investigators, access to echocardiography was poor in nearly all countries; only 16% could obtain echocardiograms directly and 34% via specialists within 1 month (4).

As underscored by Abhayaratna (2), given the growing challenge to maximize health gains with limited healthcare resources, studies should be designed with a view to addressing the key question of "at what cost" should echocardiography be used as a screening tool. There is an ongoing discussion on what is the most cost-effective strategy to screen for left ventricular systolic dysfunction (5). Data from literature and our own experience seem to be strong enough to consider point-of-care, hand-carried echocardiography as a reliable HF screening method. We recently demonstrated that simplified echocardiographic examinations, using a simplified imaging protocol, performed by a noncardiologist with basic training in echocardiography, yielded significant diagnostic and prognostic information in a community (in a cohort of patients with HF and/or HF risk factors) (6). In the multivariate analysis, both abnormal point-of-care echocardiogram and elevated NT-proBNP levels were independent predictors of the adverse outcome. Of interest, the best cutoff value for NT-proBNP to predict combined endpoint was 206 pg/ml, which is similar to that obtained by Kalogeropoulos et al. (>190 pg/ml) (1).

One of the tasks of primary care physicians is to "prevent sickness from clinically manifest HF," by the early detection of HF risk factors and asymptomatic left ventricular dysfunction. Point-of-care hand-carried ultrasound examinations performed by primary care physicians, using simplified imaging protocols would render them "superior doctors" and limit the referrals to standard echocardiography to those patients in whom "ultrasound stethoscope" screening was positive or equivocal. Although careful and methodical studies looking at the reliability, accuracy, and cost-effectiveness of diagnoses made by caregivers with basic training have yet to be done, they are important as we are facing a HF epidemic and a wide application of ultrasound stethoscopes might change the standards of care and make them more cost-effective.

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REPLY

We thank Dr. Lipczyńska and colleagues for their interest in our work (1). However, it is crucial to differentiate between the various uses of echocardiography in heart failure (HF). Our paper focuses on risk stratification for future clinical (stage C) HF and has implications for subclinical heart disease (stage B HF) screening (1). Therefore, our inferences cannot be extrapolated to clinical HF, where assessment by echocardiography is a class I indication by most guidelines. The low rates of echocardiography referral for patients *with suspected or confirmed HF* among primary care physicians (PCPs) cannot be solely attributed to cost or limited access as implied. Delayed uptake of evidence-based practices among PCPs is a key factor. In IMPROVEMENT (Improvement programme in evaluation and management of heart failure) (2), 82% of patients eventually had echocardiography despite 45% of PCPs recommending it, a discrepancy that is difficult to explain by waiting times or workforce distribution by that time (3). In SHAPE (Study Group on HF Awareness and Perception in Europe), the disparities in HF management between internists, PCPs, and cardiologists extended to *all* evidence-based measures, pointing to gaps in provider education (4).

Echocardiography for risk stratification based on HF risk profile or screening for stage B HF is a different domain. In our paper, we have expressed concerns that screening—as the sole HF prevention strategy—is unlikely to have a tangible impact on HF burden, especially when limited to detection of left ventricular systolic dysfunction (LVSD). The limitations of LVSD screening are not remediable by improving patient selection or, alternatively, by containing the unit cost of echocardiography; these limitations are rooted in the epidemiology of HF. Most HF cases are older adults, most of whom have HF with preserved ejection fraction, which carries mortality and population attributable risk of death (5) and cost of care (6) comparable to HF with reduced ejection fraction. Screening for LVSD, the primary use of hand-carried ultrasound, would not detect these cases. Therefore, the effectiveness of a screening strategy that misses most future cases, and that may result in false positives incurring expense and risk of additional testing, is dubious.

Screening may be beneficial for the individual patient with a high pre-test probability of potentially treatable findings—although this would have to include abnormalities beyond LVSD. From this perspective, patient selection in combination with unit-cost containment is worth considering. In this spirit, hand-carried ultrasound is an interesting option for individuals with >10% projected HF risk, reserving the full test for those with positive/equivocal findings. Finally, the concordance in basic echocardiogram inter-

pretation between experts and nonexperts has been observed in relatively small studies; it remains to be determined whether this applies in large-scale screening. In any case, we agree that, in this era of increasing healthcare costs and complex economics, these strategies would need evaluation in prospective studies.

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