Journey of PREM in Tamil Nadu

Since 2017, under the Tamil Nadu Accident and Emergency Care Initiative (TAEI) Tamil Nadu has been the first state in India to pioneer a comprehensive policy for strengthening emergency care across all major critical illnesses. Under the auspices of the TAEI and NHM-TN, the state introduced Paediatric Resuscitation and Emergency Medicine (PREM) to strengthen paediatric emergency care across government hospitals.

Background and Need

Prior to 2015, (before the introduction of PREM), critically ill and injured children reaching taluk, sub-district and district headquarters hospitals in Tamil Nadu were being referred to medical colleges without receiving timely and appropriate emergency care. Lack of training, structured resuscitation protocols, infrastructure, and age-appropriate equipment were some of the reasons for the “scoop and run policy.” Additionally, doctors staffing the OPD lacked the ability to recognize early signs of hypoxia and shock in children presenting with apparently “minor” symptoms.

Consequently, critically ill children were transferred between facilities without receiving essential emergency stabilization. Delays in care during the first critical minutes often led to avoidable neurological damage, or death, contributing to preventable post-neonatal under-five mortality.

Recognizing these gaps, NHM-TN initiated the PREM program in 2017 as an innovative strategy to provide high quality, low-cost paediatric emergency care in resource-limited rural district hospitals.

Concept of PREM

PREM means “love” in all Indian languages. It is a structured system designed to help frontline healthcare providers rapidly assess and manage critically ill children. The program focuses on speed, accuracy, and teamwork during the first few minutes of emergency care.

At the heart of PREM is a physiology-status -based algorithmic approach that enables junior doctors and nurses to make correct clinical decisions quickly and consistently. The system uses a unique one-minute modified rapid cardiopulmonary cerebral assessment guided by the PREM triangle, enabling healthcare providers to recognize early organ dysfunction and initiate life-saving interventions promptly. This approach emphasizes:

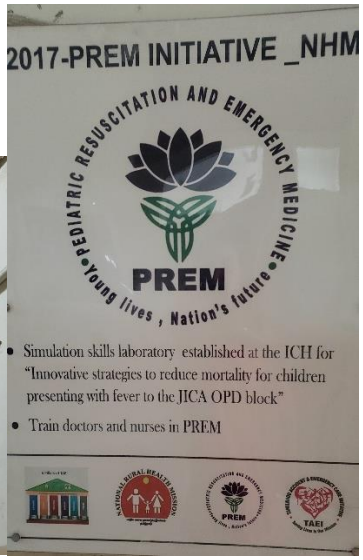
- Rapid clinical assessment, documentation, interpretation of vital signs and derivation of the physiological status using the PREM triangle.
- Team-based resuscitation
- Repeated cyclical implementation of the PREM process to understand the changing hemodynamic response to interventions.
- Minimal dependence on expensive technologies such as blood gas analysis, central lines, ultrasound usage, mechanical ventilation, and other advanced intensive care resources

This makes PREM particularly suitable for district hospitals, taluk hospitals, and other resource-constrained settings.

Milestones in PREM

The journey of PREM in Tamil Nadu began with several key policy decisions and infrastructure investments.

- **2017:** The State Planning Commission under the ***Tamil Nadu Innovative Initiative Fund sanctioned 4.86 crores*** to establish a ***high-fidelity PREM simulation laboratory*** at the Institute of Child Health (ICH), Madras Medical College to train under graduates and CRRIs in PREM. This laboratory also became the state training hub for the PREM program.



- **2017**: As per GO 199, 7 crores were sanctioned to establish ***PREM units in 28 District Headquarters Hospitals*** across the state. Under this initiative the DHQ and TK hospitals were strengthened with PREM SOP for infrastructure, equipment, consumables, and medications. Additionally, four nurses were recruited per PREM unit.

- **2019:** As per PREM GO 539, the government strengthened the initiative through further policy support, integrating PREM into the broader TAEI emergency care framework. Standardized ***PREM case records*** and ***protocols*** were introduced to guide clinical decision-making and ensure uniform documentation during resuscitation.
- **2021**: Post-covid, additional TK, SDH and Medical College Hospitals were included under the PREM initiative, widening the initiative to ***89 PREM units***.


- **2022:** ***Paediatric Emergency Medication Book-India*** was released in collaboration with the Monash University- Australia. Endorsed by GO 539, this book is an innovative strategy to ***reduce medication errors*** and foster confidence while preparing critical drugs during resuscitation. The second edition was released in 2025 September by PD TNHSP.


- **2023**: The book ***Paediatric Resuscitation and Emergency Medicine for Low- and Middle-Income Countries*** was published in collaboration with faculties from Monash University Australia, Cape town University South Africa, and KKH Singapore. This has since been used as SOP for the PREM initiative.

- **2021-till date**: At the PREM Simulation Laboratory at ICH, 569 doctors and 1315 nurses have been trained in PREM protocol-based resuscitation.
- **2024 till date**: Via the district training program at the Medical College hospitals ***480 paediatric and TAEI faculties and 480 nurses*** have received PREM training. During these training programs, ***mentoring visits*** were conducted at the PREM units for identification and resolution of gaps.

