

Childhood Morbidity and Mortality in India – Analysis of National Family Health Survey 4 (NFHS-4) Findings

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Received: June 19, 2017; Initial review: July 07, 2017; Accepted: January 20, 2018.

National Family Health Survey (NFHS)-4 report was recently released for health-related data. This review compares the child health indicators across NFHS-3 and NFHS-4 with a background of existing health programs catering to child health. Reports of NFHS-4 and NFHS-3, along with ministry reports and existing literature were reviewed to understand the current status of child health. Child health indicators were compared between the two rounds of NFHS and among Empowered Action Group states of India. National Health Policy 2017 and National Health Programs related to child health were also analyzed. There has been an improvement in almost all child health indicators from NFHS-3 to NFHS-4. The infant mortality rate has reduced to 41 per 1000 live births. The immunization rate is 62%, and has almost doubled in the states of Uttar Pradesh, Rajasthan and Madhya Pradesh. Despite existence of many health programs, there is still a substantial lack of achievement in most of the indicators.

Keywords: Child health, Health programs, Trends.

The National family health survey (NFHS) is a set of a large-scale, multi-dimensional surveys conducted periodically on a representative sample of households in India; these surveys deliver essential data on health and family welfare. The government of India recently released NFHS-4 data [1] for both the national- and the states-level, more than a decade after the previous one in the year 2005-2006 (NFHS-3)[4]. NFHS-4 congregated information from 601,509 households (109,041 households surveyed in NFHS-3). This review is an attempt to understand the transition and trends of various child health indicators over the last decade – from NFHS-3 to NFHS-4 – and also across Empowered Action Group (EAG) states of Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh (MP), Orissa, Rajasthan, Uttaranchal and Uttar Pradesh (UP).

CHILD MORTALITY

Infant mortality rate (IMR) has reduced from 57 to 41 per thousand live births and a higher reduction has been seen in Under-5-mortality rate (U5MR) from 74 to 50 per thousand live births. The state with the highest IMR is Uttar Pradesh (64 per 1000 live births) and that with the lowest IMR is Kerala (6 per 1000 live births). Facility based newborn care, Newborn Care Corners Special newborn Care Units and Newborn Stabilization Units have also been operationalized at delivery points to

provide essential newborn care. Accessible and affordable healthcare has been a major contributor towards reduction in child death. The Home based newborn care (HBNC) [3] initiative, whereby Accredited Social Health Activists (ASHAs) are trained in screening and referral of newborns, is also noteworthy.

INSTITUTIONAL DELIVERY

The institutional delivery rate (78.9%) has nearly doubled since NFHS-3 (38.7%). An initiative under NRHM was the ‘Janani Suraksha Yojana’ (JSY) [4] that gives incentives to women for institutional delivery, which is one of the many contributory factors in improving the institutional delivery rates [5]. Maternal education has also been identified as a predictor of increase in institutional delivery rate [6]. Provision of free transport, food, drugs and consumables to pregnant females and infants under Janani Shishu Suraksha Karyakram (JSSK)[7] has brought an increase in institutional delivery rate due to reduction in out of pocket expenditures.

CHILDHOOD IMMUNIZATION

The immunization coverage in 12-23 months old children has increased from 43.5% in NFHS-3 to 62% in NFHS-4. Improvement (nearly 4 times) has been observed in the coverage of vitamin A supplementation in NFHS-4

(60.2%) as compared to NFHS-3 (16.5%). The coverage of almost all vaccines has increased by about 20% since the previous survey. Majority (90.2%) of the children received most of their vaccines from public health care facilities. Almost all states showed an improvement in immunization coverage except Uttarakhand where it decreased by about 3%. The coverage almost doubled in the states of Uttar Pradesh, Rajasthan and Madhya Pradesh. The overall coverage is still low despite existence of Universal Immunization Programme (UIP) [8] for three decades. Coverage Evaluation Survey (CES) of UNICEF [9] found that the reasons for partial immunization or non-immunization was “did not feel the need”, “not knowing about the need” and “not knowing where to go for vaccination” in 28.2%, 26.3% and 10.8% cases, respectively.

