

1 **Scaling-up interventions to improve infant and young child feeding in India: What will it**
2 **take?**

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8 **Abstract**

9 We assessed India's readiness to deliver Infant and Young Child Feeding (IYCF) interventions
10 by examining elements related to policy, implementation, financing and evidence. We based our
11 analysis on review of 1) nutrition policy guidance and program platforms; 2) published literature
12 on interventions to improve IYCF in India; and 3) IYCF program models implemented between
13 2007 and 2012. We find that Indian policies are well-aligned with global technical guidance on
14 counselling interventions. However, guidelines for complementary food supplements (CFS) need
15 to be re-examined. Two national programs with the operational infrastructure to deliver IYCF
16 interventions offer great potential for scale but more operational guidance, capacity and
17 monitoring is needed to actively support delivery of IYCF counselling at scale by available
18 frontline workers. Many IYCF implementation efforts to date have experimented with
19 approaches to improve breastfeeding and initiation of complementary feeding, but not with
20 improving diet diversity or the quality of food supplements. Financing is currently inadequate to
21 deliver CFS at scale and governance issues affect the quality and reach of CFS. Available
22 evidence from Indian studies supports the use of counselling strategies to improve breastfeeding
23 practices and initiation of complementary feeding but limited evidence exists on improving full
24 spectrum of IYCF practices and the impact and operational aspects of CFS in India. We conclude
25 that India is well-positioned to support the full spectrum of IYCF using existing policies and
26 delivery platforms, but capacity, financing and evidence gaps on critical areas of programming
27 can limit impact at scale.

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29 **Keywords:** India, Infant and Young Child Feeding, policies, programs, IYCF counseling,
30 complementary food supplements

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Key Messages:

- India has a vision for impact to improve IYCF; a supportive policy environment for most current infant and child feeding (IYCF) interventions and multiple operational platforms exist that can deliver counseling and complementary food supplements (CFS).
- Indian *policies are* well-aligned with global evidence on counseling interventions. However, current guidelines for complementary food supplements need to be re-examined.
- Capacity, finance and governance gaps are the primary limiting factors in achieving full coverage of IYCF counseling and CFS.
- A significant evidence gap exists in the research evidence base and program experience base on key aspects of improving complementary feeding, e.g., improving diet diversity, assessing the combined effects of food supplements and counseling.

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35 **Introduction**

36 In the context of the new global goals for development, the momentum to improve
37 nutrition is high and action is imperative. Nutrition has been recognized to be fundamental to
38 achieving the health, education, and economic goals contained in the Millennium Development
39 Goals (Braun *et al.* 2004) and is now well-positioned in the Sustainable Development Goals
40 (World Health Organization 2014) and in the World Health Assembly global nutrition targets
41 (World Health Organization 2014). Despite rapid progress on reductions in undernutrition, the
42 burden remains high, and the poor state of infant and young child feeding (IYCF) is a
43 particularly significant challenge (International Food Policy Research Institute 2014).

44 Age-appropriate IYCF practices include initiation of breastfeeding within an hour after
45 birth, exclusive breastfeeding for the first 6 months, and age-appropriate complementary feeding
46 practices (i.e., appropriate quality, quantity, frequency, and hygiene). Strong technical guidance
47 exists for improving infant feeding practices (PAHO 2003; World Health Organization 2010).
48 Evidence-based interventions such as individual and group counselling by health professionals
49 and peers (Dyson *et al.* 2006, Bhutta *et al.* 2008) and lay health workers (Lewin *et al.* 2010) are
50 known to support improvements in breastfeeding, and counselling along with food
51 supplementation in food-insecure populations, is known to support improvements in
52 complementary feeding practices (Imdad *et al.* 2011). Improving these practices can make
53 significant contributions to achieving the new global goals, whether in the realm of reducing
54 child deaths or improving nutritional status, but what is imperative is that countries embrace,
55 scale-up and intensify the policy and program actions necessary to support these practices.
56 India's progress on IYCF is mixed (Figure 1). Despite improvements in early initiation of
57 breastfeeding, current levels remain low (44 percent). Exclusive breastfeeding at 65 percent is
58 encouraging (India–MoWCD 2015), but only 1 in 2 Indian children received complementary
59 foods between 6 and 8 months of age, a decline from 56 percent (IIPS 2007) a decade ago. Only
60 1 in 5 children received at least four food groups (India–MoWCD 2015). Finally, food
61 supplements provided to infants and young children by the Integrated Child Development
62 Services (ICDS), a national program, currently reach only up to 50% of children across India
63 (India–MoWCD 2015). Several small-scale studies support these survey findings, detailing
64 suboptimal breastfeeding and/or complementary feeding practices throughout India (Khan *et al.*
65 2012, Mahmood *et al.* 2012, Meshram *et al.* 2012, Meshram *et al.* 2013, Singhal *et al.* 2013).

66 Achieving progress on these practices in India, therefore, will require integrating and
67 strengthening IYCF interventions in the context of programs that are already operating at
68 nationwide scale, while also strengthening the policy environment to support optimal infant
69 feeding. Our study aims to examine India’s readiness to effectively integrate and implement
70 evidence-based IYCF interventions at scale.

71 **Materials and Methods**

72 We use a framework for scaling-up nutrition impact (Gillespie et al. 2015) to analyze
73 India’s ability to deliver interventions to improve IYCF practices at scale. Using multiple
74 sources of information, we examined India’s vision and policy environment for scaling-up of the
75 IYCF interventions, availability of intervention delivery platforms, enabling organizational
76 context, catalysts and champions to drive the effort, and relevant strategies and operational
77 capacities, along with adequate financing and embedded learning mechanisms. We reviewed: 1)
78 India’s policy intent and program platforms, 2) program implementation experiences and 3)
79 India-specific efficacy and effectiveness evidence on IYCF interventions.

80 To assess *policy intent*, we conducted a content analysis of India’s national nutrition
81 policies (India–MoHFW 2013; Vir *et al.* 2014), examining whether currently recommended
82 IYCF interventions (Bhutta et al., 2013) are included in the policies. We accessed these
83 documents directly from government websites. To assess the *program platforms* available for
84 delivering IYCF interventions at scale, we reviewed relevant national program documents (India-
85 MoWCD 2009; India-MoWCD 2011), and their operational guidelines (India–MoHFW 2007;
86 India-MoWCD 2010a; India-MoWCD 2010b).

87 To document *IYCF implementation experiences*, we took two approaches. First, we
88 reviewed programs identified as “best practice” models in two earlier program reviews
89 (Micronutrient Initiative 2007; IntraHealth International 2008) which covered programs
90 implemented until 2007. To update this list of programs, we contacted approximately 70
91 stakeholders (e.g., non-government organizations, research institutes, development partners,
92 individual nutrition champions) in 2012. The call had a 50% response rate. Only those programs
93 that met the pre-determined criteria of at-scale implementation (at least at the district-level) and
94 had a detailed program description were included in the review. A total of 18 programs met these
95 criteria. Program documents were examined to identify which evidence-based interventions for

96 IYCF were included in the programs and what operational strategies had been used to deliver
97 these interventions.

98 Information on the capacity needs was drawn from the review of implementation
99 experiences and the published literature. Information on financing and stakeholders was included
100 from other sources (Menon et al. 2015; Puri et al. forthcoming).

