Full Length Research Article

LAGGING INDICATORS OF MCH CARE AMONG URBAN POOR IN ACHIEVING SDG FOR INDIA

*Praveen Chokhandre and Jitendra Gouda

International Institute for Population Sciences, Govandi Station Road, Deonar, Mumbai, India

ARTICLE INFO	ABSTRACT
	Background: India, a very first time recorded absolute increase in the urban population which may outpaced the ability of government to provide a basic civic amenities and primary health care to a large section of the urban poor. **Objectives:** Paper tried to estimate the coverage gap in maternal and child health related indicators in order to prioritize key indicators in achieving sustainable development goals particularly among urban poor. **Data and Methods:** Using the third round of DLHS, this study critically analyzed the coverage gap in selected indicators of maternal and child healthcare among the urban poor. Principal component analysis was used to create a wealth index. Logistic regression was performed to analyze the factors associated with coverage gap in urban India. **Results:** Family planning methods, antenatal care and oral rehydration therapy comes out to be lagging indicators and need to prioritize while working with urban poor. The situation is even worse in the low HDI States. Summary measure for MCH indicators highlighted higher coverage gap among low HDI States particularly in Uttar Pradesh, Bihar, Madhya Pradesh, Chhattisgarh and Jharkhand. Level of education, number of children born to a woman and husband education found to be major covariates that inversely correlated with the coverage gap for the selected healthcare indicators. **Conclusion:** The coverage gap needs to be narrowed down urgently with stringent policies and programs to make significant progress on maternal and child health in urban areas. This development is critical to achieve the recently conceived Sustainable Development Goals (SDG).

INTRODUCTION

It is evident from 2011 census that, urbanization in India has increased faster than expected and for the first time since independence, the absolute increase in the urban population was higher than that in the rural population (Bhagat *et al*., 2011). This has enormous implications for providing infrastructure and other civic amenities in the urban areas. Population projection by United Nations indicate that by 2030, India's urban population will grow to 538 million with more than half of the total population living in urban areas (United Nations Population Division, 2006). In urban, a large section of population forced to live in those deficient areas where most of the basic civic amenities like primary healthcare are either unavailable or poorly managed (Fry *et al*., 2002). Well-being of this sections of population is very important given their large size in Indian cities.

*Corresponding author: Praveen Chokhandre
International Institute for Population Sciences, Govandi Station Road, Deonar, Mumbai, India

Any change in their health status is bound to have affect the overall health scenario of the country (Montgomery *et al*., 2000). The SDG 11 critically states to make cities and human settlements inclusive, safe, resilient and sustainable. Further, the SDG 3 and 10 reiteratesto ensure healthy lives and promote well-being for all at all ages and reduce inequality within and among countries respectively (Griggs *et al*., 2013). Achieving these SDGs, especially the goals 3, 10 and 11, will depend to a great extent on how well the Indian government manage its cities (Arokiasamy *et al*., 2012). It is generally misunderstood that urbanities, on average, enjoy better healthcare than their rural counterparts; thus, increasing urbanization is considered as the continuous improvement in average healthcare (Goli *et al*., 2013). This may not be true because a large sections of urban population lives in slums or survive with minimum resources(3). Thus, aggregating the urban health in a very general way or context which may be misleading. With this backdrop, this study aims to examine the coverage gap in the maternal and child healthcare for urbanities across economic stratum. Maternal and child health (MCH) is an important indicator of development (Jones *et al*.,

2003). In this context, any insightful assessment of coverage gap in MCH will have number of policy implications to address the maternal and child related issues. The specific objectives for this study are, to examine the state wise coverage gap in maternal and child healthcare (MCH) by economic condition of women in urban India, secondly, to document the coverage gap in MCH across states by economic status of women and thirdly, to identify potential factors enhancing coverage gap in urban India.

