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Study of work performance improvement through digitization of anganwadi workers in Chhattisgarh, India

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Abstract

The Integrated Child Development Services Scheme (ICDS), launched in 1975, is one of India's National Flagship Programme (NFP) to support the Health, Nutrition, and development needs of children <6 years of age and pregnant and lactating women, through a network of Anganwadi Centers (AWCs) or mini AWC each typically serving a population of 350–1000. The several reviews and evaluations of ICDS over the past 45 years have also found persistent gaps, including inadequate infrastructure at the AWC's, Anganwadi worker (AWW) service delivery issues (eg. poor quality supplementary food, few home visits and no adequate counselling or counselling gap, timely weight efficiency etc.), human resource issues (eg. vacancies, increasing range of duties expected of the AWWs, inadequate training of AWWs, limited supportive supervision etc.) and poor data management (eg. irregularities in record keeping at AWCs, incomplete reporting, ineffective monitoring of service delivery & duplicate of data etc.). The most recent National Family & Health Survey-IV (NFHS-2015–2016) also highlights the gaps in ICDS service delivery. Only about 59% of children under 6 years received any service from an AWC, 53% received supplementary food services and 47% were weighed. Similarly, only 60% of mothers received any AWC services during pregnancy and 54% received any service during the breastfeeding period. Based on above gap filling goal to improve the functioning of ICDS, the Government of India (GOI) launched the ICDS Systems Strengthening and Nutrition Improvement Programme (ISSNIP) in 2012 which focused on infrastructure upgradation and training of AWWs to enhance their knowledge on health and nutrition topics under the Incremental Learning Approach (ILA). At the same time, a pilot-scale ICT-RTM based intervention to improve ICDS service delivery was implemented in the Chhattisgarh state between 2017 and 2019. Subsequently, the ISSNIP was restructured in 2017 by integrating ICDS in seven states with a technology enabled intervention called Common Application Software (CAS) installed on smart phones devices and with the monitoring support multilevel data dashboard. This system is intended to be a job aid for frontline workers, supervisors and ICDS officials, and aims to ensure better service delivery and supportive supervision by enabling real-time monitoring and data-based decision-making.

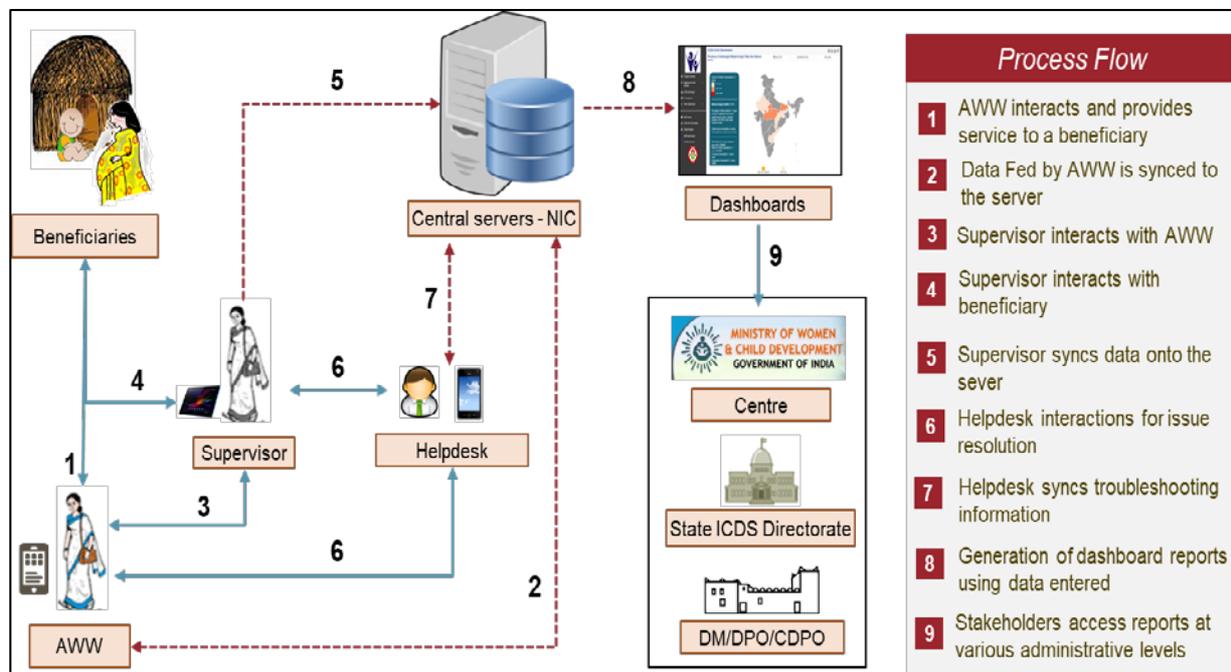
Keywords: ICT-RTM, ICDS-CAS, POSHAN Abhiyaan, ICDS, Work Performance, Anganwadi Workers.