101 To assess the availability of *evidence* on the impact of IYCF interventions in India, we
102 reviewed the published literature on the impact of interventions – counselling and
103 complementary food supplements (CFS) - to improve IYCF in India between 2000 and 2014. We
104 conducted a literature search using Google Scholar and PubMed for the period between 2000 and
105 2014 (Table 1). Then titles and abstracts were examined for relevance; and full texts of all
106 relevant articles was reviewed to document both the intervention descriptions and impacts of the
107 tested interventions. Additionally, using guidance on evaluation designs (Habicht *et al.* 1999),
108 we examined the evaluations used in the program implementation experiences, which were then
109 classified to have: 1) an adequacy design if the evaluation was a pre-/post-comparison only; 2) a
110 weak plausibility design if there was a comparison group but no baseline data; 3) a strong
111 plausibility design if there was a comparison group, with baseline in both program and
112 comparison areas; or 4) a probability design if the comparison and control groups were randomly
113 assigned .

114 **Results**

115 Our review points to substantial policy intent, nationally available at-scale
116 implementation platforms and frontline workers, but mixed program/operational support and
117 potentially limited financing. On evidence for action on scaling-up IYCF counselling and CFS,
118 we find a reasonable evidence base of efficacy studies, but a poor evaluation base for scaling-up.
119 Our overall analysis, addressing all elements of the scaling-up framework is summarized in
120 Table 2, and the most salient details, stemming from our primary reviews, are discussed below.

121 We find that nutrition policies and guidelines/action plans for delivery of nutrition
122 interventions are made across two major ministries – the Ministry of Health and Family Welfare
123 (MHFW) and the Ministry of Women and Child Development (MWCD), and relate to an overall
124 goal of improving nutrition. These policies set overall direction while action plans and
125 guidelines often provide operational and even financial guidance. The goal of achieving
126 universal coverage is clearly articulated for CFS delivery in response to a legal edict issued in

127 2006 to assure full-scale availability of food supplements in the ICDS as part of policy efforts to
128 ensure children’s right to food (Supreme Court of India). A similar hard goal is amiss for IYCF
129 counselling.

130 Overall, Indian policies have evolved over time to align with global recommendations
131 and demonstrate broad support for implementing evidence-based IYCF interventions (Table 3).
132 The national policies and charters offer a vision and guidance to a government’s approach to
133 India’s child health and nutrition as well as protection of child rights. As far back as in 1993, the
134 first National Nutrition Policy (India-MHRD 1993) highlighted the need for a multisectoral
135 approach to address malnutrition and recommended special focus on IYCF practices to improve
136 child nutrition. The subsequent National Plan of Action for Children in 1995 defined a
137 framework for a multisectoral strategy and specified sectoral goals and objectives to be achieved
138 by 2000. In 2005, an updated National Plan of Action for Children identified 12 priority areas for
139 action and set goals to be achieved by 2010. While the 1995 Plan of Action took a sectoral
140 approach, the 2005 Plan of Action took a priority area approach; however, the National Policy
141 for Children, initially adopted in 1974, was the premise for both of these plans.

142 The first National Code for protection and promotion of breastfeeding was introduced in
143 1983, following the International Code to regulate marketing and promotion of breastmilk
144 substitutes. The code was later amended in 1992 and 2003. The amendments to the Code in 2003
145 reflect advances in marketing techniques and improved technical guidance. The definition of
146 “advertisement” was modified to include “electronic transmission by audio or visual
147 transmission”, healthcare system included pharmacies and drugstores, and the age limit for
148 marketing infant foods was raised from four months to six months and an upper age limit of two
149 years.

150 Similarly, changes in global technical recommendations influenced national guidance on
151 exclusive breastfeeding. The 1995 National Plan of Action (India-MoHRD 1995) recommended
152 exclusive breastfeeding until the first 4 months, which aligned with the global recommendations
153 of that period. The guidelines were revised in the 2005 National Plan of Action, to recommend
154 exclusive breastfeeding until the first six months, in alignment with global recommendations
155 (PAHO 2003).

156 The national guidelines on IYCF were revised in 2004 and then in 2006 to be congruent
157 with the WHO/UNICEF Global Strategy on IYCF (India–MHRD/FNB 2006). Most recently, in

158 2013, the MHFW released operational guidelines for interventions to support optimal IYCF
159 practices (India–MoHFW 2013) and launched a program to support breastfeeding (Mothers
160 Absolute Affection) (Press Information Bureau 2016), bringing into focus the current discourse
161 on the first 1000 days (Table 3). Thus, IYCF counselling is well-recognized as a key aspect of
162 improving IYCF practices.

163 In India, nutrition counselling interventions were guided by the evolving global evidence,
164 the CFS intervention was initiated primarily to bridge known calorie and protein gaps in the diets
165 of the Indian children in the 1970s. Under the Minimum Needs Programme of the Fifth Five-
166 Year plan, the Special Nutrition Programme was launched in 1970-71. It included provision of
167 food supplements to eligible pregnant and lactating mothers and to pre-school children, which
168 was later integrated into the ICDS program (India-MHRD 1993). The food supplements were
169 intended to provide 300 calories and 10 gm of protein to children (India-MHRD 1993). Food
170 supplementation along with nutrition education is a recommended intervention for improving
171 IYCF practices among food insecure populations (Imdad *et al.* 2011) and hence India’s policy,
172 taken along with the existing guidelines for providing counselling, is consistent with the global
173 guidance. In 2009, the MWCD revised the cost and calorific norms to adequately bridge the gap
174 between the Recommended Dietary Allowance (RDA) and Average Dietary Intake (ADI). The
175 recommendation that the reconstitutable blend of cereals, pulses and other ingredients should
176 provide 500 kcal of energy and 12-15g of protein per day for children from 6 mo to 3 years
177 (India-MOWCD 2009), however, is much higher than the World Health Organization’s (WHO)
178 recommendations for the macro and micronutrient requirements from the food supplements. The
179 WHO recommends that a breastfed infant in a developing country, should receive about 200 kcal
180 per day at 6–8 months of age, 300 kcal per day at 9–11 months and 550 kcal per day at 12–23
181 months of age, from all complementary food and the remaining energy from breast milk
182 (WHO/UNICEF 1998). The ICDS food supplements provide up to 81 percent of the total energy
183 requirements for a 6-8 month children and 73 percent for 9-11 months old children, raising
184 questions about the potential for this supplement to displace breastmilk. In this situation,
185 therefore, the intervention exists in policy, but its effectiveness at supporting optimal IYCF
186 practices is likely limited by its calorie-heavy nutritional composition.

187 On implementation platforms to deliver counselling and CFS, two major national
188 programs in India, the ICDS program under MWCD with nearly 2 million frontline workers

189 (FLWs) and the National Health Mission (NHM) under MHFW with nearly 900,000 FLWs, are
190 present across most of the country. These form the operational platforms to deliver counselling
191 and CFS. The ICDS FLWs are responsible for delivery of CFS *and* individual and group
192 counselling to mothers of young children on IYCF practices. The NHM FLWs are expected to
193 provide counselling to mothers of children 0-3 months old. Although primary and supportive
194 roles and responsibilities are outlined for these two cadres of FLWs in national-level guidance
195 documents (India–MoWCD 2013b), clear guidelines are not available on how best to achieve
196 full reach to mothers with children under two years of age through these two cadres of FLWs.

