

Direct-to-Consumer Genetic Testing

Discussion of Draft Paper

**Sylvia M. Au, M.S., CGC
June 12, 2009**

Background

- Short-term task force established at the March 2009 SACGHS meeting to draft a brief paper on direct-to-consumer (DTC) genetic testing
- Objectives of paper
 - Outline benefits and concerns related to DTC genetic testing
 - Highlight prior SACGHS recommendations that address concerns
 - Identify issues not adequately addressed by prior SACGHS recommendations

DTC Genetic Testing Task Force

Sylvia Au (Chair)

Paul Billings

David Dale

Gwen Darien

Jim Evans

Andrea Ferreira-Gonzalez

Julio Lucinio

Colleen McBride (ad hoc member)

Joan Scott (ad hoc member)

Sarah Botha (FTC)

Alberto Gutierrez (FDA)

Penny Keller (CMS)

Katie Kolor (CDC)

Muin Khoury (CDC)

Cathy Fomous (SACGHS Staff)

Session Goal

The goal of this session is to come to consensus about

- Issues related to the use of DTC genetic testing
- Prior SACGHS recommendations that address these issues
- Remaining concerns that may require additional action

Scope

Scope of paper

- Limited to DTC genetic testing that provides risk assessments or diagnosis of disease or health conditions, information about drug response or other phenotypic traits
- Excluded forensic analyses and paternity and ancestry testing

Intent

The paper:

- Recognizes that some concerns are not unique to DTC testing or genetic testing but may also apply to provider-based laboratory tests
- Identifies issues that may be unique to DTC genetic testing if a consumer's personal health provider is not involved in health decisions or government regulations do not apply to entities providing the DTC services

Benefits of DTC Genetic Testing

Potential advantages of DTC genetic testing

- Offers increased availability and access to genetic testing
- Supports consumer empowerment and autonomy
- Promotes health literacy
- Supports adoption of health-promoting behaviors
- Provides alternative route to medical research
- Offers confidential access to genetic test for those concerned about genetic discrimination

Concerns about DTC Genetic Testing

The unprecedented speed at which genetic technologies are translated into commercial products and sold directly to consumers has raised some concerns.

- Questions about test quality or analytical validity
- Lack of standardized terminology for genetic variants, standards to select and validate variants used in assessing disease risk, and standard criteria to assess aggregate risk

Concerns (continued)

- Limited evidence of clinical validity and/or clinical utility of certain tests, particularly those providing risk estimates for common diseases
- False and misleading marketing claims and incomplete or unbalanced promotional materials
- Ability of consumers to evaluate marketing claims and make informed decisions about genetic testing
- Ability of consumers to understand test results
- Health professionals who report inadequate genetics knowledge and skills or lack confidence interpreting test results may be unprepared for patients' questions about DTC test results

Concerns (continued)

- Limited data on the psychosocial impact of DTC genetic testing
- Protections for the research use of specimens obtained through DTC testing and data derived from these specimens
- Unclear and/or inadequate privacy protections
- Inequities in access to new technologies offered DTC
- Insufficient safeguards to prevent nonconsensual or third-party testing
- Gaps in regulatory oversight

Prior SACGHS Recommendations that Address Concerns

8 recommendations from prior SACGHS reports address some of the concerns

- Analytical validity: 1 recommendation
- Clinical validity: 1 recommendation
- Clinical utility: 1 recommendation
- Consumer and provider education: 3 recommendations
- Companies that skirt regulations: 1 recommendation
- False and misleading claims: 1 recommendation

Analytical Validity Recommendation

- Currently, there are gaps in the extent to which analytical validity and clinical validity data can be generated and evaluated for genetic tests. To address these gaps, SACGHS recommends devoting public resources for genetic testing through the following actions:
 - In consultation with relevant agencies, HHS should ensure funding for the development and characterization of reference materials, methods, and samples (e.g., positive and negative controls and samples from different ethnic/geographic populations) for assay, analyte, and platform validation, for quality control and performance assessment, and for standardization.

Analytical Validity

Recommendation (continued)

- HHS should ensure funding for the development of a mechanism to establish and support a laboratory-oriented consortium to provide a forum for sharing information regarding method validation, quality control, and performance issues.
- HHS agencies, including NIH and CDC, should continue to work with public and private partners to support, develop, and enhance public reference databases to enable more effective and efficient collection of mutation and polymorphism data, expand clinical reference sequence databases, and provide summary data on gene-disease associations to inform clinical validity assessments (e.g., RefSeqGene, HuGENet). Such initiatives should be structured to encourage robust participation; for example, there is a need to consider mechanisms for anonymous reporting and/or protections from liability to encourage information sharing among members.

Analytical Validity

Recommendation (continued)

- HHS should provide the necessary support for professional organizations to develop and disseminate additional standards and guidelines for applying genetic tests in clinical practice. CMS should work with professional organizations to develop interpretative guidelines to enhance inspector training and laboratory compliance.

Clinical Validity Recommendation

- The Committee is concerned by the gap in oversight related to clinical validity and believes that it is imperative to close this gap as expeditiously as possible. To this end, the Committee makes the following recommendations:
 - FDA should address all laboratory tests in a manner that takes advantage of its current experience in evaluating laboratory tests.
 - This step by FDA will require the commitment of significance resources to optimize the time and cost of review without compromising the quality of assessment.