MATERIALS AND METHODS

The paper usedthird round of District Level Household Survey (DLHS), 2007-08, a publicly available secondary data; therefore no ethics review is required for this work. It is the largest ever demographic and health surveys carried out to provide estimates on MCH, family planning and reproductive health indicators. The information on coverage of selected MCH indicators were collected from women aged 15-49 in the survey. Further details regarding sampling design and data collection process can be ascertained from the report (IIPS, 2007). The study used a composite index to examine the coverage gap in maternal and child healthcare. The index incorporates satisfied need of family planning method, maternal and newborn care, immunization and treatment of sick children which are assumed to be important for the maternal and child survival. Similar kinds of index is widely used to assess the maternal and child health services in other settings worldwide(10). Validity of the four intervention areas selected in the index has been checked and found acceptable in the previous studies. The four areas were given equal weight in the computation of the index. The only exception was DPT3 coverage which was given a weight of 2, since it involves multiple contacts with the health services and correlates with other vaccinations such as those for poliomyelitis and *Haemophilus influenza B*. The formula to calculate the coverage gap index is:

$$100\% - \frac{\{(ORT + ARI)/2 + FP + (SBA + ANC)/2 + (MSL + 2(DPT3) + BCG)/4\}}{4}$$

Where, ORT denotes oral rehydration therapy; ARI, acute respiratory infection; FP, family planning; SBA, skill birth attendance; ANC, at least three antenatal care visits; MSL, measles vaccination; and DPT3, three doses of diphtheria, pertussis and tetanus vaccine. For further detailed description of selected indices can be obtained from DLHS report(9).

The results presented as a measure of the gap between the maximum and actual coverage among major states of India. Selected indicators were estimated separately for each state using appropriate weights. In addition, state wise coverage gap for MCH indicators has been shown using ArcGIS software package (ArcMap 10). A separate state specific wealth index for urban is constructed based on the theoretical importance and statistical significance were selected to construct the wealth index(11).Principal Component analysis (PCA) is used to estimate the wealth index. From the composite wealth index, a percentile distribution is obtained and classified in three equal parts demarcating, lower, middle and upper economic status for urban women.

RESULTS

It is observed in Table 1 that, the overall coverage gap in urban India is thirty four percent however, it is highest among women from lower economic group (44 percent) than the upper counterparts (23 percent). Among the selected indices, for overall urban, treatment of sick children i.e. oral rehydration therapy records highest coverage gap (54 percent) followed by family planning (47 percent) and antenatal care (32 percent). The inverse association between women's economic condition and coverage gap is also observed for each selected indices. The highest coverage gap difference is observed in skilled birth attendance (34 percent) followed by antenatal care (30 percent). The coverage gap in the family planning was found to be high in most of the urban areas of Indian States. The only exceptions were Kerala, West Bengal, Jammu & Kashmir and all North-eastern States where the gap was low (Map 1). Similarly, coverage gap in the maternal and new born care was noticeably higher in northern States of India. Among all, the coverage gap in the maternal and new born care found higher in the urban parts of Jharkhand, Bihar and Uttar Pradesh. The corresponding gap was found low in the urban areas of all southern states such as Kerala, Tamil Nadu and Andhra Pradesh (Map 2). While looking at coverage gap in the child immunization found higher in the urban parts of Bihar, Uttar Pradesh, Haryana and Madhya Pradesh. The gap was low in the urban parts of Odisha, Andhra Pradesh, Tamil Nadu and Kerala (Map 3).Surprisingly, the coverage of treatment of sick child found to be higher among women of low economic strata particularly in the urban areas of Assam, Kerala and Rajasthan. Urban areas of Odisha, Bihar, Uttar Pradesh and Rajasthan exhibited high coverage gap in the treatment of childhood diseases (Map 4).

Table 1. Coverage gap in four intervention areas by economic condition in urban India, 2007-08

Health Services	Overall urban	Wealth Quintile			Difference (Lower-Upper)
		Lower	Middle	Upper	
Family planning[#]	47.1	59.6	47.9	37.8	21.8
Maternal and new born care					
Antenatal care	32.3	47.2	29.7	17.3	29.9
Skilled birth attendance	23.9	40.7	21.2	7.0	33.7
Immunization					
BCG	10.5	17.0	8.8	4.2	12.8
Diphtheria, pertussis and tetanus vaccine (three doses)	28.5	39.2	26.3	17.6	21.6
Measles	23.5	34.6	22.4	10.8	23.8
Treatment of sick children					
Oral rehydration therapy	53.9	62.5	51.9	44.1	20.4
ARI treatment sought	13.2	16.6	10.6	10.7	5.9
Overall CGI	33.7	44.0	33.7	22.7	21.3

[#]*Percentage of currently married women who say that they do not want any more children or that they want to wait 2 or more years before having another child, and are using contraception.*