197 In addition, several programmatic experiences from India have used diverse approaches
198 for implementing interventions to support IYCF (summarized in Table 5, drawing on detailed
199 reviews in Avula et al., 2013). Several of the program models reviewed focused on improving
200 breastfeeding (Table 5). Seventeen programs included interventions to support timely initiation
201 of breastfeeding and exclusive breastfeeding and fifteen programs on improving complementary
202 feeding. Fifteen of the programs implemented complementary feeding interventions, but they
203 focused only on timely initiation of complementary feeding. Only seven of the fifteen programs,
204 promoted age-appropriate quantity, quality, and safe handling of food.

205 Most programs to support breastfeeding implemented evidence-based interventions (i.e.,
206 individual and/or group counselling to promote breastfeeding using lactation counselors,
207 mothers' groups, village health workers, village health groups, and adolescent groups). The
208 frequency and timing of visits for counselling, and operational strategies varied among programs.
209 For complementary feeding support, individual and/or group counselling or a combination of
210 both was the most common intervention; however, one program provided food as well. In
211 addition, some programs used community awareness raising activities (e.g., rallies, wall
212 paintings, folk media). Similar strategies (e.g., individual and group counselling, community
213 support groups) were identified in a compendium of state success stories (UNICEF, 2013). The
214 focus of the interventions was, again, mainly on the timely introduction of complementary foods
215 (UNICEF 2013). A more detailed description of intervention strategies used and the features of
216 individual programs is available in Avula et al., 2013.

217 Among published efficacy and effectiveness studies, we identified 15 intervention studies
218 in India that tested strategies to improve IYCF practices (Table 4). Nearly half of these studies
219 were conducted as randomized-controlled trials (Bhandari *et al.* 2001; Bhandari *et al.* 2004;

220 Bhandari *et al.* 2005; Kumar *et al.* 2008; More *et al.*, 2012; Vazir *et al.* 2013; Gami *et al.* 2014) ;
221 others were more mixed in their study design. Targeted IYCF practices in these studies included
222 timely initiation; exclusive breastfeeding; different aspects of complementary feeding; and
223 feeding during illness. The literature is most limited on studies on the impact and
224 implementation of CFS interventions either alone or in combination with counselling.

225 Eight studies implemented interventions to improve **timely initiation of breastfeeding**,
226 prevent pre-lacteal feeding and promote colostrum feeding (Kumar *et al.* 2008, Agrawal *et al.*
227 2012, Ahmad *et al.* 2012, More *et al.* 2012, Khan *et al.* 2013, Roy *et al.* 2013, Vir *et al.* 2013,
228 Gami *et al.* 2014). Intervention approaches used in these studies included individual or home-
229 based counselling during antenatal visits or at tertiary-care settings by trained FLWs including
230 Anganwadi workers (AWW) and auxiliary nurse midwives (ANM) (Agrawal *et al.* 2012;),
231 community volunteers (Vir *et al.* 2013), local educated women (More *et al.* 2012), health staff
232 (Gami *et al.* 2014). Information was shared during women's group meetings (Roy *et al.* 2013)
233 and through distribution of information materials on neonatal care and breastfeeding practices
234 (Khan *et al.* 2013). Six studies that aimed to improve **exclusive breastfeeding** also included
235 individual and group counselling at routine contact points by multiple health workers such as
236 AWWs, ANMs, traditional birth attendants, and physicians (Bhandari *et al.* 2005), health staff
237 (Ahmad *et al.* 2012), local educated women (More *et al.* 2012), and trained volunteers (Vir
238 2013). Information was shared during facilitated women's group meetings too (Roy *et al.* 2013).

239 We identified eight studies that tested interventions to improve **complementary feeding**
240 practices (Bhandari *et al.* 2001; Sethi *et al.* 2003; Bhandari *et al.* 2004; Bhandari *et al.* 2005;
241 Kilaru *et al.* 2005; Palwala *et al.* 2009; Vazir *et al.* 2013; Vir *et al.* 2013). Nearly all the studies
242 used individual and group counselling as strategies, which was provided by trained workers
243 (Sethi *et al.* 2003; Bhandari *et al.* 2004; Kilaru *et al.* 2005; Palwala *et al.* 2009), and trained
244 village women (Vazir *et al.* 2013). In addition, community awareness-raising activities, such as
245 village rallies by children, school debates (Bhandari *et al.* 2004) and group discussions (Sethi *et*
246 *al.* 2003) were used to reinforce complementary feeding messages. Only one study tested the
247 added-value of a **food supplement**; in that study, a milk-cereal supplement was provided along
248 with nutrition counselling (Bhandari *et al.* 2001).

249 Summarizing implementation approaches identified in program experiences *and* in the
250 published research literature in India, it appears that a major goal focus to date has been on early

251 initiation of breastfeeding, exclusive breastfeeding and initiation of complementary
252 feeding. Program experiences covering other aspects of complementary feeding were severely
253 limited at the time of preparing this review, as were research studies targeting the full spectrum
254 of complementary feeding. The strategies tested via research studies and implemented in
255 program models were similar, and included counselling through multiple channels, community
256 mobilization and awareness raising activities, food preparation techniques and demonstrations,
257 and in just one case, the inclusion of food supplements.

258 Beyond the vision, delivery platforms, and implementation experiences, capacity and
259 financing to deliver at scale are critical elements of scaling-up. We did not do a detailed human
260 resources assessment of capacity, but note that the program platforms have available frontline
261 workers (usually 1 per village from the ICDS and the NHM). Capacity gaps are common in
262 supervision, where there are substantial vacancies in many states (Raykar et al. 2015) in the
263 health and the ICDS programs. Both the ICDS and the NHM have training guidelines, training
264 materials and training programs available that address different aspects of IYCF counselling, but
265 these are not currently harmonized on content, or ensure role clarity among the FLWs. For CFS,
266 capacity issues primarily pertain to ensuring quality, safety, and reach of the CFS. Different
267 states in India use different production and distribution modalities (Vaid et al., 2016), and thus,
268 capacity needs to ensure adequate supply and reach to villages and households will differ by
269 state.

270 Our review of implementation experiences and the published efficacy literature indicates
271 that efforts to improve capacity were central to supporting the delivery of IYCF counselling
272 interventions. Systems strengthening was a common feature of all these programs; strategies
273 included recruiting new paid staff or volunteers, providing training and materials (such as
274 checklists, flip charts) to assist in service delivery, community mobilization, and improving
275 monitoring and supervision mechanisms. For example, in the Reproductive and Child Health,
276 Nutrition and HIV/AIDS (RACHNA) program, volunteers were trained as *change agents* and
277 worked with support of the ICDS FLWs to promote IYCF practices (CARE n.d.). All of the
278 FLWs received quick reference guides, flip charts, and home-visit planners to facilitate
279 counselling. Additionally, the program was regularly reviewed and the FLWs were supported
280 through capacity building during review meetings and supportive supervision. In the *Kano Parbo*
281 *Na* program (Mustaphi 2005), new monitoring and surveillance tools such as mother and child

282 protection cards, community growth charts, spreadsheet-based ICDS monthly progress reports,
283 community service provider–level community mapping sheets were introduced to facilitate
284 relevant data collection and monitoring at multiple-levels. In the published literature as well,
285 elements of capacity strengthening were central to achieving impact. Frontline worker training
286 (Kumar et al. 2008), knowledge (Agrawal et al. 2012), strategically timed home visits (Kumar et
287 al. 2008; Vir et al. 2013) and rapport and trust with the communities (Kumar et al. 2008) were
288 critical for the success of the early initiation of breastfeeding interventions. On issues of
289 capacity, therefore, we conclude that there is recognition of the need for capacity strengthening
290 across the system to support the delivery of IYCF counselling interventions, especially, and that
291 several program experiences exist to guide future direction in this regard. The challenges lie in
292 the context of large-scale government delivery platforms being able to integrate these capacity
293 strengthening activities.