Mission Indradhanush [10] has been launched in a phased manner for immunization against seven vaccine-preventable diseases in the year 2015. Newer vaccines have been introduced into the national immunization schedule, *viz*, pentavalent vaccine, rotavirus vaccine and injectable poliovirus vaccine. The National Health Policy (NHP) 2017 aims at more than 90% immunization coverage by age of one year by year 2025 [11]. This ambitious target is achievable through provision of better logistics, accessibility of vaccines, dedication by health workers and most importantly generation of awareness among the target individuals.

NUTRITIONAL STATUS

Breastmilk is the ideal food for growth and development of infants. Ideally, breastfeeding should be initiated within one hour of birth followed by frequent, on-demand feeding (WHO 2004). Despite being known to improve child survival [12,13], only 54.9% of children are exclusively breastfed in India. Breastfeeding was initiated within one hour in 41.6% of the children, which has almost doubled since the last round of NFHS (23.4%). This increase corresponded with simultaneous increase in institutional deliveries by almost double (from 38.7% to 78.9%). Breastfeeding within one hour of birth was the highest in the state of Odisha (68.6%), followed by Kerala (64.3%) and least in UP (25.2%). Exclusive breastfeeding of the infants less than 6 months of age was observed in slightly more than half (54.9%) of the infants at the National level. Minimum practice was observed in UP (41.6%) and the maximum in Chhattisgarh (77.2%). Early initiation of breastfeeding, exclusive breastfeeding, initiation of complementary feeding after six months and appropriate Infant and Young Child Feeding (IYCF) practices [14] are being promoted by the Ministry of health and family welfare in collaboration with the

Ministry of Woman and Child Development. A recent initiative launched in August 2016, Mothers' Absolute Affection (MAA) Program [15], is directed towards promotion of breast feeding among mothers and includes awareness generation, community level interventions and health facility strengthening and monitoring.

Childhood undernutrition accounts for 45% of Under-5 mortality alone and remains a key public health challenge in India. There was hardly any difference in the proportion of children (<5 years of age) with wasting between NFHS-3 and NFHS-4; however, there was a reduction in prevalence of stunting by about 10% at the national level. Maximum prevalence of wasting was seen in Jharkhand (29%) and minimum in Kerala (15.7%). It was noted that occurrence of stunting was inversely proportional to the educational status of the parents and the wealth quintiles of the families. Only one-fifth of children were stunted in Kerala as compared to nearly half (48.3%) in Bihar. Even after 35 years of the launch of the Integrated Child Development Services (ICDS) scheme, the problem of undernutrition still continues and the reduction in the prevalence is relatively unimpressive. According to a study, the program gave more attention to food distribution rather than the quality of care. In addition, poor skills of the staff, scarcity of logistics and poor supervision have added to the problem [16]. The Mid day Meal Scheme (MDM) [17] is another initiative that focuses on promotion of food security, nutrition and access to education for children. Nutrition Rehabilitation Centers (NRCs) [18] have been set-up at facility level to provide medical and nutritional care to Severe Acute Malnourished (SAM) children under 5 years of age who have medical complications. Bihar has introduced a Community-based Management of Acute Malnutrition (CMAM) [19] program with support from *Médecins Sans Frontières*. Dietary diversification still remains the most appropriate way forward, though supplementation and fortification should also be considered potential solutions to fill nutritional gaps.

COMMON CHILDHOOD DISEASES

The childhood diseases assessed in NFHS-4 were episodes of diarrhea, acute respiratory infections (ARI) and anemia. The incidence of diarrhea remained the same (9%) between NFHS-3 and NFHS-4. Maximum incidence of diarrhea has been observed in Uttar Pradesh (15%) while the least was seen in Kerala (3.4%). There was an increase in the intake of Oral Rehydration Salt (ORS), which almost doubled from 26% in NFHS-3 to 50% in NFHS-4. Prevalence of ARI almost halved from the level of 5.6% in NFHS-3 to 2.7% in NFHS-4. UP again lagged behind other states with the maximum rate of ARI in children at 4.7%. Integrated Action Plan for Pneumonia and Diarrhea

has been formulated for four states with highest child mortality (Uttar Pradesh, Madhya Pradesh, Bihar and Rajasthan) to address the two biggest killers of children, namely Pneumonia and Diarrhea. Integrated Management of Neonatal and childhood Illness (IMNCI) for early diagnosis and case management of common ailments of children with special emphasis on pneumonia, diarrhea and malnutrition is being promoted for care of children at community as well as facility level.

