

electrophysical law governing the catheter design and the insulative nature of the balloon that gives accurate results regardless of the electrical properties of the surrounding environment. The CB catheter offers accurate, real-time sizing capabilities completely independent of subjective user input and allows the user to adjust the inflation instantaneously. The CB sizing electrodes easily integrate into existing standard coronary balloons and hence do not significantly alter clinical procedures. The CB catheter functionality is flexible and could easily be integrated into other devices, such as stent delivery balloons, drug-eluting balloons, and valvuloplasty balloons. Future work will include a first-in-man validation and the use of multiple sets of measurement electrodes inside the balloon to provide a balloon profile showing variation in the CSA dimension along the balloon length.

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Physical Examination Is Still Necessary and Important



I read with great interest the paper “Handheld Ultrasound Versus Physical Examination in Patients Referred for Transthoracic Echocardiography for a Suspected Cardiac Condition” by Mehta et al. (1) and the editorial comment by Marwick et al. (2) “Handheld Ultrasound: Accurate Diagnosis at a Lower Cost?”.

Handheld ultrasound (HHU) is very useful in clinical diagnosis of suspected cardiac condition, but there are limitations. How can one diagnose Heberden’s angina by HHU? It is necessary to take an adequate history for diagnosis of angina.

Heart failure is a common and potentially lethal condition. Admittedly, HHU can distinguish between heart failure with reduced ejection fraction and heart failure with preserved ejection fraction. However, the prognosis of these patients is related to the severity of heart failure. New York Heart Association (NYHA) functional classification is an accepted method to assess the severity of heart failure. I do not believe that HHU can diagnose NYHA functional class.

I believe that bedside clinical examination is less expensive than transthoracic echocardiography (TTE) or even the HHU device. It can be repeated as frequently as necessary, and it is less expensive than repeated TTE or HHU examination.

I can provide many more examples of limitations and usefulness of both physical examination and imaging studies.

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Please note: Dr. Chatterjee passed away between final acceptance and publication of this letter.

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1. Mehta M, Jacobson T, Peters D, et al. Handheld ultrasound versus physical examination in patients referred for transthoracic echocardiography for a suspected cardiac condition. *J Am Coll Cardiol Img* 2014;7:983-90.
2. Marwick TH, Chandrashekar Y, Narula J. Handheld ultrasound: accurate diagnosis at a lower cost? *J Am Coll Cardiol Img* 2014;7:1069-71.

REPLY: Physical Examination Is Still Necessary and Important



We agree with Dr. Chatterjee that history is key to making a diagnosis. In our paper (1), we did not suggest a substitution of history by handheld ultrasound (HHU), but the substitution of the stethoscope. In regard to heart failure, again it is a clinical diagnosis, as Dr. Chatterjee rightly states, but HHU can differentiate patients with reduced left ventricular (LV) systolic function from those with “normal” LV function. It can