

## Evaluation of Integrated Child Development Services Program in Gujarat, India

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**Objective:** To evaluate Integrated Child Development Services (ICDS) program in terms of infrastructure of *Anganwadi* centers, inputs, process, coverage and utilization of services, and issues related to program operation in twelve districts of Gujarat, India.

**Design:** Facility (*Anganwadi*) based study.

**Setting:** Twelve districts of Gujarat, India (April 1, 2012 to March 31, 2013).

**Participants:** ICDS service providers (60 *Anganwadi* workers from 46 rural and 14 urban *Anganwadi* centers) and their beneficiaries.

**Main Outcome measures:** Coverage of supplementary nutrition, pre-school education, immunization and referral services.

**Results:** Supplementary nutrition coverage was reported in 48.3% in children. Interruption in supply of supplementary

nutrition during last six months was reported in 61.7% *Anganwadi* centers. Only 20% centers reported 100% pre-school education coverage among children. Immunization of all children was recorded in only 10% *Anganwadi* centers, while in 76.7% centers, no such records were available. Regular health checkup of beneficiaries was done in 30% centers. Referral slips were available in 18.3% *Anganwadi* centers and referral of sick children was done from only 8.3% centers.

**Conclusion:** There are program gaps in coverage of supplementary nutrition in children, its regular supply to the beneficiaries, in pre-school activities coverage, recording of immunization, and regular health check-up of beneficiaries and referral of sick children.

**Keywords:** *Evaluation, ICDS, Preschool education, Supplementary nutrition.*

The Integrated Child Development Services (ICDS) program includes a network of *Anganwadi* Centers (AWC), literally courtyard play centers, with *Anganwadi* workers (AWW) providing integrated services comprising supplementary nutrition (SN), immunization, health check-up, and referral services to children below six years of age and expectant and nursing mothers [1,2]. Non-formal pre-school education (PSE) is imparted to children of the age group 3-6 years, and nutrition and health education day (NHED) conducted for women in the age group 15-45 years [2].

After more than three decades of implementation, the success of ICDS program in tackling maternal and childhood problems still remain a matter of concern [3]. Studies reported association of improved nutritional status and immunization status of children less than 3 years age, with ICDS services [4,5] whereas others reported no such association [6,7]. According to National Family Health Survey-3, though 81.1% children under age six years were covered by AWCs,

children who received any service from AWC were only 28.4% [9]. The present study was conducted to evaluate the various aspects of ICDS program like infrastructure of AWCs and baseline characteristics of AWWs (inputs), provision of various services (process), coverage of various ICDS services provided (output), utilization of services, and issues related to program operation in different districts of Gujarat state.

### METHODS

National Institute of Public Cooperation and Child Development (NIPCCD) with Monitoring and Evaluation unit in the Ministry of Women and Child Development is responsible for regular monitoring and supervision of ICDS scheme by Central Monitoring Unit. The monitoring and supervision of the ICDS scheme at secondary and primary level involves state, district, project and community level monitoring [9]. At State level, supervision and monitoring of the scheme is being undertaken with help of Community Medicine departments of Medical Colleges. From Gujarat state, two

institutions (PDU Government Medical College, Rajkot and Government Medical College, Vadodara) were selected by NIPCCD. The present study was conducted by Community Medicine Department, PDU Government Medical College, Rajkot in 12 districts of Gujarat state as directed by NIPCCD. The 12 districts allotted were: Ahmedabad, Amreli, Bhavnagar, Gandhinagar, Jamnagar, Junagadh, Kutch, Mehsana, Patan, Porbandar, Rajkot, and Surendranagar. As per the guidelines provided and districts allotted by NIPCCD, from above mentioned 12 districts, three districts were to be visited in one quarter (one district per month). In allotted 12 districts, there are total 139 ICDS blocks, 7,684 villages and 20,201 *Anganwadi* centers. The ICDS program is administered and supervised at district level by Program Officer. Under Program Officer, there are 8-10 ICDS blocks each of which is supervised by Child Development Program Officer (CDPO) and one such ICDS block covers around 100 *Anganwadi* centers.

One ICDS block from each district was selected first by using simple random sampling (lottery method). The CDPO of respective ICDS block was then informed prior about the nature of visit and how many AWCs will be visited. In next stage, from each selected block, five *Anganwadi* centers were randomly selected on day of visit without prior information to AWWs. A total 60 *Anganwadi* centers were selected including 46 from rural area and 14 from urban area during April 2012 to March 2013. An attempt was made to select not more than two *Anganwadi* centers from each of the supervisory circle. A team of four members including one Associate Professor,

one Assistant Professor and two resident doctors from Community Medicine Department, PDU Government Medical College, Rajkot visited the selected AWCs. Ethical clearance was taken for present study from the Institutional Ethical Committee.

