

# Status of Maternal and Child Health Indicators in Bihar

Dilip Kumar, Associate Professor and Ajit Kumar, Research Investigator  
Population Research Centre, Patna University, Patna-800 005  
Email: dilip360@gmail.com

## Abstract

Health is one of the areas where Bihar needs special attention by the programmes and policy makers. The adequate number of health services with quality concern are still lacking in the state. The present paper deals with maternal and child health attributes of Bihar vis-à-vis some other states of India. The data has been used from secondary sources which includes various rounds of National Family Health Survey (NFHS-1 to 5, 1992-93 to 2019-20). The result suggests that most of the demographic and health indicators are improving in the state, however to achieve the policy goals, government must act more precisely to fulfill the local and community level gaps. This paper makes a systematic effort to assess the performance of the family welfare programmes vis-à-vis trends in the performance level. The trends in key performance indicators for Bihar reveal that progress has been slow and limited in the pre-2005 period. Most of the maternal and child health variables were slower during 1992-2005 than the pace of improvement during the 2005-2020 periods. The indicators of maternal and child health, at least 3 Antenatal care visit (ANC), birth assisted by trained health professionals, diarrhea children who received ORS and children breast feeding within one hour of birth have given good performance in post 2005 period compared pre 2005 period. But performance of some of the variables like; percentage of children 12-23 months who have received BCG, those children have received 3 doses of polio vaccine and children who are underweight were slower during 2005-20 than the pace of improvement during the 1992-2005 periods. It is evidently clear that suitable mechanism to operationalise of RCH programme, the increase in health infrastructure with human resources is essential to lead to commensurate a positive impact on key performance and outcome indicators. There is need suitable mechanism to operationalise RCH programme.

**Key Words:** Health, TFR, Unmet Need, IMR, U5MR, Anti-natal Care, Health Infrastructure and HR position.

## 1. Introduction

Maternal and child health is a priority in India's agenda of health programs and actions. The concept of maternal and child health has expanded over the years, which also includes a set of practices that aim at timely ANC registration, institutional delivery, IFA tablet consumption, early initiation of breastfeeding. All these interventions lead to prevention of maternal and child mortality. So far as Bihar is concerned it has seen the reduction in IMR (Infant Mortality Rate) and MMR (Maternal Mortality Ratio) during the last few years.

Bihar is home to 4.75 crore children below the age of 18 years representing almost 46 percent of the state's population. Despite some improvement observed in child mortality, it is still on a higher side in the state. Around 25 children per 1000 live births die within one month of their birth 37 children per 1000 live birth die before reaching their 5<sup>th</sup> birthday. Anaemia and malnutrition are other challenges in the state that contribute to maternal and child mortality. Around 43 percent children below 5 years of age are stunted and seven out of 10 children are anaemic.

The IMR of Bihar has reduced from 42 in 2015 to 32 in 2020 (SRS reports), which is equal to the national average. Similarly, the MMR of the State has come down from 165 in 2017 to 149 in 2020 (MMR Bulletins). The reduction in IMR and MMR may be due to several factors such as improved access to health services, viz, institutional delivery, ANC, immunization, early initiation of breastfeeding and other services like improved sanitation, safe drinking water etc.

Health is one of the biggest concerns for the Bihar. The quality of health services are still lacking in the state. Public health facilities are not adequate in numbers and quality to support the beneficiaries, so substantial number of population compel to move outside the state for availing health facility. Malnutrition engulfed substantial number of population in the state; latest NFHS-5 (2019-20) data reveals that about 64 percent women, 30 percent men and 69 percent children of 6 to 59 months of age group are anaemic in different level of anaemia. Only 52.9 percent mother attended Anti Natal Care (ANC) in first trimester in Bihar during 2019-20. At the same period 71 percent children of the age of 12-23 months get full immunization in state which is still not appreciable this shows that, substantial numbers of children are still being not covered with full immunization. Considerable numbers of children under 5 years of age were observed Stunted, Wasted and Underweight in Bihar during NFHS-5 (2019-20) which is highest even among EAG States. Life expectancy is also gradually rising in the state. The proportion of young and working age population is proportionately high in comparison to many developed countries of the world. Demographic dividend provides good support base for the country's economic growth in terms of GDP and per capita income. The prevailing Indian demographic dividend will have potential to sustain in longer time span, because of many states have India are passing through different phases of demographic transition, that will ensure the long-time surplus labour and working population to boost the economic growth and development. But it all depends upon the convertibility of young masses into skill human resources through proper spending on education, health, and better opportunities to boost their entire life system.

