

## REVIEW ARTICLE

# Improving urban newborn health: Challenges and the way forward

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## Abstract

One-third of India's urban population resides in slums and squatters, their vulnerability being characterized by poverty and powerlessness. Newborn care is sub-optimal among India's urban poor, yet scarcely documented. Neonates born in urban poor settings are at high risk of death owing to multitudinous factors. This paper discusses the situation of neonatal care and survival among the urban poor across states which are at different levels of social development. Challenges in addressing needs of the newborns in urban poor settings operate at community as well as program level and need to be addressed simultaneously. The paper describes these challenges and suggests a way forward in light of the existing opportunities and lessons from successful experiences. The following emerge imperative for improving newborn care among the urban poor in India: i) development of comprehensive lead programs through close partnership among academic agencies like National Neonatology Forum, NGOs, socially committed private doctors, hospitals and city governments; ii) improving demand, promoting household practices, service outreach through trained slum-based health volunteers and women group and encouraging slum-level health funds as a community risk pooling measure; iii) enhancing competence of slum-based TBAs to improve home delivery practices and encourage hospital deliveries by linking them to affordable facilities; iv) investment in building human resource capacity at all levels for providing improved newborn healthcare; v) partnership with the private sector (private/charitable health facilities and non-government organizations) and academia for enhancing service delivery and for advocating for greater attention to the urban poor newborn; vi) making the invisible visible and reaching the un-reached and more vulnerable clusters.

**Key words:** slums, urban poor, newborn care, re-analysis, NFHS-3, slum-TBAs

## Introduction

Along with remarkable technological advances, unprecedented economic growth and rapid urbanization, India faces a major problem, the rapid increase in urban poverty. An estimated 336 million of 1.1 billion population of India resides in urban areas.<sup>1</sup> Out of 336 million, as many as 100 million urban population lives in poverty conditions.<sup>2</sup> These 100 million constitute the 'urban poor'. The urban poor reside in slums, squatters, pavements, constructions sites, urban fringes amidst problems such as poverty, lack of awareness, poor living conditions, poor family support system, low access to basic water, sanitation, health and nutrition services as many of them have evolved as encroachments and are not notified in official records.

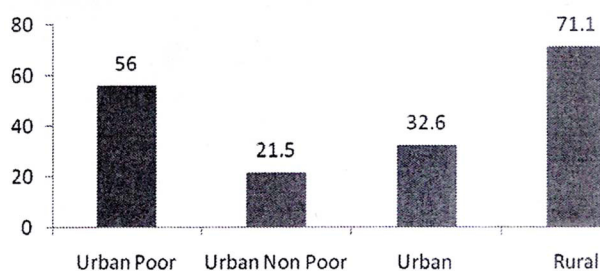
The glitter of today's growing cities typified with multiplexes, malls, shopping plazas masks the less visible reality of the city's unseen and unheard poor most of whom contribute as the informal sector workforce to the urban component of India's GDP (estimated to be 70% of India's total GDP).<sup>3</sup> An unfortunate paradox of cities is that even though most cities have several hospitals and doctors, a large proportion of urban poor are unable to access these health facilities owing to social and economic barriers.

## 1. Current scenario of neonatal health among urban poor

Annually, about 2.74 million births take place among the urban poor in India [calculated based on Crude Birth Rate 27.4 for the urban poor (lowest quartile by the wealth index) and 100 million urban poor populations]. Despite proximity to specialty hospitals, 56% of slum children are born at home.<sup>4</sup> In such an environment, the neonate born in an urban poor family is more vulnerable to illness, sub-optimal survival, growth and development. Different slum-based studies conducted in Mumbai, Indore, Nagpur, Hyderabad have shown that between 30 and 54% babies in slum settings are Low Birth Weight (birth

