Abstract 4

Application of 2007 ACC/AHA Guidelines on Perioperative Cardiovascular Evaluation and Care for Noncardiac Surgery Using Decision Support Tools*

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Introduction: We previously demonstrated that anesthesiology residents, as well as practicing anesthesiologists, do not correctly apply the 2007 American College of Cardiology/American Heart Association (ACC/AHA) Guidelines on Perioperative Cardiac Evaluation and Care for Noncardiac Surgery[1] when evaluating simulated patients in common clinical scenarios.[2] To determine the impact of decision support aids on residents' application of the ACC/AHA guidelines, we conducted a multiprogram, multiarm study. We then estimated the percentage change in anesthesiology residents that correctly apply the testing algorithms based on their use of decision support aids.

Methods: In this multicenter study (24 anesthesiology training programs), we assessed the use of a Web-based decision support tool to determine how well anesthesiology residents could apply the ACC/AHA guidelines. We randomly assigned consenting residents to one of three study groups: control, user-initiated decision support (UIDS), or computer-assisted decision support (CADS). Residents evaluated six clinical scenarios with five possible recommendations per scenario.

Results: The 386 resident participants included PGY-1s (preliminary year before anesthesiology training), CA-1s (first year of anesthesiology residency), CA-2s (second year), and CA-3s (third year). Level of training was not associated with likelihood of selecting the correct recommendation. Residents in both decision support arms were significantly more likely than residents in the control group to apply the correct recommendation regarding appropriate care as defined by the ACC/AHA guidelines (ie, user-initiated vs control: 66% [95% CI 55–75] vs 47% [95% CI: 36–59]; $P < .001$) and computer-assisted vs control: 73% [95% CI 62–81] vs 47% [95% CI: 36–59]; $P < .001$) **(Table)**.

Discussion: Our findings demonstrate that decision support tools increase residents' application of national standard of care guidelines for cardiac evaluation of patients anticipating noncardiac surgery, irrespective of training level. Integrating decision-support aids into clinical practice is a logical next step to facilitate appropriate preoperative care of patients.

* Also an oral presentation.

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TABLE
Percentage of residents with correct recommendation*

Type	N	Probability	95% Confidence interval		*P* values
			Lower	Upper	
Control	140	47.4	36.4	58.7	
UIDS	130	65.6	54.5	75.2	< .001
CADS	116	72.5	61.5	81.3	< .001

* Combined results for all six scenarios.

CADS = computer-assisted decision support; UIDS = user-initiated decision support

1. *ACC/AHA Task Force on Practice Guidelines, American Society of Echocardiography, American Society of Nuclear Cardiology, et al. ACC/AHA 2007 guidelines on perioperative cardiovascular evaluation and care for noncardiac surgery: executive summary. Anesth Analg 2008; 106:685–712.*
2. *Vigoda MM, Sweitzer BJ, Miljkovic N, et al. Do anesthesiology residents correctly apply the 2007 American College of Cardiology/American Heart Association (ACC/AHA) guidelines on perioperative cardiac evaluation when evaluating simulated patients? Anesth Analg. In press.*

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