



TWO-YEAR PROGRESS OF

Special Newborn Care Units in India

A BRIEF REPORT



Child Health Division
Ministry of Health and Family Welfare
Government of India

SPECIAL CAR NEWBORN UNIT
नवजात शिशु गहन चिकित्सा इकाई
R.D. गौतम ट्रस्ट प्रा. लि. एच. आर.के.ए. के अन्तर्गत युनिसेफ के तकनीकी सहायता से स्थापित
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बिना अनुमति प्रवेश निषेध

इन बॉन यूनिट
IN BORN UNIT



ACRONYMS

EAG	Empowered Action Group
FBNC	Facility Based Newborn Care
HFS	High Focus State
HPD	High Priority District
JSSK	Janani Shishu Suraksha Karyakram
LAMA	Left Against Medical Advice
LBW	Low Birth Weight
MAS	Meconium Aspiration Syndrome
NBCC	Newborn Care Corner
NBSU	Newborn Stabilization Unit
NE	North-East
NHF	Non High Focus
RDS	Respiratory Distress Syndrome
RMNCH+A	Reproductive, Maternal, Newborn, Child and Adolescent Health
SNCU	Special Newborn Care Unit
UT	Union Territory
VLBW	Very Low Birth Weight

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INTRODUCTION

Facility Based Newborn Care (FBNC)

programme is one of the key initiatives launched by the Government of India under the National Rural Health Mission and RMNCH+A Strategic programme to improve the status of newborn health in the country. Under the programme, efforts are being made to provide different level of newborn care at the health facilities. While Newborn Care Corners (NBCCs) have been established at all delivery points to provide essential newborn care, Newborn Stabilization Units (NBSUs) have been established at all Community Health Centers/First Referral Units for management of selected newborn conditions and to stabilize serious and sick newborns before referral to higher centres.

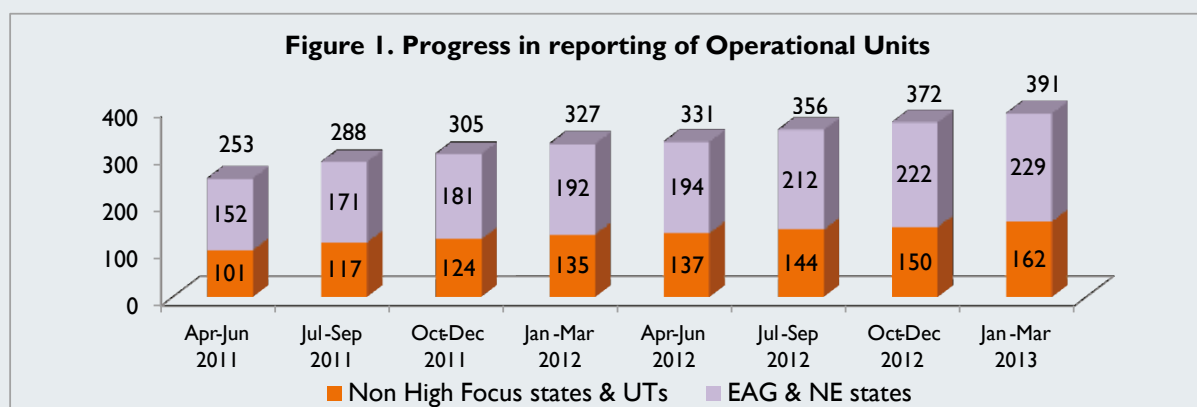
Special Newborn Care Units (SNCUs) have been established at district hospitals and sub-district hospitals with annual delivery load more than 3000 to provide care for sick newborns, that is, all type of neonatal care except assisted ventilation and major surgeries. It is a separate unit in close proximity to the labour room with 12 or more beds, and managed by adequately trained doctors, staff nurses and support staff to provide 24x7 services.

This report provides a comprehensive overview of the progress made by the country in terms of establishment and functionality of SNCUs during the two year period from April 2011 to March 2013. It describes the progress in the operational status, bed strength, human resource availability, and service utilization of the units. In addition it provides statistics at a glance separately for the High Focus States (includes Empowered Action Group (EAG) and North-East (NE) States) and the Non High Focus (NHF) States and Union Territories (UTs) to facilitate differential planning and better monitoring of these units.

Information available from the routine monitoring system was utilized to prepare this report. Monthly reports submitted by individual SNCUs were collated at the State level and then submitted to the National level on a quarterly basis. Data from the States was checked for completeness and accuracy, and a set of selected indicators calculated. Submission of written records was taken as an essential pre-requisite for SNCU to be considered as an operational unit, and units with less than 4 beds were not considered for the final analysis.

OPERATIONAL UNITS

The following figure illustrates the quarterly progress in the reporting of Operational SNCUs in the country. Compared to the baseline figure of 253 SNCUs in April 2011, the number of reporting units increased to 391 in March 2013 indicating an increase of 138 units (55%). The Non HF States & UTs showed 60% increase in the reporting units compared to 50% increase in the HF States & UTs. There were 13 States/UTs (1 EAG State, 6 NE States, 2 Non EAG States, 4 UTs) that did not report a single operational unit. (See table I for detail)



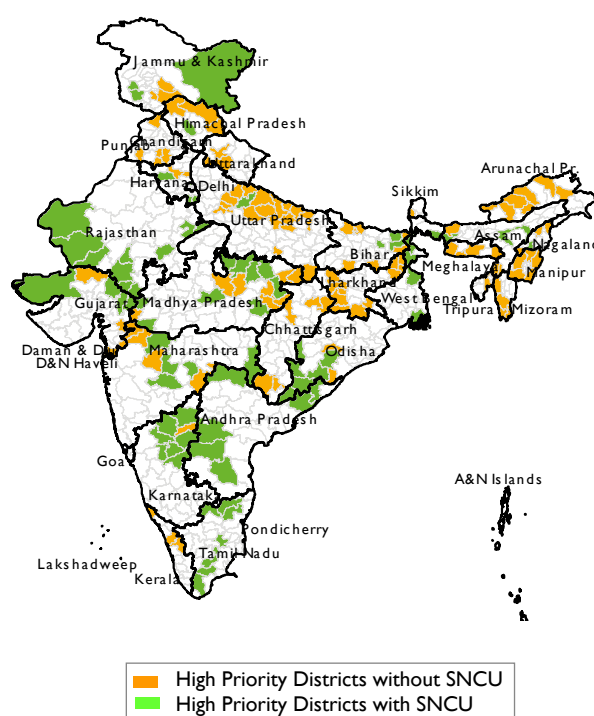
GEOGRAPHICAL DISTRIBUTION

The 391 SNCUs reported operational in March 2013 were present in 318 districts of the country representing 49% of all the districts in the country (Total n=648). Out of the 184 High Priority Districts (HPDs) identified in the country under the RMNCH+A Strategic Approach, 76 (41%) HPDs had an SNCU. The geographical distribution of the districts with SNCUs and HPDs with SNCUs is seen in the figure below. (Figure 2.)

Districts with SNCUs (n = 318)



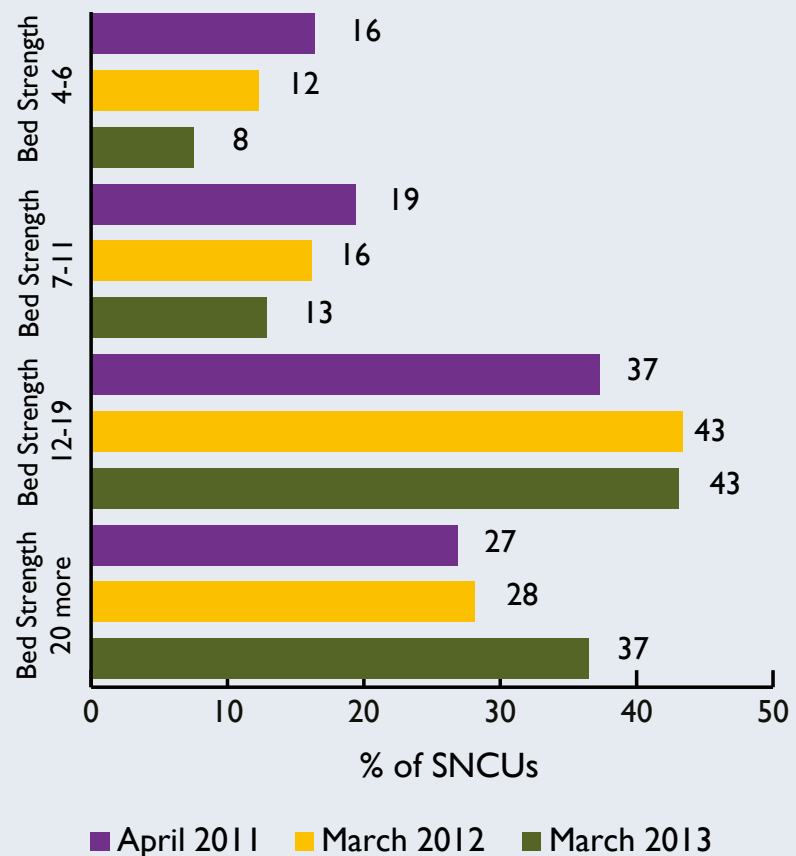
High Priority Districts with SNCUs (n = 76)



BED STRENGTH DISTRIBUTION

The average number of beds per SNCU increased from 13.6 to 15.9 over the two year period, and the proportion of SNCUs with bed strength as per the recommended norm of 12 or more beds increased from 66% to nearly 80% (Figure 3). While 86% of SNCUs in the EAG & NE States had bed strength of 12 or more, the proportion of such units in the Non High Focus States & UTs was 73% (Table I).