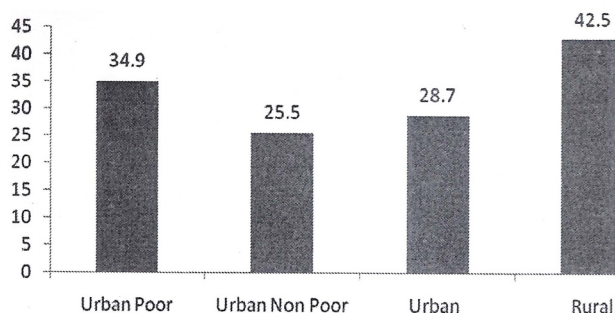
weight <2,500 grams).<sup>5-9</sup> Neonatal Mortality Rate (NMR) among the urban poor is also much higher (34.9 per 1,000 live births) compared to NMR among the urban average (28.7 per 1,000 live births) and urban non-poor (25.5 per 1,000 live births) (4) (Figure 1). This continues to compromise India's march towards the Millennium Development Goals and National goals.

There is wide disparity in neonatal health and

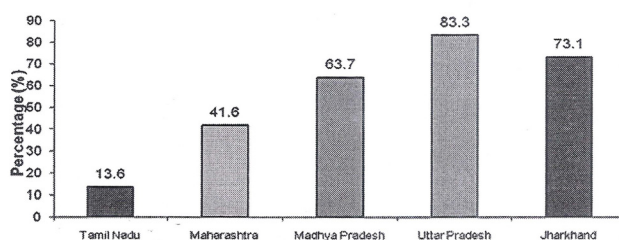


**Figure 1.** Percentage of home deliveries among urban poor

survival across different Indian States. NMR is far worse in certain states as compared to other States. Uttar Pradesh, Madhya Pradesh and Jharkhand, Orissa, Rajasthan, Chattishgarh and Bihar together are home to over 40% of India's urban poor and are States where Home deliveries and NMR is comparatively higher as compared to all-India urban poor and substantially higher than NMR and home deliveries among the urban poor in Tamil Nadu and Maharashtra. (Figure 2 and 3). The data shown in these figures is based on re-analysis of urban sample of NFHS-3 data for All-India and the identified States based on wealth quartiles. (please see end-notes 1 and 2).



**Figure 2.** Neonatal mortality among urban poor in India



**Figure 3.** Home delivery among urban poor in select states

Described in this article are challenges in improving neonatal care for the urban poor and a way forward in light of the existing opportunities.

## 2. Community-level challenges in improving neonatal care for the urban poor

### a. Large number of home births and sub-optimal slum birth practices

Despite physical proximity of urban poor areas to health facilities, more than half of urban poor newborns are born at home and 87% of these home births are attended by untrained birth attendants.<sup>4</sup> Furthermore slum-birth practices are sub-optimal. An Indore-based slum study in 11 slums, reported 77% births taking place at home, 56% in slum-homes and 16% at home in native-village. Clean cord care (cutting the cord with a sterilized instrument, tying the cord with a sterilized thread and dry cord care) was practiced in only 22% of the births taking place in slum homes. Furthermore, over 90% of the slum home births were conducted on the floor of the room and about two-thirds of the newborns were given a bath immediately after birth.<sup>10</sup> This Indore-based slum study brought to light the following reasons for preference of home births: i) considering delivery a natural phenomenon that can be conducted at home, or a common practice of going to their native-village for home delivery; ii) economic constraints related to cost of delivery at a health facility and iii) fear of being alone during delivery in a health facility, since in a health facility a family member or neighbour are not allowed in the labour room.<sup>10</sup>

### b. Low community demand for services and weak community-service provider linkage

Slum residents often have limited knowledge on appropriate behaviours. Traditional beliefs continue to guide newborn care practices and also prevent acceptance of available services/messages promoted. A large proportion being migrants, they are also often unaware of the time, location and services provided at facilities and in their slum. Lack of organized community collective efforts prevents them from raising a strong demand for essential services. For recent migrants, the above-mentioned problems are exacerbated. Due to weak birth registration system for urban slums especially domiciliary deliveries the latter remain untraced.

