

AbstractID: 5973 Title: Interventional Fluoroscopy Imaging Equipment - What to Know Before You Buy

The number of fluoroscopy-guided interventional procedures performed continues to grow, accompanied by an increasing complexity in these clinical procedures. Technical improvement in the x-ray imaging equipment utilized for these procedures continues at a fast pace as well, driven in part by the clinical requirements but also by the overall advance of computational technology. It remains a challenge for an interventional laboratory to ensure that its imaging equipment provides state-of-the-art capabilities in a manner consistent with internal workflow and economic factors. The situation is further complicated by the fact that the replacement cycle for this equipment can be on the order of a decade - an extraordinarily long time in the arena of technological advances. These factors place a high premium on careful analysis of the requirements and technical capabilities of the fluoroscopic and angiographic equipment being considered by a laboratory for purchase.

The primary factors to be addressed in the purchase of modern interventional x-ray imaging equipment remain the same as with any imaging equipment: the type of clinical procedures for which the equipment will be utilized. Since traditional clinical boundaries continue to evolve, equipment must be flexible to perform a range of procedures throughout a patient's anatomy. The specific concerns are the combination of cardiac, peripheral vascular, and neurovascular procedures to be performed. The answer to that question will have significant implications for the size of detector, image acquisition parameters, image processing options, and the display and storage requirements. As noted, the replacement cycle is long and these systems are not easily upgraded after purchase so identification of the procedure mix is important at the outset.

Once the procedure requirement is determined, equipment can be evaluated with regard to how well it meets those requirements. Among the options related to the type of procedure are type of detector, field-of-view, x-ray tube capacity, and image processing options. Functionality relevant for all types of procedures include: (i) patient exposure monitoring and exposure reduction methods; (ii) image analysis and quantification; (iii) storage capacity; (iv) options for archive and display. In addition, local factors such as service and maintenance must also be considered.

Educational Objectives:

1. Understand the relationship between clinical procedure requirements and the corresponding capabilities of interventional fluoroscopy equipment.
2. Understand the range of options available in fluoroscopy and angiography x-ray systems.
3. Be able to assess and compare different imaging systems and prioritize local factors important for purchase decisions.