Figure 3. Improvement in bed strength distribution over time



ADEQUACY OF HUMAN RESOURCES

Human Resource adequacy was calculated using the norm of 1 doctor per 4 beds and 1 nurse per 1.5 beds for a SNCU. In March 2013, the average number of doctors per SNCU was 4.1 (data from 220 units) while the average number of nurses per SNCU was 9.4 (data from 228 units). Compared to figures of April 2011, the proportion of SNCUs with adequate nurses increased from 28% to nearly 50%, in March 2013 while the doctor's adequacy increased by 3% during the same period (Figure 4). However these figures do not reflect the availability of designated staff at these units.

Figure 4. Comparison of doctors and nurses adequacy over time

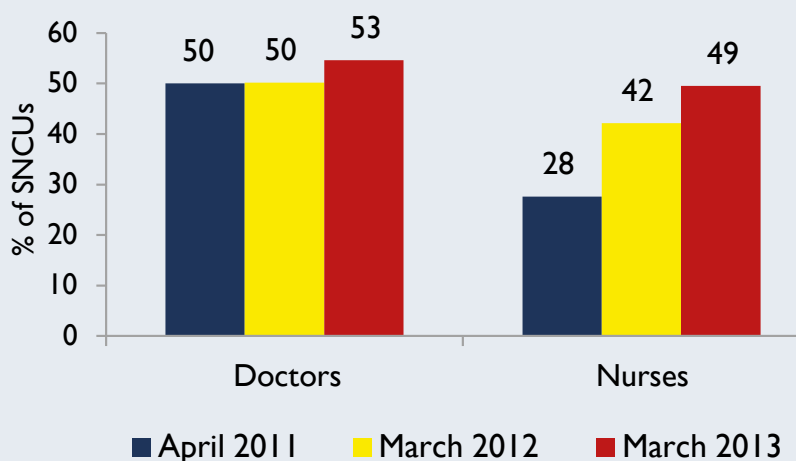


Table 1. State Statistics: Operational Status, Bed Strength and Human Resource Adequacy (as on March 2013)

EAG & NE States

State	SNCUs reported operational	% of HPDs with SNCUs (n/N)	Avg. no. of beds per SNCU	% SNCUs with 12 or more beds	% SNCUs with adequate no. of	
					Doctors	Nurses
Assam	15	50 (3/6)	15.9	93.3	60.0	66.7
Bihar	10	30 (3/10)	13.3	50.0	90.0	70.0
Chhattisgarh	0	0 (0/5)	-	-	-	-
Himachal Pradesh	6	25 (1/4)	13.6	60.0	66.7	0.0
Jammu & Kashmir	13	50 (3/6)	9.5	16.7	75.0	8.3
Jharkhand	1	0 (0/11)	16.0	100	100	100
Manipur	0	0 (0/5)	-	-	-	-
Meghalaya	0	0 (0/4)	-	-	-	-
Madhya Pradesh	41	53 (9/17)	20.7	100	-	-
Mizoram	0	0 (0/4)	-	-	-	-
Nagaland	1	25 (1/4)	8.0	-	-	-
Odisha	22	75 (6/8)	15.1	95.4	31.8	63.6
Rajasthan	36	100 (10/10)	13.1	100	35.3	47.2
Sikkim	0	0 (0/1)	-	-	-	-
Tripura	0	0 (0/1)	-	-	-	-
Uttarakhand	2	0 (0/3)	24.0	-	-	-
Uttar Pradesh	15	5 (1/19)	18.3	85.7	57.1	0.0
TOTAL	162	30 (37/125)	15.9	86.1	51.4	45.5

Non High Focus States & UTs

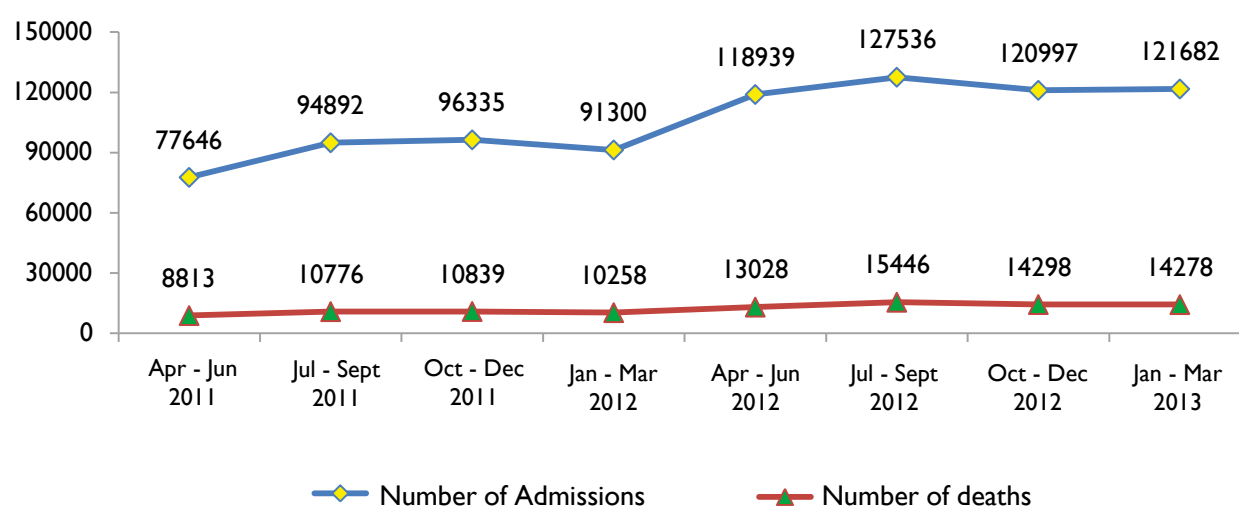
State	SNCUs reported operational	% of HPDs with SNCUs (n/N)	Avg. no. of beds per SNCU	% SNCUs with 12 or more beds	% SNCUs with adequate no. of	
					Doctors	Nurses
Andhra Pradesh	36	100 (6/6)	21.6	92.0	0.0	42.9
A & N Islands	1	-	-	-	0.0	0.0
Chandigarh	3	-	32.7	100	100	66.7
D & N Haveli	0	-	-	-	-	-
Daman & Diu	0	-	-	-	-	-
Delhi	14	100 (2/2)	-	-	-	-
Goa	3	-	16.7	33.3	-	100
Gujarat	24	50 (4/8)	13.5	40.0	62.5	57.1
Haryana	13	60 (3/5)	-	-	-	-
Karnataka	33	88 (7/8)	12.3	75.9	38.1	58.3
Kerala	0	0 (0/3)	-	-	-	-
Lakshadweep	0	-	-	-	-	-
Maharashtra	29	56 (5/9)	8.0	25.0	53.3	53.3
Puducherry	0	0 (0/1)	-	-	-	-
Punjab	0	0 (0/5)	-	-	-	-
Tamil Nadu	43	100 (7/7)	16.7	80.9	73.8	38.1
West Bengal	30	100 (5/5)	17.3	88.5	87.5	88.9
TOTAL	229	66 (39/59)	16.0	73.1	54.9	51.2
ALL INDIA	391	41 (76/184)	15.9	79.3	53.1	48.5



ADMISSIONS AND MORTALITY

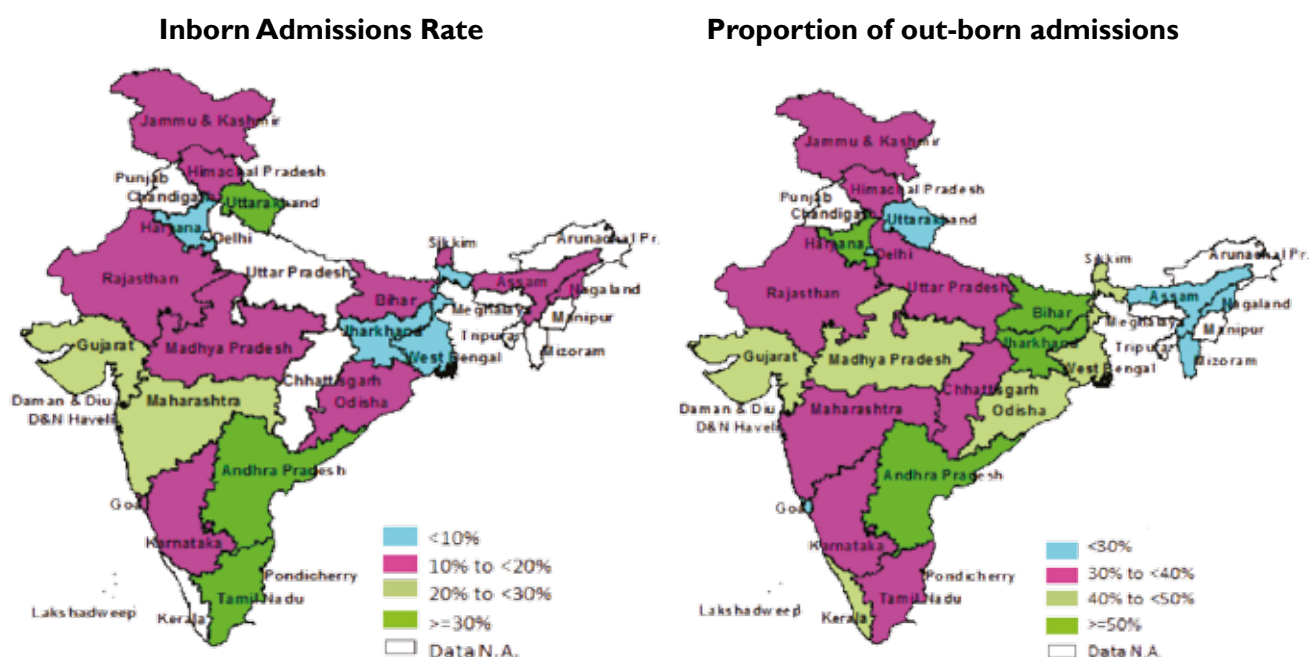
During the year 2011-12, there were a total of 3,60,173 admissions reported from the SNCUs out of which 40,686 babies died giving an annual mortality rate of 11.3%, while during the year 2012-13 a total of 57,050 babies died out of 4,89,154 admissions suggesting an annual mortality rate of 11.7%. The quarterly trend in the number of admissions and deaths is seen below. (Figure 5.)

