

Contact: Patrice Sayre

**UNIVERSITY OF IOWA**  
**EQUIPMENT PURCHASE**

**Action Requested:** Consider approval of the following equipment purchase:

- ♦ Siemens AXIOM Artis DFC Biplane Pediatric Fluoroscopy Cardiac Catheterization System - \$1,644,708.

**Executive Summary:** The University of Iowa requests approval to proceed with the purchase of a Siemens AXIOM Artis DFC Biplane Pediatric Fluoroscopy Cardiac Catheterization System for the University of Iowa Hospitals and Clinics (UIHC).

**Description of Equipment**

This equipment is a bi-plane (meaning it images the patient from two different angles) digital cardiac catheterization laboratory. The equipment shoots x-rays through the patient from two different angles, capturing a dynamic digital image of the heart as contrast media is being injected into the heart (via a catheter) so that the physician can literally see the blood flow through the heart in order to make diagnosis and take corrective action. The system is comprised of two "C" arms that carry the x-ray tubes and digital image receptors around the patient (this is called a positioned). The system also has a fixed table for the patient to lie on and the necessary electronic circuitry (x-ray generators) to produce the x-radiation. A digital acquisition computer takes information being fed to the detectors and presents this information on a display (monitor) as well as stores the images on a hard drive for archive purposes.

This particular system is geared towards pediatric patients in that it will have the capacity to image babies up to adult sized patients all the while doing this with the lowest possible radiation dose to the patient.

**Justification of Need for Equipment**

Fluoroscopic equipment of this type has an expected life of seven years. The University of Iowa Hospitals and Clinics (UIHC) Radiologic Engineers have reported signs of significant wear in the cables and circuitry of the present unit; a Phillips Pediatric Cardiac Catheterization unit that was installed in 1999, and as a result, the current system has required extensive repairs and has been unavailable for performing procedures on a total of 28 days over the last year. In addition, on other days, it has only been partially functional and could only be used to provide monoplane studies. This downtime has resulted in procedures being postponed or cancelled and/or cases performed in only one plane.

These equipment malfunctions are of greatest concern while a procedure is in progress since they could compromise patient care and safety. Also, with the increase in the complexity of pediatric diagnostic and interventional cardiac catheterization, there is an absolute need for biplane fluoroscopy to assure safe catheter manipulation and device placement, to minimize the amount of nephrotoxic radiographic contrast agents used during a procedure and to successfully manage complications.

The new Siemens AXIOM system will overcome the problems with the present system and enhance patient and staff safety. It will significantly reduce radiation exposure, which is critical in children given their greater lifetime exposure risk. While the increasing complexity of cardiac

procedures has resulted in increased radiation exposure, the proposed equipment incorporates new radiation reduction technology, which is in keeping with the ALARA (As Low As Reasonably Achievable) principle. For example, a tremendous advantage of the new Siemens system is the ability to digitally store the last fluoroscopic sequence rather than acquire a cine image which requires a larger radiation dose. The new Siemens system also features a CARE package (Combine Applications to Reduce Exposure) which further reduces radiation exposure. In addition to these enhancements, the new cardiac catheterization equipment features an improved digital imaging system that utilizes flat panel detectors and will provide sharper images. The replacement unit will be installed in the Pediatric Cardiac Catheterization Lab located on the second level of the John Pappajohn Pavilion.

Any Known Alternatives to the Equipment Proposed

The equipment pricing is based on the Strategic Alliance Purchasing Agreement between Siemens Medical Solutions USA, Inc. and The University of Iowa. The University of Iowa Hospitals and Clinics has standardized on Siemens equipment due to the advantages gained in equipment pricing, maintenance and training.

Estimated Cost and Source of Funding

The cost for the Siemens AXIOM Artis DFC Biplane Fluoroscopy Pediatric Cardiac Catheterization System is \$1,644,708 and the source of funding is UIHC capital equipment funds.

**Board Policy:**

Chapter 7.05B(12) of the Regent Policy Manual requires that:

- ◆ Equipment costing more than \$1,000,000 must be submitted to the Board for approval; and
- ◆ Requests submitted to the Board Office for approval must include the following information:
  - ◆ Description of the equipment;
  - ◆ Justification of the need for the equipment;
  - ◆ Any known alternatives to the equipment proposed; and
  - ◆ Estimated cost and source of funding.