Posterior odds equal prior odds times the likelihood ratio. The one-test likelihood ratio is $0.99/0.1 = 9.9$; the two-test ratio is $0.9801/0.02 = 49.005$. Squaring 9.9 would incorrectly impose independence under $H = 0$. Thus a likelihood-ratio representation produces the same answers and makes the effect of the dependent false positives explicit.

Comparative cost and preferred method

Both Bayes-table and odds methods require a fixed number of products and one division. There is no asymptotic reduction for two tests. The odds formulation is convenient for repeated evidence, provided the joint likelihood is correctly modeled. This is a numerical probability exercise, not clinical guidance.