Figure 5. Trend of admissions and deaths



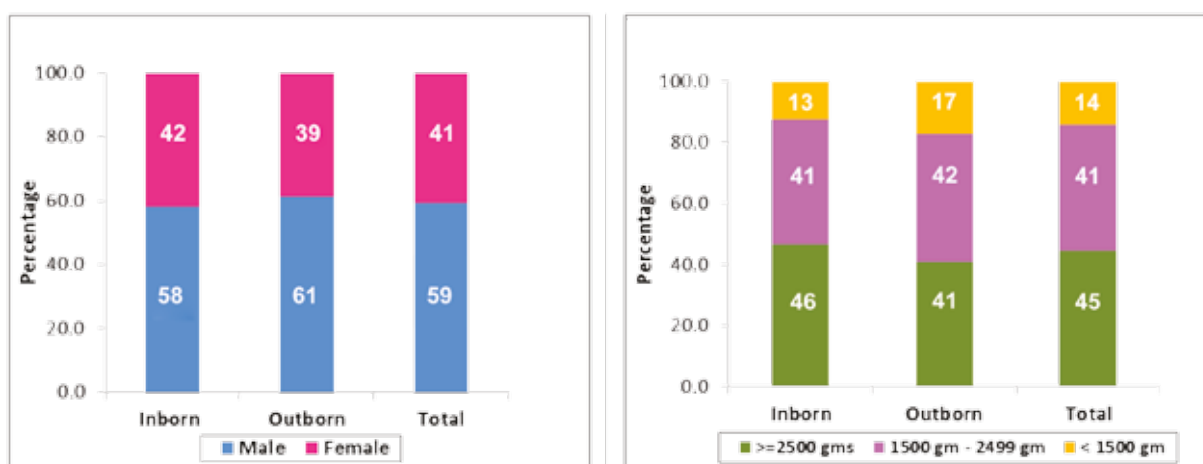
ADMISSION PROFILE

Detailed profile of the admissions was available for the year 2012-2013 only. During this year, the Inborn Admission Rate in the SNCUs (out of the total live births in the facility) was 19% for the country with 17% rate in the EAG & NE States (range: 6-45%) and 22% in the Non High Focus States & UTs (range: 7-56%). Out-born babies constituted 38% of the total admissions and the proportion of out-born admissions ranged between 30-50% in most states (Table 2). The state wise distribution of these two indicators is given below. (Figure 6.)



Information on gender distribution was available for 64% of the total admissions, while birth-weight distribution was available for 62% of the total admissions. (Figure 7) Female babies constituted nearly 41% of the total admissions, with the figures higher in the Non High Focus States & UTs compared to the EAG & NE States (45% versus 40%). The proportion of female babies admitted in the SNCUs was lower than that of male babies among both inborn and out-born babies (42% versus 39%), but the difference was higher among out-born babies. In EAG & NE States, 35% of out-born admissions were females compared to 40% in Non High Focus States & UTs (See Table 2)

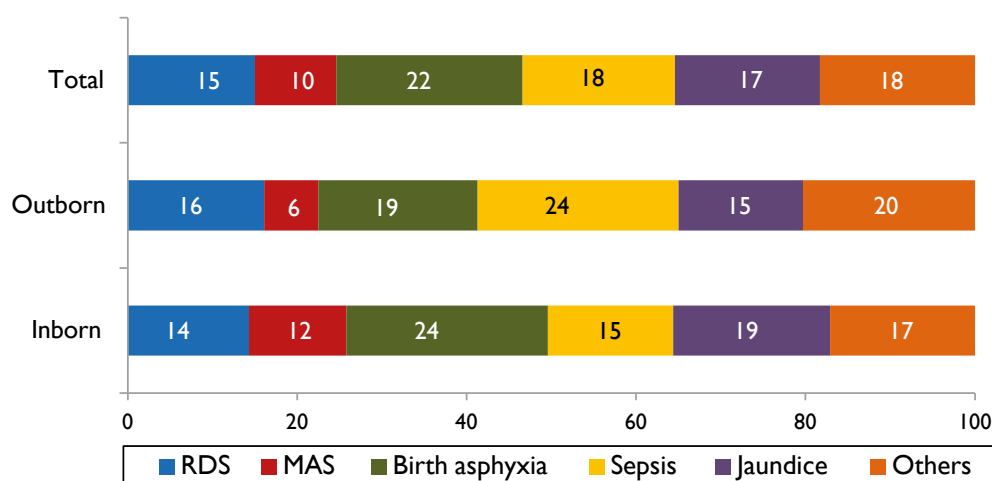
Figure 7. Distribution of admissions by gender and birth weight



Low Birth Weight (LBW) babies made up more than half of the total admissions (55%) and these included 14% Very Low Birth Weight babies (VLBW babies with birth weight less than 1500 gms). A higher proportion of VLBW babies were admitted in the SNCUs as out-born admissions compared to those admitted as in born (17% versus 13%), but the proportion of normal weight babies getting admitted was higher for the inborn admissions (46% versus 41%).

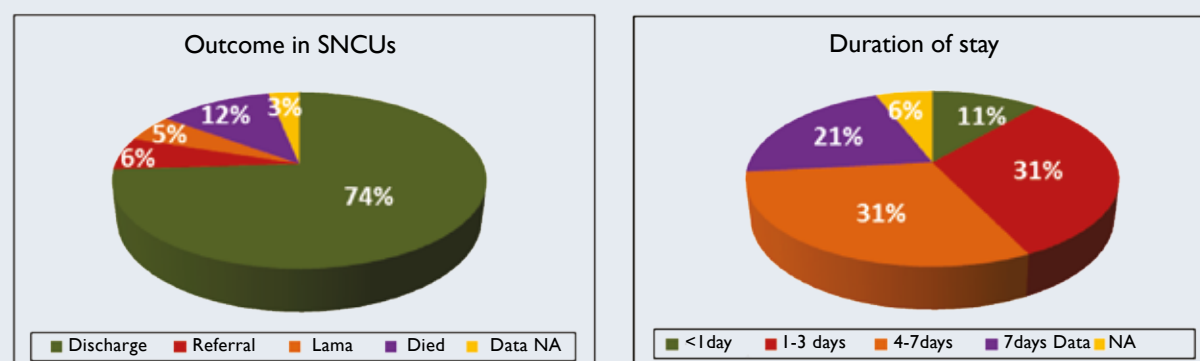
The morbidity pattern at the time of admissions is seen in the figure below. The three main reasons for admission in the SNCUs were birth asphyxia (22%), others (18.3%) and sepsis (18%) [Others include hypothermia, hypoglycaemia, congenital malformation, other causes of respiratory distress, etc]. Prematurity as the primary reason for admission was not captured from the reports, while Respiratory Distress Syndrome (RDS) was the reason in 15% admissions. The main reasons for admission in babies admitted from outside were sepsis, other causes and birth asphyxia, while for inborn admissions the reasons were birth asphyxia, jaundice requiring phototherapy and other causes. (Figure 8)

Figure 8. Morbidity distribution at time of admission



OUTCOME & DURATION OF STAY

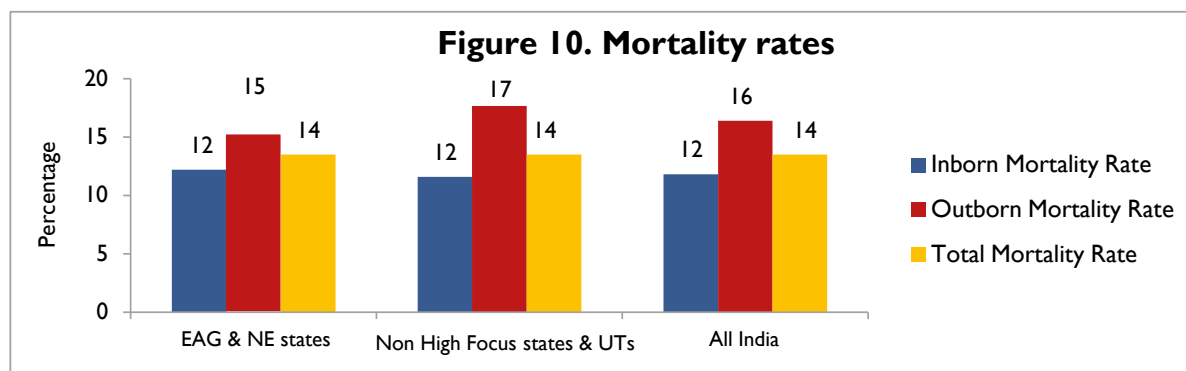
Almost 75% of the admissions were discharged alive while 6% sick babies were referred to higher centres and 5% left against medical advice (Left Against Medical Advice or LAMA). The sickness profile and the outcome of those referred or who went LAMA was not available. The mortality rate in the SNCUs was 12%. Majority of the babies stayed in these units for 1-7 days with equal proportion staying for either 1-3 days or 4-7 days. About one-fifth of the babies were admitted for more than 7 days while 11% stayed for less than 1 day. (Figure 9)



