Pediatric and neonatal extracorporeal life support technology component utilization: are US clinicians implementing new technology?

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Abstract: The objective of this investigation is to describe recent changes made in extracorporeal life support (ECLS) technology in the US Postal survey to directors and coordinators of all 125 US ECLS centers identified by Extracorporeal Life Support Organization as of November 2010, with follow-up of nonrespondents. Spearman coefficients were used to correlate the method of updating knowledge of ECLS technology with the likelihood of changing technology, and to correlate decision-making hierarchy with the likelihood of changing equipment. The response rate was 75% representing 34 states, and the majority of respondents were ECLS coordinators (56.6%). Respiratory diagnosis is the predominant indication for ECLS at any age. Over 40% of centers are using a hollow-fiber oxygenator for neonates and 80% of pediatric patients. Roller pumps are used in 70% of neonatal and pediatric ECLS. Forty-two percent of centers changed the oxygenator type within the past 3 years, while 30% changed both the oxygenator and pump. Less than 10% of centers reported problems with either oxygenator or pump in both neonates and pediatric ECLS. Forty-six percent of respondents that changed oxygenators cited that the primary reason for changing was "clinical preference/experience," while the other half was split between "FDA approval" and "Research results." In 40% of centers, a multidisciplinary group made decisions on changing technology. This survey indicates that over one-half of ECLS centers implemented new technology within the past 3 years. Knowledge of ECLS technology and safe operation of ECLS circuit components is essential in preventing some of the mechanical complications.

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