The subsequent difference was not statistically significant for aortic calcification. This hypothesis that clinical and higher risk factors predict aortic calcification by the ultrafast computed tomography. The validity of the protocol in a clinically and academically based setting, incorporating into the protocol in a busy setting, resulted in an overwhelming accuracy of measurement.2 We thank Dr Fowkes and colleagues for their letter and comments and appreciate their desire for simplicity in performing the Doppler measurement2 and would cause little difference in the ankle-arm index. Second, the arm pressures are to be repeated so that one measure is taken close in time to every ankle pressure. We found (unpublished observations) that repeated measurements of systolic pressure tend to drift downward by only 2 mm Hg over a 5-minute period. This discrepancy will have little effect on the ankle-arm index, particularly as variability due to other causes, such as observer bias, is greater.2 If the protocol were simpler, there would be even less need for repeat measurements. Finally, the authors recommend that duplicate measures be taken. We found, however, that duplicate measurements were very similar and that the 95% confidence interval of ±15.7% for one measurement of ankle pressure fell to only ±14.0% when the mean of duplicate measurements was taken.2

Thus, we recommend that to calculate ankle-arm index in the routine clinical setting, measurements should be made of brachial pressure in both arms (by auscultation as part of routine blood pressure measurement) and right and left ankle pressures by a Doppler device over the posterior tibial and dorsalis pedis arteries. The workshop protocol includes 18 pressure measurements on a patient (assuming arm blood pressure was also measured twice by auscultation). Our recommendations comprise only six measurements. This simpler routine is more likely to become adopted into practice with minimal loss of accuracy compared with the workshop protocol.

The report from the workshop mentions the poor sensitivity of the WHO/Rose questionnaire in detecting intermittent claudication and the need for revision. After use of the WHO/Rose questionnaire on 1600 subjects in the general population3 and on 600 claudients, we produced and validated a modified version—the Edinburgh Claudication Questionnaire.5 Sensitivity increased from approximately 60% to 90%, and specificity remained almost 100%. The Edinburgh Claudication Questionnaire is shorter and simpler than the WHO/Rose questionnaire; we recommend its use in future epidemiologic studies of intermittent claudication.

Further research was also recommended on possible sex differences in the ankle-arm index because in the San Luis Valley Diabetes Study women had a lower index than men. In fact, these findings have been confirmed in two other population-based studies, the Edinburgh Artery Study4 and the Israeli Lipid Research Clinic Study.7 In the Edinburgh study, part of the sex difference disappeared on adjusting for height, possibly because pulse pressure widens down an artery8 so that men who are taller have a higher ankle pressure. Much of the sex difference in the "normal" ankle-arm index remains unexplained and requires further investigation.

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References

Reply
We thank Dr Fowkes and colleagues for their letter and comments and appreciate their desire for simplicity in performing
Assessment of peripheral vascular disease in diabetics.
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