**2. Objectives:** The main objectives of the paper are to analyse the health scenario in Bihar with in special reference to maternal and child health. It also suggests measures for improving coverage related to maternal and child health the present national health policy and it's imperative.

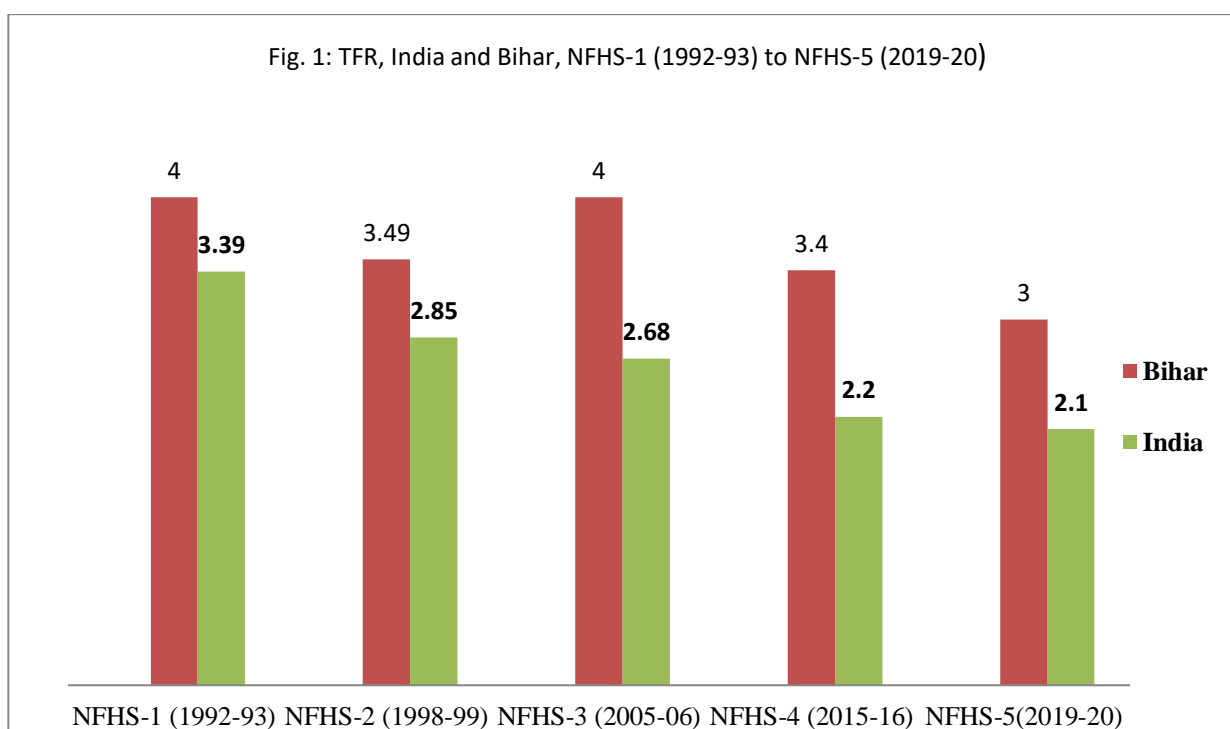
### 3. Data and Methodology

The data incorporates various rounds of National Family Health Survey (NFHS-1 to 5, 1992-93 to 2019-20) of Bihar State, National Health Profile-2018, Ministry of Health and Family Welfare, Government of India. Simple quantitative techniques have been used in terms of percentage to analyse the data. For better and comprehensive understanding, different kinds of line, bar, diagram has also been used. The annual change in percentage points in the post- 2005 period is compared with similar changes in the pre-2005 period. Only those indicators for which data were available in all the five points of time, NFHS-1(1992-93), NFHS-2(1998-99), NFHS-3(2005-06), NFHS-4(2015-16) and NFHS-5(2019-20) were used for this study. Such information was available for 16 indicators: 2 on ‘marriage and fertility’; 14 on ‘maternity and childcare’ comprising ‘maternity care’, ‘child immunization’, ‘treatment of childhood diseases’, ‘child feeding practices’ and ‘child underweight’.