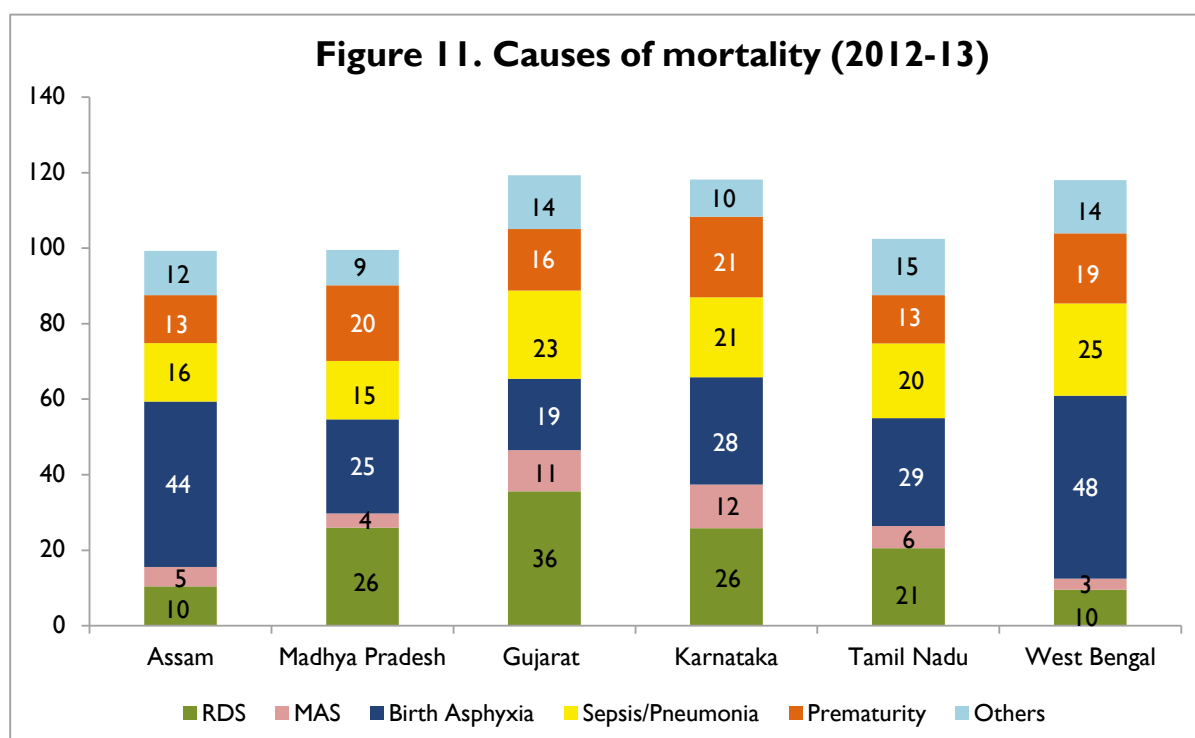
*Outcome and duration of stay data available for 60% of admissions

MORTALITY

Mortality rate among out-born admissions was higher than that of inborn admissions in both the EAG & NE States and the Non High Focus States & UTs, but the percentage difference was bigger in the Non High Focus States & UTs (5.6% difference versus 3.1% difference in EAG & NE States). Information on these mortality rates was available for 71% of the total admissions. The State wise figures for inborn and out-born mortality rate are given in Table 2 (Figure 10).



The cause of deaths for the SNCU admissions (n=25565) for the year 2012-13 as reported from six states is seen below. Four states reported Birth asphyxia as the most common cause of death (range: 29% to 48%), Gujarat reported Respiratory Distress Syndrome (RDS) as the major killer (36%), and Madhya Pradesh reported equal number of deaths due to Birth asphyxia and RDS (both 26%). While inter-state variation was observed in the causality of deaths due to Birth asphyxia (range: 19% to 48%) and RDS (range: 10% to 36%), there was not much variation for the reporting of Sepsis (range: 15% to 25%) and Prematurity (range: 13% to 21%) (Figure 11).



*Each state reported mortality causes for more than 2000 cases. Cumulative percentage was more than 100% as many cases had been assigned more than one primary cause of death

Table 2. State Statistics: Admission and mortality profile (2012-13)
EAG & NE States

State	Total no. of admissions	Inborn Admission Rate (in %)	% of outborn admissions	Proportion of female admission (in %)			Proportion of LBW admissions (in %)			Mortality Rate (in %)		
				Inborn	Outborn	Total	Inborn	Outborn	Total	Inborn	Outborn	Total
Assam	17876	17.3	26.0	42.5	36.5	40.9	48.9	54.2	50.3	10.8	19.3	13.0
Bihar	12183	12.2	54.6	-	-	50.0	-	-	-	15.7	18.7	16.8
Himachal Pradesh	4102	11.4	38.5	42.8	40.7	42.4	-	-	-	-	-	-
Jammu & Kashmir	8802	12.7	39.0	38.1	34.9	37.0	36.2	46.7	40.2	6.9	14.0	8.8
Jharkhand	345	6.1	55.7	40.5	38.0	39.1	63.6	74.5	69.6	27.9	20.0	15.5
Madhya Pradesh	58932	15.1	47.3	39.7	35.0	37.5	53.3	64.4	58.6	11.4	14.7	13.0
Nagaland	290	13.1	29.0	42.3	50.0	31.4	25.4	25.8	25.5	8.2	16.7	9.3
Odisha	29165	15.9	48.8	-	-	50.0	-	-	-	13.7	14.5	14.1
Rajasthan	72982	18.8	36.1	-	-	50.0	-	-	-	-	-	9.7
Uttarakhand	2345	45.4	20.5	41.0	35.6	39.9	40.3	55.7	43.5	7.8	19.9	10.0
Uttar Pradesh	10802	-	32.7	-	-	50.0	-	-	-	18.2	-	12.3
TOTAL	217824	16.7	40.9	40.4	35.4	39.7	50.0	61.5	54.8	12.2	15.3	13.5

Non High Focus States and UTs

State	Total no. of admissions	Inborn Admission Rate (in %)	% of outborn admissions	Proportion of female admission (in %)			Proportion of LBW admissions			Mortality Rate (in %)		
				Inborn	Outborn	Total	Inborn	Outborn	Total	Inborn	Outborn	Total
Andhra Pradesh	44949	19.1	50.7	45.3	44.1	44.8	74.6	63.3	53.6	21.8	24.1	17.6
A & N Islands	1062	34.4	5.4	42.8	50.9	43.2	39.3	42.1	39.5	2.6	10.2	2.9
Chandigarh	4581	19.7	23.1	-	-	50.0	-	-	-	13.3	16.9	17.1
Delhi	16432	-	11.2	43.9	37.6	43.2	41.0	46.5	41.6	5.1	7.2	5.3
Goa	2440	16.7	23.1	-	-	50.0	-	-	-	5.2	9.1	6.1
Gujarat	22620	20.5	40.8	42.7	38.1	41.0	61.8	67.2	63.7	12.0	22.4	15.8
Haryana	11562	9.7	53.7	37.7	36.2	36.8	53.6	78.8	62.2	4.6	6.4	4.8
Karnataka	36786	17.4	33.3	43.6	41.9	43.1	47.5	56.0	47.7	13.2	18.4	14.4
Maharashtra	34272	20.7	30.7	43.9	44.2	44.0	57.1	70.2	60.8	11.0	16.7	12.6
Tamil Nadu	82431	31.5	34.3	40.3	37.1	39.2	49.4	41.2	44.2	8.5	13.3	9.1
West Bengal	15359	7.4	43.2	39.7	37.5	38.8	58.7	60.0	59.2	14.4	15.5	14.7
TOTAL	272494	21.9	35.8	42.6	40.2	45.1	54.2	57.7	55.5	11.6	17.2	13.5
ALL INDIA	490318	19.4	38.3	42.0	38.7	40.8	51.9	58.0	54.2	11.8	16.4	12.1

