

PROGRAM PROCESS DOCUMENTATION

RASHTRIYA BAL SWASTHYA KARYAKRAM (RBSK) PROGRAM
IN TAMIL NADU- A PROCESS DOCUMENTATION*Shinu Priya R⁽¹⁾, Fasna L⁽¹⁾, Vinoth R⁽²⁾, Shanmuga Sundaram V⁽¹⁾, Selvavinayagam T S⁽¹⁾***(1) Directorate of Public Health and Preventive Medicine****ABSTRACT**

INTRODUCTION : Rashtriya Bal Swasthya Karyakram (RBSK) program in Tamil Nadu has significantly advanced child health services by focusing on early identification and management of health conditions. Launched to address the “4Ds” – Defects at Birth, Developmental Delays, Diseases, and Deficiencies – in children from birth to 18 years, RBSK has made notable strides in improving child survival and reducing morbidity. Tamil Nadu has pioneered several innovations within the RBSK framework, including the integration of real-time GPS monitoring for vehicle tracking, digital screening through the Tamil Nadu Education Management Information System (TN EMIS) app, and Newborn Screening or Delivery Point Screening to detect birth defects early. These innovations have streamlined the screening process, ensured accountability, and enhanced follow-up care through effective data management and interdepartmental collaborations. By maintaining transparency through Advanced Tour Programme (ATP) updates and addressing challenges through strategic initiatives, the state has ensured that health services reach even the most remote areas. With the continuous innovation in child health services, Tamil Nadu’s RBSK program has set a high standard for public health initiatives. This paper highlights the significant innovations introduced in Tamil Nadu’s RBSK program and discusses their effect on improving early detection, intervention, and long-term child health outcomes.

KEYWORDS : Child health, RBSK, Screening, Care Continuum, Referral, Primary care

INTRODUCTION

Child health is a cornerstone of public health, reflecting the overall health and well-being of a nation. Recognizing the importance of early diagnosis and intervention in mitigating childhood morbidity and mortality, the Government of India launched the Rashtriya Bal Swasthya Karyakram (RBSK) in 2013. This program targets the early identification and management of conditions categorized under the “4Ds”—Defects at Birth, Developmental Delays including Disabilities, Diseases, and Deficiencies—in children aged 0 to 18 years.¹

Since its launch, RBSK has made remarkable strides in enhancing healthcare access and outcomes for children across the country. The program employs a comprehensive screening model implemented at Anganwadi Centres, schools, and healthcare facilities to identify a wide range of health conditions. Beyond detection, RBSK ensures referral, free medical and surgical care, and follow-up services through District Early Intervention Centres (DEICs) and fostering a continuum of care.^{2,3}

Tamil Nadu has emerged as a frontrunner in implementing the RBSK program. With strong public health infrastructure, the state ensures comprehensive coverage of newborns at delivery points, children aged 6 weeks to 6 years at Anganwadi Centres, and school-going children up to 18 years

in government and government-aided schools. The RBSK program in Tamil Nadu has embraced a series of innovative approaches to overcome challenges in implementation and improving its reach and effect. These innovations, including the adoption of digital tools, real-time monitoring systems, targeted health camps, and interdepartmental collaborations, have transformed the program into a robust model for child health services.

This article explores the innovations introduced in the RBSK program by the state of Tamil Nadu like Tamil Nadu Education Management Information System (EMIS) app, GPS-enabled vehicles, Face Recognized attendance system, uniform advanced tour programme throughout the state and delivery point newborn screening enabled in PICME 2.0.

RBSK in Tamil Nadu:

Tamil Nadu is a pioneer in reducing Infant Mortality Rate (IMR) and Childhood Mortality through the implementation of MCH services and immunization



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Corresponding Author: Shinu Priya R

e-mail : shinupriya08@gmail.com

programs at the Primary Health Care level. However, there is an ongoing need for improvement in child survival, which can be achieved through early detection and timely management of illnesses, thereby reducing child morbidity and mortality. Under the RBSK program, screening for 30 medical conditions is conducted at two levels:

1. Facility Level: All newborns are screened by medical officers and their teams at delivery points. Any newborn found with defects is referred to the District Early Intervention Centre (DEIC) for further management.