Re-analysis of NFHS-3 data using wealth quartiles (endnote 2) for the urban sample highlights grossly sub-optimal utilization of existing reproductive and

child health (RCH) services by the urban poor in India. Government of India's Reproductive and Child Health Programme recommends that pregnant women should receive a package of at least three antenatal services. These include - two tetanus toxoid injections, iron folic acid tablets or iron syrup for at least 3 months and three antenatal checkups which include procedures to detect pregnancy complications.<sup>11</sup> However, during pregnancy only 11% urban poor women in India receive the package of three antenatal services described above.<sup>4</sup> Also, while 40% urban poor children 12-23 months receive all vaccinations, one-third children are left out (not receiving DPT-1).<sup>4</sup>

### c. Delayed referral or referral to unqualified private providers

Factors hindering timely and optimal referral include delay in recognition of danger signs of illness due to unawareness, lack of perceived need for referral, not being prepared to handle costs of referral due to low income and very little savings, inability to decide when to seek treatment from a health service provider, inability to decide where to seek treatment owing to weak / no linkage with qualified health providers, lack of family and social support. Unlike rural areas, most urban areas lack planned primary health care (PHC) infrastructure and multiple health providers administer health services without any coordination. While geographic proximity of providers/hospitals in urban areas reduces time taken to reach point of service, private practitioners in the locality are preferred due to low cost, availability, behaviour and perceived competence. Many private practitioners requested by the poor, however, lack formal medical training, resulting in delayed diagnosis, prolonged sub-optimal therapy and increase in expenditure. The poor often shuffle from one provider to another and inappropriate care during transit further aggravates the problem.<sup>12</sup>

### d. Slum mothers working outside home have poor access to services

Slum women often work outside home for making ends meet. Being unavailable in the slum they have low access to ongoing outreach services provided during day time. In a study in Ludhiana, a significant proportion of slum children (0-<5 years) did not get the benefit of basic immunization as they accompanied their mothers when the mother went for work.<sup>13</sup>

### e. Ignorance, traditions and lack of social support

## hinders adoption of optimal infant and young child feeding practices

Two high impact proven child survival and nutrition interventions are poorly practiced in urban poor households. Only 27.3% urban poor newborns are initiated breastfeeding within an hour of birth and less than one-fifth (19%) infants 5 months were exclusively breastfed in the 24 hour period preceding the NFHS-3 (4) (Figure 5).

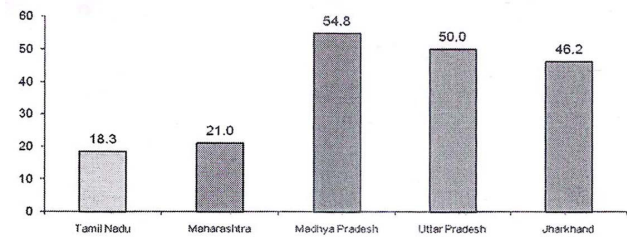


Figure 4. Neonatal mortality rate among urban poor across select states

## 3. Program-level challenges in improving neonatal care for the urban poor

### a. Unlisted slums and relocated are devoid of basic health services

Unlisted slums are not entitled to even basic amenities such as potable water, sanitation, electricity, nutrition and health services. Evidence from detailed assessment of slums in Dehradun, Indore and Bally, shows that the proportion of unlisted slums to listed slums is significantly high (35-99%); a) in Dehradun, 28 unlisted slums were identified beyond the official 78 (36%); b) 159 unlisted slums exist in Indore beyond official list of 438 (36%) and c) in Bally 47 unlisted slums against 75 listed ones (62%).<sup>14</sup> According to NSSO 58<sup>th</sup> Round (2002) 49.4% slums are non-notified in India.<sup>15</sup> Due to long delays in updating official slum lists many slums remain unlisted for years and continue to be deprived to these services due to their illegal status. Certain slum populations remain "hidden" due to their temporary or migratory nature. Relocated areas are often on the semi-rural peripheries far from opportunities for generating livelihoods. Access of government nutrition and health services to these areas does not usually occur in the initial 3 years of relocation. It may take longer in cities where overall governance is poorer.