294 On financing, Menon and colleagues (2015) have estimated the cost needs for
295 implementing counselling and delivering CFS at scale. Assessing the adequacy of financing is a
296 challenge because current reporting of expenditures by the government preclude intervention-
297 specific adequacy assessments for counselling. For CFS, however, available expenditure
298 estimates, based on several assumptions, suggest that current financing is inadequate, even under
299 the government’s current cost norms per child. Changing the composition, quality standards or
300 production modalities for the CFS will all likely have cost implications that are currently not
301 captured in available estimates.

302 The governance aspects of these two core interventions – IYCF counselling and CFS – in
303 the context of India’s programs pertain primarily to issues of transparency in the production and
304 distribution of CFS. Our study does not tackle this issue directly, but several others have written
305 about this (Saxena and Mander 2011; Patnaik 2012). The CFS component of the ICDS program
306 has been fraught with governance and efficiency challenges. Large-scale production modalities
307 directly contravene the legal guidance from the Supreme Court of India to limit the role of
308 contractors in the production of the CFS, a role that has been associated with high levels of
309 corruption and poor quality CFS in some states (Commissioners to the supreme court of India
310 2005). Our review of CFS production modalities (Vaid et al., 2016) highlights the different
311 production modalities that exist across India; each of these modalities raises different governance
312 issues. However, evidence of the safety, quality, acceptance and nutritional impact of CFS

313 produced via the decentralized modalities is limited despite evidence of high reach of the CFS in
314 states such as Odisha and Chhattisgarh (India–MoWCD 2015).

315 A recent network analysis of actors involved in supporting IYCF counselling (Puri et al,
316 forthcoming) highlights the roles of two ministries (MWCD and MHFW), key development
317 partners (UNICEF, notably) and the Breastfeeding Promotion Network of India (BPNI) as
318 critical to support to actions for breastfeeding. The BPNI and UNICEF have both been active
319 proponents of counselling interventions and BPNI, in particular, has been actively engaged in
320 advocacy around the regulation of marketing of the breastmilk substitutes. In case of CFS, the
321 Right to Food Campaign and the Supreme Court have been the major catalysts in ensuring the
322 universalization of the CFS. Individuals in the Right to Food network have also actively
323 advocated for the universalization of the ICDS services including the CFS. Specifically, the
324 filing of public interest litigations eventually led to the Supreme Court judgments mandating the
325 universalization of the CFS component of the program and decentralized production and
326 distribution models for the CFS.

327 Learning and evaluation are highlighted as a significant contributor to scaling-up both in
328 framework (Gillespie et al, 2015) and in successful examples of interventions operating at scale
329 (Sanghvi et al., 2016). Our review of published literature and implementation experiences shows
330 that there is more available evidence on the impact of counselling interventions for supporting
331 timely initiation and exclusive breastfeeding and initiation of complementary feeding than on
332 other aspects of complementary feeding and on the impact and use of CFS (Table 2). For
333 example, nearly all of the studies we identified in the literature review reported improvements in
334 timely initiation of breastfeeding among the intervention groups. Only one study (More et al.
335 2012), did not find significant improvements in the initiation of breastfeeding between the
336 intervention and comparison groups. Four studies reported improvements in exclusive
337 breastfeeding while two studies (More et al. 2012; Vir et al. 2013) did not. Low intervention
338 fidelity (More et al. 2012) and strong cultural beliefs (Vir et al. 2013) could have been the
339 barriers to improving exclusive breastfeeding practices in these two studies.

340 Studies focused on complementary feeding varied in the types of outcomes they assessed
341 (Table 4). Only one study assessed and found improvements in timely introduction of
342 complementary foods (Vir et al. 2013). Six studies assessed and reported improvements in least
343 one of the aspects of complementary feeding (i.e., frequency, quantity, and quality of foods

344 offered) (Table 4) (Sethi *et al.* 2003; Bhandari *et al.* 2004; Bhandari *et al.* 2005; Kilaru *et al.*
345 2005; Palwala *et al.* 2009; Vazir *et al.* 2013). Only one study tested the added-value of a food
346 supplement; in that study, a milk-cereal supplement was provided along with nutrition
347 counselling and improvements were observed in energy intake (Bhandari *et al.* 2001). Although
348 there was a counselling-only comparison group, all the outcomes were compared with the group
349 that received only visits and no counselling. Therefore, it is not possible to disentangle the added
350 effects of a food supplement from those of counselling.

351 For the implementation experiences we reviewed, unfortunately, there is little rigorous
352 evidence of impact for most programs. Of the 19 programs reviewed, eight programs only used
353 an adequacy evaluation design, two used strong plausibility evaluation design (Care n.d., and
354 Bang *et al.* 2005), four used weak plausibility design (*Anchal Se Angan Tak*; Mustaphi 2005;
355 IntraHealth 2007; Kushwaha *et al.* 2010), and eight had no documentation of evaluation design.
356 Limited reporting of rigorous evaluations was observed in the cases showcased in Nutrition
357 Moves (UNICEF 2013).

358 Overall, although there have been several approaches used to deliver, or support the
359 delivery of, IYCF counselling interventions, few have been evaluated carefully in India.
360 Evidence and implementation experiences are extremely limited on improving diet diversity, on
361 the impact of CFS, and on integrating complementary feeding counselling with CFS.

362 Finally, our assessments reveal limitations in the programmatic monitoring of the
363 delivery of counselling interventions in both the ICDS and the NHM. The ICDS program has
364 guidelines for monitoring counselling interventions during periodic supervision visits (India–
365 MoWCD 2010). However, information on the delivery and coverage of counselling interventions
366 is not included in the routine monthly progress reports of the ICDS. The delivery of CFS
367 through the ICDS is included in the monthly progress reports along with other ICDS services
368 (support to immunization and delivery of pre-school education). In both cases, since monitoring
369 is currently not denominator-based, either for IYCF counselling or for CFS, it is challenging to
370 accurately monitor the delivery and coverage of IYCF interventions.

371

372 **Discussion**

373 We assessed India's readiness to implement two major IYCF interventions – counselling and
374 the provision of CFS - using a framework for scaling-up nutrition (Gillespie 2013). On a

375 positive note, we find that India has a vision for impact, multiple operational platforms for delivering
376 interventions, and diverse positive catalysts for change including government, technical agencies, the
377 judiciary and civil society. Indian policies, to a great extent, are aligned with global technical
378 guidance on IYCF and provide a vision for scaling up both counselling and CFS. All states in
379 India include CFS in their programming, which is a highly visible aspect of programming for
380 nutrition. There are, however, challenges in implementing these two interventions. In case of
381 counselling, there is a lack of clear operational guidance and linked monitoring systems for
382 delivering the intervention in addition to capacity gaps related to training and supervision.
383 Furthermore, it is currently not possible to ascertain the adequacy of financing for counselling
384 interventions. In case of CFS intervention, there is a need to revisit policies for CFS composition,
385 production and distribution to align more appropriately with infant nutritional needs. Although
386 financing for CFS is available and has been increasing over time (Menon 2015), financing gaps
387 still exist that limit full coverage of the CFS. Overall, therefore, our assessment presents a mixed
388 picture of readiness, and points to clear areas for improvement.

