

Methods for Focused Echocardiography Training with Internal Medicine Residents and Faculty

Heart failure (HF) is one of the most common complications of cardiovascular disease (CVD). An early and correct diagnosis is a crucial step in the treatment of patients with CVD.

Unfortunately, multidisciplinary disease management programs are generally unavailable to patients living in rural areas where resources and access to care are limited. Cardiologists are less likely to establish a full-time practice in rural areas due to small population bases and a lack of infrastructure to support CV procedures and overall care. Consequently, rural patients have fewer overall visits to specialists and tend to rely more on care provided locally by primary care physicians.

During the past two decades, the development of new digital technology and miniaturization of ultrasound scanners, also known as hand-held devices (HHD) have moved these scanners from the echo-labs into the white coat pocket of physicians who can readily use them in any location. This makes HHDs an excellent clinical tool, available for any physician in different clinical settings as a point-of-care ultrasonography. Several benefits of using these miniaturized machines are anticipated including increased diagnosis in the rural setting, more appropriate referrals for cardiology, earlier management strategies, and decreased costs due to appropriate testing and earlier disease management.

Currently, echocardiography training is not part of the residency experience at Billings Clinic. Most faculty have not had echocardiography training. This pilot study aims to lay the foundation for a future study to involve rural physicians in hand-held echocardiography device (HHD) training, to not only diagnose cardiovascular disease earlier, but to assist in more appropriate referrals to the cardiologists in urban settings.

Purpose

The purpose of this prospective pilot study is to determine whether a combined program of 1) didactic education, 2) simulation training, and 3) hands-on practice results in the resident and faculty ability to attain echocardiography images that are clear enough to interpret. Other aims are to determine accuracy of interpretation of electronic images in a pre-posttest approach, determine the feasibility, usability, and acceptability of use of the hand-held echocardiography device (HHD), and examine satisfaction with the training. Feasibility of generalizing findings to the rural setting will also be evaluated.

The IRB of Billings determined this study qualified for Exempt status. Funding is provided by the Helmsley Charitable Trust.

Principal Investigator: Felipe Villa Martignoni, MD, MSc, DSc