2. Community Level: Screening is carried out at Anganwadi Centres (AWC) for preschool children under 6 years of age, and at Government and government-aided schools for children aged 6 to 18 years, by RBSK teams.

Current RBSK Human Resource (HR) status in Tamilnadu

The RBSK program operates with 770 dedicated teams across Tamil Nadu, with two teams assigned to each block (one male and one female). Each team is equipped with a branded vehicle to conduct screenings at Anganwadi canters and Government and Government aided schools. In the Greater Chennai Corporation, 15 RBSK teams are responsible for screening children, while the remaining 35 teams cover other corporations in Tamil Nadu. Each RBSK team constitutes a Medical Officer, a Staff Nurse or Sector Health Nurse (SHN), a Driver (hired), and a pharmacist proficient in data management. The RBSK teams follow uniform screening schedule throughout the year as follows

- The first round of Anganwadi screening is carried out from April to June.
- School screening was carried out from July to December.
- The second round of Anganwadi screening is carried out from January to March.

RBSK Intervention Indicators and Coverage in Tamilnadu

During the year April 2023- March 2024, 89% (33,97,080) and 94% (35,88,769) of Anganwadi children are covered by the RBSK team in the first and second rounds of screening respectively. 98% (65,35,816) of Government and Government aided school children are covered by the RBSK team during the year 2023-24. In the current financial year (2024-2025), 98% (37,48,915) and 40% (15,34,700) of Anganwadi children are covered by the RBSK team in the first and second rounds of screening respectively. 80% (55,73,776) of Government and Government school children are covered by the RBSK team during the year 2024-25. The

details of screening, medical management given and referral details are entered in Education Management Information System (EMIS) portal by the RBSK team. So far April 2024 to Dec 2024 78% of Anganwadi children phase-1 and 74% of Government and Government aided school children screening details are captured in the EMIS portal and remaining will be covered in the coming months.

Management and Outcomes of Children Identified with 4Ds

The children identified with 4D's are referred to District Early Interventional Centres (DEIC). The cumulative outcome of the RBSK program is presented in Table 1. The DEIC team consists of a Paediatrician, Medical officer, Staff Nurses, Optometrists, speech therapists and physiotherapists to provide support to the referred children. The purpose of DEIC is to provide referral support to children detected with health conditions during screening by the RBSK team, who require tertiary care services. The early intervention centres are established at all Government Medical College Hospitals and there are 35 DEICs established across the state.

Table 1: Cumulative outcome of the RBSK program, FY 2021 – 2024 and FY April 2024 – December 2024.

S.no	Year	2021-24	2024-25
1	Total children screened	3,50,48,298	1,09,19,465
2	Total children suspected with		
	D1(Defects at birth)	40,232	11,517
	D2(Deficiencies)	2,00,494	48,948
	D3(Diseases)	9,54,131	2,66,043
	D4(Development delays including disabilities)	3,21,413	1,09,426
3	No. of children referred to DEIC	9,85,248	2,99,416
4	Children Confirmed (7 Major Conditions)	24713	8135
5	Children Medically Managed (7 Major Conditions)	16246	6108
6	Children Needed Surgery (7 Major Conditions)	8467	2027
7	Surgery Done (7 Major Conditions)	8363	1813

Congenital Heart Diseases (CHD), Rheumatic Heart Diseases (RHD), Club Foot, Cleft Lip and Palate, Congenital Cataract, Congenital Deafness, and Neural Tube Defects (NTD) are the seven major disease conditions among children referred for surgeries to tertiary care centres by the RBSK team.

During the year 2024-25, 11517 children are diagnosed with these conditions. Among them, 6108 children are medically managed, and 1813 underwent surgery. Approximately 97% of the identified children (7921) receive complete treatment for their illness and are under regular follow-up by the RBSK team. The treatment details of these children are entered into the EMIS portal to facilitate monitoring by the RBSK team at the field level.