Clinical Validity

Recommendation (continued)

- The Committee recommends that HHS convene a multistakeholder public and private sector group to determine the criteria for risk stratification and a process for systematically applying these criteria. This group should consider new and existing regulatory models and data sources (e.g., New York State Department of Health Clinical Laboratory Evaluation Program). The multistakeholder group should also explicitly address and eliminate duplicative oversight procedures.
- To expedite and facilitate the review process, the Committee recommends the establishment of a mandatory test registry.

Clinical Utility Recommendation

- HHS should create and fund a sustainable public/private entity of stakeholders to assess the clinical utility of genetic tests (e.g., building on CDC's Evaluation of Genomic Applications in Practice and Prevention (EGAPP) initiative). This entity would:
 - Identify major evidentiary needs
 - Establish evidentiary standards and level of certainty required for different situations such as coverage, reimbursement, quality improvement, and clinical management
 - Establish priorities for research and development
 - Augment existing methods for assessing clinical utility as well as analytical and clinical validity, such as those used by EGAPP and the U.S. Preventive Services Task Force, with relevant modeling tools

Clinical Utility

Recommendation (continued)

- Identify sources of data and mechanisms for making them usable for research, including the use of data from electronic medical records
- Recommend additional studies to assess clinical effectiveness
- Achieve consensus on minimal evidence criteria to facilitate the conduct of focused, quick-turnaround systematic reviews
- Increase the number of systematic evidence reviews and make recommendations based on their results
- Facilitate the development and dissemination of evidence-based clinical practice guidelines and clinical decision support tools for genetic/genomic tests
- Establish priorities for implementation in routine clinical practice
- Publish the results of these assessments or otherwise make them available to the public via a designated HHS or other publicly supported Web site (e.g., GeneTests)

Clinical Utility

Recommendation (continued)

- To fill gaps in the knowledge of the analytical validity, clinical validity, clinical utility, utilization, economic value, and population health impact of genetic tests, a Federal or public/private initiative should:
 - Develop and fund a research agenda to fill those gaps, including the initial development and thorough evaluation of genetic tests and the development of evidence-based clinical practice guidelines for the use of those tests
 - Disseminate these findings to the public via a designated HHS or other publicly supported Web site (e.g., GeneTests)

Education

Recommendations

- HHS should work with all relevant government agencies and interested private parties to identify and address deficiencies in knowledge about appropriate genetic and genomic test applications in practice and to educate key groups such as health care practitioners, public health workers, public and private payers, and consumers of health care. These educational efforts should take into account differences in language, culture, ethnicity, and perspectives on health and disability as well as issues of medical literacy, access to electronic information sources such as the Internet, and deficiencies in public infrastructures (e.g., libraries) that can affect the use and understanding of genetic information.

Education Recommendations

- Since genetic tests and services are being integrated into all areas of health care and since providers have an important role in ensuring appropriate use of and access to genetic tests and services among diverse populations, there is a critical need for programs to educate and train health care providers and payers in genetics and genomics. Health care providers should be able to meet established genetic competencies and, thereby, integrate genetics effectively into their practices. The HHS Secretary should develop a plan for HHS agencies to work collaboratively with Federal, State, and private organizations to develop, catalog, and disseminate case studies and practice models that demonstrate the relevance of genetics and genomics.

Education Recommendations

(continued from previous slide)

- The HHS Secretary should provide financial support to assess the impact of genetics education and training on health outcomes.
- The HHS Secretary should strive to incorporate genetics and genomics into relevant initiatives of HHS, including the National Health Information Infrastructure.

Education Recommendations

- For patients and consumers to evaluate health plan benefits and health care providers and to make the most appropriate decisions for themselves and their families, they need reliable and trustworthy information about family history, genetics, and genetic technologies. The HHS Secretary should ensure that educational resources are widely available through Federal Government Web sites and other appropriate public information mechanisms to inform decisions about genetic tests and services.

Recommendation to Address Oversight

- CLIA regulations and, if necessary, CLIA's statutory authority, along with FDA's risk-based regulatory authority and regulatory processes, should be expanded to encompass the full range of health-related tests, including those offered directly to consumers. Relevant Federal agencies (e.g., CMS, CDC, FDA, and FTC) should collaborate to develop an appropriate definition of health-related tests that FDA and CMS could use as a basis for expanding their scope. Additionally, these Federal agencies, including the HHS Office for Civil Rights, along with other State agencies and consumer groups should propose strategies to protect consumers from potential harm and from unanticipated and unwanted compromises in privacy that may lead to harm. Additional oversight strategies that might be established should be balanced against the benefits that consumers may gain from wider access to genetic tests and potential cost savings.

Recommendation to Address False and Misleading Claims

- Appropriate Federal agencies, including CDC, CMS, FDA, and FTC, should strengthen monitoring and enforcement efforts against laboratories and companies that make false and misleading claims about laboratory tests, including direct-to-consumer tests.

Concerns Not Adequately Addressed by Prior SACGHS Recommendations

Some concerns may benefit from SACGHS' consideration of additional steps

- Unclear or insufficient privacy protections
- Limited data on psychosocial impact of DTC genetic testing
- Potential exacerbation of health disparities
- Inadequate protection for research use of specimens and data derived from specimens
- Lack of standards for genetic variant terminology, selection and validation of variants used in assessing disease risk, and calculating aggregate risk from multiple variants

Reaching Consensus

Has the draft paper correctly identified

- Issues related to the use of DTC genetic testing?
- Prior SACGHS recommendations that address these issues?
- Remaining concerns that may require additional action?

Next Steps

- Decide whether the DTC paper should be forwarded to the Secretary of Health and Human Services
 - If so, determine timeline for edits and transmittal
- Determine what, if any, additional action is warranted for issues not adequately addressed by prior SACGHS recommendations