Introduction

POSHAN Abhiyaan is a multi-ministerial convergence mission with the vision to ensure reducing of malnutrition India by 2022. According to NFHS IV, 37.6% of children in state still suffer from under-nutrition, despite substantial improvement over decades of health & nutrition programmes. The Anganwadi centers under the Integrated Child Development Scheme (ICDS) provide a range of Nutrition & Health services to pregnant women, children <6 years and lactating mothers. As per above described gap filling of existing reporting & services. The Government is started strengthening ICDS through the Technology which is the Information and Communication Technology enabled Real Time Monitoring (ICT-RTM) of service delivery under ICDS Services. ICT-RTM driven by Common Application Software (CAS) will function through a mobile application at the level of Anganwadi Workers (AWW) and Sector Supervisors/ lady Supervisors and a comprehensive web-based dashboard, at Block, District, State, providing real time information about Anganwadi Service delivery. It will enable to identify the area of concern to be focused on priority and to employ appropriate and timely interventions therein. Figure1 described that how is CAS

application functioning. Initially Data generated at the AWC-level are aggregated and analyzed via web-enabled dashboards for Child Development Project Officer (CDPO) at the project-level (typically an administrative block with 100–200 AWCs), District Programme Officer (DPO), the State Directorate and the Ministry of Women and Child Development (MW&CD) at the National level. For example, the monthly progress reports are prepared

manually at the AWC-level and then aggregated to the project-level which require weeks to be finalized and reviewed, but the CAS app and dashboards will automate and produce these reports in almost real-time. The dashboard infographics are expected to help identify bottlenecks at various levels more efficiently, help priorities local issues, and allow Officers/ Coordinators to take data-driven decisions.



Source: ICDS-CAS AWW User Manual, 2018

Fig 1: ICDS-CAS information flow Chart.

- Common Application Software (CAS) information flow from the Anganwadi Centre to the Ministry of Women and Child Development.
- Solid lines correspond to interactions. Dotted lines correspond to data flow.

Review of Literature

Review of literature is important to know what has been established and documented as there are critical summaries of what is already known about a particular topic. Therefore, a review of literature helps in relating the present study to the previous ones in the same field. Due to new programme on digitization some few studies have been done in related field. One of most important study done by Nimma gadda S, Gopalakrishnan L, Avula R, *et al* (2019) [8]. Their study titled on “Effects of an mHealth intervention for community health workers on maternal and child nutrition and health service delivery in India: protocol for a quasi-experimental mixed methods evaluation”. In their research the evaluation will provide evidence on whether and to what extent ICDS-CAS mHealth can improve health and nutrition service delivery beyond what is feasible with traditional non-technology-based approaches under ISSNIP/POSHAN Abhiyaan. Additionally, the analysis of a range of lower order outputs and outcomes can help us identify the pathways through which ICDS-CAS has worked, or the critical failure points.