### b. Inadequate public health infrastructure in urban slums

One primary health care facility in an urban area

caters to a much higher population compared to the norm of 1 center for every 50,000 population.<sup>16</sup> From the providers' perspective service delivery in slums is an enormous challenge given the large and sometimes mobile population and large population covered by a single health worker. This leaves them with little scope for persuasion for appropriate behaviors with target families. Also there is an imbalanced focus on curative care, and a consequent near total neglect of preventive and promotive care. There is an over-emphasis in cities, particularly in the large ones, on super-specialty care centres in the private sectors which are clearly out of reach of the urban poor. Newborns need warmth, psycho-social caring, breastfeeding and the human touch of affectionate parenting, all of which can be promoted when the healthcare system invests in promoting household level care through sustained efforts.

### c. Weak coordination among different stakeholders

State health department, municipal bodies, ICDS, NGOs, charitable organizations are responsible for providing services in urban areas. Owing to weak coordination between these agencies often service areas of different agencies overlap while they are large areas where there are no services. Absence of a well plotted updated city map indicating slums and facilities leads to crowding of several primary care facilities in a small area of the city, usually its centre. Slums located in city fringes are often served neither by rural nor by urban health staff.

### d. Staffing and monitoring challenges of existing government programs are multifold

High staff turnover, absenteeism, inadequately skilled staff and lack of their supportive supervision are hindering effective implementation of services. A large number of positions of medical officers and para-medical staff are vacant at the primary care facilities, which are supposed to cater to the slum clusters. Records maintained are not adequately used as tools for enhancing service quality. Lack of regular and optimal quality training on newborn care, absence of modalities for recognition for dedicated and frequent transfers also contribute to weakness of the services.

## 4. The way forward

### a. Develop lead programs in large, medium-sized and small cities

To provide a powerful dose of catalytic stimulus,

academic associations like NNF, agencies working in slums, socially committed hospital managements, donors, State Governments and Municipal bodies should work collaboratively to develop need responsive urban neonatal health care programs in select cities. In light of the dismal situation of the urban poor in States contributing to approximately 40% of urban poverty (Figure 2 and 3) and the rapid increase in urban poor population in states like Maharashtra, and Gujarat, these should be focus destinations for such early learning programs. These lead programs should aim at demonstrating the "how" of delivering known and fairly established newborn care interventions. They would serve as learning sites to stimulate other cities in the same State or nearby States.

The core and essential elements that lead programs should include a) demand enhancement, promotion of household newborn care practices; b) focus on health empowerment of slum communities through developing system of deployment, training and supervision of slum-based health volunteers and through promotion of slum-based health groups to strengthen community-provider linkages; c) improve accessibility, friendliness and quality of the supply side and newborn services at first tier and hospital level.

Other important elements which will enhance the value of these learning sites include: involvement, as appropriate, private providers, charitable facilities/clinics, NGOs for defined neonatal healthcare services. Proactive involvement of city/district authorities is key so that over the course of the project they are able to equip themselves with tools and capabilities to replicate/adapt lessons in other areas. Focus on periodic review of program progress and document lessons learned will help in informing the program itself as well as other potential champions in other cities and states. The project should use baseline data to describe maternal and neonatal health challenges among urban poor and utilize the same for strengthening advocacy efforts.

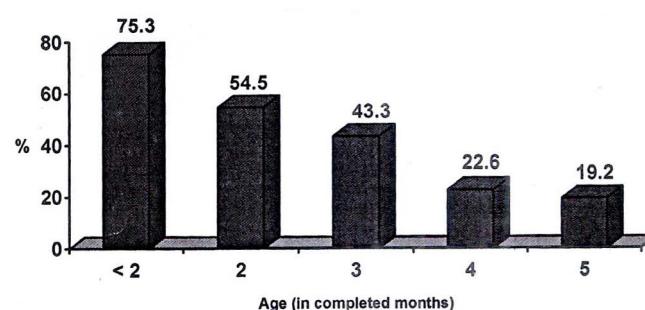


Figure 5. Age-wise distribution of urban poor infants exclusively breastfed in 24 hours preceding NFHS-3