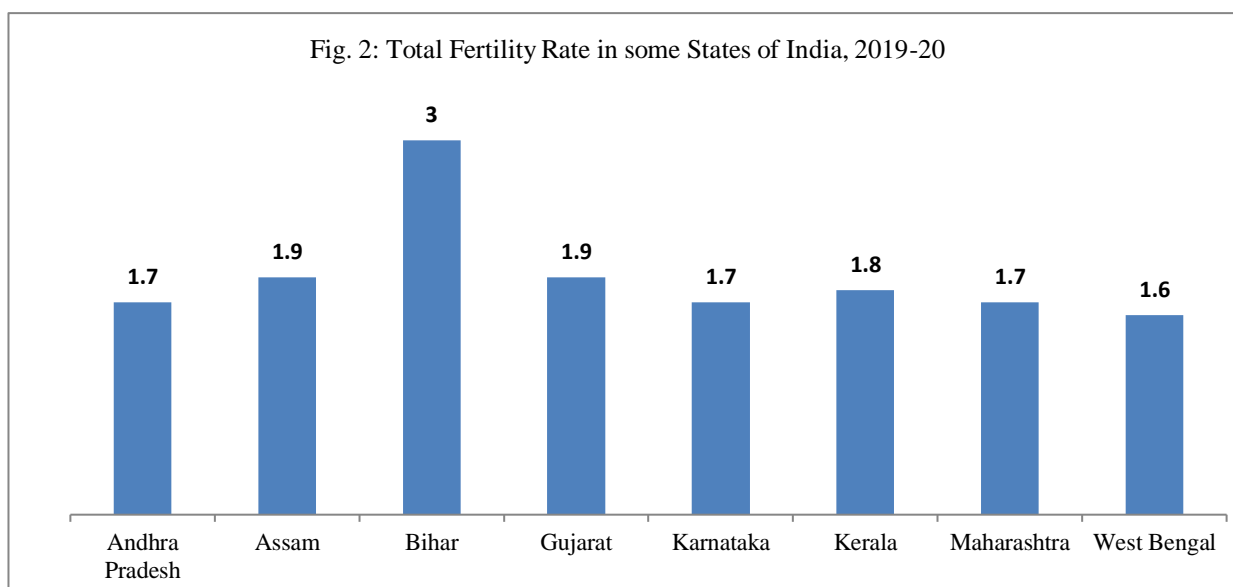
### 4. Discussion and Results

#### 4.1 Level of Fertility from NFHS-1 to NFHS-5

Fertility is declining with slow pace in the Bihar. The level of TFR in the state is highest within the country. On the basis of the NFHS, TFR of Bihar during NFHS-1 (1992-93) was 4 that declined to 3.49 in NFHS-2 (1998-99), but TFR again increased to 4 during NFHS-3 (2005-06) and this may be due to the partition of Jharkhand from Bihar in the year 2000. The NFHS-4 (2015-16) reveals that Bihar TFR has move to 3.4 and further declined to 3.0 in NFHS-5 (2019-20) which is still highest among all the states while India is near to touch the replacement level fertility soon (Fig. 1). India’s TFR trend shows a sharp declining trend in comparison to Bihar from NFHS-1 to NFHS-5 (Fig. 1). Gradually people are shifting towards small family norm in India and certainly Bihar is also following this path which can be observed through below mentioned figure.