389 On the policy front, there has been remarkable progress in evolution of policies to support
390 IYCF, especially for counselling with India rapidly adopting global IYCF strategy directions.
391 However, policy guidance on nutrient composition of the ICDS CFS needs to be re-examined
392 against the World Health Organization's recommendations (Vaid et al. 2016) and evolving
393 changes in India. The early guidelines for the CFS, from the 1970s, were intended to close
394 calorie and protein gaps for a broad age range of children covered under the ICDS. They were
395 developed prior to the emergence of scientific knowledge on the specific nutrient needs for
396 infants and young children (Dewey and Brown 2003; PAHO 2003). In the context of the known
397 contributions of breastmilk and complementary foods to infant nutrition, the current CFS
398 guidelines should be revisited. For instance, the high caloric content of the current CFS, along
399 with low nutrient density, suggests that these supplements have the potential to displace breast
400 milk and contribute to poor diet quality. There is an urgent need to revisit, refine, and align the
401 food supplementation guidance strongly with child nutrient needs.

402 On the operational front, nutrition counselling is one of the least focused activities in the
403 ICDS (Gragnotati *et al.* 2006), and a service for which there is least awareness within the
404 community (India–MoWCD 2015). Furthermore, there are multiple FLWs (AWWS, ASHAs,
405 and ANMs) assigned with counselling roles. Assuring this role clarity and operational guidance

406 is especially important in an environment where FLWs often have to coordinate multiple
407 activities and deliver multiple interventions to their client populations (Avula et al., 2015), along
408 with content harmonization of IYCF messages between the two ministries implementing the
409 counselling interventions. Our review of implementation experiences highlights that although
410 several operational models for program delivery exist for IYCF counselling, most of them have
411 focused on improving initiation of complementary feeding rather than on the full spectrum of
412 age-appropriate complementary feeding. Looking forward, specific attention is needed to
413 develop models that can support behaviors related to dietary diversity.

414 Although, the results of our review of the implementation experiences were limited by the
415 availability of documentation on programs, the ones included cover major program initiatives.
416 Some of the implementation experiences, despite limited evaluations, have informed program
417 and policy decisions and have been incorporated into current programs. For example, ICDS
418 FLW home-visit planners were modified based on the experiences of RACHNA program (CARE
419 n.d.) to guide timely home visits for counselling by FLWs. At the same time, new
420 implementation experiences are emerging where self-help groups (Rao *et al* 2015) and IYCF
421 counselling centers (Dar *et al* 2015) are being used to promote appropriate IYCF practices. Such
422 models must be systematically documented and rigorously tested to generate evidence of impact
423 on IYCF practices.

424 In case of the CFS intervention, it is difficult to ascertain the extent to which counselling
425 approaches have integrated counselling about complementary feeding with appropriate use of the
426 CFS that is distributed alongside. CFS are intended to be added to the daily diet of the children,
427 which in the absence of a strong behavior change communication, is likely to lead to
428 inefficiencies in utilizing the food supplement for children or help improve feeding practices. For
429 example, nearly 52% of the mothers reported sharing the food supplements distributed for the
430 under 3 children with other siblings or family members (India–MoWCD 2015). Furthermore, as
431 communities are well aware of their CFS entitlements, it is likely that irregularities in the
432 distribution of CFS (e.g., poor quality, inadequate quantity) could influence communications
433 between AWWs and families, thus limiting the effectiveness of the counselling intervention.
434 This calls for improving governance around CFS, including plugging production and distribution
435 leakages, and ensuring of quality CFS.

436 Despite accounting for twenty-five percent of the total cost required to deliver a full set of
437 nutrition-specific interventions in India (Chakrabarti and Menon, 2016), the CFS reach less than
438 50% of children under three (India–MoWCD 2015). In recent years, program approaches for
439 production and delivery of CFS have expanded, but there is inadequate information on the
440 frequency of distribution, content and quality of the ICDS food supplements distributed within
441 each of the states, rendering it difficult to assess if the states are meeting the national guidelines
442 (Vaid et al. 2016). There remains a high interstate variability in the implementation and reach of
443 the CFS (India–MoWCD 2015). Irregular supply and sharing of the product remain to be the
444 barriers to achieving full coverage and use of the CFS (Leyvraz et al. 2016). Given the mandate
445 to universalize the CFS, economic and operational costs and programmatic gaps in the ICDS, it
446 is imperative to examine the contribution of the food supplementation to the complementary
447 feeding practices in the context of India as well as its use at the household level.

448 There appears to be adequate scientific evidence from India to support implementation of
449 counselling-based IYCF interventions but limited evidence base on the impact of nutrition
450 education combined with CFS. In addition, despite the existence of global evidence, none of the
451 studies in India examined nutrition education combined with a cash transfer.

452 **Conclusions**

453 This study strengthens our understanding of an enabling context for scaling-up
454 counselling and CFS interventions in India. A strong stated policy intent, program guidance, and
455 the availability of frontline workers can support India to realize the vision of delivering both
456 counselling and CFS interventions at scale. Capacity, finance and governance challenges,
457 however, continue to limit full coverage of these IYCF interventions. Evidence gaps need to be
458 closed to test specific aspects of counselling and CFS intervention, along with investments in
459 program evaluations, financing research, strengthening of governance, to support the scale-up of
460 high-impact interventions to improve IYCF in India.

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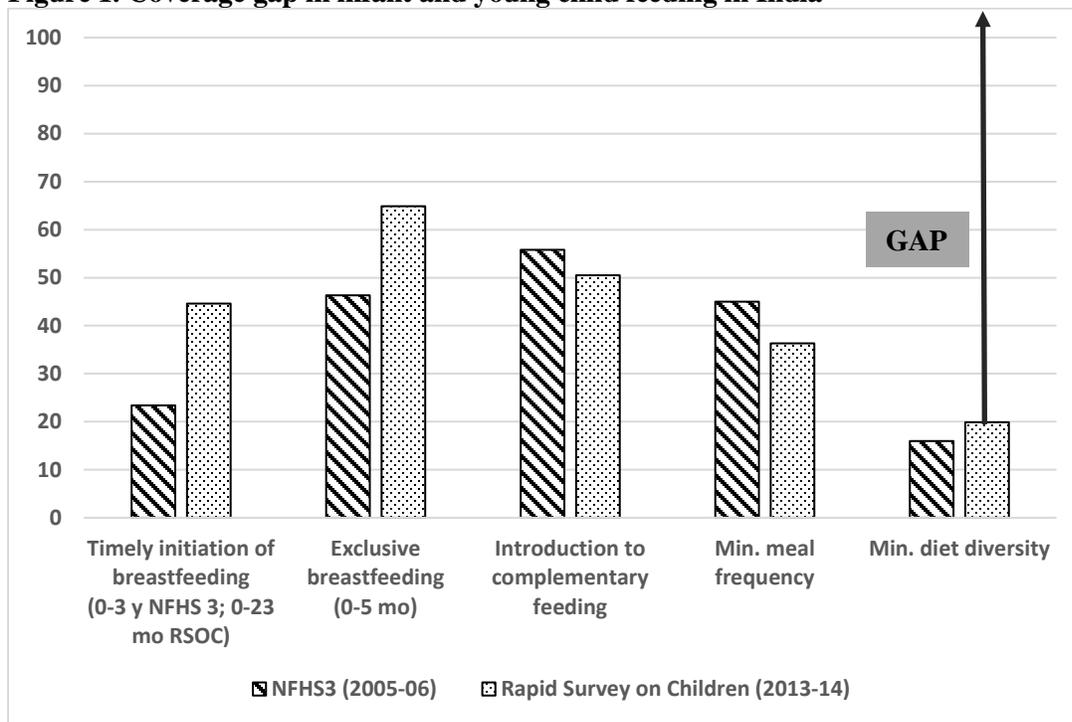
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707 **Figure 1. Coverage gap in infant and young child feeding in India**



