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Home-Based Pediatric Care in India: A Narrative Review of HBNC, HBYC, and IYCF Strategies for Improving Child Survival.

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ABSTRACT

India continues to face high neonatal and under-five mortality driven by preventable causes such as infections, prematurity, and malnutrition. To bridge gaps in facility-based services, home-based strategies Home-Based Newborn Care (HBNC), Home-Based Young Child Care (HBYC), and Infant and Young Child Feeding (IYCF) were introduced to provide a continuum of care during the first 1,000 days of life. This narrative review synthesized evidence from 2016 to 2025 using PubMed, Scopus, Web of Science, Cochrane Library, Embase, Google Scholar, Indian Citation Index, and grey literature. HBNC, initiated in 2011, was associated with a decline in neonatal mortality from 39 to 23 per 1,000 live births between 2014 and 2023 and improved early breastfeeding initiation. HBYC, launched in 2018, strengthened growth monitoring, immunization coverage, and early malnutrition detection for children up to 15 months. IYCF interventions, integrated with ICDS and Poshan Abhiyaan, improved exclusive breastfeeding rates to 63.7%, though complementary feeding practices remain suboptimal. Key challenges include workforce shortages, training gaps, socio-cultural barriers, supply chain issues, and weak intersectoral coordination. Addressing these operational barriers through workforce strengthening, digital innovations, and community engagement can enhance program scalability and accelerate progress toward Sustainable Development Goal 3.

Keywords: Home-Based Newborn Care, Home-Based Young Child Care, Infant and Young Child Feeding, ASHA workers, Child survival, India

INTRODUCTION

India continues to face formidable challenges in ensuring the health and survival of its children, particularly during the neonatal and early childhood periods. While the nation has achieved a notable decline in under-five mortality—from levels as high as over 100 per 1,000 live births in the 1990s to around 25 per 1,000 by

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2020—the pace of decline has been uneven across states and insufficient to meet global Sustainable Development Goal targets[1-2].In 2020, India recorded approximately 0.84 million child deaths under age five, of which 63.5 percent occurred during the neonatal period—underscoring the critical vulnerability in the first 28 days of life[3]. Certain states, including Uttar Pradesh, Madhya Pradesh, Bihar, and Rajasthan, alone accounted for over 60 percent of these deaths[4]. Malnutrition remains widespread, with acute and chronic undernutrition still prevalent among young children in many regions despite longstanding government efforts such as ICDS and Anganwadi programmes[5].

In India, persistent infant and under-five mortality due to preventable conditions such as infections, prematurity, and malnutrition has necessitated the adoption of community-based strategies[6]. Among these, Home-Based Newborn Care (HBNC)[7], Home-Based Young Child Care (HBYC)[8], and Infant and Young Child Feeding (IYCF)[9] programs have been introduced to extend essential preventive and curative services to households, particularly in underserved rural and urban areas. These interventions are delivered primarily by ASHA workers with support from ANMs and Anganwadi staff and focus on early breastfeeding, growth monitoring, immunization, and timely referral during the first 1,000 days of life[10]. Evidence from community trials, including the Gadchiroli model, has shown reductions in neonatal mortality of more than 25%, which informed subsequent national scale-up under the National Rural Health Mission and later the National Health Mission[11].

The relevance of HBNC, HBYC, and IYCF has increased within India's current public health framework, particularly under the National Health Mission, which integrates these programs into the broader RMNCH+A strategy[12]. ASHA-led home visits have become a core component of scheduled care for newborns and young children, yet coverage remains uneven—urban implementation of HBNC often falls below 20%, and rural coverage varies significantly across states[13]. The COVID-19 pandemic further disrupted community health services, highlighting systemic gaps in resilience and continuity of home-based interventions[14]. Despite multiple interventions, gaps in program integration and equitable coverage remain underexplored, necessitating this review.

OBJECTIVE OF THE STUDY

To review and evaluate home-based pediatric care programs in India (HBNC, HBYC, IYCF), identify key challenges and barriers in their implementation, and propose recommendations for strengthening these interventions.