- **2024-till date**: Under CSR sponsorship from Fortune Pandiyan Hotel Madurai, the ***PEM – Medication Book India and PREM for Low- and Middle-Income Countries has been donated*** during the mentoring/ PREM training at 33 medical colleges hospitals.

- **2022 till date:** Every year ***750 under graduates from Madras Medical College*** are receiving structured training in PREM as part of their skill training.


Capacity Building and Training

The cornerstone of the PREM initiative has been capacity building of frontline healthcare providers. Through the PREM simulation laboratory at the Institute of Child Health, two-day PREM workshops are regularly conducted to train doctors and nurses in paediatric triage, resuscitation, trauma management, and emergency decision-making. Till date, more than 1569 doctors and 1315 nurses working in government hospitals have received hands-on training through these workshops. The training focuses on real-life emergency scenarios using simulation techniques, allowing healthcare workers to build confidence and improve teamwork during critical situations.


Monitoring and Quality Assurance

The PREM program also incorporates a strong monitoring and evaluation system. Hospitals with PREM units submit daily performance data through TAEai registry 2.0 an online reporting platform, while bimonthly virtual review of DAMA, death line lists and PREM process defaulters are reviewed to analyse for improved outcomes.

Currently more than 80,000 paediatric emergencies are being reported from PREM units.

The program has contributed to:

- Improved management of critically ill children at district and sub-district hospitals
- Increased admissions and stabilization at peripheral hospitals
- Reduction in unnecessary inter-facility transfers to tertiary hospitals.
- Improved capacity of frontline doctors and nurses in emergency decision-making
- By ensuring rapid recognition and treatment of conditions such as septic shock, dengue shock, severe asthma, trauma, poisoning, and envenomation, PREM has played a vital role in reducing preventable mortality among children.

Innovations

Several innovations distinguish PREM from traditional emergency care training programs.

- The program emphasizes low-cost, context-appropriate clinical strategies suitable for resource-limited settings. For example, the use of the Jackson-Rees circuit for oxygen delivery can reduce the need for early intubation and mechanical ventilation.

- Another innovation is the pre-formatted PREM case record, which guides clinicians step-by-step during resuscitation and helps avoid critical errors that could lead to cardiac arrest.
- Unlike conventional programs such as PALS or APLS, which rely heavily on advanced intensive care infrastructure, PREM focuses on clinical judgment, structured protocols, and team communication, making it highly adaptable for government hospital settings in India.

Challenges

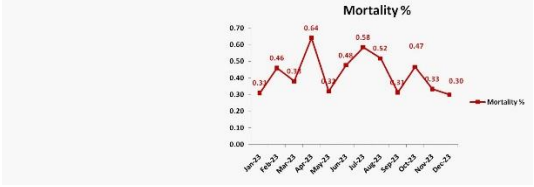
Despite its successes, the PREM initiative has faced several challenges during implementation.

These include delays in care when critically ill children are shifted from emergency areas to paediatric wards or intensive care units located in other parts of hospitals. In addition, trained PREM nurses have sometimes been transferred to other departments, reducing the availability of skilled personnel within PREM units.

There have also been challenges in ensuring universal adoption of PREM case sheets and protocols across all hospitals.

However, step by step with continuous monitoring, the PREM initiative has overcome challenges and shows strong potential for further expansion as it has a sound patient tracking system through the TAEI registry 2.0, a digital platform which incorporates prem module for daily data capture and monitoring performance.

S.No	Month	Treated	Death	%
1	Jan-23	3565	11	0.31
2	Feb-23	3481	16	0.46
3	Mar-23	3710	14	0.38
4	Apr-23	3459	22	0.64
5	May-23	3453	11	0.32
6	Jun-23	3359	16	0.48
7	Jul-23	3593	21	0.58
8	Aug-23	4444	23	0.52
9	Sep-23	4784	15	0.31
10	Oct-23	5370	25	0.47
11	Nov-23	5392	18	0.33
12	Dec-23	4939	15	0.30
	Total	49549	207	0.42



PREM Mortality				
S.No	Month	Treated	Death	%
1	Jan-24	5183	15	0.29
2	Feb-24	5316	15	0.28
3	Mar-24	5230	12	0.23
4	Apr-24	4672	16	0.34
5	May-24	4403	13	0.30
6	Jun-24	4688	12	0.26
7	Jul-24	4856	21	0.43
8	Aug-24	5237	13	0.25
9	Sep-24	5353	16	0.30
10	Oct-24	5659	20	0.35
11	Nov-24	5340	14	0.26
12	Dec-24	5557	22	0.40
	Total	61494	189	0.31

Efforts are also underway to generate stronger evidence for the effectiveness of the PREM approach and expand the model to other states in India.

Conclusion

The PREM initiative represents an important milestone in Tamil Nadu's efforts to strengthen paediatric emergency care under the Tamil Nadu Accident and Emergency Care Initiative. By combining innovative clinical protocols, large-scale training, and system-level reforms, the program has empowered frontline healthcare providers to deliver life-saving care during the most critical moments.