*Anganwadi* workers were interviewed and records were reviewed by using a pre-designed and pre-tested proforma provided by NIPCCD. Considering the usual program evaluation framework, the information was collected for: (i) inputs – i.e. infrastructure of AWCs and baseline characteristics of AWWs; (ii) process – i.e. provision of various ICDS services to the beneficiaries; and (iii) output – i.e. coverage of services provided like SN, PSE and NHED. AWC with constructed covered area of not less than 600 sq feet was considered as having an adequate indoor space [10]. Information was also collected about utilization of various services provided and issues related to program operation by interviewing the *Anganwadi* workers. Nutritional status was registered in 30 AWCs because of change in format provided by NIPCCD. The collected data was entered and analyzed by using Epi Info software version 3.5.1 (Center for Disease Control and Prevention, Atlanta, Georgia, USA) [11].

## RESULTS

Majority (66.7%) of AWC buildings were owned by State and 73.3% AWCs were having concrete building (**Table I**). More than half of AWCs (53.3%) had an adequate indoor space and 61.7% had child friendly toilet facility. All the AWWs were literate and 86.7% had received job training.

**TABLE I** INFRASTRUCTURE AND BASELINE CHARACTERISTICS OF *ANGANWADI* CENTERS IN SELECTED DISTRICTS OF GUJARAT

Parameter	Rural (n=46)No. (%)	Urban (n=14)No. (%)	Total (n=60)No. (%)
<i>Anganwadi Centers (AWCs) Infrastructure</i>			
Building ownership by State	36 (78.3)	4 (28.6)	40 (66.7)
Concrete building type ( <i>Pucca</i> )	37 (80.4)	7 (50.0)	44 (73.3)
Adequate indoor space	26 (56.5)	6 (42.9)	32 (53.3)
Adequate outdoor space	22 (47.8)	6 (42.9)	28 (46.7)
Separate toilet facility available	32 (69.6)	5 (35.7)	37 (61.7)
Tap water supply	24 (52.2)	11 (78.6)	35 (58.3)
<i>Anganwadi workers (AWWs) characteristics</i>			
Work experience >10 years	32 (69.5)	7 (50.0)	39 (65.0)
Literate (at least primary level)	46 (100.0)	14 (100.0)	60 (100.0)
Received induction training	18 (39.1)	1 (7.1)	19 (31.7)
Received job training	38 (82.6)	14 (100.0)	52 (86.7)
Received refresher training	31 (67.4)	7 (50.0)	38 (63.3)
Received IMNCI training	27 (58.7)	8 (57.1)	35 (58.3)

IMNCI- Integrated Management of Neonatal & Childhood Illnesses.

Majority of registered pregnant (96%) and lactating (97.8%) mothers, and 87.0% adolescent girls were availing ICDS services (**Table II**). NHED was celebrated in 81.7% AWCs. Growth chart was present in 96.7% AWCs and accurately plotted by 95.0% *Anganwadi* workers. Nutritional grades of enrolled children were recorded from registers according to WHO growth chart in only 30 AWCs because of change in format provided by NIPCCD. Proportion of underweight among children who were registered was 20% (18.5% moderately and 1.5% severely underweight).

Supplementary nutrition coverage was reported in 48.3% children. Almost equal coverage of supplementary nutrition was reported among pregnant and lactating mothers in rural (87.0%) and urban (85.7%) AWCs. Only 20% AWCs reported 100% preschool education coverage among children. Immunization of all children was recorded in only 10% AWCs, while in 76.7% AWCs no such records were available. Regular health checkup of beneficiaries was done in 30.0% AWCs. Referral slips were available in 18.3% AWCs and referral of sick children was done from only 8.3% AWCs.

Supplementary nutrition was fully acceptable (90%), of good quality (86.7%) and in adequate quantity available to beneficiaries (95.0%), though 61.7% AWCs reported interruption in supply during last six months (**Table III** and **Web Table I**). Low cost games (66.7%), charts/posters and play way methods were used to

provide PSE. Majority of AWCs (81.6%) were conducting NHED by using lecture method (73.3%).

Various other issues were described by AWWs including non-availability of storage facility (60.0%), no/inadequate outdoor space (53.3%), inadequate indoor space (46.7%), non-availability of separate kitchen (31.7%) and child friendly toilet facility (30.0%) at AWCs.

## DISCUSSION

The present study reported availability of concrete type of building in majority of AWCs, and availability of separate child friendly toilet facility and adequate indoor space in more than half of rural AWCs. Only a few AWWs in urban areas received induction training. It has been documented that proper training improves AWWs' performances [12], and inadequate training of AWWs may be the reason for poor performance AWCs [13]. Utilization of ICDS services was high among registered pregnant and lactating mothers, adolescent girls and children the involvement of pregnant and lactating women and adolescent girls are central to tackling the problem of underweight and malnutrition in the country [14].

