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## Letters to the Editor

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### Placement of Air Bubble Detector

April 15, 1988

Dear Editor:

We would just like to pass along a comment concerning the article, "An Air Embolism Device for Use with a Non-Occlusive Arterial Pumphead" by Vivian, et. al., published in a recent *Journal of Extra-Corporeal Technology*. *J. Extra-Corpor. Technol.* 19 (4):406-407, 1987.

When one looks at Figure 1 of the article, it is immediately apparent that the Sarns sensor unit from the bubble-detector is positioned in the wrong place. By placing it between the venous reservoir and the inlet of the Centrimed pump, the assumption is made that the membrane oxygenator, the arterial filter, and all the tubing between are not sources for air emboli. This is a very grave assumption to make.

To quote from the operators manual, "The Air Sensor should be the last device in the extracorporeal circuit before the patient, and it should be as far from the patient as possible."

This we conclude, means placing the air sensor detector between the arterial filter and the arterial cannula. By placing the sensor in this position, you have now included most of the system insuring a safer system than the one reported in the article.

Thank you,

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June 15, 1988

### Response

We recommend that everyone follow all manufacturers' recommendations for placement of air detector systems. However, our experience has shown that the major limitation of the described system for the entrance of catastrophic air emboli is the venous reservoir bag.

There have been times when the bag has drained due to massive air entrance into the venous cannula around its purse string suture, especially during redo-procedures. Rather than reprime the entire circuit (arterial lines, membrane, arterial filter, etc.), we can immediately evacuate the emboli back into the reservoir bag within a matter of seconds.

We believe the arterial line filter can accommodate any air that enters the circuit distal to the bubble sensor. To quote from the operator's manual "the operator should analyze an individual air barrier system, determine the best technique for removing bubbles, and practice that technique until sure of its safety and effectiveness." We feel we have devised such a system.

William A. Vivian, B.S., C.C.P.

West Extracorporeal Services and Technologies

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### A New Chapter in the History of Perfusion

Dear Editor:

I would like to take this opportunity to report the successful use of percutaneous cardiopulmonary bypass to support elective high risk patients undergoing coronary angioplasty using the Bard Cardiopulmonary Support System (CPS). To date we have supported eight patients using this method. High risk angioplasty patients are identified as those with unprotected left main disease, left ventricular ejection fractions less than 25%, and stenoses in a vessel supplying collateral circulation.

After administration of a local anesthetic, a cutdown was performed over the right femoral artery and vein. Blunt dissection was done to expose the vessels and then a percutaneous cannulation was performed. Each patient was supported with supplemental oxygen, narcotic analgesics, and coronary vasodilators. Activated Clotting Times (ACT) were maintained greater than 480 seconds. Coronary sinus and aortic lactate and hemoglobin saturations were monitored before and during cardiopulmonary bypass.

Extracorporeal blood flow averaged 4.6 l/min (range 3-6 l/min) resulting in a mean arterial pulse pressure reduction of 45%. There was no statistically significant difference between coronary sinus lactate levels before or during support with CPS. Support of the patient with CPS has allowed intracoronary balloon inflations greater than five minutes in duration with no acute ischemic events. There were no adverse renal, respiratory, or neurological complications. Because of the system design and the fact that the patients are not anesthetized, management of bypass is somewhat different than normally encountered in the operating room.

After completion of the angioplasty procedure, the patients were weaned from CPS and a surgical repair of the femoral artery and vein were performed. Only one patient required IABP and inotropic support following CPS. The successful use of CPS in the cardiac catheterization laboratory will extend the number of patients that may be treated with percutaneous transluminal coronary angioplasty.

A new chapter is being added to the history of perfusion, that of elective cardiopulmonary bypass outside the operating room exposing the perfusionist as the expert in extracorporeal circulation to an even broader audience.

**George A. Justison BS, CCP**

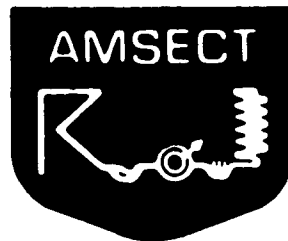
**William Beaumont Hospital  
Royal Oak, Michigan, and  
PSICOR, Inc.  
San Diego, CA**

### **In Memory of Perry Hudson**

Perry Hudson, at 32, passed away in June after fighting cancer for more than two years. He is survived by his wife and 2 children.

Perry directly contributed to the *Journal* process in many aspects. He was an author, he aided other writers and, most significantly, Perry actively served as an Associate Editor for the last seven years (September, 1981–June, 1988).

The Editors and *Journal* process will sorely miss Perry.



## **JOURNAL: INTERNATIONAL RESOURCE**

*The Journal of Extra-Corporeal Technology* provides an international forum for original manuscripts and proceedings pertinent to extracorporeal circulation. It is offered quarterly to technologists, technicians, physicians, nurses, administrators, therapists, designers, engineers, manufacturers and their representatives, educators, libraries, and others who may be interested in the Technology.

The *Journal* covers areas such as dialysis, hemodynamics, organs and tissues (including organ and tissue retrieval and preservation, artificial organs, and organ assist devices), oxygenation, and research.

Although the American Society of Extra-Corporeal Technology was responsible for its birth, the *Journal* is meant to represent the Technology as a whole, and not only the Society.

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\$55.00 per year foreign (including Canada and Mexico)

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