### **b. Improving demand, household practices and service reach outreach through trained slum-based health volunteers and women groups**

There is program evidence<sup>17-18</sup> that presence of trained slum-based health volunteers, supported by slum-based community groups improve efficiency and reach of outreach services especially to mothers who hesitate in availing such services. Such experiences<sup>18</sup> demonstrate how a health program can facilitate the grassroots community to come together for common community benefit, develop a strong community presence, address issues in a more local manner and continue to work even when the program is over not only for better health outcomes but also for overall development of the community. Slum-CBOs (community-based organizations) play a vital role in improving the lives of the urban poor and are also potential advocates themselves. Their direct voice when facilitated at appropriate levels is potent and can contribute valuably to policy advocacy efforts. Hence capacity building efforts aimed at enhancing their ability to take better care of their health and also advocate for the cause of the urban poor are of immense value.<sup>18</sup>

### **c. Involve and train slum-based TBAs to improve home delivery practices and encourage hospital deliveries**

A very large proportion of slum-home births continue to be conducted by untrained slum-based traditional birth attendants (sTBAs). Hence, while efforts need to be continued to promote all deliveries in health facilities, in the interim, the most practical and cost effective intermediate intervention would be to build the technical knowledge and skills of slum TBAs and enhance their social linkage with the community to ensure that the community values them and calls them to assist home delivery following appropriate practices. Focused stress on hand-washing at delivery and for newborn care is critical, in light of the slum situation where the concept of clean hands is modulated by the physical environment and struggle for water. *Janani Suraksha Yojana* (JSY) integrates cash assistance with institutional delivery in a government or accredited private institution both to the pregnant women and the health volunteer/motivator and sTBA who escorts her to these facilities.

Linkage of sTBAs with health facilities empanelled under this scheme can be fostered to enhance access to hospital delivery for slum women and help slum-based health volunteers as well as sTBAs avail the incentives available under this scheme. It is also

important to address the gaps in JSY including issues of low access to entitlement cards (e.g., below poverty line cards) and lack of efficiency in disbursement of entitlements. Slum-based TBAs can also be linked to proximate public/private accredited health facilities providing low-cost quality services so that they can recommend or even escort mothers to these facilities in times of need.<sup>19</sup>

### **d. Regular contact and newborn care counseling by link volunteers**

More frequent group and interpersonal counseling contacts during antenatal period by trained health providers increases receipt of antenatal services, care seeking behaviour in times of emergency and breastfeeding practices postpartum.<sup>10</sup> These contacts should be encouraged with support from slum-based volunteers. There is need for added support during counseling visits to households where the newborn is at a greater risk, such as, families where alcoholism is an issue and families with single mothers. Effective motivation for appropriate behaviour adoption can also be learned from and promoted by families who are either already practicing positive behaviours or have adopted them early. Efforts to sharpen the health volunteer's knowledge and counselling skills and encouragement through recognition at appropriate forums would certainly keep her motivated to zestfully continue providing her services. Additionally postpartum home visits by the trained slum-level volunteers as per standard integrated management of neonatal and childhood illness protocol should be encouraged.

### **e. Invest in building human resource capacity at all levels**

While improving neonatal care facilities and capacities at hospital level is important, it is equally critical to focus on training of medical, paramedical personnel of first tier health centres and community health volunteers to ensure optimal care of the newborn in urban poor families. With centrality of the role of city authorities, it is important to build technical, managerial capacity including financial management so that when resources are allocated, city authorities are able to expeditiously and effectively utilize the same for improving maternal, neonatal health of underserved urban population.