Methodology

This study is based on 7 ICT-RTM Districts (Raipur, Durg, Mahasbund, Kabirdham, Balod, Bemetara & Gariyaband) in the Chhattisgarh State. The ICDS-CAS intervention is

being implemented in 50 Projects from seven districts in the State where human resources are techno- friendly, proper internet coverage and smooth to admiration or supportive supervision. This evaluation is restricted to Seven Districts Chhattisgarh, which were selected because of the implemented by the Department of Women & Child Development (DW&CD).

The study is analysis based on 10473 Anganwadi workers (AWW) through CAS based app reporting. The primary outcomes are the timely & adequate number of home visits and appropriate level of counselling by the Anganwadi workers. Secondary outcomes are related to improvements in other ICDS services, and knowledge and practices of the Anganwadi workers and beneficiaries.

The data analysis is based on the following three key variables, namely:

- **Take Home Ration (THR):** Under Anganwadi Services, Supplementary Nutrition is provided to eligible beneficiaries i.e. Pregnant Women, Lactating Mothers and Children in the age group of 6 months to 3 years along with severely underweight children in the form of THR. Timely and adequate distribution of THR is a key intervention to address malnutrition. THR needs to be distributed for at least 21 days of a month to eligible beneficiaries. Indicators analyzed under the variable comprise of eligible women i.e. Pregnant Women and Lactating Mothers and number of days in a month the ration was distributed to them. These indicators are included in the ICDS-Mobile Application. For the purpose of this report, data from

THR option in the CAS Mobile Application has been analyzed.

- **Pre School Education (PSE):** The non-formal Pre School Education under Anganwadi Services aims at holistic development of young children (3-6 years old). PSE makes Anganwadi Centre a ‘Vibrant ECD Centre’ by positioning Early Child Care and Education at the center stage. PSE is imparted at Anganwadi Centre through a play and activity-based approach. For the purpose of this report, data aggregated from Daily Feeding option in CAS Mobile Application has been used where the attendance of children attending PSE is recorded on daily basis.
- **Weighing Efficiency:** Growth Monitoring by field functionaries is an important tool for accessing the growth and development of a child and for detecting change in growth. Children in the age group of 0-5 years, must be weighed once a month at Anganwadi Centre. For the purpose of this report, data from Growth Monitoring option in the CAS Mobile Application has been used where the weight of eligible children is recorded every month.

Objectives of the Study

This study is based on secondary data analysis. The data is analyzed with the objective of understanding:

1. To study of work performance improvement of AWW’s through digitization.

2. To know THR distribution proportion trends among Pregnant Women and Lactating Mothers
3. To analyze participation of Pre-School Education eligible children at Anganwadi Centres.