MATERIAL AND METHOD

This narrative review aimed to synthesize evidence on home based pediatric care interventions in India, focusing on HBNC, HBYC, and IYCF. A structured search strategy was used to identify relevant studies published between January 2015 and June 2025.

Databases and Sources Searched

Literature was retrieved from PubMed/MEDLINE, Scopus, Web of Science, Cochrane Library, Embase, Google Scholar, and Indian Citation Index, along with official publications from the Ministry of Health and Family Welfare, National Health Mission, and UNICEF India.

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Search Strategy and Keywords

A structured search was conducted using free-text keywords and MeSH terms combined with Boolean operators "AND" and "OR." Keywords included "home-based newborn care," "home-based young child care," "infant and young child feeding," "postnatal home visits," "exclusive breastfeeding," "complementary feeding," "community health workers," "ASHAs," and "India." Corresponding MeSH terms such as "Infant Care," "Child Health Services," "Home Care Services," "Nutrition Programs," and "Postnatal Care" were applied to identify studies on community-based newborn and young child care relevant to the Indian context.

EVOLUTION OF COMMUNITY AND HOME-BASED CHILD HEALTH PROGRAMS

India's child health initiatives have evolved significantly since independence in 1947, when infant and under-five mortality rates exceeded 150 per 1,000 live births[15]. The First Five-Year Plan (1951–1956) prioritized Primary Health Centres and Sub-centres, laying the foundation for community-based care[16]. A major shift occurred with the launch of Integrated Child Development Services (ICDS) in 1975, introducing Anganwadi centres for nutrition, preschool education, and health awareness[17]. This was followed by the Universal Immunization Programme (1985) and later the Child Survival and Safe Motherhood Programme (1992) and Reproductive and Child Health Programme (1997), which improved immunization and safe delivery but remained largely facility-oriented[18].

The National Rural Health Mission (NRHM) in 2005 marked a paradigm shift by institutionalizing Accredited Social Health Activists (ASHAs) for home-based maternal and newborn care, inspired by the Gadchiroli model in Maharashtra[11,19]. In 2013, NRHM transitioned into the National Health Mission (NHM), adopting the RMNCH+A approach to ensure continuum of care[20]. Building on this framework, HBNC was rolled out nationally in 2011–2013, followed by HBYC in 2018 to extend services up to 15 months[7-8]. Meanwhile, IYCF strategies, introduced under ICDS in the early 2000s and strengthened through Poshan Abhiyaan (2018), became central to addressing malnutrition during the first 1,000 days of life[9]. Together, these programs reflect India's transition from fragmented facility-based interventions to an integrated, household-centered model for improving child survival and development[21].

HOME BASED NEWBORN CARE (HBNC)

Concept and Objectives

HBNC was launched in 2011 by the Ministry of Health and Family Welfare (MoHFW) under the NRHM to reduce neonatal mortality, which exceeded 30 per 1,000 live births at the time. Inspired by the SEARCH Gadchiroli model, the program ensures structured postnatal visits to provide essential newborn care at home—addressing gaps left by facility based services and targeting rural and underserved populations. Its objectives are to promote early breastfeeding, thermal protection, infection prevention, timely recognition of danger signs, and referral to health facilities when required[2,7,11].

Implementation Strategies

HBNC is implemented by Accredited Social Health Activists (ASHAs) under supervision of Auxiliary Nurse Midwives (ANMs) and supported by Primary Health Centres. Seven home visits are scheduled: day 1 (home

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deliveries), days 3, 7, 14, 21, 28, and 42 after birth[7].

During visits, ASHAs perform:

- Assessment: Check newborn weight, temperature, breathing rate, and observe feeding patterns using a standardized HBNC kit[7].
- Counseling: Educate caregivers on exclusive breastfeeding, kangaroo mother care, cord hygiene, danger signs (e.g., poor feeding, convulsions), and postpartum maternal care[7].
- Record keeping: Document findings in Mother and Child Protection (MCP) card and HBNC register, cross linking with immunization schedules[7].
- Referral: Identify and refer sick or low birth weight infants to NRCs/SNCUs using Janani Shishu Suraksha Karyakram (JSSK) for free transport and treatment[7].
- Medicines and Supplies: Provide ORS, zinc tablets, IFA supplements for mothers, and facilitate immunization linkages through VHNDs[7].