Innovations in Tamil Nadu's RBSK Program

1. FRAS System for Attendance and Monitoring

In Tamil Nadu, the Face Recognized Attendance System (FRAS) is employed to track the daily attendance and activities of RBSK teams. The teams are stationed at their respective Block PHCs, and their attendance is recorded daily in the FRAS system, ensuring accountability and punctuality. The system is monitored by the Block Medical Officer (BMO) at the block level and the District Health Officer (DHO) at the district level. By tracking attendance through FRAS, the program ensures that health service providers remain active in the field from 9 AM to 4 PM, enhancing the efficiency of health screenings and interventions. Additionally, the movements of RBSK vehicles are monitored in real-time via GPS and Android tablets, enabling better monitoring of team activities.

2. Transparent Monthly Advanced Tour Programme (ATP) Updates

In To promote transparency and public access to RBSK activities, the Advanced Tour Programme (ATP) of all RBSK teams is updated monthly on the Tamil Nadu Directorate of Public Health and Preventive Medicine (TNDPHPM) website, ensuring transparency (Figure 1). The website displays the scheduled visits of RBSK teams to Anganwadi Centers and Government and Government-Aided Schools to public visibility. The website also provides the CUG numbers of medical officers for direct contact, ensuring public access to necessary information. These updates are available in the following link: <https://www.tndphpm.com>. This initiative ensures the public, Anganwadi Centres, Government and Government aided schools is well-informed about the teams' schedule and community involvement in the health screening process.

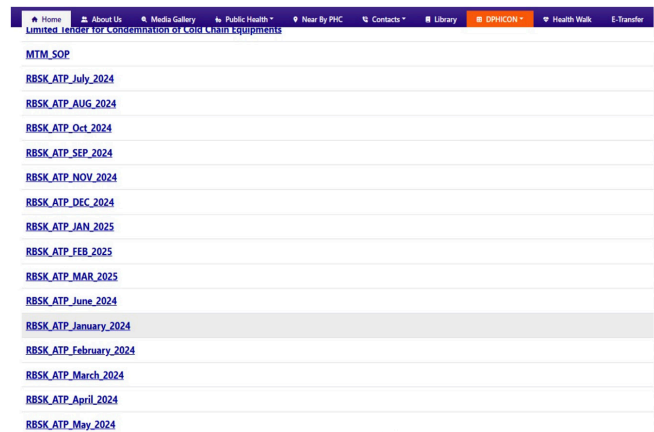


Figure 1: ATP of RBSK uploaded in TNDPHPM website for visibility to public and stakeholders

3. Real-Time GPS Monitoring of RBSK Vehicles

A key innovation in the Tamil Nadu RBSK program is the real-time GPS monitoring of RBSK vehicles, facilitated through the RBSK GPS portal by a vendor agency (Figure 2). Each RBSK vehicle is equipped with a GPS device, which tracks the vehicle's location in real time, using latitude and longitude coordinates. This system helps to prevent route deviations, optimize logistical efficiency, and ensure RBSK teams visit the designated screening sites as scheduled (Figure 3).

To enhance further functionality, automated daily reports are generated by the GPS system and sent to the headquarters. ATP deviations, less distance travelled, and offline status of the vehicle are reviewed at multiple levels to ensure smooth program operations. When a vehicle deviates from the scheduled ATP, the details are shared with District Health Officers (DHOs) and District Training Team Medical Officers (DTTMOs) for review, and corrective actions are taken in weekly DHO review meetings. The status of GPS devices, including active and offline statuses, idle vehicle times, and distance covered, is monitored continuously through the Glovision GPS website, ensuring timely interventions based on real-time data.

