Introduction:
Extracorporeal Membrane Oxygenation (ECMO) is a form of partial cardiopulmonary bypass used for long-term support of respiratory and/or cardiac function. This technology arose from cardiopulmonary bypass used for cardiac surgery. Initial systems used bubble oxygenators which were poorly suited for prolonged use because of their tendency to hemolyze blood. Membrane oxygenators made long-term use of ECMO possible. The first report of successful ECMO support of an adult was published by Hill in 1972.

Materials:
ECMO is primarily indicated for patients with such severe ventilation and/or oxygenation problems that they are unlikely to survive conventional mechanical ventilation. Examples of such patients would include those with the adult respiratory distress syndrome (ARDS) without major non-pulmonary organ failure who are failing mechanical ventilation or who are suffering from major barotrauma that makes adequate ventilation impossible. ECMO is only useful in cases where the primary lung insult is reversible in the absence of the usual oxygen toxicity and barotrauma caused by usual mechanical support.

Result:
Today there are about 85 ECMO centers worldwide and about 4,000 neonates have been treated. All of these patients had predicted pre-ECMO survived estimates greater than 80%. We have three centers doing ECMO. Survived ECMO in SA is 55%.

Conclusions:
From our experience, it would appear that the key to making successful use of ECMO in adults and neonate are proper patient selection. The following indications and criteria are probably appropriate.