Table 2. Summary measure of coverage gap (%) by economic conditionin states, India, 2007-08

| States	Overall Urban	Lower	Middle	Upper	Difference (Lower- Upper)
High HDI					
Kerala	26.8	27.3	25.9	31.7	-4.4
Delhi	26.0	35.5	24.2	14.0	21.6
Medium HDI					
Jammu & Kashmir	21.7	26.1	21.1	16.3	9.7
Himachal Pradesh	22.9	LF	27.3	LF	LF
Punjab	23.1	35.5	21.1	13.8	21.7
Chandigarh	18.0	23.8	13.1	LF	LF
Haryana	29.9	45.6	28.0	15.7	29.8
Gujarat	29.2	39.4	26.9	19.4	19.9
Maharashtra	28.4	37.1	27.7	17.6	19.5
Karnataka	32.7	44.0	30.4	26.5	17.6
Goa	27.4	LF	31.3	LF	LF
Tamil Nadu	31.0	35.0	30.7	24.9	10.1
North East	30.0	36.4	30.0	20.8	15.7
Low HDI					
Andhra Pradesh	33.2	38.8	34.3	26.6	12.2
Rajasthan	34.4	45.2	34.1	26.7	18.5
Uttar Pradesh	50.5	62.4	51.8	31.2	31.2
Bihar	49.3	64.4	50.1	27.6	36.8
Uttarakhand	29.9	48.2	24.8	22.2	25.9
Assam	34.0	41.5	30.2	24.2	17.3
West Bengal	21.6	23.1	20.5	12.6	10.6
Jharkhand	37.3	49.1	35.0	24.2	24.9
Odisha	29.2	39.6	26.2	17.7	21.9
Chhattisgarh	34.5	51.9	35.0	20.0	31.9
Madhya Pradesh	36.6	52.8	34.6	25.8	27.0

LF= low frequency (less than 25)
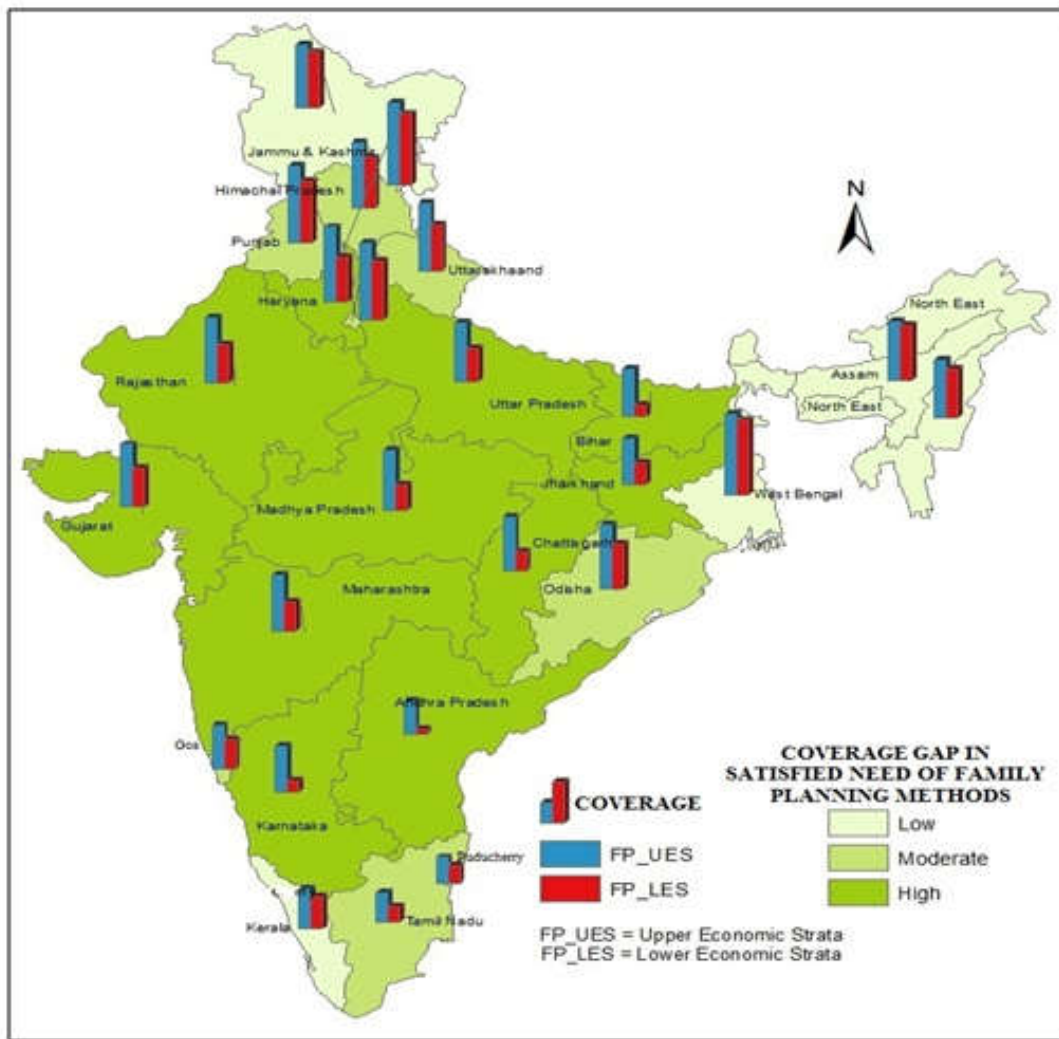
Map 1. Coverage gap for satisfied family planning need in the selected States of India

