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**Protocol-Driven Preoperative Testing in the Preoperative Assessment Unit (PAU): Which Patients Should Receive a Resting Transthoracic Echocardiogram (TTE) Prior to Elective Noncardiac Surgery?**

James Dyer, MD

University of Oklahoma Health Sciences Center, Oklahoma City, OK

**Background:** In 2002 the American Society of Anesthesiologists (ASA) published a practice advisory for preanesthesia evaluation which stated, “no studies were found which examined outcomes from routine cardiac evaluations of...echocardiography.”<sup>1</sup> It did not include recommendations for preoperative TTE testing. In 2007 the American College of Cardiology (ACC) and American Heart Association (AHA) published guidelines on perioperative cardiovascular evaluation and care for noncardiac surgery which listed two Class 2a indications for preoperative assessment of left ventricular function: “patients with dyspnea of unknown origin” and “patients with current or prior heart failure with worsening dyspnea or other changes in clinical status.”<sup>2</sup> In 2006 the ACC/AHA published guidelines for the management of patients with valvular heart disease,<sup>3</sup> although the document is not specific to the preoperative period. Used together, these documents can form the framework for a rational approach to preoperative TTE testing. However, unified recommendations applicable to all preoperative patients do not exist.

**Purpose:** To develop a protocol to determine which patients should receive a resting TTE prior to elective noncardiac surgery based on evidence when it exists and regional expert opinion when it does not.

**Description:** Guidelines and advisories published by the ASA and ACC/AHA were reviewed and incorporated into the protocol, as were recommendations from authors of peer-reviewed journal articles. Opinions of regional experts in internal medicine, cardiology, and cardiac anesthesiology were included for disease states not addressed by these documents.

**Results:** The protocol included 17 indications for preoperative testing; 11 originated from published advisories and/or guidelines, 1 was supported by published expert opinion, and 5 were developed by local expert opinion.

**Conclusions:** Protocol-driven preoperative TTE testing based on medical society recommendations and local expert opinion was integrated into practice in our PAU. Further study will include whether the use of this protocol has decreased surgical delays and cancellations at our institution.

1. American Society of Anesthesiologists Task Force on Preanesthesia Evaluation. Practice advisory for preanesthesia evaluation. *Anesthesiology* 2002; 96:485–496.
2. Fleisher LA, Beckman JA, Brown KA, et al. ACC/AHA 2007 guidelines on perioperative cardiovascular evaluation and care for noncardiac surgery. *Circulation* 2007; 116:e418–e499.
3. ACC/AHA 2006 guidelines for the management of patients with valvular heart disease: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines. *Circulation* 2006; 114:e84–e231.

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