Through this initiative, Tamil Nadu has demonstrated how context-appropriate, low-cost innovations can transform emergency healthcare delivery and significantly improve survival outcomes for critically ill children.

Paediatric emergency care initiative in district, taluk hospitals improves child survival rates in the State

Serena Josephine M.
CHENNAI

By setting up specialised centres for paediatric emergency care, Tamil Nadu has significantly improved child survival rates in recent years. The State's Paediatric Resuscitation and Emergency Medicine (PREM) initiative has strengthened paediatric emergency care in government secondary care institutions – district headquarters hospitals and taluk hospitals – through dedicated protocols and appropriate infrastructure.

PREM is one of the six pillars of the Tamil Nadu Accident and Emergency Care Initiative (TAEI).

There are 116 PREM centres across government tertiary and secondary care institutions – 41 Directorate of Medical Education and Research institutions (36 medical colleges and five allied institutions) and 75 Directorate of Medical and Rural Health Services institutions (district headquarters and taluk hospitals), said M. Vijayakumar, Deputy Director-Team Lead, TAEI Commissionerate, Tamil Nadu Health Systems Project.

Significant strides

The PREM (Paediatric Resuscitation and Emergency Medicine) initiative of the National Health Mission, Tamil Nadu, and the Tamil Nadu Health Systems Project, has strengthened paediatric emergency care by putting in place protocols, required infrastructure, equipment, drugs, and trained personnel.

State's performance in Paediatric Resuscitation and Emergency Medicine

Year	Total admissions	Discharge	Referred to higher centres	Death	Survival rate
2025 (up to August)	80,907	76,329	3,894	684	94.34
2024	61,494	59,197	2,108	189	96.26
2023	49,282	46,863	2,212	207	95.09
2022	27,427	25,899	1,379	149	94.43
2021	21,586	20,169	1,253	164	93.44

Top five emergencies treated at PREM centres from January to August 2025

Pneumonia/bronchiolitis: **4,038 cases**
Diarrhoea, dehydration: **2,275**
Asthma: **2,205**
Sepsis: **2,011**
Toxin: **1,854**

SOURCE: PAEDIATRIC RESUSCITATION AND EMERGENCY MEDICINE, TAMIL NADU ACCIDENT AND EMERGENCY CARE INITIATIVE.

Data shows a steady rise in survival rates among children treated at PREM centres – from 93.44% in 2021 to 96.26% in 2024. In the current year (up to August 2025), the survival rate is 94.34%.

Admissions have also surged sharply, rising from 21,586 in 2021 to 80,907 this year.

The concept was built on a model formulated by the Institute of Child Health (ICH) and Hospital for Children in Egmore, said Indumathy Santhanam, Project Coordinator, Regional Collaborative Center, PREM Skills Laboratory, ICH, Madras Medical College.

'Guidelines developed'

"The Paediatric Emergency Medical Course was started at ICH. We developed guidelines to treat paediatric emergencies. This included training postgraduates to conduct a 60-second analysis of sick children, and make independent decisions. These efforts reduced hospital mortality. The lessons learned formed the basis for PREM guidelines, and units were launched at 28 hospitals (22 district headquarters and six sub-district headquarters hospitals) in 2017," she said.

This was pioneered by the National Health Mission, Tamil Nadu, as a strategy to reduce post-neonatal under-five mortality.

PREM has saved the lives of numerous children brought in critical condition.

"Earlier, it used to be a 'scoop-and-run' approach, as paediatric emergency services were unavailable in taluk and sub-district hospitals. A large number of children were taken to these secondary care hospitals, and quickly referred to tertiary care centres. This changed in 2017, when PREM units were first established in secondary care hospitals, and later revived post-COVID. We developed two books for PREM, which include diagnosis and treatment protocols for common paediatric emergencies such as asthma, sepsis, dengue, snake bites and foreign body ingestion," Dr. Indumathy said.

SOPs for PREM centres

A major highlight is Standard Operating Procedures (SOPs) for PREM centres. "PREM has put in place uniform standards for handling paediatric emergencies. It has a trained team, equipment, and drugs essential for emergency resuscitation. We are able to provide immediate care during the golden hour," Dr. Vijayakumar added.

Dr. Indumathy cited a recent example. The EM team at Government Headquarters Hospital, Kancheepuram, received a two-year-old child from Ranipet, who suffered a left temporoparietal injury after a television fell on her head.

Doctors stabilised her, initiated treatment to reduce cerebral edema, and performed CT brain and CT facial bones with 3D reconstruction. Subdural haematoma and subarachnoid haemorrhage were established. She was intubated in anticipation of declining sensorium, and referred to an ICH in a 108 ambulance. She was treated and discharged.

"Early resuscitation at the PREM unit in a secondary care hospital, prior to referral, ensured neurologically intact survival. Previously, shifts without resuscitation resulted in morbidity and mortality," she said.

"The brain is still in the developing stage for children. Delayed resuscitation can cause permanent damage. PREM units have reduced the burden on intensive care units across Tamil Nadu," she added.

Hundreds of doctors and nurses are trained at the PREM skills lab established at ICH under the Tamil Nadu Innovative Initiative Fund in 2019.