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Primary Data for Primary Care

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"Doc, I just feel tired all the time." How do we primary care clinicians respond to a complaint like this? Generally we create a mental picture of patients we have seen like this in the past and attempt to recall the spectrum of disorders we have encountered that can present with fatigue as a chief complaint. We then seek additional patient information to further characterize the fatigue and identify associated symptoms. Whether we realize it or not, we are revising the probability of specific diagnoses on the basis of the original complaint and each new piece of information. For example, learning that a young woman has had heavy periods might lead us to suspect iron-deficiency anemia; pallor anemia in a fatigued 65-year-old man might lead us to suspect colon cancer.

In this issue of *JFP*, Okkes and colleagues[1] have studied primary care outpatient practices to identify the distribution of diagnoses that a particular complaint, such as fatigue, might represent. These prior probabilities of disease can be used in 2 ways: (1) to interpret the likelihood of a disorder in view of new information, such as a laboratory result or answer to additional question; and (2) to help the clinician prioritize where she should concentrate her efforts in evaluating the patient's complaint.

The first technique involves the use of Bayes' theorem to revise the probability of disease in light of new information. For a woman aged 25 years to 44 years, the prior probability for depression as the source for tiredness, according to Table 3 in the Okkes et al article, is approximatley 1.3%. This information can then be used to interpret the results of additional questioning and screening instruments. For example, the Short Depression Screen (SDS) is a brief 8-item instrument that is 86% sensitive and 90% specific.[2] The positive likelihood ratio (sensitivity/1-specificity) tells us how well a positive test result rules-in disease, and in this case is 8.6. This number can then be used with readily available nomograms to estimate the post-test probability that the patient has depression.[3] An abnormal SDS result in our tired woman increases the likelihood of depression to approximately 15% — a 10-fold increase in our certainty about the underlying cause for her tiredness. The information Okkes et al have provided therefore serves as the substrate for interpreting additional information that we attain in the clinical interaction This information also provides us with qualitative guidance in focusing our history, physical, and laboratory examinations. Returning again to Table 3, we see that iron-deficiency anemia, depressive disorder, and several psychosocial diagnoses dominate the rankings. This gives us an idea about how we should focus our clinical queries in a patient who complains of fatigue. While we have access to diagnosis frequency information from other sources, such as the National Ambulatory Medical Care Survey,[4] stratification by presenting complaint corresponds to how we actually care for our patients.

Ultimately, as more clinicians use an electronic medical record, we will have access to similar data specific to our practices.[5] Data collected automatically, collated, continuously updated, and maintained in databases will be available to support, in real time, the kind of semi-quantitative decision support functions described above. Additionally, evidence-based guidelines can be incorporated into these systems to provide clinical decision support tailored to the practice. Unfortunately, such systems are not yet widely available in physicians' offices.[6] In the absence of such clinical information systems, the data Okkes and colleagues have given us will substantively enhance our ability to optimize clinical decision making in our ambulatory practice environments.

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