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Value and Affordability in Precision Medicine

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Debates about precision medicine (PM), which uses genetic information to target interventions, commonly focus on whether we can “afford” PM (1). But focusing only on affordability, not also value, risks rejecting technologies that might make healthcare more efficient. Affordability is whether we *can* pay for an intervention given its impact on budgets, whereas value is whether we *should* pay for an intervention given the health outcomes achieved per dollar spent. Ideally, a PM intervention both saves money and improves outcomes; however, most health care interventions produce better outcomes at higher cost and PM is no exception. By better distinguishing affordability and value and considering how we can address both, we can further the agenda of achieving affordable and valuable PM.

The literature has generally not found that PM is unaffordable or of low value; however, it has also not found that PM is a panacea for reducing health care expenditures or always results in high-value care (1). There are several challenges to understanding PM affordability and value. It requires evidence on total costs and outcomes as well as potential cost offsets, but data are difficult to capture because costs often occur upfront while beneficial outcomes accrue over time (2). Also, PM could result in substantial downstream implications because of follow-up interventions, not only for patients but also for family members who may have inherited the same genetic conditions. Emerging PM tests could be used for screening large populations such as genome sequencing of all newborns, liquid biopsy testing to screen for cancers in routine primary care visits, and predictive testing for Alzheimer’s Disease in adults. These interventions may provide large benefits, but they are likely to require large up-front expenditures. Lastly, many PM interventions measure multiple genes relevant to multiple conditions and they provide myriad types of value such as personal value of information to patients.(3)

Various methods have been developed for integrating affordability and value, but cost-effectiveness analyses often do not examine the budget impact, which can result in incomplete or contradictory conclusions (4). However, assessments that consider both affordability and value simultaneously, such as by the Institute for Clinical and Economic Review (ICER), are becoming more accepted by decision-makers (5). The growing consideration of both affordability and value is less a result of methodological advances than of increased focus, and political will, on how to ensure sustainable and efficient health care. A positive consequence of this is the increase in research on how to best define and quantify affordability and value given the available data.

PM is here to stay. However, it can only achieve its potential if it is both affordable and of high value.

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