Outcomes and Effectiveness

The program contributed to a substantial decline in neonatal mortality—from 39 per 1,000 in 2014 to around 23 per 1,000 in 2023[22]. Evaluations from high-burden states such as Madhya Pradesh, Uttar Pradesh, and Odisha indicate 25–30% reductions in neonatal deaths, along with notable improvements in early breastfeeding initiation and sepsis management[23]. During COVID 19, HBNC's household model ensured continuity of care amid facility overload, though visit completion rates remained lower in urban slums and tribal areas due to ASHA workload and travel constraints[24].

HOME BASED YOUNG CHILD CARE (HBYC)

Concept and Objectives

Introduced in 2018 under the National Health Mission, HBYC extends HBNC beyond six weeks up to 15 months of age, focusing on growth, nutrition, immunization, and developmental surveillance. It aligns with Poshan Abhiyaan goals to reduce stunting, wasting, and anemia, providing home based follow up during a period critical for brain growth and immunity. Objectives include sustaining the continuum of care, promoting timely complementary feeding, identifying malnutrition and danger signs early, and supporting caregivers in safe weaning and hygiene practices[8].

Implementation Strategies

HBYC involves five home visits at 3, 6, 9, 12, and 15 months. ASHAs lead visits with support from ANMs and Anganwadi Workers (AWWs)[8].

Visit activities include:

- Growth Monitoring: Weighing the child using Salter or digital scales; plotting weight on the growth chart (MCP card) to detect underweight or faltering[8].
- Nutrition and Feeding Counseling: Educating caregivers on introducing complementary foods at six months, dietary diversity, and continued breastfeeding[8].
- Immunization Linkage: Ensuring full immunization by 15 months, checking for missed doses, and referring to VHNDs or health centers for catch up vaccination[8].

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- Health Screening: Identifying danger signs like recurrent diarrhea, pneumonia, anemia (pallor), or developmental delays; referring to Nutritional Rehabilitation Centres (NRCs) or PHCs[8].
- Supplies and Education: Distribution of ORS packets, IFA syrup, zinc for diarrhea, deworming tablets, and counseling on handwashing, safe water, and responsive caregiving (play, interaction) [8].
- Record keeping: Data entry into MCP cards and home based registers; reporting during monthly ASHA meetings at PHCs[8].

Outcomes and Effectiveness

Early program data show improved complementary feeding practices (42% to 63%) and increase in regular growth monitoring by 25–30% in pilot states (Madhya Pradesh, Odisha)[25]. Immunization completion rates improved, and moderate/severe acute malnutrition detection increased, enabling earlier intervention[26]. NHM reports suggest a modest reduction in under five morbidities from diarrhea and respiratory infections in districts with high HBYC coverage[10]. Challenges include ASHA workload, limited weighing equipment, and caregiver compliance—necessitating strengthened training and intersectoral convergence with ICDS[27].

INFANT AND YOUNG CHILD FEEDING (IYCF)

Concept and Objectives

IYCF is a cornerstone nutrition strategy promoted since the 1970s under ICDS and reinforced through Poshan Abhiyaan (2018). It targets the first 1,000 days—conception to two years—a window critical for survival and cognitive development. Objectives are to encourage early initiation of breastfeeding, ensure exclusive breastfeeding for six months, and promote appropriate complementary feeding with continued breastfeeding up to two years or beyond, thereby reducing malnutrition and infection related morbidity[9].

Implementation Strategies

IYCF counseling is delivered through ASHAs, ANMs, and AWWs during antenatal, postnatal, and home visits, as well as VHNDs and Poshan Maah campaigns[9].