Table 3. Adjusted effects of selected covariates on coverage gap in urban India, 2007-08

Background characteristics	Family planning	Treatment of sick children		Maternal and new born care		Child immunization		
		Oral rehydration therapy	Acute respiratory infection	Delivery by skilled birth attendant	Three antenatal care visits	Measles	DPT3	BCG
Women's education								
10 or more years ®								
5-9 years	1.42***	1.07	1.21*	2.33***	1.78***	1.57***	1.48***	1.34***
Less than 5 years	1.90***	1.23**	1.28*	4.69***	3.92***	2.77***	2.82***	3.04***
Partner's education								
10 or more years ®								
5-9 years	1.01	1.16**	0.95	1.16***	1.06*	1.13**	1.05	1.28***
Less than 5 years	1.17***	1.53***	1.03	1.57***	1.38***	1.67***	1.53***	2.13***
Caste								
Others ®								
Other Backward Classes	1.67***	1.11*	1.29**	1.13***	1.06**	1.38***	1.33***	1.45***
Scheduled Tribe	1.76***	0.62***	2.30***	1.12**	0.93*	0.92	1.10	0.83
Scheduled Castes	1.20***	0.95	1.38***	1.21***	1.03	1.01	1.07	1.02
Children ever born								
1 to 3 ®								
4 to 6	1.03	1.10	1.21*	2.03***	2.08***	1.69***	1.54***	1.67***
Above 6	1.46***	1.14	1.29	2.82***	3.62***	3.47***	3.15***	3.36***
Wealth index								
Upper ®								
Middle	1.15***	1.18**	0.86	1.89***	1.20***	1.52***	1.14**	1.22*
Lower	1.42***	1.07	1.27*	2.70***	1.50***	1.66***	1.22***	1.34**