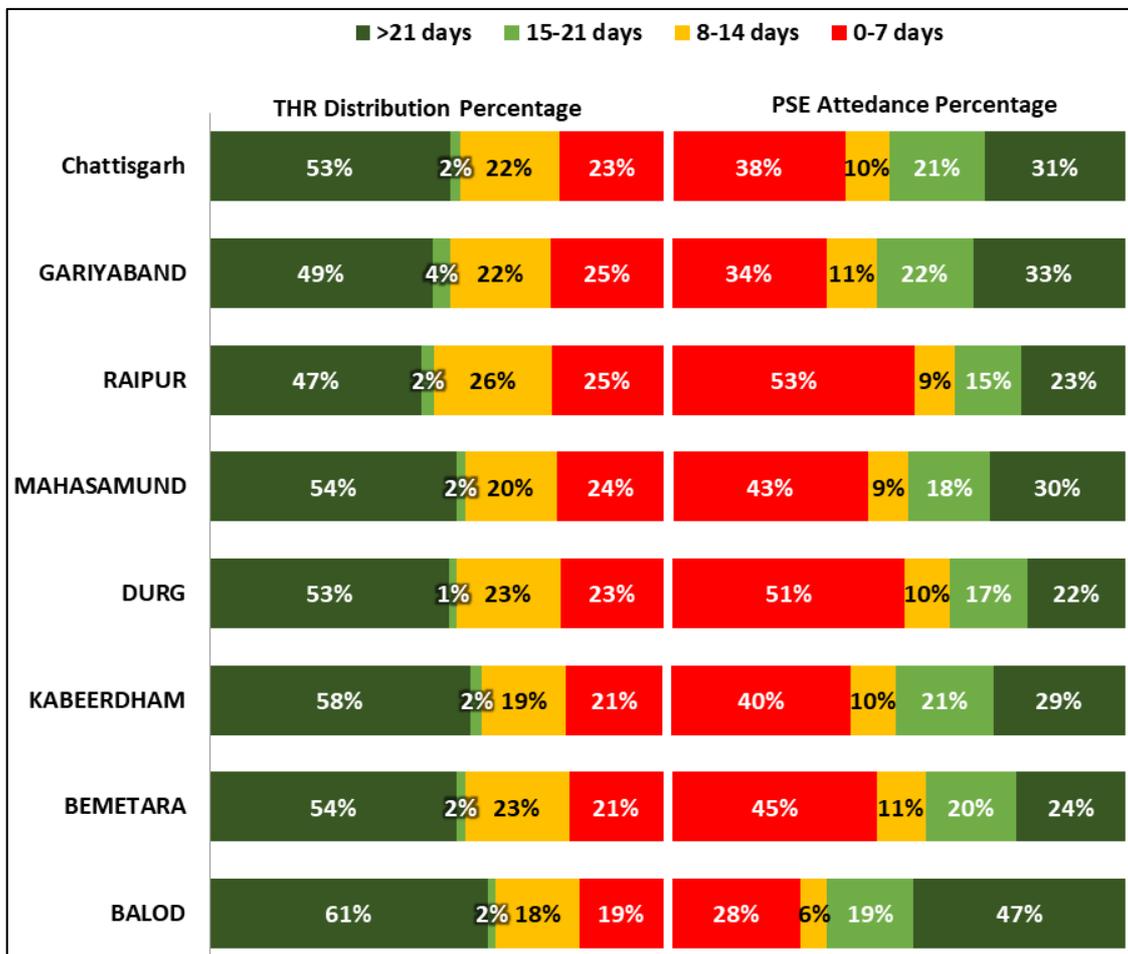
So, the broadly, objective of this study is to examine weighing efficiency at State, District level for Information on these key indicators is entered by Anganwadi workers on regular basis in CAS which can be viewed by key stakeholders of ICDS ecosystem namely, Lady Supervisors, CDPOs, DPOs, and State level etc.

Period of the Study

Source of data analysis for this report comes from real time data entered by field functionaries of the State in CAS Mobile Application on the selected parameters. Data entered in the application for the duration of September 2018 to February 2019 has been analyzed.

Analysis of the Data

The descriptive analysis has been undertaken by using SPSS, Version 23. Cross-Tab analysis has been used to facilitate analysis at the Districts. For the sake of brevity, the data has been represented in two forms- Bar graphs for THR and PSE, and Scatter chart for Weighing efficiency. For THR and PSE, the data has been segregated into four categories based on the duration of days for which beneficiaries received services, i.e. 0-7 days, 8-14 days, 15-21 days and more than 21 days and represented in the form of Median Percentage.