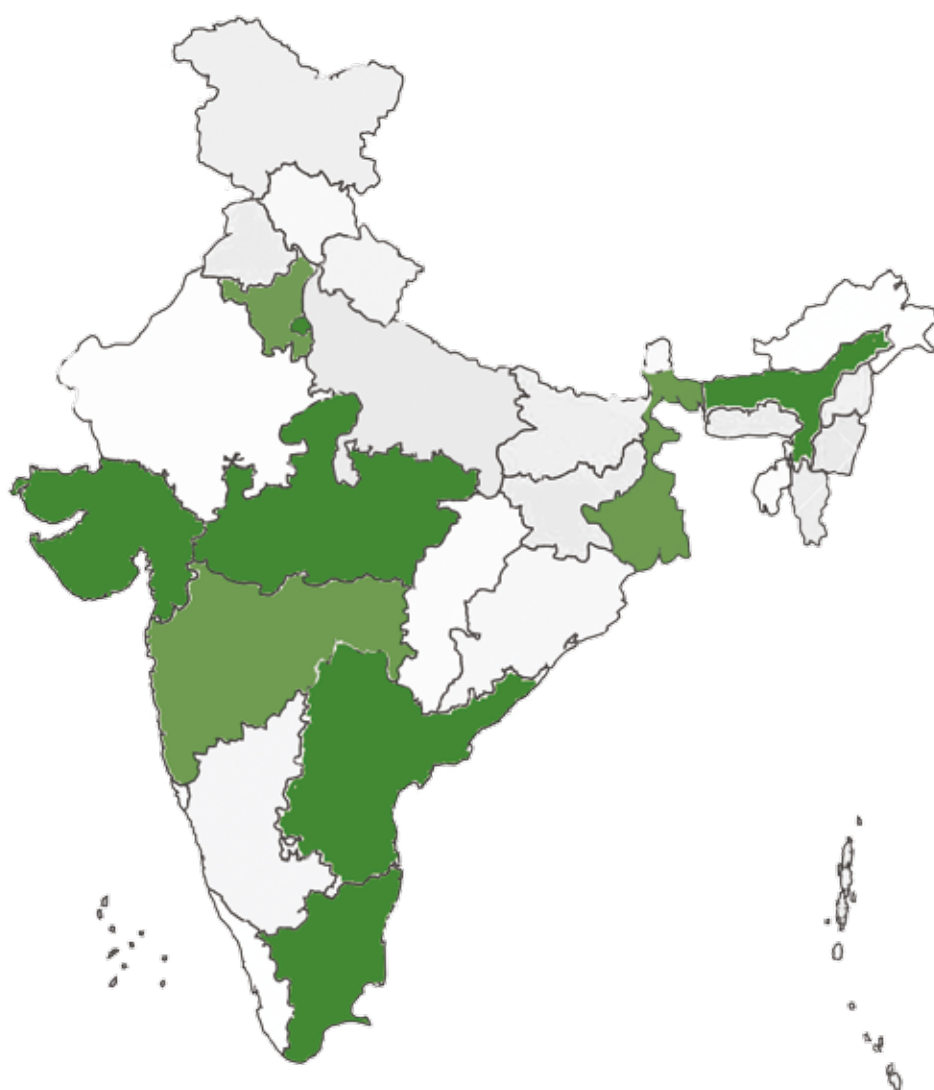
Summary Findings

- In India, number of operational SNCUs increased 1.5 times (from 253 in April 2011 to 391 in May 2013) during the two-year period. However 13 States/UTs did not report even a single operational unit.
- Almost half the districts and two-third (i.e. 59%) of the High Priority Districts identified under the RMNCH+A Strategy did not have an SNCU.
- There has been a considerable improvement in bed strength as per the recommended norm of 12 or more beds per SNCU. However adequacy of human resource is a matter of concern. Only 53% units had adequate number of doctors and less than 50% unit had adequate nurses.
- An increasing trend has been observed in the number of quarterly admissions during the past 2 years. During 2012-2013, nearly 5 lakhs newborn babies were admitted in these units across the country with the annual mortality rate of 11.7%.
- More than half of the admissions included Low Birth Weight babies and about 14% were Very Low Birth Weight babies.
- A higher proportion of normal weight babies (birth weight > 2500 gms) were admitted as inborn admission compared to those admitted as outborn, while the proportion of VLBW getting admitted was higher for the outborn admissions.
- Female babies constituted two-fifth (i.e. 41%) of the total admissions.
- Birth asphyxia, other causes and sepsis were reported as the three main causes for admission in the SNCUs.
- Nearly one-third of all admissions (36% for inborn admissions) were due to intrapartum complications (birth asphyxia and meconium aspiration syndrome). These were also the most common cause of death reported from the SNCUs.
- Wide variation was observed for the causality figures of birth asphyxia and RDS between the different states, while there was not much variation for sepsis and prematurity.

Way Forward

India has made a significant progress in establishing SNCUs over the past 2 years, however now is the time to focus on quality under this intervention. Operationalizing the SNCUs in the HPDs and in the States/UTs without a single functional unit requires immediate attention and priority. District level Newborn Care services should be planned based on the target population and need, and strengthening of the NBCCs and NBSUs should be done simultaneously to ensure referral linkages for optimal utilization of the SNCUs. Strengthening the reporting mechanism, including measures for improving data quality through validation and checks should be a key priority. Complete and accurate reporting should be made mandatory and linked to the release of relevant budget under the State Annual Plans (PIPs) or even the performance based incentive. Concerted efforts by the States/UTs to hire, manage, train and retain the human resources through introduction of innovative HR policies (performance based allowances, hard or difficult to reach area allowances, mentoring and on-site support, building linkages with Medical colleges and Private providers, etc.) is the need of the hour.

A need to move beyond the number of admissions; a clear focus on improving Quality of Care; establishing standardized norms for admission and discharge; development and dissemination of SOPs for clinical management and infection prevention/control; developing referral linkages with NBSU/ NBCC on one end and tertiary care facilities on the other; building staff capacity through training and mentoring; and providing on-site supportive supervision are some of the strategies that need to be scaled-up. These should be further complemented by raising public awareness on the availability of different types of newborn care services at various public health facilities, and the free entitlements given under the Janani Shishu Suraksha Karyakram (JSSK) programme.

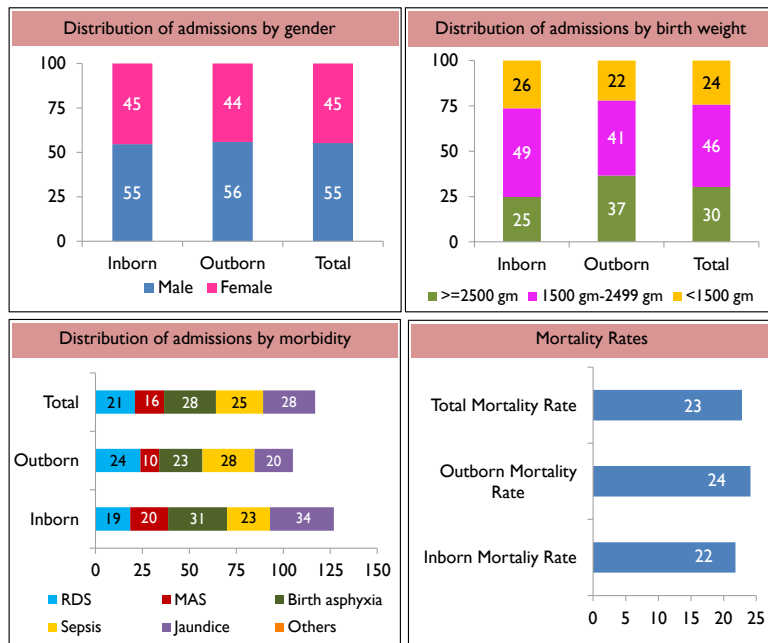


STATE FACT SHEETS

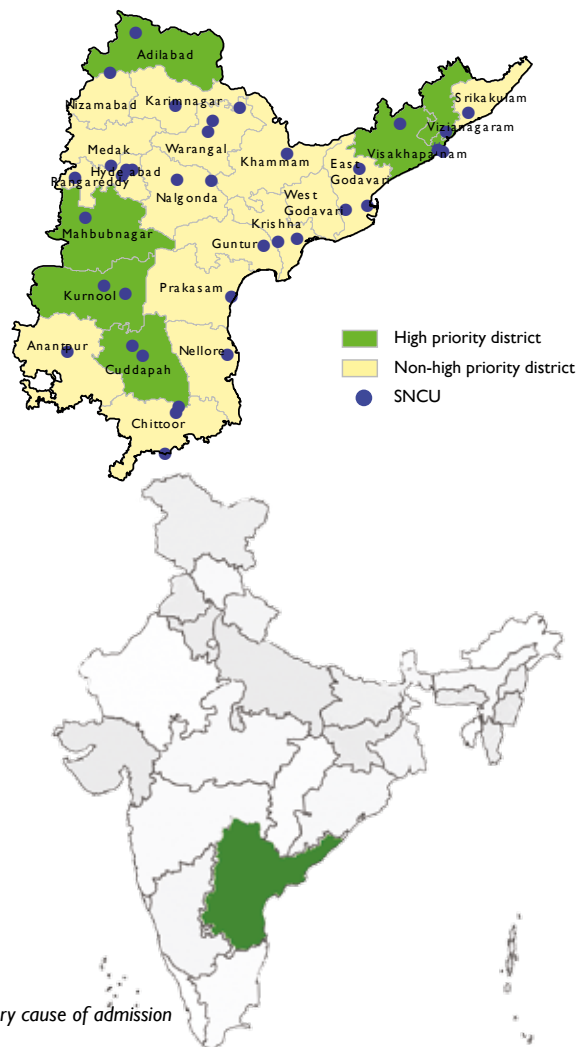
2012-13

ANDHRA PRADESH

No. of SNCUs:	36
Districts with SNCUs (n/N):	22/23
HPD with SNCUs (n/N):	6/6
Total Admission (N):	44949
% Outborn admissions:	50.7

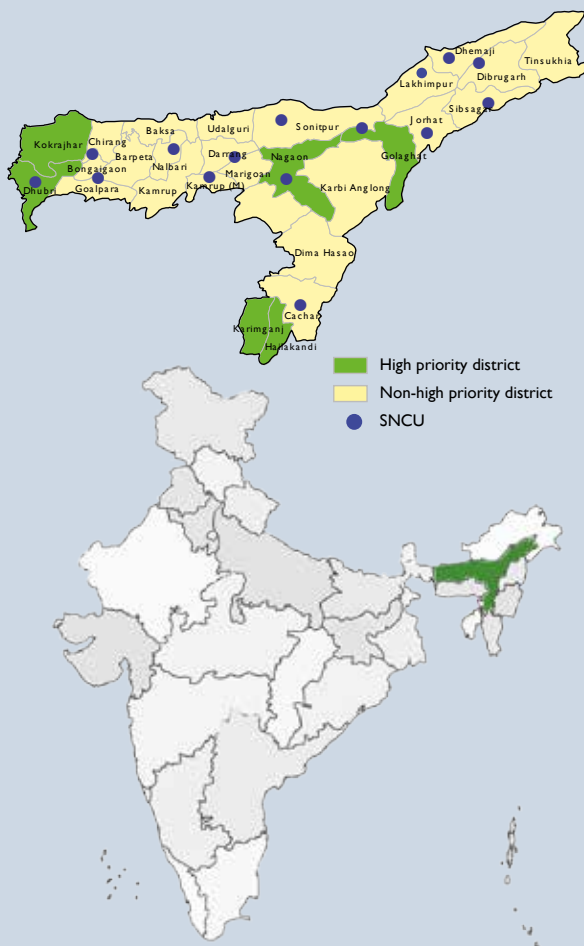
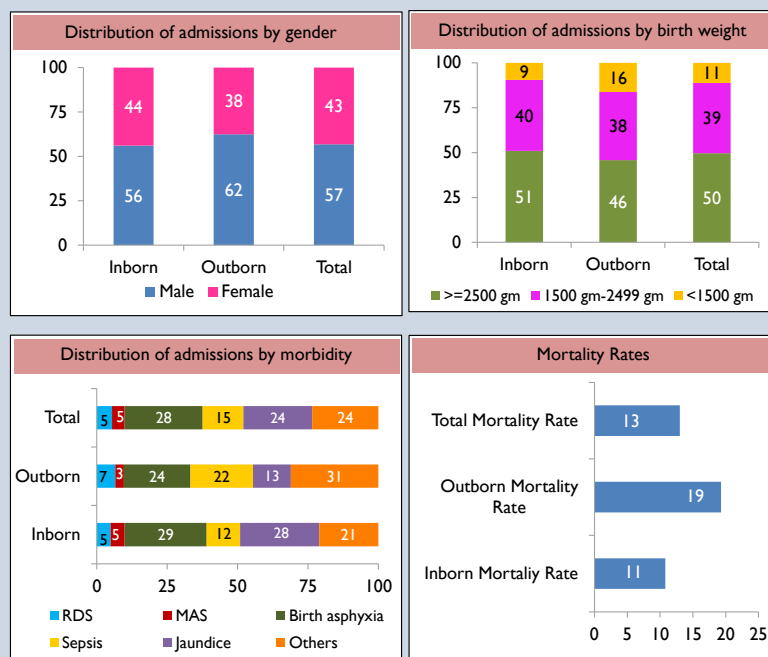