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Table 1. List of key words used for systematic review of literature

	Google Scholar			
	Number of Articles Found 2000-2012	Number of Relevant Articles 2000-2012	Number of Articles Found 2012-2014	Number of Relevant Articles 2012-2014
Timely Initiation Breastfeeding				
“breastfeeding initiation*” + “intervention*” + India	318	2	331	5
“breastfeeding initiation*” + “counseling*” + “intervention*” + India	98	0	74	2
“breastfeeding initiation*” + “counseling*” + “intervention*” + “community*” + India	95	0	72	1
“breastfeeding initiation*” + “counseling*” + “intervention*” + “community*” + “health worker*” + India	27	1	18	1
Exclusive Breastfeeding				
“exclusive breastfeeding*” + “intervention*” + “community*” + “counseling*” + India	593	3	341	5
“exclusive breastfeeding*” + “intervention*” + “community*” + “counseling*” + “health workers*” + India	361	3	139	3
“exclusive breastfeeding*” + “trial*” + “community*” + “counseling*” + India	493	3	457	3
“exclusive breastfeeding*” + “trial*” + “community*” + “nutrition education*” + India	223	3	815	3
“exclusive breastfeeding*” + “trial*” + “community*” + “counseling*” + “health workers*” + India	284	3	48	3
Complementary Feeding				

		Google Scholar		
	Number of Articles Found 2000-2012	Number of Relevant Articles 2000-2012	Number of Articles Found 2012-2014	Number of Relevant Articles 2012-2014
"complementary feeding*" + "initiation*" + "interventions*" + "supplementary nutrition*" + India	455	4	313	5
"complementary feeding*" + "initiation*" + "interventions*" + "supplementary nutrition*" + "trials*" + India	82	3	113	3
"complementary feeding*" + "initiation*" + "interventions*" + "nutrition education*" + India	145	3	88	3
"complementary feeding*" + "nutrition education*" + India	490	6	300	7
Feeding during illness				
"complementary feeding*" + "Illness" + India	NA	NA	1,760	1

NA = not applicable

Note: Number of relevant articles for each set of search terms is not mutually exclusive

Table 2. Summary of findings on readiness to deliver IYCF counseling interventions and complementary food supplements at scale in India

Framework element (adapted from Gillespie, Menon and Kennedy, 2015)	Infant and Young Child Feeding (IYCF) counseling	Complementary food supplements (CFS)
1. Vision , goal and policy context [source: authors review]	<p>The need for IYCF counseling is generally included in policy guidance but there are no specific stated measurable goals to achieve, thus, diluting the vision.</p> <p>Policy guidance available and in alignment with Global Strategy on Infant and Young Child Feeding. Training modules available for multiple frontline workers and record-keeping registers also available to support adequate home visit-based counseling.</p>	<p>CFS are included in the stated universalization of the ICDS in the Right to Food legislation. The notion of universalization provides a goal (coverage for all).</p> <p>Policy guidance and legal directives in place to ensure universal access to CFS.</p>
2. & 3. Intervention and delivery platforms [source: authors review & Vaid et al, 2016]	Two major operational platforms exist (the ICDS and NRHM). There is limited ownership by both programs of IYCF counseling, limited role clarity among frontline workers (FLWs) and challenges exist in converging services from the two platforms.	CFS is fully controlled and delivered through one platform (i.e., ICDS) that operates at scale. Although the norms for the CFS (quality, amounts, nutritional composition) require some revision, the potential for reaching all the children exists (barring issues of leakage, parental choice to use supplements for children, family sharing, etc.).
4. Capacity [source: authors review & Avula et al., 2015]	FLWs are currently available but not adequately trained [as evidenced by knowledge assessments in Avula et al.?] but materials are developed, and at the time of writing this paper, different approaches are being explored to train FLWs. Role clarity, adequate supervision, and monitoring are key challenge areas here.	Capacity of local production models to produce high-quality, safe complementary food supplements is unknown, although models like the one used in Odisha appear to deliver supplements at scale.
5. Financing [source: Menon et al., 2015]	Costing estimates available but adequacy of available financing for training and support to FLWs remains unknown. Financial incentives, mass media campaigns and ICT tools to support counseling will add to costs.	Financing is available and secured. However, adequacy of financing is a challenge and changes in financing landscape for nutrition (decentralized) raise further issues of state-level prioritization and adequacy. Furthermore, addressing quality and composition issues will

Framework element (adapted from Gillespie, Menon and Kennedy, 2015)	Infant and Young Child Feeding (IYCF) counseling	Complementary food supplements (CFS)
		have cost implications that will need careful attention.
6. Governance [source: primary review]	No major governance challenges	Significant governance challenges around procurement, production and distribution of the CFS, however, which varies by state and which persist despite a court-appointed monitoring office.
7. Catalysts and leading institutions [Puri et al., forthcoming]	Limited. BPNI and UNICEF have played important roles over the years, but there is no clear coalition or alliance to engage, harmonize actions and content for counseling.	Right to Food Campaign activists filed legal cases in the context of public interest litigation cases. Core nutrition community has not come together around this component of the nutrition programs.
8. Monitoring, learning and evaluation [source: Avula et al., 2013]	<p>Adequate evidence exists in the published literature from India to support the use of counseling intervention. Limited documented program implementation experiences in targeting complementary feeding.</p> <p>No denominator-based monitoring indicators on IYCF, which limits supervision and management.</p>	<p>Very limited literature in India on the role of CFS (whether and to what extent) in improving complementary feeding practices and nutritional outcomes. Few models of CFS delivery are rigorously evaluated either for cost or operational implications, or impact.</p> <p>Monitoring indicators are in place to track reach of the supplements to intended target groups, but in many areas, this is not denominator-based and simply reports on numbers of women and children given supplements.</p>

Table 3. Evolution of Indian Policies and Guidelines on Infant and Young Child Feeding (IYCF)

