DHs. While DHs receive the sickest children through referrals from peripheral facilities, both public and private, there no mechanism in place to ensure prompt management of these cases. Since DHs should be equipped adequately to provide services commensurate with second referral facility, development of standard operational guidelines for paediatric emergency room and emergency services would go a long way in providing programme managers and service providers a clear direction for action.

Many DHs have space in the newly constructed emergency wing or Trauma Centres. For example, in DH Dausa, multiple rooms in the Emergency/Trauma Centre, equipped with ventilators, beds, and patient monitors remained un-utilised as was witnessed during the visit when survivors of a major road traffic accident were brought there at the time of the hospital assessment visit. Hospital administration therefore should consider developing a dedicated emergency area (a single room or a separate space) for management of sick newborns and children that is adequately equipped to address their specific needs.



This space should be provisioned for appropriate sized bed, paediatric equipment (eg. for resuscitation, gastric intubation), essential drugs and health personnel (doctor and nurses) trained in paediatric triage and management of emergency conditions (ETAT). Provision of emergency services would reduce the dependence on staff nurses working in the paediatric ward or newborn care unit (who are already short of required numbers) and reduce delay in initiation of treatment after the child has reached the hospital. Paediatrician/ doctor on call should be required to assess all the cases in the triage and emergency area itself, institute emergency treatment and thereafter decide about transfer to inpatient or referral to tertiary hospital.

All doctors and staff nurses, (and auxiliary staff as well, where feasible) posted by rotation in emergency & trauma department should mandatorily be trained in ETAT, which is part of national training package (F-IMNCI). The possibility of delivering ETAT as a stand alone module for doctors and nurses and developing specific skills set required in the emergency room should be considered in light of challenges associated with delivery of complete F-IMNCI package at a single go.

#### **(ii) Reorganisation of paediatric outpatients and inpatient services to improve efficiency and patient monitoring**

It is proposed that Sick Child Care Units (SCCU) comprising of emergency and inpatient services, be established at DHs and CHCs designated as FRUs. SCCU would comprise of (1) receiving, triaging and emergency area; (2.) high dependency observation area; (3) paediatric ward, and (4) Diarrhoea Treatment Room (DTR). Specification for establishment of SCCUs and standards of care should be laid down in sync with IPHS standards and national guidelines for various child health interventions.

Within the SCCU, paediatric outpatient services require to be better organised, putting in place a system for regulating the flow of clients to reducing overcrowding and prioritising sickest children for consultation. Provision for weighing of children of all age groups, recording of height and weight and assessment of growth needs to be ensured in every paediatric OPD. Staff nurses need to be trained to screen seriously ill children and cases of SAM. Functionality and ambience of the paediatric OPD area requires better planning with designation of a reception area, where feasible, and provision of basic facilities such as benches, fans and water coolers.

Bed strength of the paediatric ward needs to be decided on basis of utilisation trends over past years, making additional provisions where data is likely to be an underestimate (eg. referrals made on account of full bed occupancy). The overall standard of cleanliness and hygiene in paediatric wards needs attention as also the provision of washbasins, (with running water), hand disinfectants and protective gear (gloves & aprons). Cleaning and maintenance services are outsourced in most DHs; higher standards of service delivery must be demanded. Nursing station located outside the ward is not an ideal setup for monitoring the progress of paediatric cases many of whom are seriously ill. Replacement of wooden doors by 'see through' glass doors (where there are multiple rooms) and placing sickest patients in the room closest or directly opposite to the nursing station would assist in improved monitoring. Equipment required in paediatric emergencies needs to be ideally available within the ward. When not feasible due to risk of pilferage, it can be organised (on trolleys or trays) and placed at the nursing station so that it can be mobilised easily at the time of use. Where feasible, location of paediatric OPD, inpatient wards and emergency in the same wing will facilitate organisation of paediatric services will increase efficiency of the available staff and reduce time lost in transfers.

Staffing of paediatric wing needs to be reviewed in order to improve supportive care; oftentimes this is not due to shortage of nurses but due to non-appreciation of workload in paediatric wards.



