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Striking the Balance between Safety of Patients and Team Members with Effective, High-Quality Care



To the Editor:

During the coronavirus disease 2019 (COVID-19) pandemic, echocardiography departments have a unique opportunity to continue care for this vulnerable patient population given that many other cardiac imaging procedures may still not be easily available. However, with continued care comes the task of balancing the safety of team members and patients. We sought to evaluate the risk for COVID-19 transmission to our staff members who participated in direct care of patients with COVID-19 by testing for the presence of severe acute respiratory syndrome coronavirus 2 immunoglobulin G (IgG) antibody.

Recently, our team instituted focused echocardiographic examinations with a defined safe-care promise that included personal protective equipment and disinfection to balance the safety of sonographers and patients. This method was published in *JASE* in May 2020.¹ Five designated sonographers collectively performed 100 scans on critically ill patients with COVID-19, with an average in-room scan time of <20 min per examination. As guided by our safe-care promise, the sonographers self-monitored for symptoms of COVID-19; none were reported during the study period. Each of these sonographers underwent a single Abbott Architect Assay test (Abbott Laboratories, Abbott Park, IL) for the presence of severe acute respiratory syndrome coronavirus 2 IgG antibody ≥ 15 days after their last scan from the COVID-19 test group. These tests were analyzed in our ACL laboratory on Abbott Architect instruments. Abbott reports a positive result sensitivity of 98.7% for >14 days from exposure and a negative result specificity of 99.2%. The sonographers' IgG index results ranged between 0.01 and 0.09, indicating a nonsignificant presence of the antibody.

There was also consideration for team members who perform aerosol-generating procedures. Proper personal protective equipment guidelines and a safe-care promise were established and implemented to continue patient care through the pandemic. For treadmill stress echocardiography, no patient COVID-19 testing was performed, to prevent potential delays in care while waiting for results. Because the nursing staff spends the most time in the procedure room, seven nurses from the stress laboratory also underwent a single Abbott Architect Assay test for the presence of severe acute respiratory syndrome coronavirus 2 IgG antibody. As in the sonographer group, all test results for the nursing staff were negative for the antibody.

The results from both test groups demonstrate that with appropriate personal protective equipment use and focused protocols to limit exposure, the risk for COVID-19 transmission is minimal. More information regarding COVID-19 antibody testing can be found through the Infectious Disease Society of America.² Echocardiography departments should feel secure in the safety of their staff while continuing care for their patient population.

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Using Simulation to Assess Cardiology Fellow Performance of Transthoracic Echocardiography: Lessons for Training in the COVID-19 Pandemic



To the Editor:

The coronavirus pandemic (COVID-19) has caused a widespread reduction in echocardiography volumes and direct educator-trainee interactions.¹ Assessing competency in transthoracic echocardiography (TTE)¹ scanning is a core component of the Core Cardiology Training Symposium certification. Current TTE scanning competency is based on self-reported procedural volumes and feedback during image interpretation, which may be limited by the pandemic. Moreover, prior studies evaluating TTE scanning using objective measures have found only modest correlations between scanning volume and skill.² Simulation-based training and assessment in echocardiography can be a useful adjunct to traditional methods of education.³⁻⁵

Coincidental to COVID-19, we created a simulation-based scanning task using the 3D Systems U/S Mentor simulation program and mannequin (Simbionix, Airport City, Israel) at the University of Texas Southwestern Medical Center. Standardized tasks were created by the Advanced Echocardiography Training Director (A.B.): nine basic two-dimensional parasternal, apical, and subcostal views for task 1 (Figure 1) and focused images for evaluation of pericardial tamponade (task 2) and aortic stenosis (task 3). Fellows were given immediate feedback based on their performance. Two expert sonographers also completed the simulation tasks. A preset checklist for basic competency was created for all two-dimensional views and advanced techniques expected for each task by two level III Core Cardiology Training Symposium-certified echocardiographers (A.C. and A.B.) who independently scored the saved deidentified images at a later date in a blinded fashion on a four-point Likert Scale (0-3).

General cardiology fellows (13 men, 10 women; 9 first year, 7 second year, and 7 third year) who participated had a median of 100 scans performed per fellow (interquartile range: 50, 200) and a median of 3 months of echocardiography training (interquartile range: 1, 4). No significant difference was observed between first-year fellows' and senior (second- and third-year) fellows' median imaging score (24.5 vs 22.5, $P = .14$; Table 1). No difference was observed between the first-year fellows' and senior fellows' median imaging score on task 2 (14.5 vs 13.3, $P = .08$) or task 3 (11 vs 12.5, $P = .8$). When stratified by quartile of TTE scans performed, no significant trend was noted in median imaging scores for task 1 (P trend = .34). Similar results were seen for tasks 2 and 3. Sonographer median imaging scores were higher than the median scores of the overall fellowship for all tasks (Table 1). The intraclass correlation