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A Clinician's Perspective on Biomarkers

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Professionals regularly perform various clinical tasks (e.g., detection, diagnosis, and implementation). How well they perform each of these tasks has improved as evidence-based care has brought greater precision to these tasks and has improved the types of biomeasures and biomarkers, the clinical uses of biomarkers, and the evidence base. Although still in their infancy, biomarkers hold the promise of bringing precision to the diagnosis and treatment of mental health disorders. Biomeasures that could become biomarkers include immunologic measures, as well as physiological, functional, and brain structure-based measures. The clinical uses of biomarkers may rely on this mechanistic understanding of the disorder to achieve broadly defined goals. Diagnostic markers define what is wrong, predict the natural course of the condition, although they may also predict the course of the disorder and address issues pertinent to treatment by defining whether, when, whom to monitor, and how to monitor the overall effect of treatment regardless of the therapeutic effect of the intervention on the disorder itself. Biomarkers can also be used to predict the condition or the biological consequences of having had the disorder.

Focus 2018; 16:124–134; doi: 10.1176/

...inty and the art of problem-solving. A millennium ago, physicians sought the sweetness of the honey. Hippocrates attributed the disease to the bile in the body.⁽³⁾ As the needs and ambitions of the ancient world gave way to modern medicine, the first biomarkers or at least the precursors often served dual purposes: to detect what was wrong and to define what was wrong. Today, they address the same problems but are presently “measurement-

to attend to and conduct the task would be biomarkers, whereas images reflecting the binding in the brain would qualify. A suitable as a biomarker because the subject is active or not, but body temperature would be more suitable.

Biomarkers may be present before, during, or after the symptomatic expression of the illness. Precursors are more likely to be mechanistic or genetically relevant, whereas the consequences might play a larger role in predicting the course of the illness, the likelihood of complications,