®Reference category ***p<0.01 ** p<0.05 *p<0.1
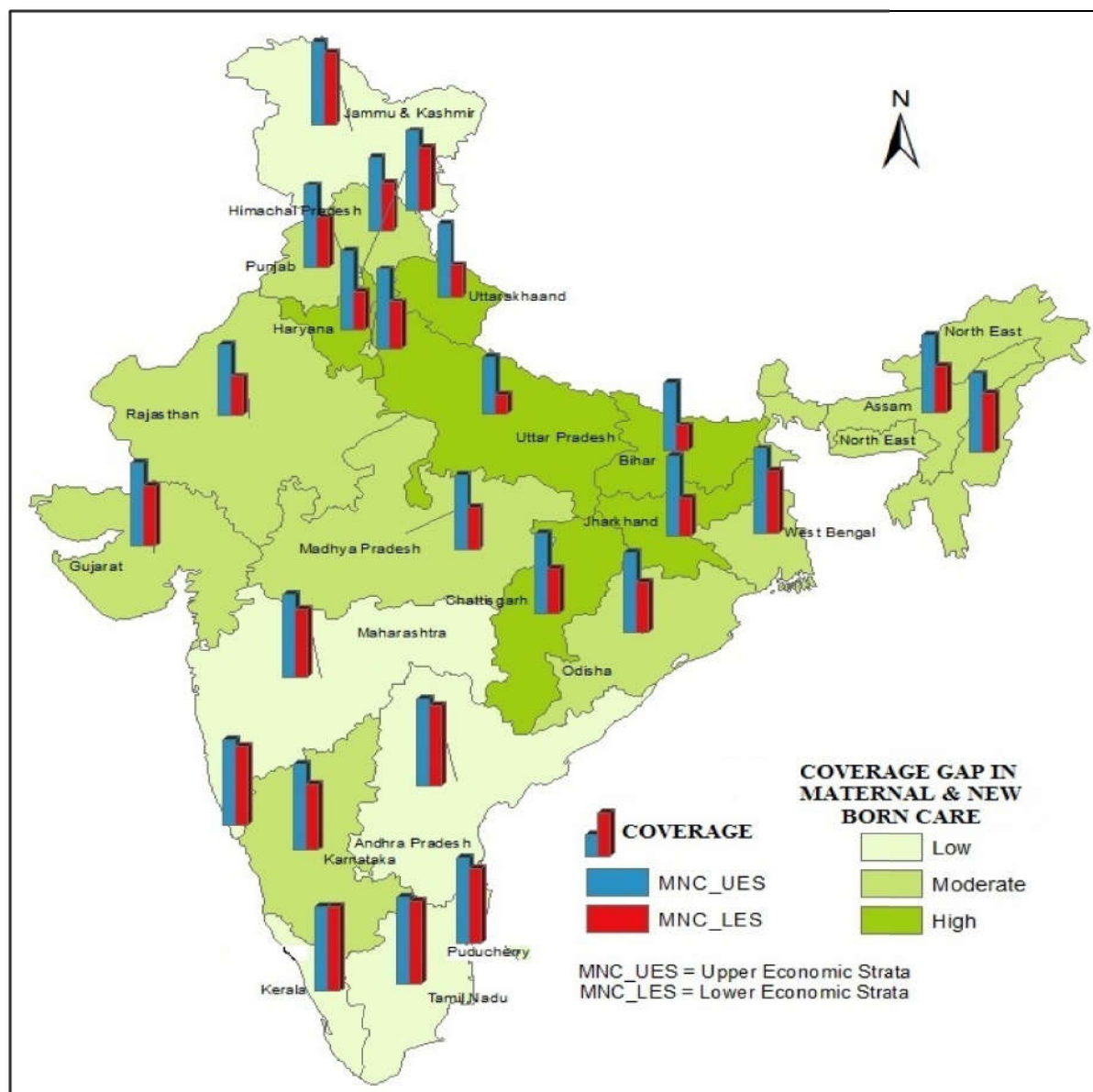
Map 2. Coverage gap in maternal and new born care in