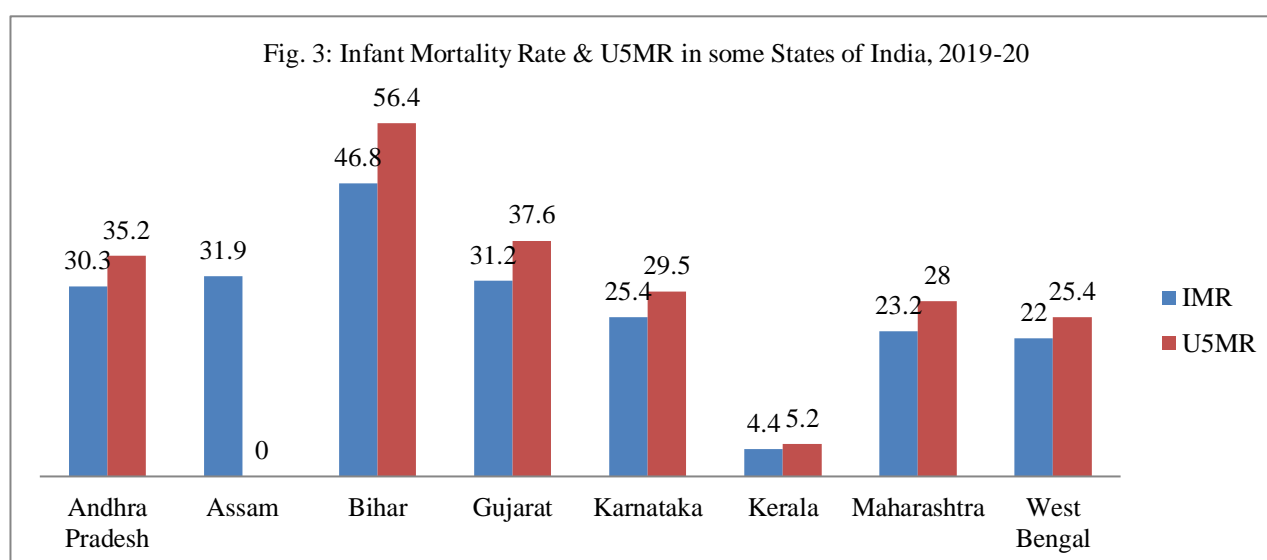


The position of Bihar among some of the states is still high in terms of TFR as per the latest data of NFHS-5 (Fig.2). Among the studied eight states, barring Bihar state, all the seven states have the replacement level of fertility below 2.1.



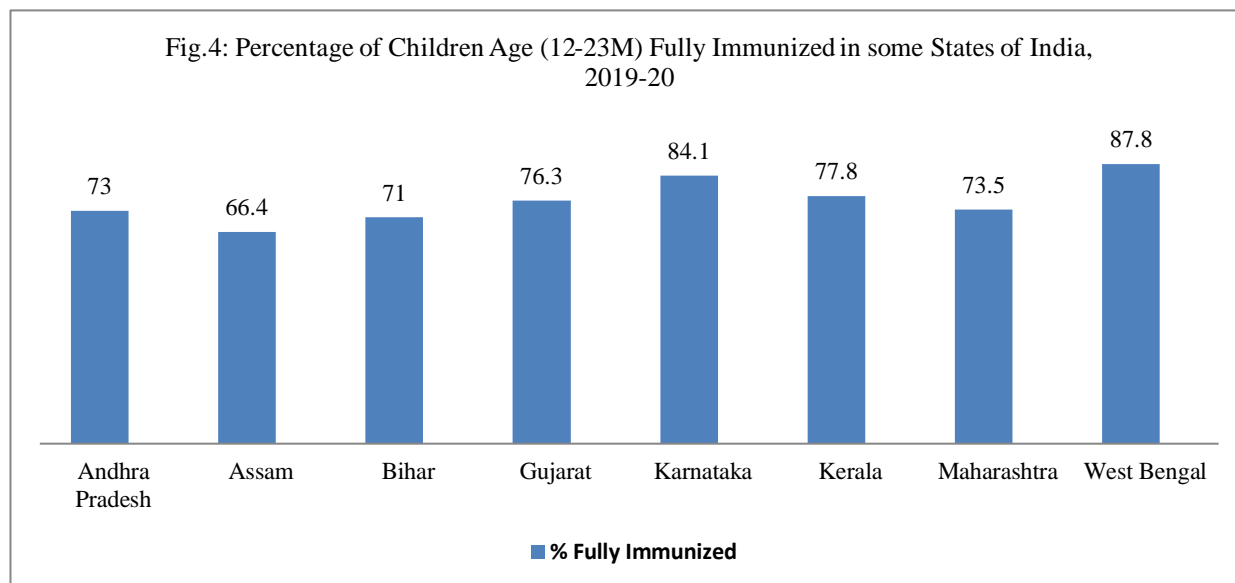
#### 4.2 Infant Mortality Rate & U5MR in some States of India, 2019-20

As per the NFHS-5 (2019-20) results the IMR in Bihar is 46.8 while of under-five mortality rate, it is 56.4 (Fig. 3). Among the selected states, the Bihar state has the highest IMR and U5MR while Kerala state has shown the lowest IMR of 4.4 per 1000 live births and U5MR of 5.2 per 1000 children under the age of 5 years.