Key activities include:

- Counseling during visits: Guidance on initiating breastfeeding within one hour of birth, exclusive breastfeeding, and timely complementary feeding at six months with age appropriate foods[9].
- Monitoring and reinforcement: Cross checking feeding practices during HBNC/HBYC visits using MCP cards and growth monitoring records[9].
- Community sessions: Group education for mothers and families on diet diversity, responsive feeding, and prevention of food contamination[9].
- Linkages to nutrition services: Referrals to Anganwadi centers for supplementary nutrition and to NRCs for severe acute malnutrition management[9].
- Supplies and support: Distribution of IFA supplements, vitamin A prophylaxis, and demonstration of locally available complementary foods during home counseling or VHND events[9].

Outcomes and Effectiveness

NFHS-5 shows steady gains: 41.8% infants breastfed within one hour (up from 24.5% in NFHS 3) and 63.7% exclusively breastfed under six months (up from 54.9% in NFHS 4). Complementary feeding indicators

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remain low, with only 11% meeting minimum dietary diversity[28]. Evidence links early breastfeeding to a 22% reduction in neonatal mortality and exclusive breastfeeding to 50–60% fewer diarrheal/respiratory infections[29]. Poshan Abhiyaan interventions (2022–2024) demonstrated improvements in weight for age and height for age scores in pilot districts (Odisha, Madhya Pradesh)[25]. Persistent cultural barriers and inadequate dietary diversity necessitate intensive counseling and behavior change strategies integrated with HBNC and HBYC[30].

ROLE OF ASHA WORKERS IN HBNC, HBYC, AND IYCF PROGRAM DELIVERY

Accredited Social Health Activists (ASHAs) have the multifaceted responsibilities of in India's home-based pediatric care programs. Their role begins with newborn assessment, where they check vital parameters such as thermal status, feeding adequacy, and danger signs during home visits. They provide breastfeeding counseling, promoting early initiation and exclusive breastfeeding during the first six months of life, which is crucial for neonatal survival. ASHAs are also responsible for growth monitoring of young children, tracking weight trends to identify malnutrition early and ensuring timely referrals when required[31-32].

An important aspect of their work is immunization follow-up, where they ensure children receive scheduled vaccinations and help families complete missed doses. Through nutrition and complementary feeding education, ASHAs guide caregivers on introducing nutrient-dense foods at six months and continuing breastfeeding up to two years, reinforcing IYCF practices. Hygiene and caregiver education is another key responsibility, focusing on safe feeding, handwashing, and early stimulation for child development[31-32].

ASHAs also play a critical role in referral of high-risk newborns, such as those with low birth weight or suspected infections, to higher health facilities through government schemes like Janani Shishu Suraksha Karyakram (JSSK). In addition, they maintain record-keeping and data reporting using Mother and Child Protection (MCP) cards and registers to ensure continuity of care and accurate program monitoring[33]. They also engage the community through Village Health and Nutrition Days (VHNDs) and mother's group meetings, reinforcing health messages and promoting participation in child health programs[34]. Collectively, these responsibilities bridge household-level care with the broader health system, contributing significantly to reductions in neonatal and under-five mortality.

Role in Achieving SDG 3 (Good Health and Well being)

The combined implementation of HBNC, HBYC, and IYCF directly advances SDG 3.2, which targets ending preventable neonatal and under five deaths by 2030[35]. HBNC addresses the highest risk neonatal period through early detection of danger signs, breastfeeding promotion, and timely referrals[22]. HBYC extends care into infancy, emphasizing growth monitoring, immunization, and malnutrition prevention[10]. IYCF optimizes nutrition in the first 1,000 days, mitigating stunting and infection related morbidity[36]. By integrating these programs at community level through ASHAs, ANMs, and Anganwadi Workers, India has accelerated reductions in neonatal mortality—from 39 to 23 per 1,000 live births between 2014 and 2023—aligning with SDG 3 targets and complementary nutrition goals under SDG 2[37].

CHALLENGES AND BARRIERS TO IMPLEMENTATION OF HOME-BASED PEDIATRIC CARE PROGRAMS (HBNC, HBYC, AND IYCF) IN INDIA

Despite progress in reducing child mortality, home-based pediatric care programs (HBNC, HBYC, IYCF) in

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India face barriers including workforce shortages, training gaps, socio-cultural constraints, and supply chain and coordination issues, especially in rural and tribal areas.