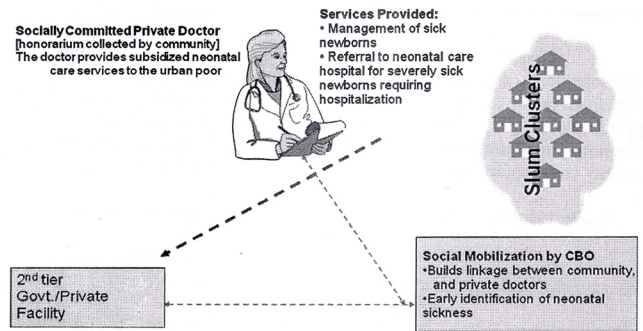
Low preference for government health facilities highlights the need for making efforts to improve the quality of care in government facilities. Regular capacity building and monitoring of medical and

paramedical staff in following recommended guidelines and sensitively communicating with the poor will help the poor overcome their fears of availing services at the government health facility.

**f. Partnership with the private sector**

(Private/charitable health facilities and non-government organizations) for defined outreach services/clinics is a clear opportunity for meeting the public health challenge of reaching to the under-served urban poor. There have been successful examples of slums uncovered by government health services being covered through public-private partnership (PPP) approach in Andhra Pradesh, Bangalore and Guwhati.<sup>19,20</sup> The first choice of the urban poor family in times of newborn illness and emergency is the health provider available at walking distance from the slum, whether s/he is qualified or non-qualified. A large proportion of private practitioners frequented by the poor lack formal medical/neonatal care training. There is a need to establish mechanisms for subsidized treatment options at for-profit facilities to target the needy especially for treat of the sick newborn. Socially committed private doctors could be accredited to provide services to increase care seeking at facility scheme could be piloted in urban areas (Figure 6 and 7). Referral support through referral chit system<sup>21</sup> or vouchers<sup>22</sup> have increased access to health services for women and children. Non-profit NGOs foster constructive engagement between the urban poor and public or private sector providers and thereby their contribution in key intermediary roles has been noted in several programs.<sup>23</sup>

On the lines of Chiranjeevi Yojna, the Government of Gujarat, has recently initiated the Bal Sakha Yojna to involve the practicing private pediatricians for

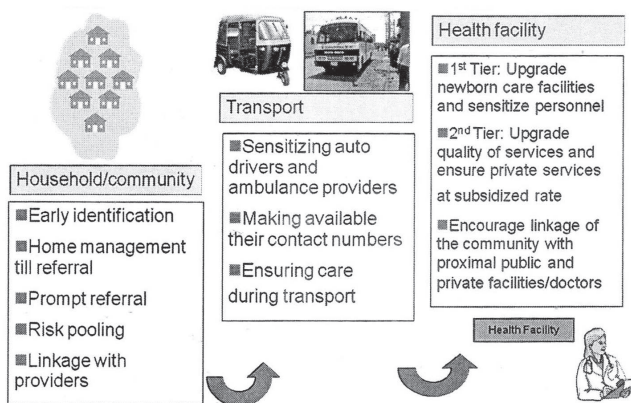


**Figure 7.** Newborn care services by private pediatrician/ neonatologist

delivery of neonatal care through Public Private Partnership. Under this scheme, all babies born to BPL mothers in the State will be covered for neonatal care by partnering pediatricians, including care in their Neonatal Intensive Care Unit (level 2) at no cost to the beneficiary.<sup>24</sup> Lessons can be learned from such initiatives to develop innovative and feasible mechanisms to facilitate treatment of sick newborns of poor families at private facilities.

**g. Slum-based health funds as a risk pooling measure**

Slum based health funds managed by slum CBOs, serve as a community level risk-pooling mechanism and have been helpful in a) prompt care-seeking for maternal-neonatal illness owing to availability of cash loan at the slum itself; b) reduces wage-loss from delayed treatment seeking and prolonged ill health; c) mitigating the burden of maternal-neonatal illness related debt (incurred through borrowing from money-lenders). The approach involves SHG/CBO members contributing Rs. 5 to 50/- each month to a collective pool. Loans are provided to CBO members as well as other slum residents for health needs and other related needs. Bank accounts are also facilitated for the CBO, which add to the collective confidence of the CBO. This approach has been used successfully by Urban Health Program in Indore and Agra.<sup>18</sup> Similar approaches are being implemented by Swyam Shikshan Prayaog and Uplift India Association in Pune and by Nidaan in Patna.<sup>25</sup> It can also be used as a means for linkage with subsidized social health insurance schemes. Such innovative slum-level health funds for loans can be developed by savings groups promoted under SJSRY including DWCUA. The SHGs can be stimulated to utilize the portion of SHG fund as revolving health fund.