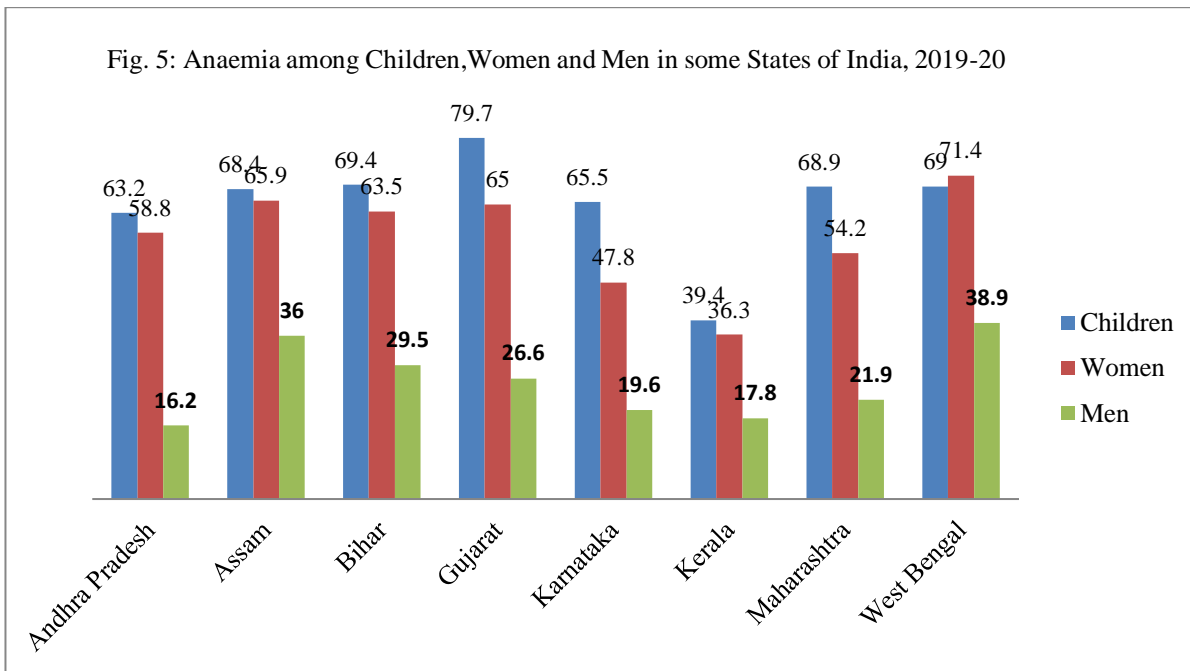
### 4.3 Fully Immunized Children in some States of India, 2019-20

Health is the biggest concern for Bihar, the poor health and poor economic conditions of the people make their life and living condition grim and most of the people were trapped in “vicious cycle of poverty”. The full immunisation of children is still distant dream for the selected states of India. The latest National Health Policy-2017, set the goals to achieve more than 90 percent of the newborn is fully immunized by one year of age by 2025. The full immunized children between the age of 12-23 months in Bihar was 71 percent just above the Assam state of 66.4 percent while West Bengal has shown the highest 87.8 percent of children fully immunized as per the NFHS-5 (2019-20) results (Fig.4).



### 4.4 Anaemia among Children, Women and Men in some States of India, 2019-20

The HMIS data reveals that only about 70 percent of women in Bihar had 4 and above ANC checkups to total ANC registration during 2019-20. The state still witness comparatively low institutional delivery of 55.1 percent in 2019-20 to 56.7 percent in 2014-15 (Dilip Kumar and Ajit Kumar, 2021). Although Bihar is still behind the 80 percent goal of institutional delivery set at the time of National Population Policy 2000. The improvement in institutional delivery and proper breast feeding care at facilities impacted lots to the mother and child health. The state needs much focus on exclusive breastfeeding for 6 months and starting of breastfeeding within an hour of child birth. Only 31 percent has been started breastfeeding within an hour of birth in the state. Anaemia is prevalent among most of the people considering the children (6-59 months), women and men. Anaemia is more common in the state as per the latest NFHS-5 data (Fig. 5). Children are highest sufferer (79.7 percent) in Gujarat state. In West Bengal, men and women have the maximum sufferer (38.9 percent vs. 71.4 percent) in comparison to the other selected states of India.