Year	Policy / Guidelines/Action plans	Elements of the policies/guidelines	Issuing authority
1983	National Code for Protection and Promotion of Breastfeeding, and introduced measures for reducing marketing of milk powder and infant food substitutes.	<ul style="list-style-type: none"> Follows the 1981 International Code for Protection and Promotion of Breastfeeding Introduced measures to reduce marketing of milk powder and infant food substitutes 	Government of India
1992	Infant Milk Substitutes, Feeding Bottles and Infant Foods (Regulation of Production, Supply & Distribution) Act	<ul style="list-style-type: none"> Regulates production, supply and distribution of infant milk substitutes, feeding bottles and infant foods to protect and promote breastfeeding 	Ministry of Law, Justice and Company Affairs, Government of India
1993	National Nutrition Policy	<ul style="list-style-type: none"> Recognizes the need for a multi-sectoral approach to improve nutrition Describes multiple programs for addressing malnutrition 	Department of Women and Child Development Ministry of Human Resource Development
1995	National Plan of Action for Nutrition	<ul style="list-style-type: none"> Recognizes the need for multi-sectoral approach and identifies objectives and activities for multiple sectors Recommends exclusive breastfeeding up to 4 months and introduction of complementary feeding after 4-6 months 	Department of Women and Child Development Ministry of Human Resource Development
2003	The Infant Milk Substitutes, Feeding Bottles and Infant Foods (Regulation of Production, Supply and Distribution) Act, 1992 as Amended in 2003 (IMS Act)	<ul style="list-style-type: none"> Regulates production, supply and distribution of infant milk substitutes, feeding bottles and infant foods to protect and promote breastfeeding and ensure the proper use of infant foods. 	Government of India
2003	National Charter for Children	<ul style="list-style-type: none"> Proclamation of the state to protect the rights of children to ensure their healthy growth and development through combined action of the State, civil society, communities, and families 	Department of Women and Child Development Ministry of Human Resource Development
2004	National Guidelines on Infant and Young Child Feeding	<ul style="list-style-type: none"> Recommends early initiation of breastfeeding, exclusive breastfeeding for up to 6 months and introduction of complementary foods after 6 months, frequent feeding (5-6 times/day), ensuring food hygiene and provides guidance on feeding during illness and feeding in exceptionally difficult 	Department of Women and Child Development Ministry of Human Resource Development (Food and Nutrition Board)

Year	Policy / Guidelines/Action plans	Elements of the policies/guidelines	Issuing authority
2005	National Plan of Action for Children	<ul style="list-style-type: none"> • Recommends a life-cycle approach to improving nutritional status • Promotes optimal infant and child feeding practices and strategies to achieve them 	Department of Women and Child Development Ministry of Human Resource Development
2006	National Guidelines on Infant and Young Child Feeding	<ul style="list-style-type: none"> • IYCF guidelines updated to reflect the WHO/UNICEF global recommendations on breastfeeding and complementary feeding 	Food and Nutrition Board Ministry of Women and Child Development
2009	Revised Nutritional and Feeding Norms for Supplementary Nutrition in ICDS Scheme	<ul style="list-style-type: none"> • Recommends a daily food supplement of 500 calorie of energy and 12-15g of protein per child per day 	Ministry of Women and Child Development
2013	Guidelines for enhancing optimal infant and young child feeding practices	<ul style="list-style-type: none"> • Includes technical guidelines developed by the Indian Academy of Pediatrics in 2010 and the Ministry of Women and Child Development's 2006 national IYCF guidelines • Provides planning and implementation guidance for program managers on IYCF practices 	Ministry of Health and Family Welfare
2013	National Policy for Children	<ul style="list-style-type: none"> • Affirms government's rights based approach to healthy growth and development of children • Intends to provide guidance to all policies, plans and programs affecting children. • One of the topics listed are the right to all essential nutrition services, including IYCF practices. 	Ministry of Women and Child Development

Table 4. Status of Infant and Young Child Feeding Evidence in the Peer-Reviewed Literature from India

Topic	Study design	Approaches	Outcomes
Timely initiation of breastfeeding	Kumar et al. 2008 Ahmad et al. 2012 Agrawal et al. 2012 More et al. 2012 Gami et al. 2013 Khan et al. 2013 Vir et al. 2013	Timely initiation of breastfeeding was promoted through individual and group counseling by trained community health workers (Kumar et al. 2008), trained frontline workers (Agrawal <i>et al.</i> 2012), health staff (Ahmad et al. 2012; Gami et al. 2013), local educated women (More et al. 2012), and trained volunteers (Vir <i>et al.</i> 2013). Information was shared through distribution of educational materials for mothers and families (Khan et al. 2013).	Nearly all studies documented improvements in the initiation of breastfeeding (Khan et al. 2013; Kumar et al. 2008; Ahmad et al. 2012; Agarwal et al., 2012; Gami et al., 2013; Vir et al., 2013). More et al (2012) did not find improvements in early initiation of breastfeeding.
Exclusive breastfeeding	Bhandari et al. 2005 Ahmad et al. 2012 More et al. 2012 Khan et al. 2013 Roy et al. 2013 Vir et al. 2013	Exclusive breastfeeding was promoted through individual and group counseling by AWWs, ANMs, traditional birth attendants, physicians (Bhandari et al. 2005), health staff (Ahmad et al. 2012), local educated women (More et al. 2012), and trained volunteers (Vir et al. 2013). Information was shared through facilitated women's group meetings (Roy et al. 2013) and distribution of educational materials for mothers and families (Khan et al. 2013).	A majority of studies reported improvements in exclusive breastfeeding (Bhandari et al. 2005; Ahmad et al. 2012; Khan et al. 2013; Roy et al. 2013); and 3) underweight (Vir et al., 2013). Two studies (More et al. 2012; Vir et al. 2013) did not observe improvements in exclusive breastfeeding.
Complementary feeding	Bhandari et al. 2001 Sethi et al. 2003 Bhandari 2004 Bhandari 2005 Kilaru et al. 2005 Palwala et al. 2009 Vir et al. 2013 Vazir et al. 2013	Advice on complementary feeding was given through individual and group counseling by trained workers (Sethi et al. 2003; Kilaru et al. 2005; Palwala et al. 2009), trained village women (Vazir et al. 2013), and physicians (Bhandari et al. 2005). In addition, community awareness-raising activities such as songs and street plays, and group discussions (Sethi et al. 2003) were conducted. Only one study (Bhandari et al, 2001) tested the impact of food supplements combined with nutrition education/behavior change communication.	Studies documented improvements in complementary feeding practices including frequency of feeding (Sethi et al. 2003; Kilaru et al. 2005; Palwala et al. 2009), quantity of foods given (Sethi et al. 2003; Palwala et al. 2009; Vazir, 2013), and the quality of foods offered to children (Sethi 2003; Bhandari 2004; Bhandari 2005; Kilaru et al. 2005; Palwala et al. 2009; Vazir et al. 2013).

Anganwadi workers; ANM = auxiliary nurse midwives; EBF: exclusive breast feeding

1 **Table 5. Summary of program models that delivered IYCF counseling interventions in India**
 2 **(from Avula et al., 2013)**

Program	Implementer	Implementation states/time period	IYCF practices targeted	Approaches
<i>Anchal Se Angan Tak</i> (http://wcd.rajasthan.gov.in/wcdWeb/ASAT.pdf)	UNICEF, in collaboration with Integrated Child Development Services (ICDS)	Rajasthan 2001–2006	IBF, EBF, ICF, ACF	-Each member of a trained community group of local women adopted 15-20 households to communicate messages. -Mass media, puppet shows and street plays were used to reinforce the messages. -Program was monitored at the village and district-levels using assessment, analysis, and action approach.
<i>Ankur Project</i> (Mavalankar and Raman. n.d.)	Society for Education, Action, and Research in Community Health in collaboration with seven nongovernmental organizations	Maharashtra 2001–2005	IBF	-Trained village health workers (VHWs) counseled mothers during periodic home visits. -Meetings were conducted and social functions were celebrated to raise community awareness. - Doctors/nurses supervised VHWs.
Baby Friendly Community Health Initiative (Kushwaha et al. 2010)	Department of Paediatrics, B.R.D. Medical College, Gorakhpur, Uttar Pradesh, in collaboration with the Lalitpur district administration, government of Uttar Pradesh, and UNICEF	Uttar Pradesh 2006–2007	IBF, EBF, ICF, ACF	- A mothers' support group (MSG) of frontline workers (FLWs) and active mothers from village were charged with counseling 10–15 households. - MSGs conducted home visits, held group discussions, and sensitized other community groups.
Cell Phone Technology as Community-Based Intervention (Patel et al. 2012)	Lata Medical Research Foundation	Maharashtra 2009	IBF, EBF, ICF	-Lactation counselors used mobile phones to provide breastfeeding information to mothers.
Community-Based Maternal and Child Health and Nutrition Project (ORG Centre for Social Research 2006).	Directorate of Health and Family Welfare of Uttar Pradesh in collaboration with the Directorate of ICDS of Uttar Pradesh, with technical and financial support from UNICEF	Uttar Pradesh 2001–2004	IBF, EBF, ICF	- Trained village-level workers counseled during weekly home visits and coordinated with government FLWs. - Information was provided in women's groups and village health committees, and social functions.