Cumulative percentage was more than 100% as many cases had been assigned more than one primary cause of admission



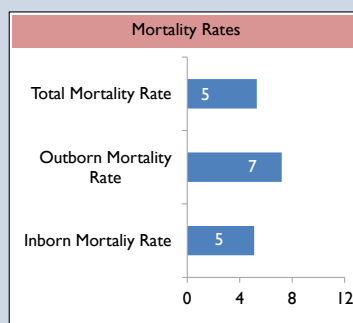
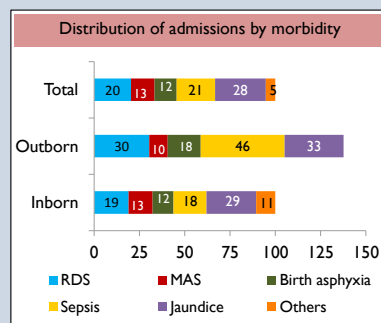
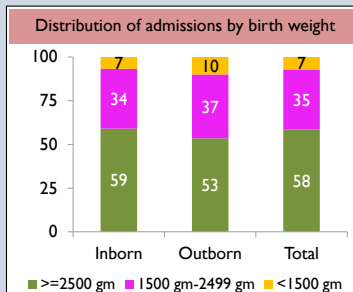
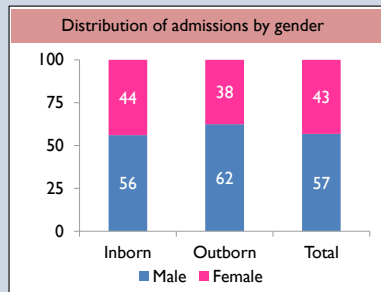
ASSAM

No. of SNCUs:	15
Districts with SNCUs (n/N):	15/23
HPD with SNCUs (n/N):	3/6
Total Admission (N):	17876
% Outborn admissions:	26.0

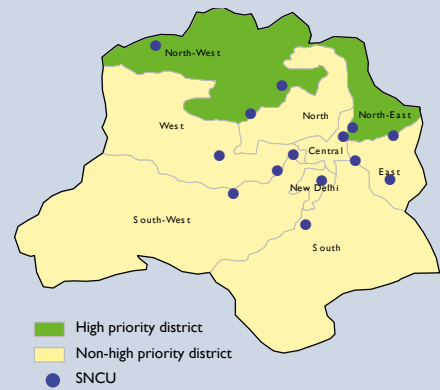


DELHI

No. of SNCUs:	14
Districts with SNCUs (n/N):	8/9
HPD with SNCUs (n/N):	2/2
Total Admission (N):	16432
% Outborn admissions:	11.2

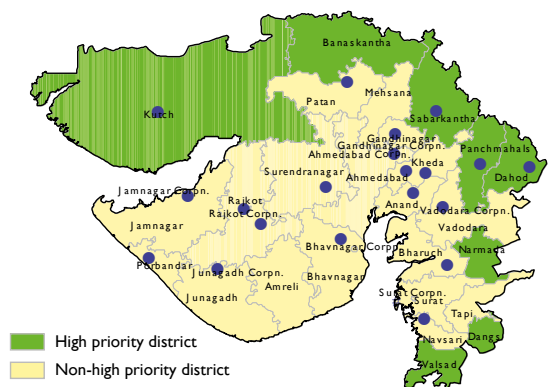
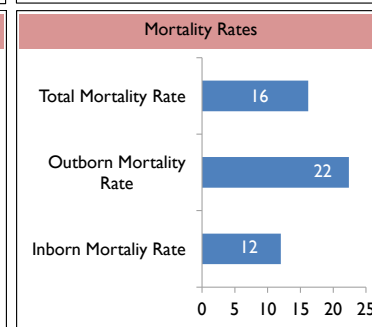
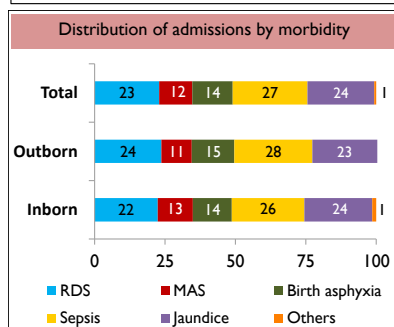
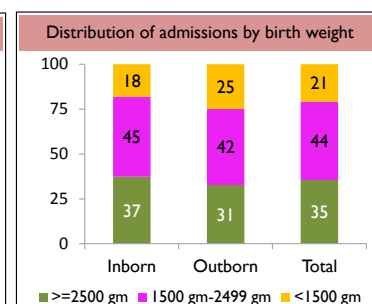
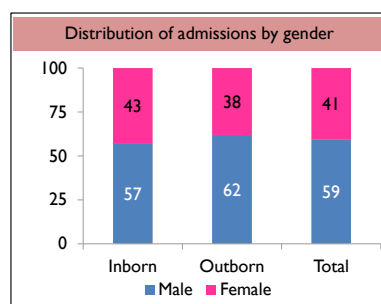


Cumulative percentage was more than 100% as many cases had been assigned more than one primary cause of admission



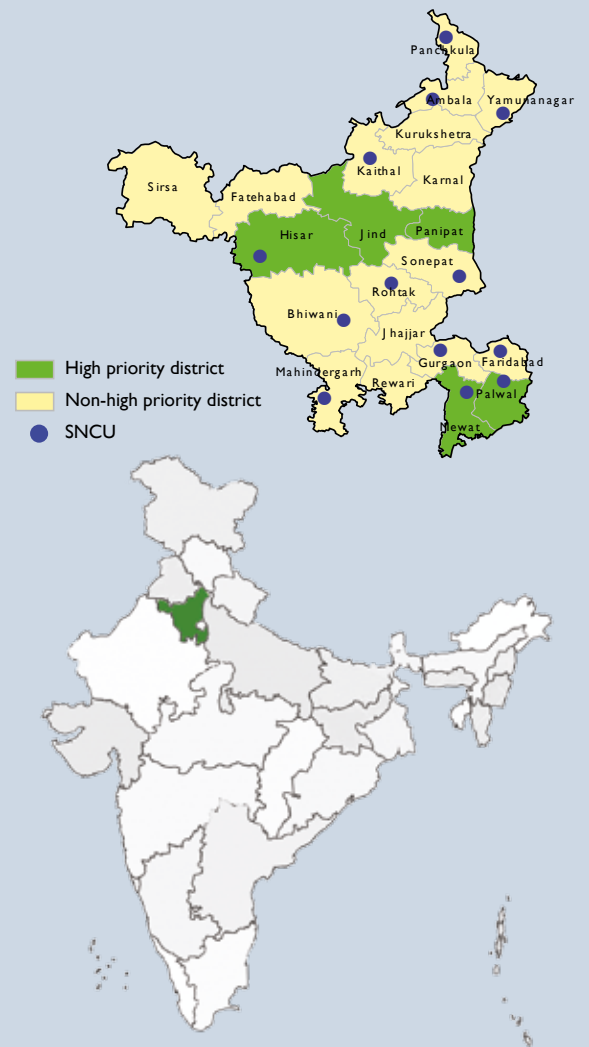
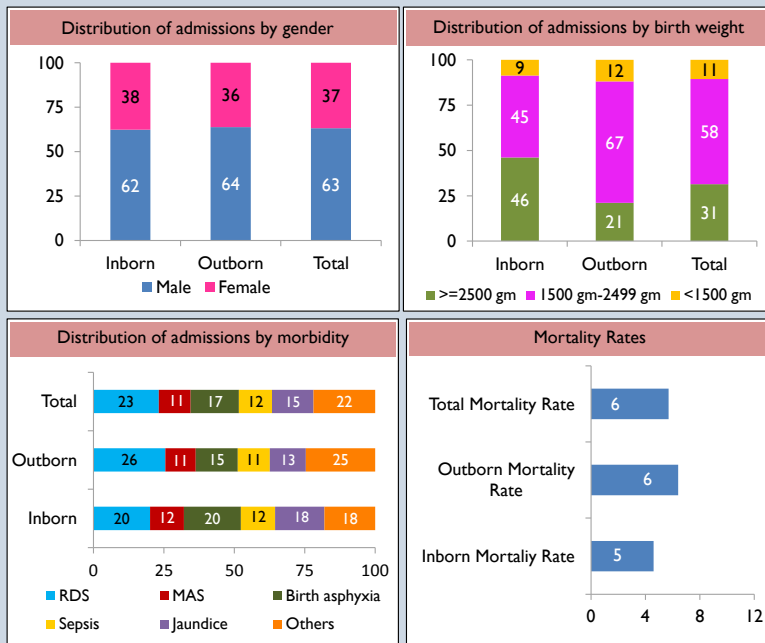
GUJARAT

