

# Children's Hospital Studies New Oxygenator with Integrated Arterial Filter

### Results show oxygenator improves blood management

Joseph Deptula, CCP, Chief of Perfusion at Children's Hospital in Omaha, Nebraska, presented a study comparing the newly released CAPIOX® FX05 Oxygenator with the CAPIOX® RX05 Baby RX™ Oxygenator at the AmSECT 47th International Conference in March of 2009.

Mr. Deptula and his team tested the new CAPIOX FX05 oxygenator this past year for gas transfer, blood path resistance and blood handling characteristics. It is the market's first oxygenator with a truly integrated arterial filter.

"Incorporating the CAPIOX FX05 oxygenator into our perfusion practice for patients less than 10 kilograms has allowed us to significantly reduce our CPB prime volumes and surface area while reducing our blood donor exposure; all without compromising patient safety," the researchers wrote. "While there is a slight learning curve to running CPB without an external arterial line filter, there is no sacrifice in safety by doing so."

### Blood Management Quest

The use of arterial line filter (ALF) technology, one that is almost always used in adult cardiac surgery, is often debated in neonatal surgery. Although the majority of pediatric centers utilize an ALF, according to Mr. Deptula, many have found that the use of this technology is at the expense of increased prime volume and subsequent banked blood exposures.

"One of the greatest benefits of the CAPIOX FX05 oxygenator is in the reduction of CPB prime by eliminating an external arterial line filter and the associated filter bypass loop," says Mr. Deptula.

His study compared 33 patients retrospectively using the CAPIOX RX05 Baby RX oxygenator with an external arterial line filter, against 29 patients using the CAPIOX FX05 oxygenator with an integrated arterial filter.

### Children's Hospital Conclusions

The Children's Hospital study demonstrated that the oxygenator performance of the CAPIOX FX05 oxygenator was comparable to the CAPIOX RX05 Baby RX oxygenator in terms of gas exchange, pressure drop and heat exchange coefficient.

Overall, the integrated arterial line filter is extremely easy to prime and de-air in contrast to the previous practice of using a bypass loop to retrograde prime the external ALF.

Incorporating an integrated arterial line filter allows for an improved CPB circuit, is easier to manage, and results in an overall improvement in patient management.

The perfusionists discovered that they could adjust the height of their oxygenator after they eliminated their separate arterial line filter. "We brought the oxygenator up higher on the pole, manipulated the bubble detector, and we were ready to go," says Mr. Deptula. "Our circuit is now a lot simpler."

*The Children's Hospital study is expected to be published soon in the Journal of ExtraCorporal Technology (JECT).*



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