Program	Implementer	Implementation states/time period	IYCF practices targeted	Approaches
Community-driven Nutrition Behavior Change Campaign for improved pregnant and infant feeding practices through community-managed Nutrition cum Day Care Centers (Chava L.D. n.d.)	Society for Elimination of Rural Poverty	Andhra Pradesh 2007–present	IBF, EBF, ICF, ACF	<ul style="list-style-type: none"> - Provide hot-cooked food three times a day for pregnant and lactating women at the center -During nutrition and health days, it was ensured that women attend sessions when government frontline workers provided nutrition and health information.
Community Driven and Managed Health, Nutrition and Well-Being Improvement Program (Sethi n.d.)	Urban Health Resource Center provided technical support to the State Health and Family Welfare Department, government of Uttar Pradesh, and District Health Department	Uttar Pradesh Madhya Pradesh 2005–present	IBF, EBF, ICF, ACF	<ul style="list-style-type: none"> - Women’s health groups were formed to generate awareness, demand for nutrition and health services, and serve as a community resource link to service providers. -Women’s groups conducted individual and group counseling along with community awareness activities to improve behaviors of pregnant women and to promote optimal child feeding practices.
Safe Motherhood and Child Survival (SMCS) (Deepak Foundation 2011).	Deepak Foundation in collaboration with the Department of Health and Family Welfare, Government of Gujarat	Gujarat (Tribal Vadodara) 2005–2010	IBF, EBF, ICF	<ul style="list-style-type: none"> - Deepak Foundation’s staff initiated culturally acceptable activities such as generating of horoscopes to elicit community participation. Horoscopes were used to record child details at birth including initiation of breastfeeding, identify low-birth weight babies and facilitate referrals. - Coordination between the government FLWs was facilitated through interdepartmental meetings. -Community sensitization and involvement was facilitated through the village health and sanitation committees
Community-Led Initiatives for Child Survival (Garg et al. 2006)	Aga Khan Foundation in collaboration with the Department of Community Medicine, Mahatma Gandhi Institute of Medical Sciences	Maharashtra 2003–2008	IBF, EBF, ICF	<ul style="list-style-type: none"> -Adolescent peer educators counseled women on breastfeeding -Community-based events were held to raise awareness among local leaders, health care providers, and grandparents.

Program	Implementer	Implementation states/time period	IYCF practices targeted	Approaches
Comprehensive Child Survival Program	Launched by the government of Uttar Pradesh and implemented by Catholic Relief Services and Mamta Health Institute for Mother and Child with technical assistance from the Vistaar Project	Uttar Pradesh 2008–2012	IBF, EBF	-Trained government health FLWs counseled women. -Trained facilitators worked with health FLWs to improve their knowledge and counseling techniques. -Job aids such as frequently asked questions, pictorial flip books and checklists were developed for the frontline workers.
<i>Dular</i> (IntraHealth 2007)	UNICEF, in collaboration with ICDS	Bihar; Jharkhand 1999–2005	IBF, EBF, ICF	- Volunteers assisted government frontline workers in counseling mothers during home visits and spent time with families in teaching new practices. -District and block coordination committees were created and trained.
Home-Based Neonatal Care (Bang et al. 2005)	Society for Education, Action, and Research in Community Health	Maharashtra 1993–1998	IBF, EBF, ICF	- Trained village health workers (VHWs) held group meetings on pregnancy, newborn care, and child feeding once every 4 months and followed-up with home visits. -Traditional birth attendants reinforced VHWs' messages.
<i>Kano Parbo Na</i> (Mustaphi 2005)	UNICEF, in collaboration with ICDS	West Bengal 2001–2005	EBF, ICF, ACF	- 12-day Nutritional Counseling and Childcare Sessions were organized at the <i>anganwadi</i> centers, where frontline workers trained mothers on infant feeding practices and mothers of well-nourished children shared their infant feeding experiences. - Village committees were formed to hold proactive dialogues between social groups and institutions.
Maternal, Newborn and Child Health and Nutrition Practices in Select Districts of Uttar Pradesh and Jharkhand	Government of Uttar Pradesh and government of Jharkhand (Department of Health and Family Welfare and Department of Women and Child Development) with technical assistance from the Vistaar Project	Uttar Pradesh; Jharkhand 2007–2012	IBF, EBF, ICF, ACF	- Government FLWs were trained during regular monthly meetings and were given counseling guides and flip charts to counsel women. - Convergence between the Department of Health and Family Welfare and the Department of Women and Child Development was facilitated through promotion of the use of data and joint reviews of village health and nutrition days.
Mother and Child Care Program (Sri Ramkrishna Ashram. 2008).	Welthungerhilfe	West Bengal 2004–2008	IBF, EBF, ICF	- Awareness camps were organized in communities for mothers and mothers-in-law on child feeding.

Program	Implementer	Implementation states/time period	IYCF practices targeted	Approaches
Nutrition Security Innovations in Chhattisgarh (<i>Mitanin</i> Program) (Vir 2012)	State Health Resource Center	Chhattisgarh 2001–2005	IBF, EBF, ICF	-Trained voluntary health workers (<i>Mitanin</i>) provided health information to families. - Raised community awareness on government programs and entitlements. - Sensitized the local governing bodies on local health programs and implementation.
Reproductive and Child Health, Nutrition and HIV/AIDS (Care n.d.)	CARE India, in collaboration with ICDS	9 states ^a 2001–2006	IBF, EBF, ICF, ACF	-Trained FLWs of the government programs and volunteers made home visits during critical periods and provided advice on health and nutrition practices - Trained change agents worked with support of the FLWs and community organizations to promote child health and nutrition practices.
Sure Start PATH. (2012). Sure start. www.path.org	PATH	Maharashtra, Uttar Pradesh 2005–2012	IBF, EBF	- Trained health workers communicated messages to women and family members during home visits. - Community-level activities were undertaken to create demand, strengthen linkages between the communities and the health systems

3 ^a Andhra Pradesh, Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Odisha, Rajasthan, Uttar Pradesh, and West
4 Bengal;^b Andhra Pradesh, Bihar, Gujarat, Rajasthan, Tamil Nadu, Jharkhand, Madhya Pradesh, Maharashtra,
5 Odisha, Uttar Pradesh, West Bengal, Chhattisgarh; IBF=Initiation of breastfeeding; EBF= Exclusive breastfeeding;
6 ICF=Introduction of complementary foods; ACF= Age-appropriate complementary feeding

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