Success of growth monitoring depend upon the extent to which counseling support, weighing scales and growth charts are available in AWCs [2]. Availability and accurate use of growth chart to assess the nutritional status of children in present study was higher than in some previous studies [15,16]. Distribution of Iron and

**TABLE II** MATERNAL AND CHILD HEALTH SERVICES DELIVERED UNDER ICDS PROGRAM AT *ANGANWADI* CENTERS IN SELECTED DISTRICTS OF GUJARAT

<i>Variables</i>	<i>Rural, No. (%)</i>	<i>Urban, No. (%)</i>	<i>Total, No. (%)</i>
<i>Maternal health services</i>			
Pregnant mothers availing services/registered	454/468 (97.0)	95/104 (91.3)	549/572 (96.0)
Lactating mothers availing services/registered	386/390 (99.0)	107/114 (93.9)	493/504 (97.8)
Iron and folic acid tablet distribution	32/46 (69.6)	11/14 (78.6)	43/60 (71.7)
<i>Adolescent health services</i>			
AWC celebrated NHED* day	40/46 (87.0)	9/14 (64.3)	49/60 (81.7)
Reproductive health education	40/46 (87.0)	12/14 (85.7)	52/60 (86.7)
Adolescent girls receiving services/registered	1204/1330 (90.5)	472/597 (79.1)	1676/1927 (87.0)
<i>Child health services</i>			
Growth chart available	44/46 (95.7)	14/14 (100.0)	58/60 (96.7)
Accurate use of growth chart	43/46 (93.5)	14/14 (100.0)	57/60 (95.0)
Deworming tablets distribution	18/46 (39.1)	8/14 (57.1)	26/60 (43.3)
Salter scale for weighing	35/46 (76.1)	10/14 (71.4)	45/60 (75.0)
Children of 6 months-6 years availing services/registered	2916/3550 (82.1)	893/1244(71.8)	3809/4794 (79.5)

\* NHED – Nutrition and Health Education Day.

**WHAT IS ALREADY KNOWN?**

- ICDS program is operational for more than three decades in India.

**WHAT THIS STUDY ADDS?**

- There are state level gaps in infrastructure facility, mainly adequacy of indoor and outdoor space, coverage and supply of supplementary nutrition, preschool education activities, immunization and referral of sick children.

Folic Acid tablets to the beneficiaries was also higher than previous studies [14,17]. Supplementary nutrition coverage was inadequate in children, but was good in pregnant and lactating mothers. It indicates that the *Anganwadi* workers have to give more emphasis to attract children from their community to *Anganwadi* by providing other services like preschool education, and also by celebrating nutrition and health education days. As take home ration was provided from only very few AWCs, Local authority has to give attention on this issue and provide timely supply of take home ration at AWCs.

Studies have reported poor skills development of *Anganwadi* children as against the private nursery school children, which could be attributed to poor stimulating environment including lack of play materials, hence there is need to improve the preschool environment of the *Anganwadis* [18,19]. Emphasis should be given on good quality supervision and also by

sensitizing them about the importance of timely referral of sick children to the higher center.

The coverage performance of AWCs and maternal and child health services delivered by *Anganwadi centers* still needs improvement. The study has reported gaps in infrastructure facility mainly inadequacy of indoor and outdoor space; coverage of supplementary nutrition in children, regular supply of foods to the beneficiaries; gaps in pre-school activities coverage, recording of immunization, regular health check-up of beneficiaries and referral of sick children.

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*Competing Interests:* None stated.

**TABLE III** CHARACTERISTICS AND ISSUES RELATED TO VARIOUS SERVICES AT *ANGANWADI* CENTERS UNDER ICDS PROGRAM IN GUJARAT

<i>Variables</i>	<i>Rural (n=46); No.(%)</i>	<i>Urban (n=14); No.(%)</i>	<i>Total (n=60);No.(%)</i>
<i>Supplementary nutrition</i>			
Fully acceptable	43 (93.5)	11 (78.6)	54 (90.0)
Good quality	42 (91.3)	10 (71.4)	52 (86.7)
Community participation to provide food	38 (82.6)	13 (92.9)	51 (85.0)
Reported interruption in supply	27 (58.7)	10 (71.4)	37 (61.7)
<i>Pre-school Education (PSE)</i>			
Time table used	29 (63.0)	7 (50.0)	36 (60.0)
Low cost games used	34 (73.9)	6 (42.9)	40 (66.7)
Charts/posters used	28 (60.9)	8 (57.1)	36 (60.0)
Play way method used	24 (52.2)	12 (85.7)	36 (60.0)
<i>Nutrition and Health Education Day (NHED)</i>			
NHED meeting done	40 (87.0)	9 (64.3)	49 (81.6)
By using lecture method	35 (76.1)	9 (64.3)	44 (73.3)
By using demonstrations	10 (21.7)	1 (7.1)	11 (18.3)
<i>Issues reported by Anganwadi worker</i>			
No separate storage facility	27 (58.7)	9 (64.3)	36 (60.0)
No/inadequate outdoor space	24 (52.2)	8 (57.1)	32 (53.3)
No separate kitchen	14 (30.4)	5 (35.7)	19 (31.7)

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