#### 4.5 Comparison of Post- and Pre-2005 Periods of NFHS results

Comparison of post- and pre-2005 periods of NFHS results based on maternal and child health indicators provided in Table 1 for Bihar State as a whole a comparative profile of the 16 parameters for which data were available in all the five rounds of NFHS surveys: 1, 2, 3, 4 and 5. The annual change in the percentage values observed during 1992-98, 1998-2005, 2005-15 and 2015-20 computed from NFHS-1,2,3,4 and 5 data and between 1992-2005 and 2005-2020 obtained from the NFHS results. The last column of the table also provides a summary picture whether the post-2005 changes were worse off (slowdown in progress) than the pre-2005 changes; “yes” indicating that the pace of change post-2005 is worse off and “no” implying the opposite. It is remarkable to note that in most of the variables, 13 out of 16, the pace of improvement during 1992-2005 have slower than the pace of improvement during the period 2005-2020. More for example, TFR and women age 20-24 married by age 18 were slower during 1992-2005 than the pace of improvement during the 2005-20 periods. Moreover, unmet need and for spacing method, unmet need had more declined in pre 2005 period compared post 2005 period. Most of the maternal and child health variables were slower during 1992-2005 than the pace of improvement during the 2005-2020 periods. Now turn on indicators of maternal and child health, at least 3 Antenatal care visit (ANC), birth assisted by trained health professionals, diarrhea children who received ORS and children breast feeding within one hour of birth have given good performance in post 2005 period compared pre 2005 period. But performance of some of the variables like; percentage of children 12-23 months who have received BCG, those children have received 3 doses of polio vaccine and children who are underweight were slower during 2005-20 than the pace of improvement during the 1992-2005 periods.

Table 1: Annual Change in Marriage and Fertility, Family Planning and Maternal and Child Health from NFHS-1 to NFHS-5 results in Bihar

Some selected Indicators of marriage, fertility, family planning and maternal-child health	NFHS-5	NFHS-4	NFHS-3	NFHS-2	NFHS-1	Annual Change (Per Cent Points)						Annual Change
	2019-20	2015-16	2005-06	1998-99	1992-93	1992-1998	1998-2005	2005-2015	2015-2020	1992-2005	2005-2020	(1992-2005)>(2005-2020)
<b>Marriage and Fertility</b>												
Women age 20-24 married by age 18 (per cent)	40.8	42.5	60.3	71.9	74.4	-0.42	-1.66	-1.78	-0.34	-2.08	-2.12	No
Total fertility rate (children per woman)	3.0	3.4	4.0	3.49	4.0	-0.09	0.07	-0.06	-0.08	-0.02	-0.14	No
<b>Family Planning (currently married women, age 15-49)</b>												
Total unmet need (per cent)	13.6	21.2	23.1	24.5	25.8	-0.22	-0.2	-0.19	-1.52	-0.42	-1.71	No
For spacing (per cent)	6.1	9.4	10.7	12.6	14.4	-0.3	-0.27	-0.13	-0.66	-0.57	-0.79	No
<b>Maternal and Child Health</b>												
Mothers who had at least 3 antenatal care visits for their last birth (per cent)	25.2	14.4	17.0	16.1	15.0	0.18	0.13	-0.26	2.16	0.31	1.9	No
Births assisted by a doctor/nurse/LHV/ANM/other health personnel (per cent)	79	70	30.9	24.8	18.9	0.98	0.87	3.91	1.8	1.85	5.71	No
Institutional births (per cent)	76.2	63.8	22.0	14.8	12.1	0.45	1.03	4.18	2.48	1.48	6.66	No
Children 12-23 months fully immunised (per cent)	71	61.7	32.8	11.6	10.7	0.15	3.03	2.89	1.86	3.18	4.75	No
Children 12-23 months who have received BCG (per cent)	95.5	91.6	64.7	37.7	33.9	0.63	3.86	2.69	0.78	4.49	3.47	Yes
Children 12-23 months who have received 3 doses of polio vaccine (per cent)	75.5	72.9	82.4	42.2	31.6	1.77	5.74	-0.95	0.52	7.51	-0.43	Yes
Children 12-23 months who have received 3 doses of DPT vaccine (per cent)	85.0	80.1	46.1	24.9	29.1	3.03	-0.7	3.4	0.98	2.33	4.38	No
Children 12-23 months who have received measles vaccine (per cent)	85.7	79.4	40.4	16.6	14.6	3.4	0.33	3.9	1.26	3.73	5.16	No
Children with diarrhea in last 2 weeks who received ORS	58.2	45.2	20.9	15.4	10.5	0.79	0.82	2.43	2.6	1.61	5.03	No
Children with diarrhea in last 2 weeks taken to health facility	64.7	54.9	53.9	50.3	46.7	0.51	0.6	0.1	1.96	1.11	2.06	No
Children breastfed within one hour of birth	31.1	34.9	3.7	5.4	1.5	-0.24	0.65	3.12	-0.76	0.41	2.36	No
Children who are underweight	41.0	43.9	55.9	54.3	62.6	0.23	1.38	-1.2	-0.58	1.61	-1.78	Yes