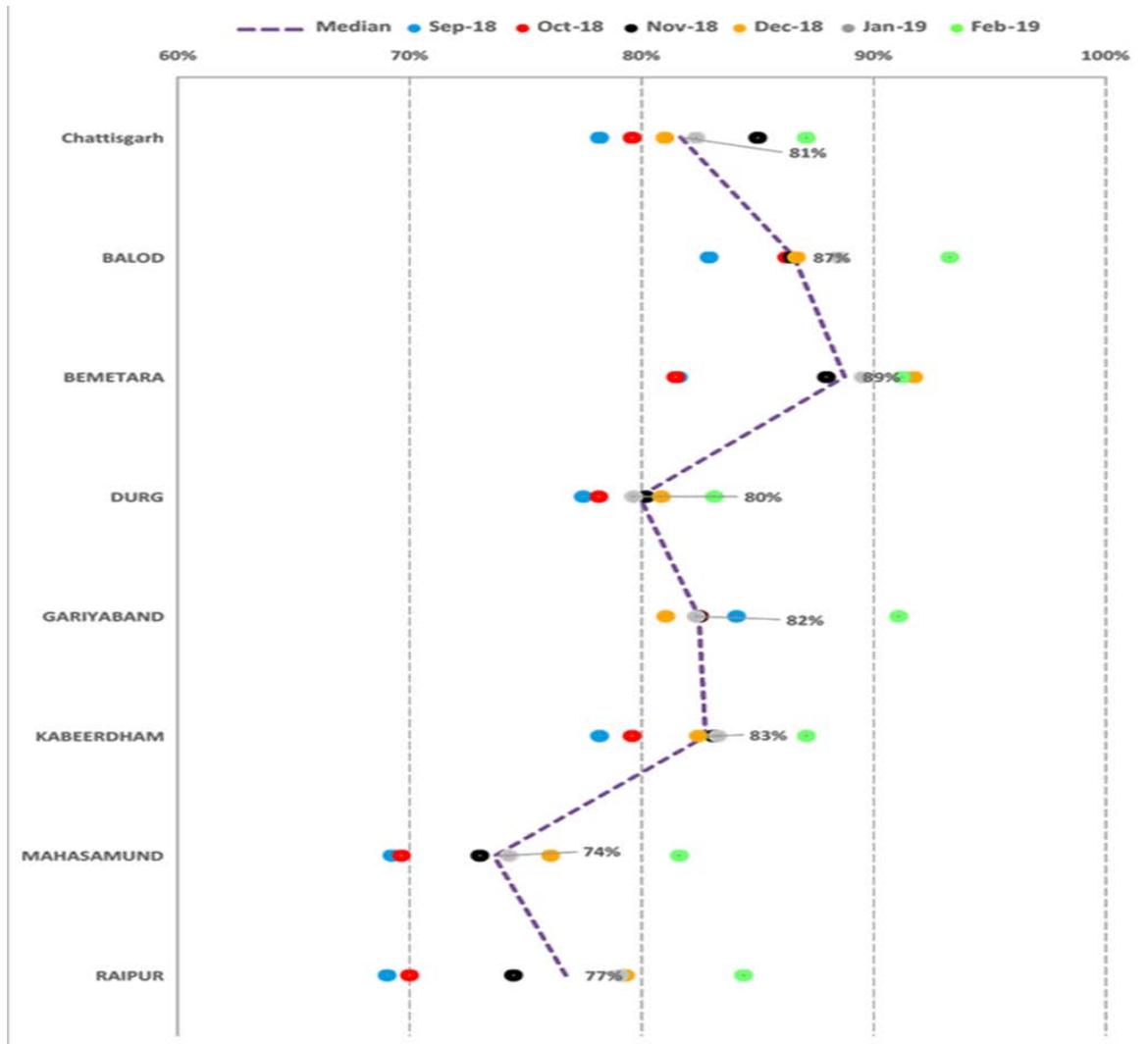
Source: data analysis base on https://www.icds-cas.gov.in/a/icds-cas/icds_dashboard/#

Fig 2: District-wise status of THR distribution and PSE attendance during September 2018-February 2019

Figure 2 and 3 highlight the status of Key Performance Indicators (KPIs) of CAS for 7 Districts in which CAS has been launched. The districts include Balod, Bemetara, Durg, Gariyaband, Kabeerdham, Mahasamund and Raipur.

- **THR:** 45% beneficiaries in the State have received THR for less than 15 days a month, which is much below the prescribed norms of 21 days. This trend for THR distribution remains similar for almost all selected districts in Chhattisgarh, which entails that the districts

- needs to review the supply chain mechanism for THR.
- **PSE:** Chhattisgarh has recorded 48% child beneficiaries are attending pre-schools at Anganwadi Centers for 14 days or less whereas only 31% for more than 21 days in a month. For weighing analysis, the scattered dots represent the corresponding months and dotted highlighted line representing the Median weighing efficiency. Figure 3 describe the Weighing Efficiency by District during Sep 2018- Feb 2019.