The prevalence of anemia decreased by 10% during the time period between NFHS-3 (69.4%) and NFHS-4 (58.4%). Prevalence remained more than 50% in almost all states except Odisha (44.6%), Chhattisgarh (41.6%) and Kerala (35.6%). The maximum prevalence of anemia was seen in Jharkhand (69.9%) while the least was observed in Kerala (35.6%). Weekly Iron Folic Acid supplementation program (WIF) is a promising initiative aimed at supplementation with iron folic acid at the level of the schools and anganwadis. Bi-weekly Iron Folic Acid (IFA) supplementation by ASHA for children aged 6 to 59 months and Weekly Iron Folic Acid Supplementation (WIFS) for children 5 to 10 years (known as WIFS-junior) have been launched. Thirteen States have initiated bi-weekly IFA supplementation for children 6 to 59 months and ten States have initiated WIFS junior for children 5 to 10 years. Sustained efforts are required along with intensive monitoring mechanisms to ensure outreach to the masses.

NFHS-4 findings reflect the current health condition of the country. These findings are a yardstick for future references pertaining to health related data and initiatives. Despite the launch of many health related programs between 2005 to 2015, only some improvement has been seen. The landmark initiative was the launch of the National Rural Health Mission (NRHM) in 2005, which involved all aspects of health in rural areas. Many programs and initiatives were initiated under this mission with a vision to improve the health status of the country. Most of the existing programs were merged under the umbrella of NRHM. Recently in 2013, the nomenclature of this program has been revised as National Health Mission (NHM) [20] which includes the urban counterpart of the program as well. The progress with NHM, however, has remained confined to a few indicators like mortality and disease prevalence. Such selective focus and facility development is clearly neither efficient nor sufficient. Several bottlenecks have been identified in NRHM – limited availability of skilled health personnel, poor coverage in marginalized communities with low skilled staff posting, insufficient supportive supervision of front line workers, poor training, lack of quality services and unsatisfactory Information Education and Communication

(IEC) on key family practices [21]. Strengthening health systems for delivering comprehensive care requires high levels of investment. States with better competence at baseline could take advantage of financing from NRHM rapidly. The gaps in achievement were larger in high focus States where baseline status was inferior. These gaps were further compounded by inefficiencies in fund utilization and poor governance. Despite years of strong economic growth, the total spending on healthcare in 2014 for the country was only about 4.7% GDP [22]. Global evidence states that, unless a country expends at least 5% of its GDP on health with Government expenditure contributing to a major part, fundamental healthcare needs are hard to meet [23,24]. The Government spending on healthcare in India is only 1.15% of GDP [25]. This is 3.8% of total Government expenditure and contributes to 28.6% of total health spending. The portion that trickles down for child health services further reduces at each level. Therefore, a differentiated and more focused strategy is called for.

The new NHP 2017, has set stringent objectives for child health *viz.* to reduce under-five mortality to at least 23 by 2025, infant mortality rate to at least 28 by 2019; neonatal mortality to at least 16 and still birth rate to “single digit” by 2025 [11]. The policy aims at universal health coverage with provision of comprehensive services to all while reducing out of pocket expenditures. The challenge is now especially stiff for six states of Uttar Pradesh, Bihar, Madhya Pradesh, Rajasthan, Chhattisgarh and Jharkhand.

The health improvement of the nation is based on its management information system. NFHS surveys conducted periodically are a reminder for India to wake up and respond to the urgent issues that have been lingering through decades. Though strategies are being revised periodically, there is need for financial support, awareness generation and most importantly political commitment. Though we have achieved much more in terms of health indicators since NFHS-3, due consideration should also be given to the long time period that has elapsed since the last survey. Such surveys, which act as major health information tools, should be conducted more frequently to act and react responsibly and quickly. The poor performing states are still lagging behind. Identifying core reasons through research is essential. The challenges identified require committed action and may be resolved by progressive and imaginative programs that have been launched under NRHM. The actions at the national level need to be directed towards meeting these challenges in a rational, coordinated and unbiased manner with total commitment towards achieving the desired goals.

Contributors: ND, SD: Conceptualization; ND, SD: Data

acquisition; ND,SD,JK,DB: Interpretation; ND,SD: Methodology; JK,DB: Supervision, validation, writing, review and editing; ND,SD: Writing the original draft.
Funding: None; *Competing interests:* None stated.

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