No. of SNCUs:	14
Districts with SNCUs (n/N):	20/34
HPD with SNCUs (n/N):	4/8
Total Admission (N):	22620
% Outborn admissions:	40.8



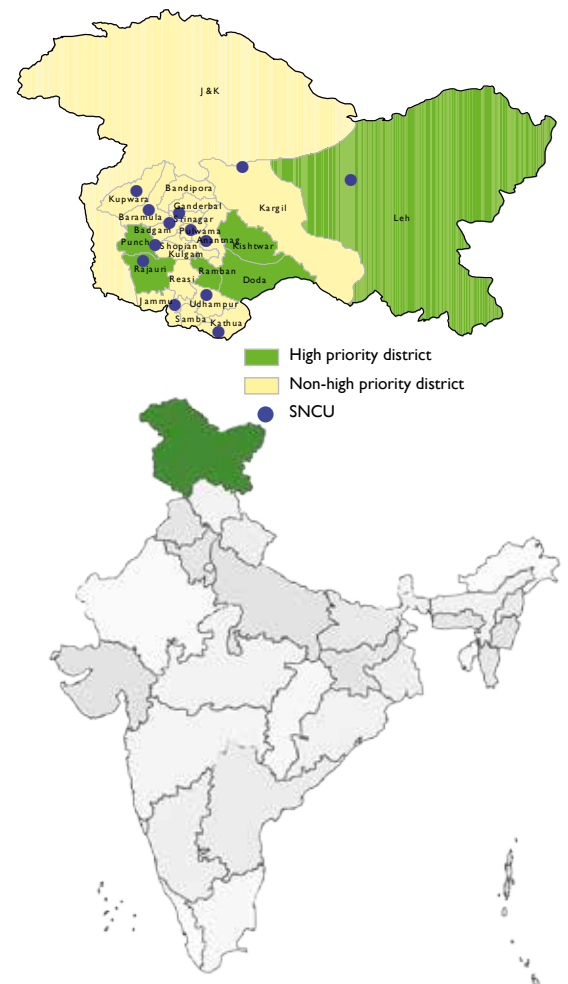
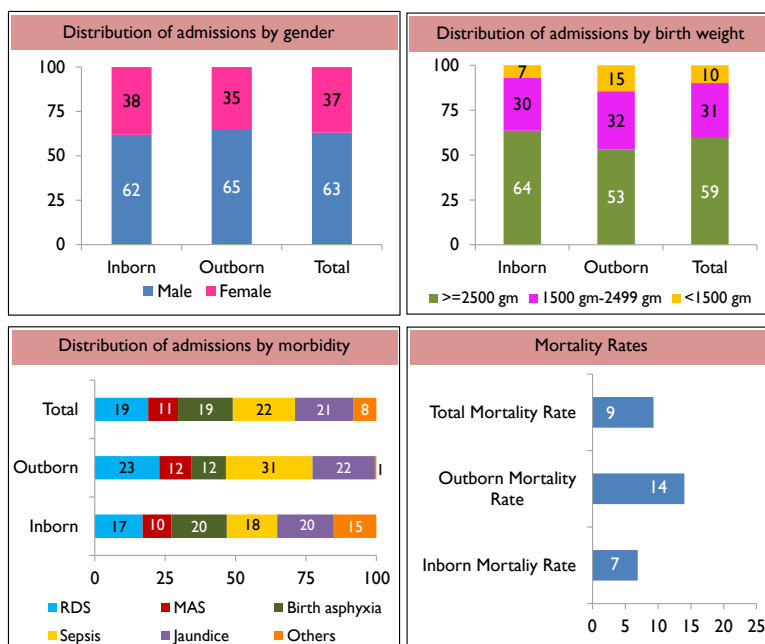
HARYANA

No. of SNCUs:	13
Districts with SNCUs (n/N):	13/21
HPD with SNCUs (n/N):	3/5
Total Admission (N):	11562
% Outborn admissions:	53.7



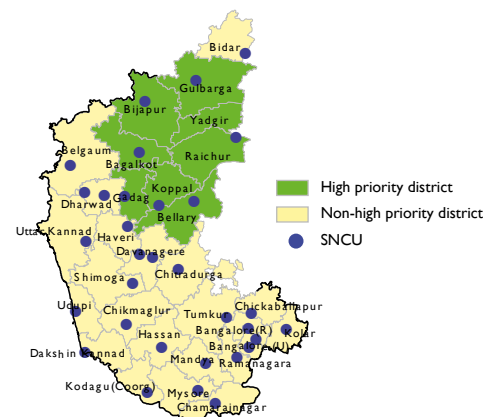
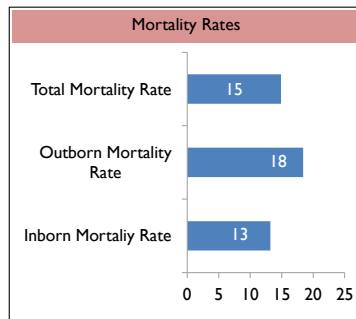
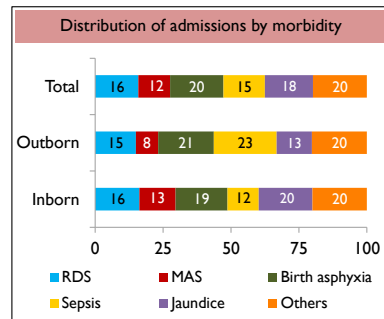
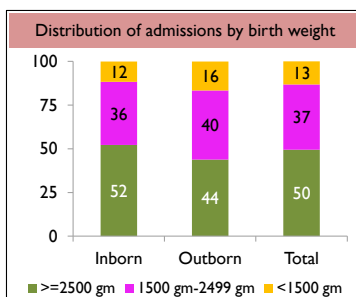
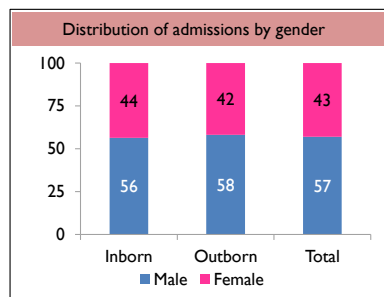
JAMMU & KASHMIR

No. of SNCUs:	13
Districts with SNCUs (n/N):	12/23
HPD with SNCUs (n/N):	3/6
Total Admission (N):	8802
% Outborn admissions:	39.0



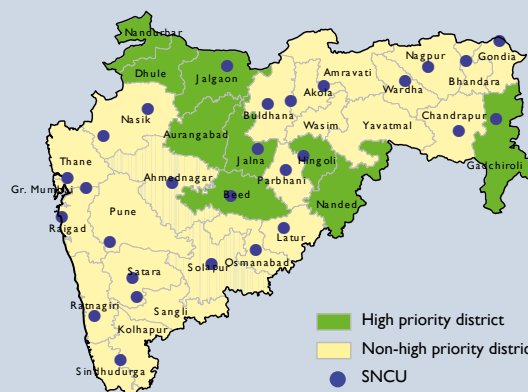
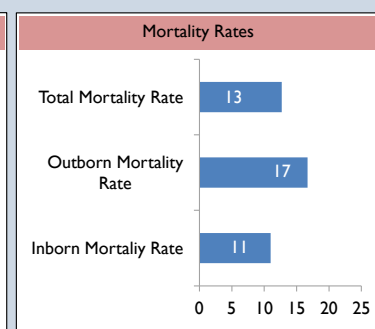
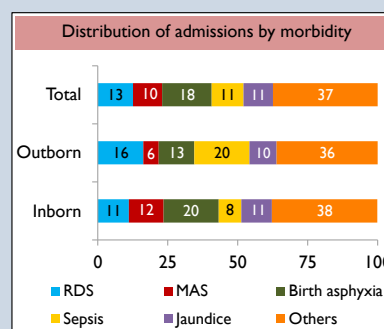
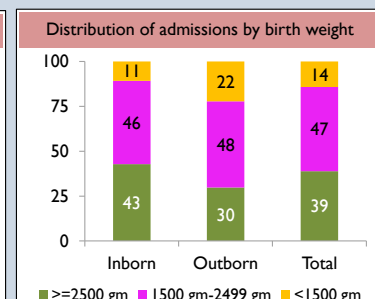
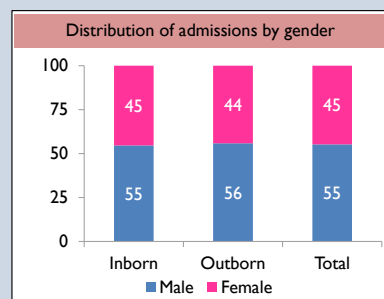
KARNATAKA

No. of SNCUs:	33
Districts with SNCUs (n/N):	28/30
HPD with SNCUs (n/N):	7/8
Total Admission (N):	36786
% Outborn admissions:	33.3