#### 4.6 Situation of Health Infrastructure

Although the state has a fairly extensive network of public health facilities it remains grossly inadequate compared to the Government of India (GoI)/Government of Bihar (GoB) norms. It needs further improvement considering the wide variations in coverage at the district level (Annexure I). Furthermore, even the existing facilities lack the basic minimum infrastructure needed for their optimal functioning.

According to information available with the state directorate, only 36 of the 38 districts in the state have a district hospital. Similarly, of 101 sub-divisional headquarters, only 55 have a sub-divisional hospital. The Community Health Centre (CHC)/ Referral Hospital Network are virtually nonexistent with the state having only 150 CHCs/Referral Hospitals are in position and functional. The state has only 1899 Primary Health Centre (PHC) in rural and urban areas that suggest that each PHC covers an average of 2 lakh population as against the norm of 30,000. A similar situation prevails with regard to facilities at the Health Sub-Centre (SC) level, where the state has 9949 Health SCs i.e. an average of one Health SC for a population of 9000 as against the norm of 5000. There are shortfall of more than 30 percent of each of the PHCs and Sub-Centres.at least one doctor is available.

Trained health human resource is another important concern for the State. In each of the PHC, at least one doctor is available. But there is 86.3% shortfall of total Specialists like; Surgeons, OB & GY, Physicians & Pediatricians in the health facilities up to the PHCs level. Out of 150 CHCs only one CHC has the Radiographer. Only 14 percent of the Pharmacists are posted at the CHC level. The shortfall of Pharmacists is 86 percent in the state. About 30 percent of the Laboratory Technicians are posted at PHCs & CHCs level. The shortfall of Nursing staff at PHCs & CHCs level is about 45 percent in the state in 2019 (Table 2).

Table 2: Health Infrastructure and HR position in Bihar in 2019

Health Institutions and HR	Required	In position	Shortfall
Sub-Centre and HWC-SCs	14959	9949	5010 (33.5%)
Primary Health Centre and HWC-PHCs	2737	1899	838 (30.6%)
Community Health Centre	622	150	472 (75.9%)
Multipurpose worker (Female)/ANM	11848	24228	*
Doctors at PHCs	1899	2085	*
Total Specialists (Surgeons, OB & GY, Physicians & Pediatricians)	600	82	518 (86.3%)
Radiographers at CHCs	150	1	149 (99.3%)
Pharmacists at CHCs	2049	287	1762 (86%)
Laboratory Technicians at PHCs & CHCs level	2049	611	1438 (70.2%)
Nursing staff at PHCs & CHCs level	2949	1630	1319 (44.7%)

