Who Regulates Genetic Tests?

Like other diagnostic laboratory tests, genetic tests are subject to some federal regulatory oversight. Currently there is no uniform or comprehensive system to assess the analytic and clinical validity of tests before they are offered to patients, and there are no laboratory standards that specifically address molecular or biochemical genetic testing or require laboratories to enroll in proficiency testing programs that assess their ability to perform the tests correctly.

The accuracy and reliability of genetic testing depends on its analytic and clinical validity. Analytic validity means that the test consistently gets the "right answer" as to whether a specific gene mutation is present or absent. Clinical validity means that the test result correlates with the presence or absence of a specific disease, or heightened risk of disease, in a patient. The analytic and clinical validity of a test depend on the intrinsic properties of the test and on the abilities of the laboratories performing the test. Clinical utility refers to whether using the test has a positive impact on a patient's health and wellbeing. Evidence demonstrating utility can take years to establish. The current oversight system does not ensure the analytic or clinical validity or the clinical utility of genetic tests.

The Department of Health and Human Services (HHS) agencies involved in genetic testing oversight include the Centers for Medicare and Medicaid Services (CMS), the Food and Drug Administration (FDA), and the Centers for Disease Control (CDC). CMS administers the Clinical Laboratory Improvement Amendments of 1988 (CLIA), FDA administers the Federal Food, Drug and Cosmetic Act, and CDC advises CMS on CLIA implementation. CDC also sponsors the Evaluation of Genomic Applications in Practice and Prevention (EGAPP) program. EGAPP seeks to establish and evaluate a systematic, evidence-based process for assessing genetic tests and other applications of genomic technology in transition from research to clinical and public health practice. EGAPP makes recommendations about the validity and utility of specific genetic tests; these recommendations are not binding on laboratories or test manufacturers, but may inform physician utilization and insurance reimbursement of tests.

All clinical laboratories (those that perform tests used to assess patient health and inform medical decisions) must be certified by CMS under CLIA. CLIA regulations address personnel qualifications, quality control procedures, and proficiency testing programs. CLIA regulatory requirements increase with test complexity. Although CLIA has specific requirements for cytology and microbiology labs, it does not have specific requirements for molecular or biochemical genetic testing laboratories. Consequently, unlike laboratories performing other complex medical tests, genetic testing laboratories are not required to enroll in programs that assess their proficiency in test performance. In 2006 three organizations, including the Genetics and Public Policy Center, petitioned

CMS to issue updated standards for genetic testing laboratories, including standards for proficiency testing. CMS denied this petition in 2007, citing cost concerns.

Whether there is independent review of a test to assess its clinical validity depends on whether the laboratory purchases a "test kit" or develops the test in-house. Commercially distributed test kits – such as those used to diagnose HIV – are regulated by FDA as "in vitro diagnostic devices" (IVDs) and must undergo premarket review to demonstrate that they are safe and effective. In contrast, laboratory developed tests (LDTs) are subject to no independent evaluation of their clinical validity, and it is up to the individual laboratory director to determine whether to offer a test. Of the hundreds of genetic tests clinically available today, only about a dozen are sold as kits and thus have been reviewed by the FDA.

FDA asserts that it has jurisdiction to regulate all LDTs as medical devices but thus far has exercised "enforcement discretion." In 2006 FDA issued a draft guidance document stating that it intended to regulate as medical devices a subset of LDTs it termed in vitro diagnostic multivariate index assays (IVDMIAs). This guidance document has not yet been finalized.

From 1998 to 2002, the Secretary's Advisory Committee on Genetic Testing served as an advisory body to the secretary of HHS concerning the medical, scientific, ethical, legal, and social issues raised by genetic tests. The committee made several recommendations, including that all new genetic tests should be subject to FDA oversight; these recommendations were not acted on. In 2002 the Secretary established a new committee, the Secretary's Advisory Committee on Genetics, Health, and Society (SACGHS), to make recommendations concerning the use of genetic technologies. In 2007 the Secretary asked SACGHS to produce a report describing the existing framework for genetic testing oversight and recommending changes, if needed. SACGHS issued a draft report and recommendations in November 2007. Following a public comment period, SACGHS sent recommendations to the Secretary in late February; the full report was issued in April 2008.

State health agencies, particularly state public health laboratories, regulate the licensure of personnel and facilities that perform genetic tests. Some professional organizations, such as the College of American Pathologists, also provide oversight in partnership with CMS. A number of organizations help assure the quality of laboratory practices and assist in developing clinical practice guidelines to ensure that genetic tests are used appropriately. Patient advocacy groups and families with genetic conditions also can influence the development of standards and guidelines for genetic testing. Finally, health insurers, through determinations about whether to pay for genetic tests, can influence test utilization.

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