the selected States of India
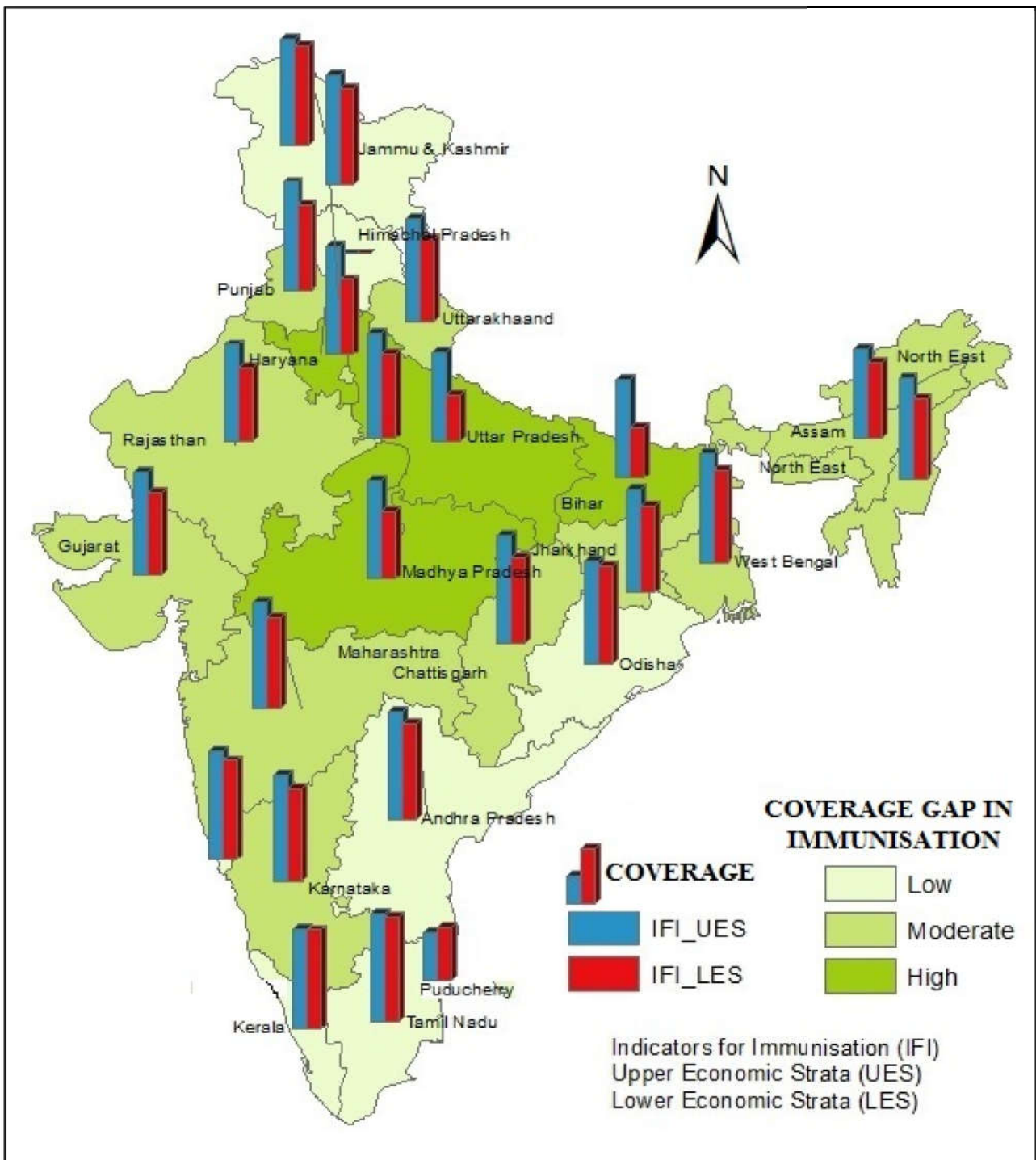
Map 3. Coverage gap in immunization in the selected States of India