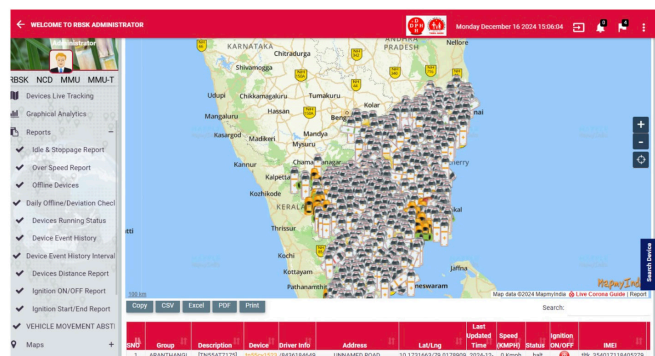


Figure 2: RBSK GPS portal Homepage

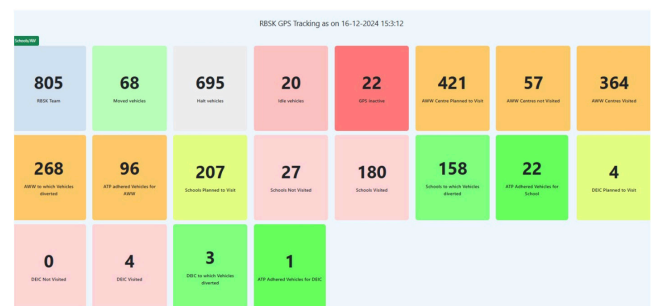


Figure 3: Real time GPS monitoring of RBSK team

4. Newborn Screening (Delivery Point Screening)

Tamil Nadu has made significant strides in ensuring that all newborns are screened for birth defects through

newborn screening, also known as delivery point screening. As part of the Rashtriya Bal Swasthya Karyakram (RBSK) program, the focus is on identifying visible birth defects within 48 hours of delivery. Early detection allows for timely interventions, ensuring the timely intervention and improving the child survival.

The screening is conducted in all health facilities from Primary Health Centers to Medical College Hospitals and private hospitals within 48 hours of delivery of the newborn. A detailed screening checklist has been incorporated into the PICME portal, where identified defects are immediately recorded (Figure 4).

If a defect is found, the newborn is referred to a District Early Intervention Centre (DEIC) or a higher-level medical facility for further care. A Delivery Point Screening Card is issued to the mother, indicating the newborn's health status and serving as a record for follow-up care (Figure 5). This card serves both as a record and a referral form for any required follow-up care, ensuring that no newborn is missed and that they receive timely care.

The screening in RBSK is focused only on Government and Government-aided schools, which left a gap in identifying conditions, e since many children attend private schools. To address this gap, whether the infant is born in Government or private health institutions, they are all screened for birth defects and followed up.

To monitor the process, all health institutions conducting deliveries are required to update newborn delivery details, screening results, and referral information in the PICME 3.0 portal. After discharge, Village Health Nurses follow up with the newborns through postnatal visits, using the data available in the PICME data in coordination with the RBSK team. This approach bridges the gap between estimated and actual disease conditions, ensuring better identification and management in the future.



Figure 4: Newborn screening in PICME portal



Figure 5: Newborn screening card issued to the mother

TN EMIS App for Digital Screening and Tracking

One of the key innovations in the RBSK program in Tamil Nadu is the integration of the Tamil Nadu Education Management Information System (TN EMIS) App, developed by the School Education Department with an added health component (Figure 6). This digital platform incorporates a 49-question primary screening questionnaire completed by school teachers, as seen in the TN EMIS portal and related pages (Figures 7 and 8). The questionnaire includes nine sets of screening components focused on eye screening, along with 39 general health-related queries, ensuring a comprehensive health assessment. Children flagged during the primary screening are referred to the RBSK Mobile Health Teams for confirmation and management. In addition to school-based screenings, RBSK doctors also use the TN EMIS app to screen children at Anganwadi Centers, entering the health data directly into the portal (Figure 9). This enables a unified tracking system for all children across different age groups, ensuring that no child is missed. The app supports real-time data entry and tracking, allowing for efficient follow-up and

comprehensive monitoring of children's health outcomes. By centralizing health data from both schools and Anganwadi Centres, the TN EMIS app enhances coordination among various stakeholders, improves the referral process, and strengthens the overall efficiency of the RBSK program, ensuring timely interventions and a streamlined approach to child health services.

Future directions:

To augment the effectiveness of services for children, the Directorate of Public Health and Preventive Medicine, Tamil Nadu has decided to implement the following interventions in child health in future.

1. To establish infirmary rooms in higher secondary schools to provide privacy during health examinations conducted by RBSK teams, ensuring a comfortable and dignified environment for students.
2. RBSK Medical Officers will conduct health and wellness session during school assemblies to raise awareness about the program and its health benefits.
3. Saturdays will be dedicated to referrals to District Early Intervention Centres (DEICs) for further evaluation and management of identified health conditions.
4. Additionally, State-level Coordination Committee meetings will be conducted thrice a year, and District-level meetings will be held quarterly, involving all key stakeholders, including the School Education Department (SED), Integrated Child Development Services (ICDS), and National Health Mission (NHM). These meetings aim to ensure effective communication, foster collaboration, and address any challenges in program implementation promptly.

