Decoding Levels of Evidence

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It is now more important than ever for providers to understand the basics of evidence-based medicine. This has become necessary due to the high cost of health care and the rise of pay-for-performance models, in which physicians and hospitals must prove the quality of care provided as measured by patient outcomes. Evidence sets the standard to which providers are held in regards to reimbursement and ratings. Providers thus often rely on guidelines for direction, and to procure a sense of community and support. As health care professionals, we have little choice but to trust in the evidence that shapes these guidelines, since not doing so can be costly. However, it is important that providers understand some basic concepts when adopting a practice based upon guideline recommendations.

Guidelines provide a series of recommendations that are typically assigned a strength or a weight based upon the available and pertinent supporting evidence. This means that a practice recommendation could be derived from a single, patient-oriented, well-designed prospective clinical trial or from several lower-quality randomized trials that may lack consistency yet include a large number of patients. Expert panels are identified and members review the available data according to a predetermined category. For example, the SORT (Strength of Recommendation Taxonomy) model reviews data based on the elements of design, quality, and consistency of evidence [1]. Trials included in recommendations may consist of individual studies, case series, or meta-analyses. Each piece of data is then assigned a score or a grade. When trials that answer the same question are collectively reviewed, their scores or grades are tallied according to a predetermined scale; this tally is commonly referred to as the level of evidence (LOE). LOE scales can vary in what they are designed to rate. Some scales, such as that utilized by SORT, rate data that focus on prevention, screening, prognosis, diagnosis, and therapy, while other scales are designed to rate data according to only one category, such as the US Preventive Services Task Force (USPSTF) scale, which focuses solely on prevention [2].

In general, an LOE scale is comparable to a Likert scale, with one end of the scale representing "poor" and the contrasting end representing "excellent." Opposing ends of the LOE scale correspond to descriptive labels that reflect the criteria used to assign a rating, helping to transparently summarize the risk of bias or uncertainty within the data. For example, an LOE of 1 may indicate a well-designed, high-quality randomized trial, while an LOE of 3 may indicate either a limited number of cases, uncertainty of evidence, or expert opinion (such as a consensus guideline). The challenge for providers is the lack of consistency in LOE scales among guidelines, organizations, and journals. For example, the American Academy of Neurology utilizes an LOE scale that places evidence into 1 of 4 classes (I–IV),

while the American College of Cardiology Foundation and the American Heart Association utilize an LOE scale that rates data as A, B, or C [3, 4].

The USPSTF uses a letter-based scale (A, B, C, D, and I) to assign an LOE according to the level of certainty (high, moderate, or low) that there is a net benefit of a preventive service, once harm is removed. A high level of certainty would indicate there are consistent results from well-designed, well-conducted trials in the primary care population of interest. As new evidence becomes available, a recommendation with a high level of certainty is unlikely to change. A rating indicative of a moderate level of certainty would indicate that there is sufficient data to determine the effect of the preventive service on outcomes but that the certainty of the recommendation is compromised due to factors such as limited generalizability, small size, or poor quality. As new evidence becomes available, a moderate rating could change. A rating indicative of a low level of certainty means there is insufficient evidence to assess the effect of a preventive service on health outcomes in the population of interest [2].

This can be illustrated by utilizing the USPSTF guidance regarding screening for type 2 diabetes mellitus in adults. Screening asymptomatic patients with a blood pressure greater than 135/80 mmHg, regardless of treatment, is assigned a grade of B. This suggests that physicians should offer diabetes screening to adult patients with elevated blood pressure. This is based upon supporting data that demonstrates a high certainty that there is a moderate net benefit in screening this population, or a moderate certainty that the net benefit of screening is moderate to substantial. On the other hand, a Grade I recommendation is assigned to screening for type 2 diabetes mellitus in asymptomatic adults with a blood pressure of 135/80 mmHg or lower. This means that there is insufficient evidence regarding the net benefit and harm of offering this preventive service [5]. Clinicians should be aware of the type of scale used to determine the LOE when reading and incorporating guideline recommendations. NCMJ

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