When looked at State specific coverage gap, found highest forUttar Pradesh (51%), Bihar (49%), Madhya Pradesh (37%) and Chhattisgarh (35%). Among low HDI States, women from lower economic strata have highest coverage gap particularly in Bihar (64%), Uttar Pradesh (62%) and Madhya Pradesh (53%). The respective figures for coverage gap among medium HDI States found higher in Haryana (46%) and Karnataka (44%). The difference in coverage gap among women from lower and upper economic groups has been found highest for Bihar (37%), Chhattisgarh (32%) and Uttar Pradesh (31%) (Table 2). Results of logistic regression suggest that women with less than 5 years of education have highest coverage gap than the women with 10 or more years of education. This pattern is observed across the selected indices.

Yet, women with less than 5 years of education have highest likelihood (OR=4.69) to have coverage gap in skilled birth attendant than any other health services. Alike the women's education, partner's education has similar relationship with coverage gap in the study. Children ever born and women's economic condition has inverse relationship with coverage gap (Table 3).

DISCUSSION

The summary tool is useful to assess the coverage gap between the demand and supply in health need. India, being a developing nation, stayed far behind to achieve the MDG 4 and 5 by 2015(10,11).
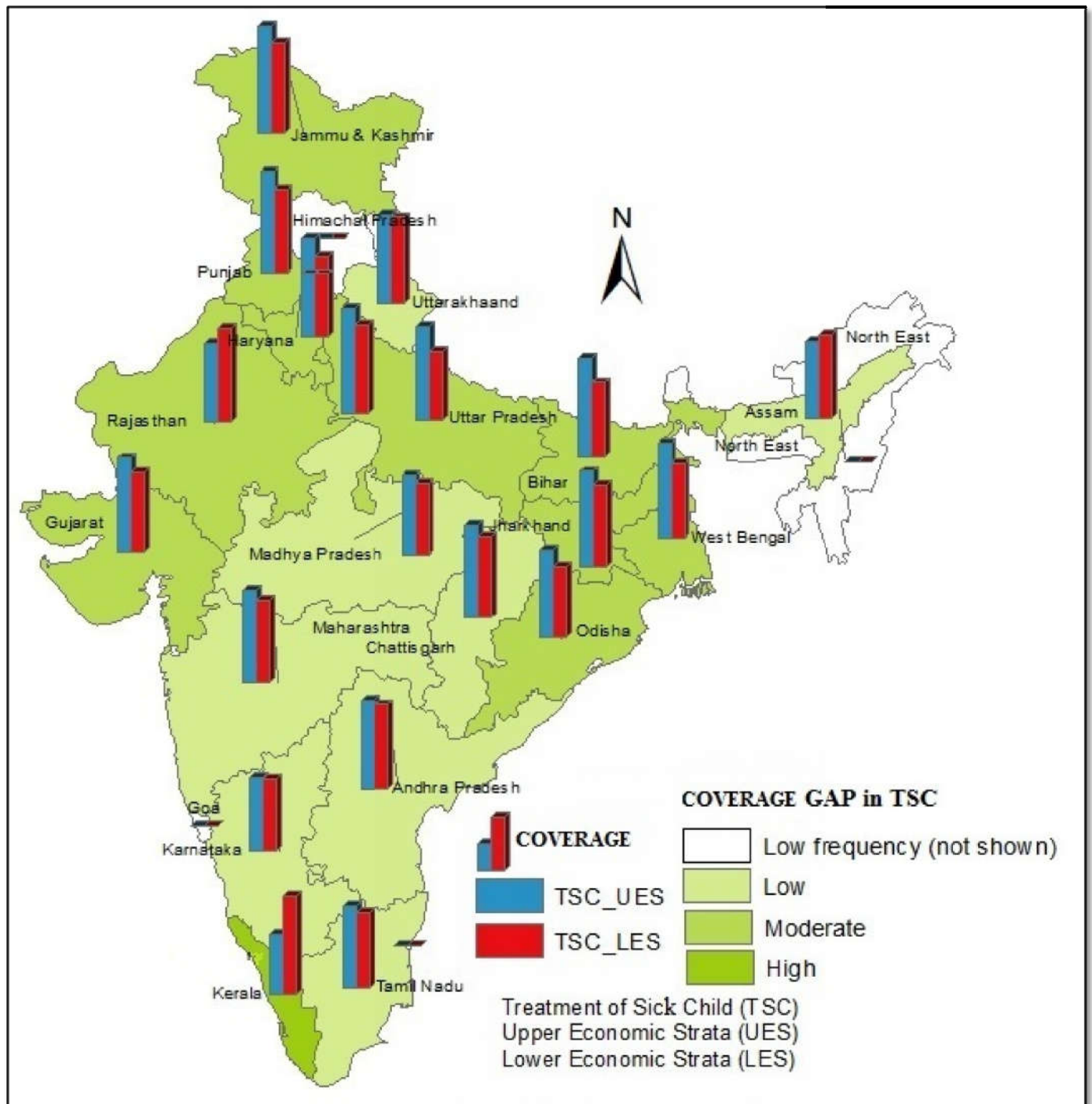
Map 4. Coverage gap in treatment of sick child for the selected states of in India

At this juncture, this study concludes that, health inequality is restricted not only to rural area rather it is pronounced in urban too(6,7). Alike the rural, in urban, the inequality persists along the economic condition of the women(12,13). The coverage gap index used in this study to capture the inequality shows that, coverage gap is extensively higher among the economically deprived sections of the women. This is true for all the selected indices in the study. Along with many studies, this study equally opined that level of childhood vaccinations are much lower among urban poor than better-off women(14,15). Moving further, many scholars suggested that, underweight, stunting, wasting and even infant and child deaths are more among urban poor than the urban non-poor women(7,14). Results from the present study highlighted the gap is more in antenatal care and skill birth attendant which are considered to be significant for the reduction of high

maternal morbidity and mortality. Similarly, coverage gap found to be higher particularly among low HDI States. The recent agreed SDG has given superfluous emphasis to reducing maternal mortality. More specifically, the target 3.1 directs to reduce the global maternal mortality ratio to less than 70 per 100,000 live births by 2030. As it is evident that most of the development in the recent past in maternal health is among the affluent or better-off women only; the state of maternal health among the poor remains relatively same(16). Thus, the achievement of this new target will largely depend upon the improvement in the highlighted MCH care indicators among urban poor.

Conclusion

Rapid increase urban population will put enormous pressure on the healthcare system to meet the health needs of urbanities.