\*Surplus



## 5. Conclusions

Bihar has succeeded to reach the national average regarding infant mortality rate, while Bihar state is still lagging behind the target set by National Population Policy 2000 and National Health Policy-2017. The unmet need of family planning is highest in Bihar which also required serious attention by the health policy makers and implementers. The maternal and child health situation in Bihar required special attention by the government's policy maker to achieve the demographic and health goals. Most of the maternal and child health variables were slower during 1992-2005 than the pace of improvement during the 2005-2020 periods. Now turn on indicators of maternal and child health, at least 3 Antenatal care visit (ANC), birth assisted by trained health professionals, diarrhea children who received ORS and children breast feeding within one hour of birth have given good performance in post 2005 period compared pre 2005 period. But performance of some of the variables like; percentage of children 12-23 months who have received BCG, those children have received 3 doses of polio vaccine and children who are underweight were slower during 2005-20 than the pace of improvement during the 1992-2005 periods. The primary aim of the National Health Policy, 2017, is to inform, clarify, strengthen and prioritize the role of the Government in shaping health systems in all its dimensions and developing human resources. Only 36 of the 38 districts in the state have a district hospital. Similarly, of 101 sub-divisional headquarters, only 55 have a sub-divisional hospital. The Community Health Centre (CHC)/Referral Hospital Network are virtually nonexistent with the state having only 150 CHCs/Referral Hospitals are in position and functional. The state has only 1899 Primary Health Centre (PHC) in rural and urban areas that suggest that each PHC covers an average of 2 lakh population as against the norm of 30,000. A similar situation prevails with regard to facilities at the Health Sub-Centre (SC) level, where the state has 9949 Health SCs i.e. an average of one Health SC for a population of 9000 as against the norm of 5000. There are shortfall of more than 30 percent of each of the PHCs and Sub-Centres.at least one doctor is available. Trained health human resource is another important concern for the State. In each of the PHC, at least one doctor is available. But there is 86.3% shortfall of total Specialists like; Surgeons, OB & GY, Physicians & Pediatricians in the health facilities up to the PHCs level. Out of 150 CHCs only one CHC has the Radiographer. Only 14 percent of the Pharmacists are posted at the CHC level. The shortfall of Pharmacists is 86 percent in the state. About 30 percent of the Laboratory Technicians are posted at PHCs & CHCs level. The shortfall of nursing staff at PHCs & CHCs level is about 45 percent in the state in 2019. Implementing policy and goals required strong will power and hard work from the government machinery and administration vis-s-vis support from the common people. Fertility and population matters do not only require economic incentives but also requires gender sensitive approach to deal with these issues.

## 6. Recommendations

- Fertility regulation and population matters do not only require economic incentives but also requires gender sensitive approach. The gender equity and equality should be in forefront for better outcomes.

- Improving capacity to measure and report on the core health, financing, and equity indicators, through the optimal combination of facility reports, surveys, censuses, vital registration systems, national and state health accounts, and other essential sources of data; and
- Improving policy makers' capacity to act on the data reported to strengthen programme management and ensure resources are allocated according to need.

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### Annexure I

District wise functional health facilities in Bihar as on 31<sup>st</sup> March 2019

Name of the District	Number of functional health facilities						
	Sub Centres	PHCs	CHCs	HWC- SCs	HWC- PHCs	Sub Divisional Hospital	District Hospital
1. Araria	242	26	2	0	12	1	1
2. Arwal	65	26	0	0	6	0	1
3. Aurangabad	254	55	6	0	18	1	1
4. Banka	237	30	4	2	12	0	1
5. Begusarai	288	27	2	4	17	4	1
6. Bhagalpur	354	49	4	8	29	2	1
7. Bhojpur	298	31	4	0	14	2	1
8. Buxar	160	29	1	0	11	1	1
9. Darbhanga	398	79	8	0	24	1	0
10. E-Champaran	529	40	11	3	13	3	1
11. Gaya	260	52	9	1	20	2	1
12. Gopalganj	460	53	8	9	7	1	1
13. Jamui	179	28	6	6	8	0	1
14. Jehanabad	102	33	2	5	7	0	1
15. Kaimur	276	27	4	3	5	1	1
16. Katihar	174	16	4	1	16	2	1
17. Khagaria	323	49	1	4	8	0	1
18. Kishanganj	186	20	1	0	10	0	1
19. Lakhisarai	156	8	1	0	9	0	1
20. Madhepura	98	11	1	4	7	1	1
21. Madhubani	272	12	4	0	22	4	1
22. Munger	376	75	2	0	12	2	1
23. Muzaffarpur	152	12	9	2	21	0	1
24. Nalanda	494	78	3	5	25	2	1
25. Nawada	367	58	2	1	9	1	1
26. Patna	171	33	4	3	38	4	0
27. Purnia	234	103	2	0	20	3	1
28. Rohtas	306	42	6	6	10	2	1
29. Saharsa	251	44	1	0	9	1	1
30. Samastipur	169	32	8	2	10	4	1
31. Saran	355	65	9	3	12	2	1
32. Sheikhpura	412	58	1	2	3	0	1
33. Sheohar	85	19	0	0	4	0	1
34. Sitamarhi	91	5	5	0	13	2	1
35. Siwan	204	49	9	4	8	1	1
36. Supaul	375	55	2	3	8	1	1
37. Vaishali	178	23	2	3	13	2	1
38. W- Champaran	334	28	2	0	24	2	1
Bihar	9865	1480	150	84	514	55	36

