Molecular Diagnostics Clinical Utility Strategy: A Six-part Framework

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Payers and technology assessments currently evaluate diagnostic tests in terms of three categories of information. These are "analytical validity" (the performance features of the test), "clinical validity" (the correlation between the test result and clinical conditions), and "clinical utility" (the impact of test deployment on healthcare outcomes.)

Unfortunately, this framework has proved too general to facilitate clear communications between innovators and payers, and may often result in unhelpful conclusions ("the test doesn't have enough clinical utility, and needs more clinical utility.")

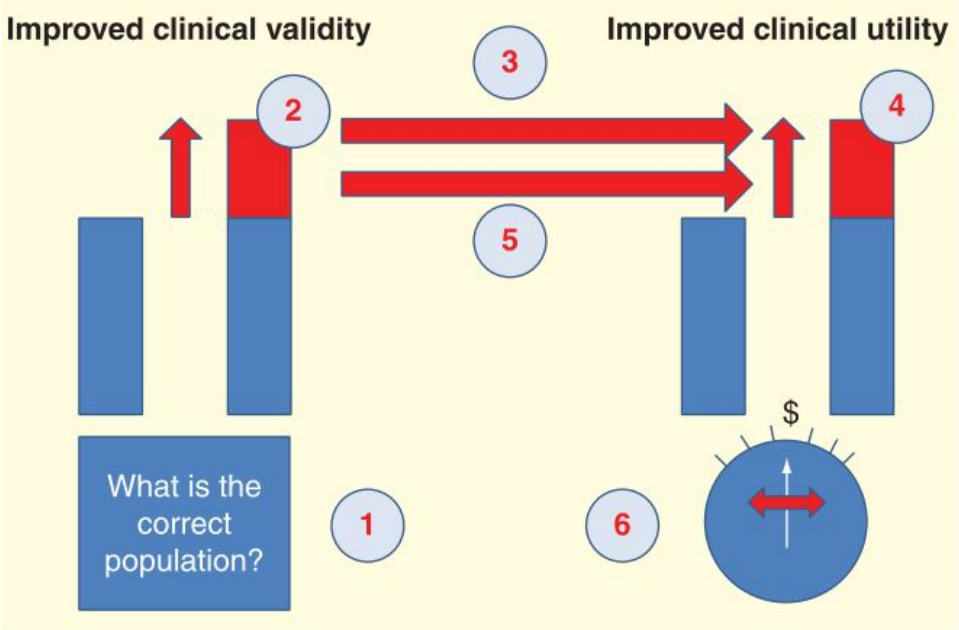
Frueh and Quinn propose a six-part framework, based on six key questions, that will help frame and assess the importance of new diagnostic tests. The framework is applicable to molecular diagnostics, advanced imaging, and other types of diagnostic tests. The authors write,

The clinical utility of a molecular test rises proportional to a favorable regulatory risk/benefit assessment, and clinical utility is the driver of payer coverage decisions. Although a great deal has been written about clinical utility, debates still center on its 'definition.' We argue that the definition (an impact on clinical outcomes) is self-evident, and improved communications should focus on sequential steps in building and proving an adequate level of confidence for the diagnostic test's clinical value proposition. We propose a six-part framework to facilitate communications between test developers and health technology evaluators, relevant to both regulatory and payer decisions.

The six key questions are:

1. **Who should be tested and under what circumstances?**
2. **What does the test tell us, that we did not know without it?**
3. **Can we act on the information provided by the test?**
4. **Does the outcome change in a way we find value in, relative to the outcome(s)obtained without the test?**
5. **Will we act on the information provided by the test?**
6. **If the test is to be employed, can we afford it?**

The authors note that the six questions can be mapped to a diagram:



In order to help parties communicate and frame arguments, the authors suggest that both classic test categories and "value proposition" categories should be considered. Classic test categories include screening tests, diagnostic tests, prognostic tests, drug-predictive tests, and monitoring tests. However, a new test in one of these categories is likely to have another tangible feature, such as being "faster" or "cheaper" or "more accurate" or function as a reflex test for problematic cases, etc.

Because diagnostic tests can be used in a nearly endless range of medical scenarios, the relevant outcomes are also broad. Some tests may lead to longer survival, others to unnecessary surgery avoided or an ineffective drug avoided. In other cases, a biomarker outcome may be adequate when this is a well-accepted surrogate. In other cases, the outcome may be diagnosis (without necessarily a separate action point), the ability to plan by knowing prognosis, or other outcomes that may be important to the patient. The impact and value of these latter patient-centered outcomes should be carefully evaluated in a thoughtful way.

Frueh and Quinn conclude by noting that often payers may understand a test's clinical value proposition – for example, "Use this test and 30% of unnecessary surgeries will be avoided." The payer is, however, too uncertain whether this claim is likely to hold. Therefore, the authors suggest directly devoting more effort up front to discussing, clarifying, and resolving uncertainties that the test reviewer may have.