In a nutshell, building new health infrastructure or upgrading the existing health facilities at par with the standard will be the real challenge before the Indian government(17,18). The recent proposed flagship program 'National Urban Health Mission (NUHM) may be directed in this direction, to build health infrastructure in these deficit urban areas to address the maternal and child health needs. Without addressing the health needs of these sections, the SDG will be the same state of daydreaming like the recently concluded MDG for India.

REFERENCES

Arokiasamy, P., Jain, K., Goli, S., Pradhan, J. 2012. Health Inequalities Among Urban Children in India: a Comparative Assessment of Empowered Action Group (Eag) and South Indian States. *J Biosoc Sci.,* 1–19.

Balarajan, Y., Selvaraj, S., Subramanian, S. V. 2011. Health care and equity in India. Lancet [Internet]. 377(9764):505–15. Available from: http://www.thelancet.com/article/S0140673610618946/fulltext

Bandyopadhyay, A., Agrawal, V. 1981. Slums in India: From past to present. Population (Paris). 23:14–46.

Bhagat, R.B. 2011. Emmerging Pattern of Urbanisation in India. Econ Polit Wkly. 46(34):10–2.

Boerma, J.T., Bryce, J., Kinfu, Y., Axelson, H., Victora, C.G. 2008. Mind the gap: equity and trends in coverage of maternal, newborn, and child health services in 54 Countdown countries. Lancet [Internet]. 371(9620):1259–67. Available from: http://www.ncbi.nlm.nih.gov/pubmed/18406860

Deaton, A., Dreze, J. 2014. Poverty Inequality in India: A Re-Examination. Econ Polit Wkly [Internet]. 37(36):3729–48. Available from: http://www.jstor.org/stable/4412578

Fotso, J.C., Ezeh, A., Oronje, R. 2008. Provision and use of maternal health services among urban poor women in Kenya: What do we know and what can we do? *J Urban Heal.,* 85(3):428–42.

Fry, S., Cousins, B., Olivola, K. 2002. Health of Children Living in Urban Slums in Asia and the Near East: Review of Existing Literature and Data. Development.

Goli, S., Doshi, R., Perianayagam, A. 2013. Pathways of economic inequalities in maternal and child health in urban India: a decomposition analysis. PLoS One [Internet]. 8(3):e58573. Available from: http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=3612074&tool=pmcentrez&rendertype=abstract

Griggs, D., Stafford-Smith, M., Gaffney, O., Rockström, J., Ohman, M.C., Shyamsundar, P. *et al*. 2013. Sustainable development goals for people and planet. Nature [Internet]. 495(7441):305–7. Available from: http://www.ncbi.nlm.nih.gov/pubmed/23518546

Htrccok. A.E. 2007. Huge poor-rich inequalities in maternity care: An international comparative study of maternity and child care in developing countries. TT - . Bull World Health Organ [Internet]. 85(10):745–54. Available from: http://www.who.int/bulletin/volumes/85/10/06-038588.pdf

IIPS. District level household and facility survey (DLHS-3), 2007-08: India. Mumbai; 2010.

Jones, G., Steketee, R.W., Black, R.E., Bhutta, Z a., Morris, S.S. 2003. How many child deaths can we prevent this year? Lancet. 362(9377):65–71.

Montgomery, M.R., Gragnolati, M., Burke, K. A, Paredes, E. 2000. Measuring living standards with proxy variables. Demography [Internet]., 37(2):155–74. Available from: http://www.ncbi.nlm.nih.gov/pubmed/10836174

Patel, S., Burra, S. 1994. Access to housing finance for the urban poor Institutional innovations in India. Cities., 11(6):393–7.

Prakash, R., Kumar, A. 2013. Urban poverty and utilization of maternal and child health care services in India. J Biosoc Sci [Internet]. 45(4):433–49. Available from: http://www.ncbi.nlm.nih.gov/pubmed/23410254

Ram, F., Singh, A., Ram, U. 2013. Human rights approach to maternal & child health: has India fared well? Indian J Med Res [Internet]. 137(4):721–7. Available from: http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=3724252&tool=pmcentrez&rendertype=abstract

United Nations Population Division. 2006. World Urbanization Prospects: The 2005 Revision [Internet]. New York; 2006. Available from: http://www.un.org/esa/population/publications/WUP2005/2005WUPHighlights_Final_Report.pdf

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