Centralized Expert Evaluation Through a Regional Pediatric ECMO Alert System: A Two-Year Brazilian Experience

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Background: Rapid assessment and referral of children with potential need for extracorporeal membrane oxygenation (ECMO) represent critical challenges in healthcare centers across Latin America. Structured alert systems can accelerate specialist consultation, improve candidate selection, and inform clinical decisions even when invasive therapy is not justified.

Objective: To report the initial experience of a pediatric ECMO alert network integrating referring hospitals with specialized centers in Brazil.

Methods: Retrospective descriptive study of pediatric ECMO alerts (0-18 years) processed between 2025 and 2026. Patients with potential indications for VV-ECMO or VA-ECMO support were included. Outcomes were classified as: cannulation, clinical stabilization without ECMO under specialist monitoring, transfer without need for support, eligible patients not cannulated, contraindications, or death.

Results: Thirty-six pediatric alerts were processed (13 in 2025; 23 in 2026), representing a 76.9% increase reflecting greater network awareness and engagement. In 2025, 7 children (53.8%) received ECMO; 3 (23.1%) evolved favorably without cannulation, 2 (15.4%) were excluded due to coverage issues, and 1 (7.7%) presented late referral with therapeutic futility. In 2026, 11 patients (47.8%) were cannulated; among the 12 not cannulated, 4 (17.4%) achieved improvement under specialist follow-up, 2 (8.7%) were transferred without ECMO indication, 4 (17.4%) were deemed ineligible, 1 (4.3%) had indication but logistical limitations prevented transfer, and 1 (4.3%) required cardiac surgical intervention. More than half of cases in 2026 (52.2%) did not require ECMO despite specialist evaluation. Alert origin: 13 hospitals in São Paulo (56.5%), Bahia (8.7%), Espírito Santo (4.3%), and Maranhão (4.3%), with referrals to 2 specialized centers in São Paulo. Processing time: 1 to 3 days, with cannulation performed within 12 hours when indication and eligibility were confirmed. Outcomes in 2025: 8 discharges (61.5%) and 5 deaths (38.5%); in 2026: 9 discharges (39.1%), 4 deaths (17.4%), and 10 children still hospitalized (43.5%).

CON EL RESPALDO

Conclusions: The pediatric ECMO alert network demonstrated operational feasibility and enabled centralized specialist evaluation across multiple hospital settings. Beyond facilitating cannulation decisions, the system added value by guiding optimized clinical management in children who did not require invasive therapy, with progressive expansion of institutional engagement.

References:

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