### **(iii) Development of skills of health personnel to manage paediatric and newborn emergencies and serious illnesses as per national standards of care (F-IMNCI)**

The standards of care for newborns and children at health facilities are described in the national F-IMNCI package that has been in use since 2009. It is envisaged as a comprehensive package to equip doctors and nurses with skills to identify sickness in children and neonates and manage them at the facility, thus addressing the gap in the availability of paediatricians in the public health system (MoHFW, GoI). Considering that children 0-5 form 10-13 percent of the population and likely to have more illness episodes compared to adults, new-born and paediatric care would continue to be amongst the key service packages under the national health programme. Therefore it is important that development of appropriate and adequate skills for delivery of paediatric emergency and inpatient services be given the priority that it deserves.

An evaluation (MoHFW, DFID, 2013) of the F-IMNCI training carried out by an independent agency in 2013 indicates that less than 15 percent of F-IMNCI trained staff in the states (including Bihar, Rajasthan, Madhya Pradesh) have adequate knowledge and are practicing the skills learnt. The evaluation report makes several recommendations with regards to simplification of training content for staff nurses, updation of protocols and harmonising content across training programmes. While this is to be taken up at the level of MOHFW and apex training institutes, State Governments need to review the state specific implementation challenges and bring renewed focus on F-IMNCI training, which is a comprehensive skill building package for paediatric and newborn care. Identifying innovative delivery mechanisms (including self-learning modules, skills labs), monitoring the progress of trainings and post training supportive supervision similar to that provided to facility based newborn care through collaborative centres would help the providers in meeting the standards of care.

Since children have age and weight specific requirements in terms of administration of drugs and conducting procedures, basic skills in management of paediatric conditions should be provided to all staff involved in their clinical management.

ETAT, a part of F-IMNCI package, needs to be mandatory for all doctors and staff nurses posted full time or by rotation to Emergency Department. Management of paediatric emergencies through nurses trained in ETAT could be the way forward given the scenario in which paediatricians /doctors are not available round the clock.

The concept of Family Centred Care (FCC) is worth considering given the scenario in which there are human resource constraints and follow up after discharge is almost non-existent. FCC aims to provide a setting in which family is empowered with essential skills, encouraged to be actively involved in care and supported in caring for their sick child or newborn. There is evidence that improved communication and involvement of parents in their child's care can reduce the length of stay of pre-term infants in the neonatal unit, the need for re-hospitalisation and long-term morbidity. FCC can also contribute to improving the quality of care in resource constrained settings, where nurses are hard pressed for time and care givers are present in large numbers but not meaningfully involved.

### **(iv) Improvement in record keeping for paediatric services, both inpatient and outpatient:**

Bihar and Madhya Pradesh have introduced an online system for registration of patients in the outpatients department. This system should eventually be extended to inpatients for the many benefits that it can bring in terms of creating patients' profile, identifying morbidity patterns, forecasting requirement for beds, drugs, consumables and human resources. To manage data electronically, standard case recording formats and registers, similar to those introduced in SNCU (for SNCU- online database), should be designed and introduced at the earliest. Experience with monitoring of services in SNCU and NRC using standardised patient record format shows that many of the issues related to utilisation and quality become apparent on analysis of data. Before any new data collection and management systems are introduced, reporting on child health indicators already included in the HMIS needs to be accorded due priority and used for performance review at the

level of DH (by PMO/ CDMO/ ADMO/ CS) and in District and State level meetings.

Audit of facility based paediatric deaths needs to be initiated at DHs. Facility specific Child Death Review report needs to be prepared so that the main cause of death and delays at DH are identified and addressed locally.

**(v) Improvement of coordination between Paediatrics and Obstetrics Departments for organisation of newborn care at birth and in postnatal period**

Overall scores from hospital assessment underline the need to further improve the quality of essential newborn care in postnatal period. While the newborn care corners are established in nearly all labour rooms, it is difficult to ascertain if NSSK trained personnel are present round the clock since the nursing staff is still posted by rotation in many DHs. The tensions between the obstetric and paediatric teams is palpable at DHs, where issues like not sending calls timely to doctors (paediatricians) for attending high risk deliveries or poor intranatal care during delivery, is cited as the reason for birth asphyxia. Observation of 5 cleans in the labour room is a challenge; unclean/ unhygienic labour tables, no use of protective personal gear (except for use of gloves), unclean hands (hand washing not followed rigorously), are common as witnessed during the visits.