Source: data analysis base on https://www.icds-cas.gov.in/a/icds-cas/icds_dashboard/#

Fig 3: Weighing Efficiency by District during Sep 2018- Feb 2019

Weighing Efficiency: Based on median weighing efficiency calculated, Chhattisgarh is at 81% from September 2018 to February 2019. While almost all districts in the State have a median weighing efficiency at more than 75%, there is scope to strengthen the component in Mahasamund and Raipur District.

Key Findings of the report

- The State has recorded 53% of eligible Pregnant and Lactating mothers are receiving ration for more than 21 days.
- The State has recorded 31% of eligible child beneficiaries are attending PSEs at Anganwadi Centers for more than 21 days.

- Based on the median calculated, the weighing efficiency during the period of 6 months, i.e. September 2018 to February, 2019 is 81%.

Conclusions

The report focusses on three Key Performance Indicators (KPIs) under Anganwadi Services Namely Take-Home Ration (THR) distribution, Pre-School Education (PSE) and Weighing Efficiency of Children. The data analysis revolves around these central variables due to their potential impact in improving nutritional outcomes for registered beneficiaries. The report will be beneficial for administrators, program coordinators, and supervisory staff to strategically address programmatic areas of concern along with enhancing data quality and service delivery.

The CAS mobile app is especially expected to improve home visit service delivery by AWWs through improved channels of informations (easy access to past records of the beneficiary for customized messaging, educational animation videos as a job aid, life-stage-appropriate checklists for counselling messages) and timely nudges (automatic creation of visit-due lists, alerts for approaching or missed visits and timely intimation of delays to the female supervisor). Thus, improved home visits in terms of timeliness, frequency, and a more effective message delivery mechanism are expected to result in increased knowledge and better recall of correct health and nutrition practices by the beneficiaries and higher demand for related government services. However, for the actual behaviors to change and sustain, supply side constraints must be addressed to meet the demand for services (eg, adequate supply of supplementary food, adequate provisions of Iron Folic Acid (IFA) tablets, regular immunization camps, etc). Such improvements can be expected only in the mid-to-long-term because they are beyond the sphere of influence of CAS and need more ICDS-wide improvements.

Suggestions & Recommendations

With reference to the detailed analysis, some of the recommendations are highlighted for the programme to enhance the service delivery for the components like THR, PSE and Weight Monitoring. Some following actions need to be taken at all levels to strengthen the program.

1. Need to identify key factors (District-wise/ Block-wise) hampering THR Distribution, PSE attendance and Weighing Efficiency. Required mapping good and poor performing districts/blocks based on data analysis provided and formulating block action plan to strengthen programmatic performance.
2. To make regular home visits for educating parents to enable them to plan an effective role in the child's growth and development with special emphasis on new born.
3. To organize supplementary nutrition feeding for children, pregnant women and lactating mothers as per the prescribed norms.
4. Efforts must be made to create a healthy menu based on locally available food and local recipes.
5. Improving outreach and liaison with ANM/ASHA, PRI members, School Teachers, SHGs, etc. to spread importance of nutrition.

Managerial Implications

The present research study is relevant for administrators, program officers, and supervisory staff to strategically address programmatic areas of concern along with enhancing data quality and service delivery. The managerial point of view this study is two-fold. Firstly, identifying components which need to be strengthened for enhancing programmatic implementation. Secondly, the report highlights district-wise performance which in turn provides an opportunity to understand performance trend for every district and thus undertake concerted efforts to improve programmatic performance.

Future Research Scopes

This study will provide evidence on whether and to what extent ICDS-CAS mobile app can improve health and nutrition service delivery beyond what is feasible with

traditional non-technology-based approaches under POSHAN Abhiyaan. Additionally, the analysis of a range of lower order outputs and outcomes can help us identify the pathways through which ICDS-CAS has worked, or the critical failure points. Future researchers may take up further research to describe the impact of different dimensions like work load study about digitization process, benefit of paperless or digitization.

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