Effect of Innovations

These innovations have transformed RBSK into a dynamic and inclusive program, enhancing its reach and efficiency. The adoption of digital tools has streamlined data management and improved response times. Real-time GPS tracking ensures accountability.

Challenges and Future Directions

Despite these advancements, challenges such as resource constraints, staff shortages, and logistical issues persist. Addressing these barriers through capacity building, with proper allocation of resources, and stakeholder engagement will be crucial. Scaling up innovations like the TN EMIS app and GPS monitoring to a national level can further strengthen child health services.

CONCLUSION

Tamil Nadu's implementation of the Rashtriya Bal Swasthya Karyakram (RBSK) program showcases the state's unwavering commitment to child health and well-being. Through its innovative strategies, including real-time GPS monitoring, PICME portal integration, and transparent monthly ATP updates, Tamil Nadu has significantly improved early detection, intervention, and follow-up care for children

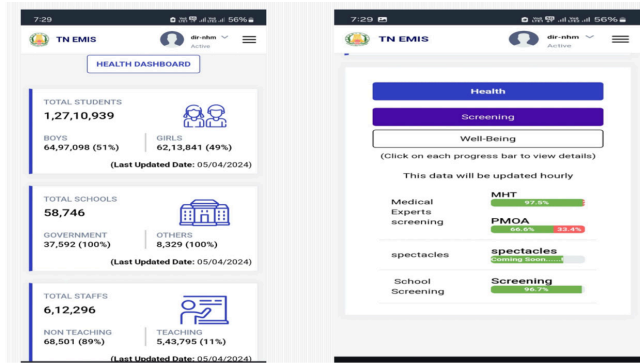


Figure 6: TN EMIS portal

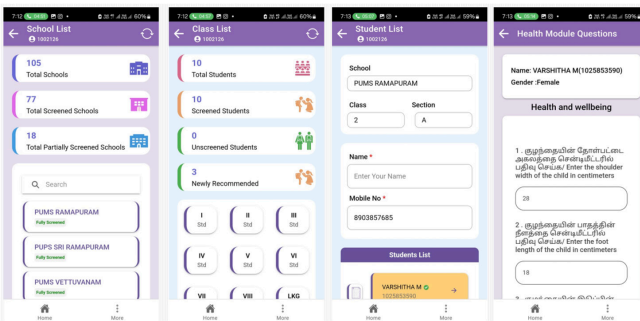


Figure 7: TN EMIS-School screening page in the portal



Figure 8: Questionnaire tool used by teachers and Medical officers for screening children

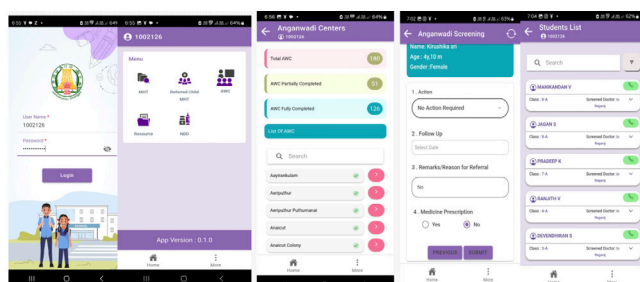


Figure 9: TN EMIS -Anganwadi screening page in portal

across the state. The program's success is attributed to the effective use of technology, streamlined systems, and the collaboration of various departments, ensuring that no child is left behind, whether in urban or rural areas. With the Delivery Point Screening initiative, Tamil Nadu has further advanced its efforts to address health issues at the very beginning of a child's life. The state's model of proactive healthcare, combined with its focus on continuous improvement, has set a high standard for public health initiatives in India. Moving forward, sustained innovation and robust execution will be key to maintaining these achievements and ensuring a healthier, more prosperous future for the children of Tamil Nadu.

CONFLICT OF INTEREST

None

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