PURPOSE/BACKGROUND
Transesophageal echocardiography (TEE) has played an increasingly important role during cardiac surgery. Although there have been several large reviews documenting the complications following intraoperative TEE, most of the prior reports are almost two decades old and may not reflect current practices. The purpose of this study was to determine the incidence and types of complications following TEE in a contemporary cardiac surgical population.

METHODS
Following Research Ethics Board approval, we conducted a retrospective analysis of all cardiac surgical patients having undergone an intraoperative TEE between April 1, 2004 and April 30, 2012. Those who may have suffered a complication related to TEE were identified from our institutional cardiac surgical database using the patient discharge ICD-10 codes related to dysphagia, vocal cord and laryngeal injury, dysphonia, accidental puncture and laceration during a procedure, and hemorrhage and hematoma complicating a procedure. In addition, any case that had a requirement for postoperative bronchoscopy, or consultation with otolaryngology, the gastrointestinal (GI) bleed team, general or thoracic surgery due to a complication potentially related to TEE injury were flagged for manual chart review. Cases that were subsequently identified by investigator consensus as having complications potentially related to TEE were compared to all the cases in the cardiac surgical database during the same time period for which no TEE complication was reported. A multivariable model was developed to identify risk factors for TEE complications.
RESULTS
7,954 cardiac surgical cases were performed during the study period of which 1,074 had ICD-10 codes that triggered a manual review for potential TEE complications. Of the 111 (1.4%) cases subsequently identified with possible TEE-related complications, 24 (0.3%) experienced dysphagia requiring intervention, 73 (0.9%) experienced esophageal and/or gastric complications. Our multivariable analysis (see Table) showed an increased risk of complications associated with age (OR 1.04 per year), BMI (OR 0.94 per unit), previous CVA or TIA (OR 3.67), procedure other than isolated CABG (OR 2.09), EF < 35% (OR 1.71) and CPB time (OR 1.01 per minute).

CONCLUSION
The overall incidence of complications following cardiac surgery related to intraoperative TEE was relatively low at 1.4%. Advanced age, low BMI, complexity of procedure, prior CVA or TIA, EF < 35% and prolonged bypass time appear to be significant risk factors for complications.

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