**Figure 6.** Prompt care for improved newborn health and survival

### **h. Reaching the un-reached and prioritizing the more needy/vulnerable**

All slums (listed and unlisted), plotted on the city map will help programmers to better plan, implement and monitor the program by defining catchment areas (and fixing accountability). The MoHFW, GoI has developed guidelines for implementation of city slum health projects which detail this process. Such city maps should be regularly updated. The criteria for identifying the needy and vulnerable urban poor should include factors, such as, accessibility to public health services, presence or absence of active CBOs, access to water and sanitation facility, school attendance among children, - rather than solely relying on income surveys. Qualitative assessment of slum vulnerability has been undertaken in Indore, Dehradun, Agra, Bally and Shadhara North (Delhi) for developing City level sample Urban Health programmes.<sup>14</sup>

### **i. Convergence of multi-stakeholders for better resource management by formation of multi-stakeholder ward and city-level committees**

Coordinated interventions from all concerned sectors are required for improvement in nutritional and health status and mothers and children. Multi-stakeholder coordination meetings at city and ward level of coordination committees at each level would help achieve a synergistic impact through – i) convergence of related schemes to achieve common goals, ii) integrated planning and pooling of resources and iii) jointly reviewing progress and taking remedial actions. Existing multi-stakeholder partnership models can be replicated/adapted.<sup>18</sup> Experienced NGOs can facilitate smooth functioning and capacity building to address problems of such committees. These committees can meet periodically, document and present the proceedings and actions points.

### **j. Perseverant advocacy of urban maternal-neonatal care**

India has had a long history of being predominantly rural which has led to a rural bias in policy focus for health and other social sector policies. With urban poor newborn still not in sharp and dedicated focus, it is critical to undertake policy advocacy. Academic bodies such as the National Neonatology Forum in close partnership with civil society can facilitate collaborative advocacy with city government leaders, local champions and media to elevate the urban newborn agenda to the State and National levels. Perseverant policy advocacy will steadily build a team

of urban maternal-neonatal healthcare champions in different States and cities of India. The energy and attention generated through the implementation of a lead program should be harnessed to catalyze policy advocacy efforts, with the required financial and human resources allocated toward these programs. The Ministry of Health and Family Welfare has launched a nation-wide 'Navjaat Shishu Suraksha Karyakram' or NSSK in September 2009. Under this program special training will be provided to doctors and paramedical staff especially from backward States and 12-bed special newborn units would be established in each district hospital.<sup>26</sup> While the communication does not explicitly talk about reaching out to the urban poor, the newborn units at District hospitals would be available to urban poor newborns. The National Neonatology Forum with its long standing experience in facilitating operationalisation of and accrediting newborn care units and providing specialized training across the country and can play a crucial role to rapidly expand the base of trained personnel and newborn care units.<sup>27</sup> Under the NSSK a 'Navjaat Shishu Suraksha Yojana' on the lines of the Janani Suraksha Yojana, providing incentives/resources to poor families to seek healthcare for sick newborns and incentives to slum-based USHAs or link volunteers, could be piloted in urban areas where geographical access is less of a constraint as compared to rural areas and there is a greater availability of medical personnel and private facilities.