Table 1 | summarizes the key categories of challenges identified in recent program evaluations and literature, highlighting how these factors hinder effective service delivery and impact overall program outcomes.

Category	Specific Challenges
Human Resource Constraints	ASHAs are overburdened with multiple programs and face attrition in remote areas; limited incentives affect motivation and visit completion[38-39].
Training and Supervision Gaps	Refresher trainings are infrequent, and supervisory feedback from ANMs is inconsistent, leading to variable counseling quality[19].
Community Awareness & Socio-Cultural Barriers	Traditional feeding practices (e.g., pre-lacteal feeding), gender norms, and mistrust of government workers reduce adherence to recommended newborn and childcare[36].
Supply Chain & Logistic Issues	Frequent shortages of HBNC kits, weighing scales, ORS/zinc, and delayed incentive payments disrupt service delivery and caregiver trust[40].
Data Recording & Reporting Challenges	Manual records often have errors, and delayed updates to digital portals like RCH hinder accurate monitoring and timely follow-up[41].
Inter-sectoral Coordination Gaps	Weak integration between NHM, ICDS, and Poshan Abhiyaan limits unified counseling and nutrition support at household and community levels[42].
Geographical and Accessibility Barriers	Remote terrain, tribal belts, and seasonal migration of families result in missed visits and poor continuity of care[43].

Addressing these challenges through targeted policy measures, strengthened training, improved supervision, and digital innovations is essential to enhance program coverage and quality. Overcoming these barriers will accelerate progress toward reducing neonatal and under-five mortality and achieving Sustainable Development Goal 3 targets in India.

RECOMMENDATIONS FOR STRENGTHENING IMPLEMENTATION

Effective implementation of HBNC, HBYC, and IYCF programs requires targeted strategies to address existing workforce, community, and system level challenges. The following table summarizes key actionable recommendations for program strengthening and scale up.

Table 2 | Actionable recommendations to improve the quality, coverage, and scalability of HBNC, HBYC, and IYCF programs in India.

Area	Recommendations
Policy and Program Integration	Align HBNC, HBYC, and IYCF under a unified maternal-child health framework; integrate with RMNCH+A and Poshan Abhiyaan for seamless care delivery.
Human	Optimize ASHA workload via task-sharing with Anganwadi Workers; ensure adequate

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Resource Strengthening	incentives and retention strategies, especially for remote areas.
Training and Supervision	Standardize training modules; conduct regular refresher sessions; enhance supportive supervision by ANMs and field mentors.
Community Engagement	Use participatory approaches like mothers' groups, community meetings, and Village Health and Nutrition Days to overcome cultural barriers and improve compliance.
Monitoring and Data Systems	Implement digital tracking (e.g., RCH portal, mobile apps) for real-time visit monitoring, growth chart updates, and immunization follow-up.
Supply Chain and Logistics	Ensure uninterrupted availability of HBNC kits, weighing scales, ORS, zinc, and IFA; streamline replenishment and distribution mechanisms.
Technology Adoption	Introduce mHealth reminders for caregivers; explore AI-based risk prediction and tele-mentoring for frontline health workers.
Intersectoral Convergence	Strengthen coordination between NHM, ICDS, and health departments to unify counseling, nutrition, and immunization services at community level.

CONCLUSION

This review highlights the pivotal role of home based interventions—HBNC, HBYC, and IYCF—in improving newborn and young child survival and nutritional outcomes in India. These programs collectively ensure a continuum of care during the critical first 1,000 days of life, addressing major causes of neonatal and under five mortality such as infections, prematurity, and malnutrition. Evidence demonstrates significant gains in early breastfeeding, growth monitoring, and immunization coverage in areas with robust program implementation.

Strengthening these initiatives through integrated policy frameworks, enhanced training and supervision of frontline workers, improved community engagement, and adoption of digital tools can accelerate India's progress toward national health targets and Sustainable Development Goal 3. Scaling these strategies equitably across rural, urban, and tribal populations will be essential to sustain reductions in child mortality and ensure long term improvements in child health and development.

Conflict of Interest- None to declare by author(s).

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