

Preventing a Challenging Side Effect of Pediatric ECMO

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A highly-specialized life-support tool. A modified, long-term heart-lung bypass machine. A hopeful last chance. These all describe ECMO (extracorporeal membrane oxygenation). Simply put, physicians turn to ECMO when all other standard treatments have failed. For many pediatric patients, ECMO leads to multi-organ complications. With focused attention on prevention, care teams can greatly reduce ECMO's negative effects.

The Benefits of ECMO

For patients with life-threatening heart and/or lung problems, ECMO treatment pumps the patient's blood through an external device, exchanges its carbon dioxide for oxygen, and returns it to the body. Using ECMO gives the patient and care team time—*sometimes weeks*—for the body to rest and for the team to address critical underlying illnesses one by one.

According to The Extracorporeal Life Support Organization, nearly 60,000 children have received ECMO support.¹ This includes neonates and patients with acute, severe, reversible respiratory failure who are unresponsive to optimal ventilator and pharmacologic management, but who are expected to recover with 10-14 days of ECMO treatment. For them, ECMO provides temporary cardiorespiratory support,² but often leads to an increased risk for skin complications and pressure injuries (PIs). These are largely caused by immobility, the patient's skin immaturity, and the way their blood is shunted away from the skin to preserve major organs.

References:

1. Erdil, T. e. (n.d.). doi:10.21037/acs.2018.09.08
2. Fernando, S. M.-M. (2020). Long-term Survival and cost following extracorporeal membrane oxygenation in critical ill children -- a population-based cohort study. *Critical Care*. doi:http://dx.doi.org/10.1186/s13054-020-02844-3
3. NPIAP. (2016). Retrieved from https://cdn.ymaws.com/npiap.com/resource/resmgr/online_store/npiap_pressure_injury_stages.pdf.
4. Razmus, I. P.-B. (2017, Feb). Pressure Ulcer Risk and Prevention Practices in Pediatric Patients: A secondary Analysis of Data from the National Database of Nursing Quality Indicators. *Ostomy Wound Management*, 63(2), 26-36.

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The Challenge of Pediatric PIs

Pressure injuries happen as a result of intense and/or prolonged pressure or pressure in combination with shear.³ Data shows that critically ill pediatric patients are 0.29%-7.3% more likely to develop a PI.⁴ PI effects on children can include:

- Compromised skin protection
- Altered thermoregulation
- Metabolism deficiencies
- Compromised immunity decrease sensation
- Increased risk for infection
- Increased risk for psychosocial effects related to scarring

Promoting Skin Integrity

Care teams can help prevent PIs by focusing on reducing pressure and promoting skin health. This includes, but is not limited to:

- Repositioning the patient at least every two hours
- Redistributing pressure and managing the microclimate with a low air loss mattress
- Providing nutritional support
- Maintaining proper hydration
- Conducting routine skin assessments: after admission, during every risk assessment, periodically as indicated by the individual's degree of PI, and prior to discharge

The life-saving benefits of ECMO are too great to be undermined by preventable PIs and skin complications. With focused attention in the right areas, caregivers can help their pediatric patients not just endure ECMO treatment but thrive during it.