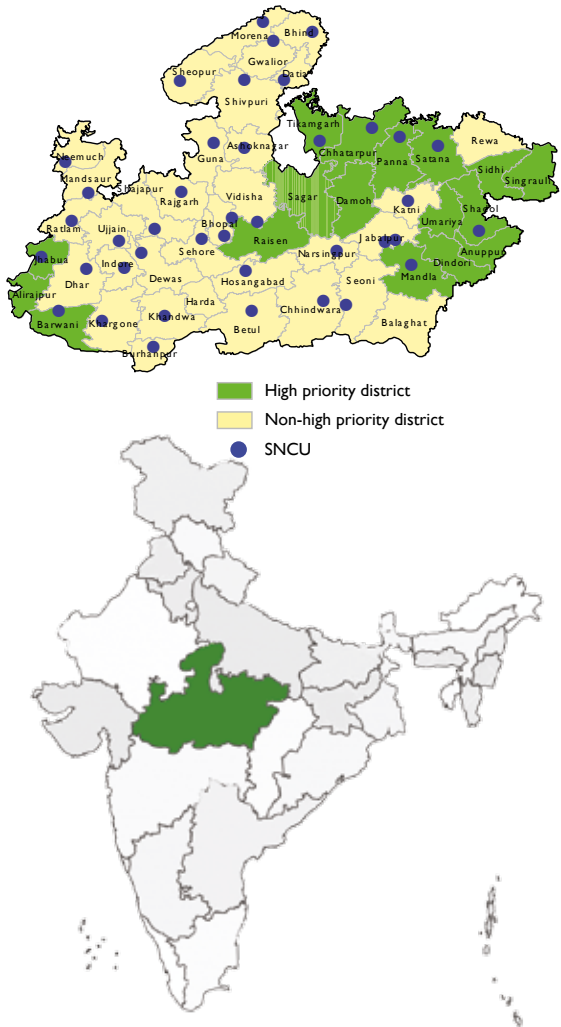
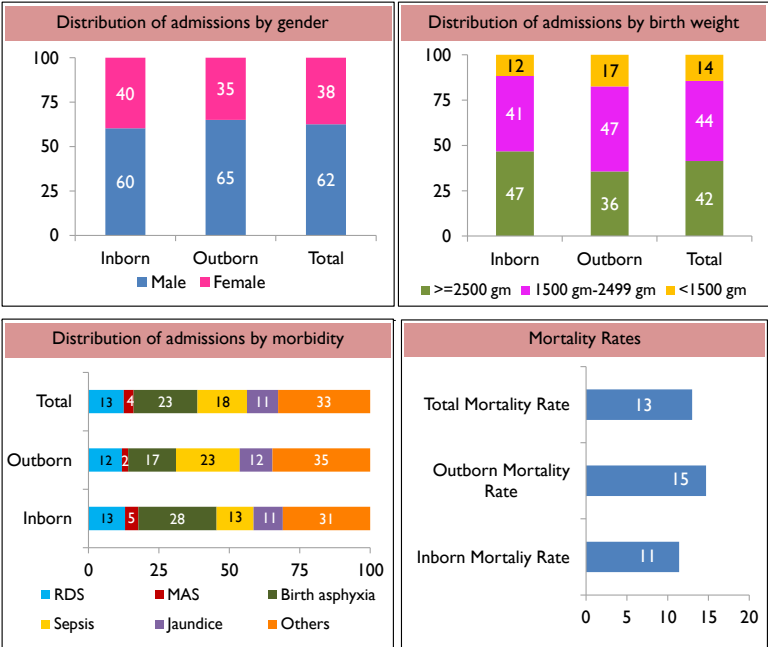
MAHARASHTRA

No. of SNCUs:	29
Districts with SNCUs (n/N):	24/34
HPD with SNCUs (n/N):	5/9
Total Admission (N):	34272
% Outborn admissions:	30.7



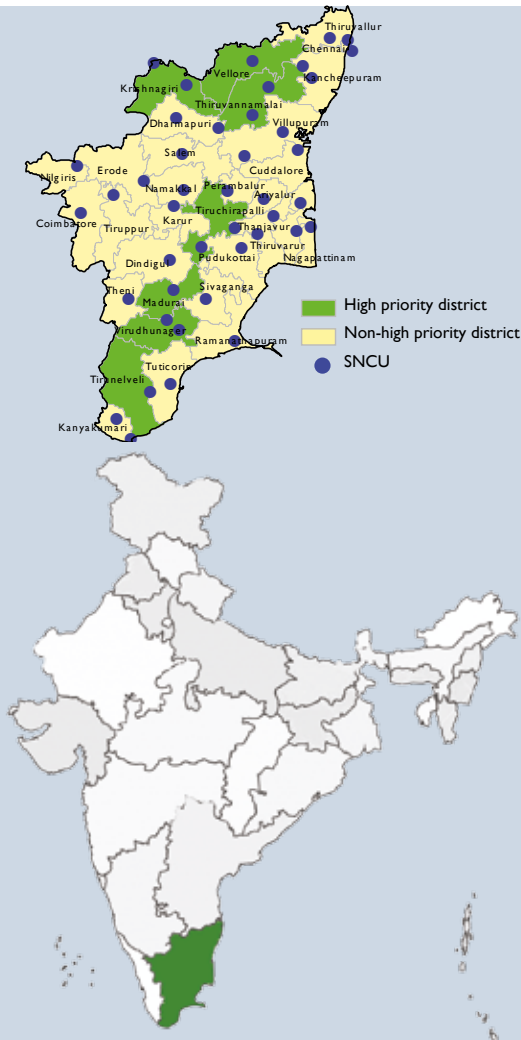
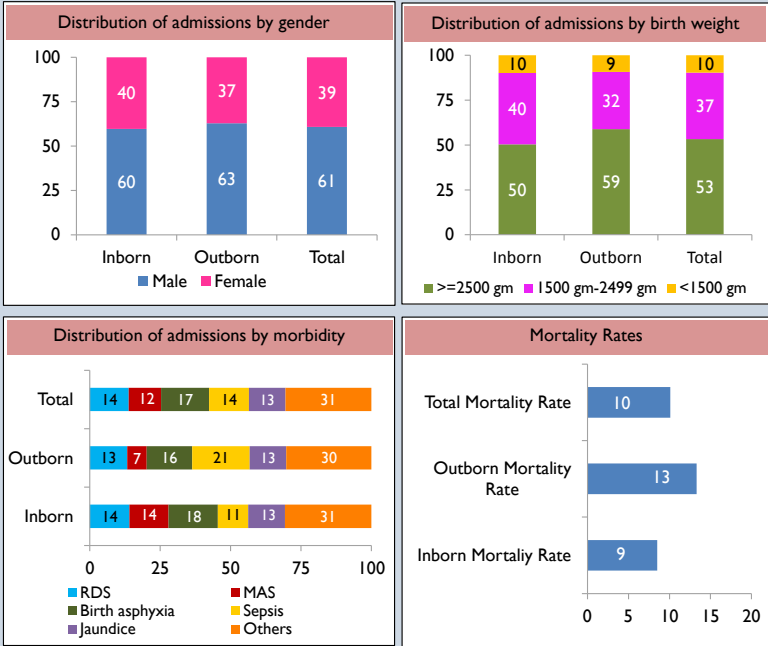
MADHYA PRADESH

No. of SNCUs:	41
Districts with SNCUs (n/N):	39/50
HPD with SNCUs (n/N):	9/17
Total Admission (N):	58932
% Outborn admissions:	47.3



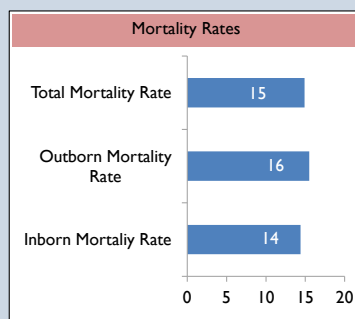
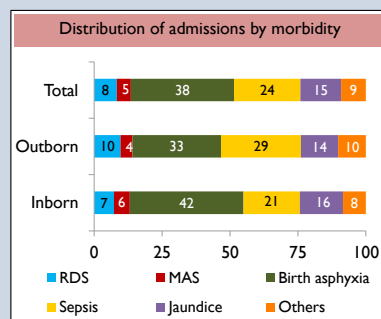
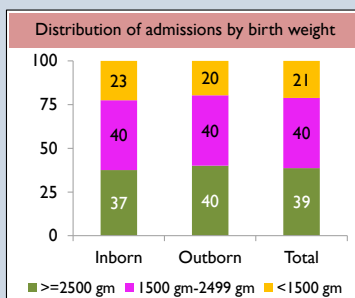
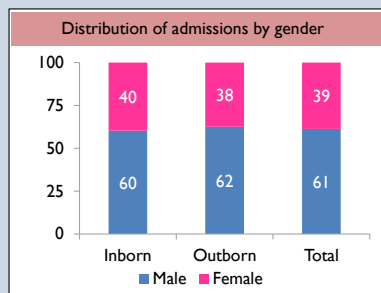
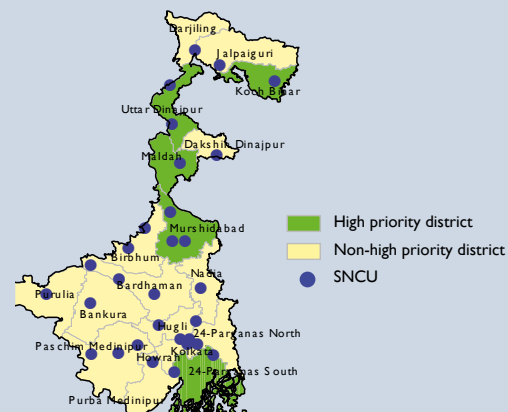
TAMIL NADU

No. of SNCUs:	43
Districts with SNCUs (n/N):	32/32
HPD with SNCUs (n/N):	7/7
Total Admission (N):	82431
% Outborn admissions:	34.3



WEST BENGAL

No. of SNCUs:	30
Districts with SNCUs (n/N):	18/19
HPD with SNCUs (n/N):	75/5
Total Admission (N):	15359
% Outborn admissions:	43.2







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