Better coordination is also required between paediatricians and obstetricians in terms of care in labour room and postnatal ward. Paediatricians have expressed their lack of control over the organisation and maintenance of NBCCs in the labour room, and practices followed in the postnatal ward. States/DH authorities need to clearly define the department/ person responsible for ensuring the functionality of NBCC so that all newborns receive immediate and essential care at the time of birth. Since inborn admissions form a significant proportion of the total admissions, preventive measures in the labour room (asepsis, active management of 3rd stage of labour) could potentially bring down the incidence of hospital acquired infections and birth asphyxia.

Implementation of guidelines relating to antenatal use of corticosteroids (in cases of preterm labour), mandatory use of Inj. Vitamin K at birth, and KMC for low birth weight / preterm babies are required to be followed across the Departments and must be shared with all the health providers involved in care of newborns.

Equally important is the care of new-borns in the 48 hours post-natal period when babies are rooming in with mothers. Maintenance of hygiene and avoiding overcrowding in the postnatal ward, support for establishing breastfeeding, maintenance of body temperature, vaccination and identification of early signs of illnesses or congenital problems are to be ensured during this period.

Nurses /Doctors in both the obstetric and paediatric departments need to work closely in order to ensure that these needs are met jointly and the continuum of newborn care is established right from the time of birth till discharge from the health facility, and followed by home based newborn care. With the construction of MCH wings, many of the structural issues (such as space, availability of toilets, washbasins) should be addressed; however special focus is still required on issues such as cleanliness, hygiene, promotion of breast feeding and maintaining optimal room temperature. Uniform newborn care practices are required across the DH, so that babies delivered by Caesarean section, those admitted to SNCU and those in postnatal ward receive the standard package of services and similar quality of care.

# VI.

## CONCLUSION

This hospital assessment report highlights various aspects of newborn and paediatric care in the DHs, which are being envisaged as upgraded units providing secondary referral care and possibly as teaching institutions at the district level (Planning Commission of India, Gol, 2013). Beyond the neonatal period, diarrhoea and pneumonia contribute to 26 percent of deaths in children under age of 5 years (CHERG, 2012). Along with underlying malnutrition (both as cause and effect of diarrhoea and pneumonia) and fever, they are the four key morbidities for which children are referred or seek admission to health facilities. In this context, it is timely to take stock of facilities and services currently available for children and bring the same kind of urgency for quality improvement that has been shown for the newborn care component. The recommendations made in this report should not be difficult to implement as the country has the experience of using similar approaches for improving facility based newborn care in the country at a massive scale. What is required is for the national and state programme managers to recognize that quality of paediatric care in DHs and across the public health facilities is far from meeting the recommended standards of care.

Developing national operational guidelines for paediatric emergency and inpatient services, making necessary budgetary provisions and monitoring the performance of paediatric units would be important steps towards bringing quality to paediatric care. According a high priority status, as has been done for newborn care, is critical to improving provision of paediatric health services and thus reducing mortality amongst sick children.

State planners and managers will have to discern between those areas that can be taken up for improvement immediately and those that must be followed up in the intermediate time frame. Emergency services would be the fore-runner in terms of requiring immediate action while setting up of other elements of sick child components could be taken up over a longer time frame depending on facility specific assessment of the changes required.


Human element in terms of motivation and commitment remains crucial to the success of any change process. Engagement of service providers from DHs as equal partners and stakeholders in the assessment study has hopefully catalysed a process of learning and reflection and will be a motivation for bringing about a positive change in these facilities.

The key findings from the hospital assessment study have been shared with the state authorities and key stakeholders in three out of four states at the time of finalisation of this report. All three states (Madhya Pradesh, Odisha, and Rajasthan) have shown willingness to address the quality issues in the DHs and to take necessary steps to improve emergency and inpatient paediatric care. Pilots for establishing paediatric emergency services and Sick Child Care Units (SCCU) will be taken up in the same districts where the assessments were conducted and models established within the NHM framework for the purpose of demonstration and learning over the next two years. Introducing Family Centred Care in the existing newborn care units would be the starting point for engaging care givers in the process of facility based care and empowering them with the skills to meet the needs of newborns and infants in the home environment. The learning and experience from these pilots would provide the basis for upscaling & replication across the states.



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