Competing interests
None declared

References
1. Bell NR, Thériault G, Singh H, Grad R. Measuring what really matters. Screening in primary care. *Can Fam Physician* 2019;65:790-5 (Eng), e459-65 (Fr).
2. Health Quality Ontario. *MyPractice: Primary Care report technical appendix*, version 4. Toronto, ON: Ontario Health; 2019.
3. Klarenbach S, Sims-Jones N, Lewin G, Singh H, Thériault G, Tonelli T, et al. Recommendations on screening for breast cancer in women aged 40-74 years who are not at increased risk for breast cancer. *CMAJ* 2018;190(49):E1441-51.
4. Health Quality Ontario. *MyPractice: Primary Care. A tailored report for quality care.* Toronto, ON: Ontario Health; 2019. Available from: **https://hqontario.ca/quality-improvement/practice-reports/primary-care**. Accessed 2020 Feb 10.

Correct math shows no improvement on clinical judgment

I have a problem with the math in Table 1 of the article "Chest pain investigation in patients at low or intermediate risk. What is the best first-line test to rule out coronary artery disease?" which appeared in the January issue of *Canadian Family Physician*.[1] First, pretest probability is not actually specified, but let us do the calculations using 10% as low risk and 50% as intermediate risk. I will also take the midpoint of the reported ranges of sensitivity and specificity for the purposes of illustration.

The following 2 × 2 tables are generated, the first using a pretest likelihood of 10% and the second using 50%; both use an N of 1000 (**Tables 1** and **2**).

Table 1. Pretest likelihood of 10% (low risk): *Sensitivity of 85%, specificity of 50%, positive predictive value of 16% (85/535), negative predictive value of 97% (450/465).*

	DISEASE		
TEST RESULT	PRESENT	ABSENT	TOTAL
Positive	85	450	535
Negative	15	450	465
Total	100	900	1000

Table 2. Pretest likelihood of 50% (intermediate risk): *Sensitivity of 85%, specificity of 50%, positive predictive value of 63% (425/675), negative predictive value of 77% (250/325).*

	DISEASE		
TEST RESULT	PRESENT	ABSENT	TOTAL
Positive	425	250	675
Negative	75	250	325
Total	500	500	1000

In neither case are the predictive values reported in Table 1 in the original article (positive predictive value [PPV] of 44% to 64% and negative predictive value [NPV] of 95% to 100%) accurate and in neither case is this test alone a good enough clinical tool.

In the first case of low pretest likelihood, we have little confidence in either the PPV or NPV, and the test improves very little on our clinical judgment. The PPV is only 16%. We go from 10% certain the patient has coronary artery disease (CAD) to 16% certain. The NPV is 97%, which is only an absolute 7% better than the pretest likelihood based on clinical judgment! We go from 90% certain to 97% certain the patient does not have CAD. This illustrates the fallacy of testing when pretest probabilities are low.

In the second case, where the clinical judgment is equivalent to a coin toss, the PPV is 63% and the NPV is 77%. We go from 50% sure the patient has CAD to 63% sure, and 50% sure the patient does not have CAD to 77% sure.

I would assert that a second test is needed in both the positive and negative groups. The positives need to be tested with a test of high specificity, and the negatives need to be tested with a test of greater sensitivity, which is why the patient in the clinical vignette proceeded ultimately to angiography.

I suspect but I cannot prove that our clinical judgments are more refined than we believe. As generalists, we look at the whole picture, the nature of the concern along with family history, lifestyle risk factors—diet, smoking, exercise—blood pressure, lipid levels, and medications. In general practice, the low-probability cases are weeded out on clinical grounds alone, leaving the intermediate- and high-probability cases for referral. Emergency physicians have a different dilemma and I will leave it to them to comment further. Either way, the search for absolute certainty is a fool's errand and we need to know how to manage uncertainty in conversation with our patients.

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Competing interests
None declared

Reference
1. Brenna CTA, Afgani FJ, Hanneman K, Levitan D, Udell JA, Bhatia RS, et al. Chest pain investigation in patients at low or intermediate risk. What is the best first-line test to rule out coronary artery disease? *Can Fam Physician* 2020;66:24-30 (Eng), e1-8 (Fr).

Thiamine in the management of alcohol use disorders

Thiamine supplementation was not included as a recommendation in the 2019 "Office management of alcohol withdrawal" onsert that arrived with the November 2019 issue of *Canadian Family Physician*,[1] despite the fact that individuals with alcohol use disorder are often nutritionally depleted.[2] Thiamine supplementation reduces the risk of developing Wernicke syndrome, Korsakoff syndrome, and beriberi.[3] Physicians working with patients with alcohol use disorders should have a high index of suspicion for Wernicke syndrome, particularly if the patient shows evidence of ophthalmoplegia, ataxia, or confusion.[4]

Although more research is needed on the dose, duration, and route of thiamine administration, there is growing agreement that patients with Wernicke syndrome, or who are at a high risk of developing Wernicke syndrome, should be managed with parenteral thiamine.[5]