LETTERS TO THE EDITOR

The Best Test in the Least Time

To the Editor:—Hatala et al. made excellent points regarding reliability and accuracy of clinical examinations in their recent article.¹ However, current practices provide physicians short appointment intervals for patient encounters. The clinician must use the best test with the least time expenditure. As such, for the scenario they presented, I would opt either to administer the Edinburgh Claudication Questionnaire, which has the best positive likelihood ratio (LR + = 90) and next-best negative likelihood ratio (LR - = 0.1), or auscultate the femoral arteries and palpate the posterior tibial arteries (Table 1). The time required for focusing on contour and amplitude would prevent me from palpating the femoral arteries. Similarly, I would not perform the ankle-brachial-index maneuver as it would require that I leave the examination room to locate the Doppler equipment and that I perform additional blood pressure measurements in three of four extremities. I would be comfortable advising Mr. Jones that he was at least twice as likely to have vascular disease based on the presence of femoral bruits or the absence of posterior tibial pulses.

Future studies might include an assessment of time needed to perform the bedside tests listed in Table 1 and an assessment of the value of combining auscultation for femoral bruits and palpation for posterior tibial arteries. Assuming logistic regression using

backward elimination indicates these tests are independent predictors,² the combination would have a higher LR + or lower LR - than either test alone. Perhaps the likelihood ratios would be superior to the Edinburgh Claudication Questionnaire or the ankle-brachial-index test.—**DAVID A. NARDONE, MD**, Portland, Ore.

REFERENCES

1. Hatala R, Smieja M, Kane SL, Cook DJ, Meade MO, Nishikawa J. An evidence-based approach to the clinical examination. *J Gen Intern Med*. 1997;12:182-7.
2. Holleman DR, Simel DL. Quantitative assessments from the clinical examination: how should clinicians integrate the numerous results? *J Gen Intern Med*. 1997;12:165-71.

In reply:—The objective of our review was to provide evidence about the strengths and limitations of various aspects of the history and physical examination in the detection of peripheral vascular disease. As Dr. Nardone suggests, when faced with limited examination time and numerous examination maneuvers, it is logical to perform only the individual maneuvers that have the highest accuracy and are not overly time-consuming. It may be helpful to involve allied health professionals in completing maneuvers that are time-consuming, either before or after the physician encounter with the patient.

In examining for peripheral vascular disease, it is plausible that various findings (abnormal femoral or tibial pulses or femoral bruits) are not independent of each other but coexist in individual patients, thus reducing their combined accuracy. Table 2 in our article reveals that although many of the maneuvers are helpful in establishing the presence of peripheral vascular disease because they have high positive likelihood ratios, most do not effectively rule out the presence of significant disease because of inadequate negative likelihood ratios. As Dr. Nardone has highlighted, further studies assessing the accuracy of multiple physical examination maneuvers when completed singly or in combination, should be the next step in the evolution of clinical skills assessments.—**ROSE HATALA, MD**, Hamilton, Ont., Canada.

Table 1. Effect of Likelihood Ratio on Posttest Probability for Peripheral Vascular Disease Using Different Clinical Examination Maneuvers

Clinical Finding	Pretest Probability	Likelihood Ratio Positive (LR+)	Posttest Probability
Edinburgh Claudication Questionnaire	0.26	90	0.97
Abnormal femoral pulse	0.26	7.1	0.71
Femoral bruit	0.26	4.7	0.62
Abnormal posterior tibial pulse	0.26	4.6	0.62
Abnormal ankle-brachial index	0.26	8.6	0.75

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Quantitative Assessments from the Clinical Examination

To the Editor:—In the March 1997 issue, Holleman et al.¹ tested four strategies for using multiple clinical examination items to estimate disease probabilities: (1) traditional combination of multiple likelihood ratios (LRs), (2) single best LR, (3) logistic regression-selected traditional LRs and (4) logistic regression itself. They showed that strategies 3 and 4 were best. The authors could not state whether strategy 4 was better than strategy 3. After reading their well-written article, I had lingering doubts about the premise of the study.