## **Conclusion**

More than 52,500 babies are born every week among the urban poor segment of India's population. This number is expected to increase nearly two-fold by 2020. There is an urgent need for preparedness to gear up the weak maternal-neonatal health care system in India's cities. The urban poor newborns are more vulnerable to many health and nutrition problems compared to the non poor urban counterparts. Among nearly half of the urban poor population of India, about 70% deliveries take place at home. It is critical that all govt, non-govt stakeholders and academia acknowledge this reality and work towards a phased approach to make these deliveries safer than the present situation and gradually work towards near cent percent deliveries in hospitals. The pregnant woman and fetus are symbiotic, and interventions to improve outcomes of one are intricately linked to the outcomes of the other. Hence maternal and neonatal health improvement efforts will need to go hand in glove. Intensified efforts towards reducing neonatal mortality and ensuring

concerted focus on urban poor newborns through both facility and community level actions proposed in this paper can help reduce neonatal mortality and thus help our nation progress towards attaining Millennium Development Goal-4 and the goals set forth in the Indian policies and programs.

### Acknowledgment

The author acknowledges the time spent and rich learning contributed by slum dwelling mothers, slum-based birth attendants, members of slum-level community organizations and by government and non-government program stakeholders in different cities, who helped understand practices and perspectives related to maternal-newborn care in slum settings.

#### End notes

1. The NFHS-3 used the wealth index (see end note 2) based on 33 assets and household characteristics such as televisions and bicycles, materials used for housing construction, types of water access, and sanitation facilities for assigning economic status scores to the households. In this paper, for arriving at maternal and neonatal health indicators for the urban poor, the cut-offs based on the wealth index were calculated specifically for the urban sample population, in order to capture the intra-urban differences adequately. The sample was divided into quartiles, and the lowest quartile taken as representative of the urban poverty in India, in view of the recent Planning Commission estimates that put the number of urban poor in India at about 80.8 million (or 25.7% of the total urban population). Of NFHS's sample urban population, 22.6% was categorized as poor (lowest quartile) by this method.
2. The *wealth index* is the composite measure of the cumulative living standard of a household used in NFHS-3. It is calculated by combining data on a household's ownership of assets into an index using the factor analysis procedure.

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### Call for NNF Gold Medal Award paper & Social Neonatology Award Paper

XXXth Annual Convention of NNF, which is being held at Jaipur on 7th - 10th October, 2010.

Last date for Submission: August 30, 2010

NNF Award Paper Rules:

**Categories:** 1. NNF Gold Medal 2. Social Neonatology Award

1. Four Copies of the FULL PAPER along with the abstracts must be sent, styled as original article e.g. as in *Indian Pediatrics*.
2. The First Author who is the presenting author should be less than 40 years as on January 01, 2010 (Please enclose proof for the age and NNF Life Membership). There is no age restriction for co-authors. The number of authors should not exceed three.
3. The research work documented in the paper should have been conducted by the presenting author in India and Certificate from HOD should be submitted along with the paper.
4. Only one paper for the award will be accepted from any one member.
5. An author who has been a recipient of the NNF Award is not eligible to present the paper, however he can be a co-author
6. The papers are subjected to a review by three experts who grant marks to each paper out of maximum 70 marks.
7. Based on this review 3 papers are selected for presentation.
8. These 3 papers are presented in the Annual convention & marks are allotted out of maximum 30 marks.
9. Result is prepared considering marks obtained from review & presentation (Max. 100 marks)
10. Consent is required from the authors for presentation of their paper in Free Paper Session, in case the paper is not selected for the award paper presentation.
11. The hard copies along with a soft copy in MS Word Format on a CD must be submitted to the NNF Secretariat latest by August 30, 2010 at the address:

Dr. Sushma Nangia  
Secretary NNF  
Professor  
Dept. of Pediatrics  
Lady Hardinge Med. College &  
Kalawati Saran Children's Hospital  
New Delhi - 110001  
Tel: 65443838, 23366166

For any assistance contact:

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**Mr. Rajesh** (NNF office executive- 9999020159)

or visit NNF website [www.nnfi.org](http://www.nnfi.org)

12. Authors of papers to be presented shall be registered for the annual convention.

(See Proforma on page 249)