Genetics Policy: Progress or Paralysis

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Our Mission:
To create the environment and tools needed by key decision makers to carefully consider and respond to challenges and opportunities raised by scientific advances in human genetics.
The Human Genome Project
1990-2003
Benefits of Genetic Testing

Disease diagnosis
Early intervention
Prevention
Knowledge
This Drugs For You!!

• Personalized Medicine
• Pharmacogenetics
• Pharmacogenomics

Growth of Genetic Testing

What is the landscape for genetics?

Or This?
Cracks in Genetic Testing Landscape

Safety & Accuracy of Genetic Tests

Quality Laboratories

Knowledgeable Health Care Providers

Genetic Testing Quality Initiative

- *laboratories* must have quality control and personnel standards in place
- *tests* must be valid and reliable
- *health care providers* must understand when to order the tests and how to interpret results
- *uses and outcomes* must be evaluated over time.
The Stress Gene Test

Focus on prevention

The Stress Gene Test - Preventing Depression
Am I resistant to stress or am I at risk for depression?

The Stress Gene Test - Reducing the Risk of Heart Disease
Thirty per cent are at increased risk for heart disease because of stress. Does that mean me?

Ethics, Public Policy, and Medical Economics

Genetic Testing Has No Place as a Routine Diagnostic Test in Sporadic and Familial Cases of Alzheimer’s Disease

The challenges involved in diagnosing and treating patients with Alzheimer’s disease are increasing. Early diagnosis and identification of risk factors have received growing attention from the media in recent years. As a result, the general public, and patients and family members, are increasingly better informed about the disease, its genetic background, and the possibilities for treatment. The physician is often faced with questions about biologic patterns within the amyloid precursor protein (APP) gene, the prion-like 1 and 2 (PSEN 1 and 2) genes, and the apolipoprotein E (Apolo) gene.

The diagnosis of dementia and AD are made on clinical grounds following international criteria. The clinical value of genetically screening patients with a diagnosis of dementia is an issue of debate. When considering sporadic dementia patients, it is generally agreed that...
Federal Oversight

Department of Health & Human Services

- Food & Drug Administration: Regulates drugs, devices, biological products, human tissue
- Centers for Disease Control & Prevention
- Center for Medicare & Medicaid Services: Certification of clinical laboratories, personnel standards, QA/QC, proficiency testing

Advice
Types of Genetic Tests

- Home brew
- Test kit

FDA Regulation of Genetic Tests

- Many members of the public believe government is already regulating the safety and accuracy of genetic tests
- A large majority of the public (>90%) believe that the government should ensure the safety and accuracy of genetic tests
- FDA has reviewed and approved a handful of genetic tests
CMS Regulation of Genetic Tests

- CLIA applies to labs doing medical testing, including genetic tests.
- No genetic testing-specific proficiency testing.
- Voluntary proficiency testing for only 17 molecular genetic tests.

Types of Genetic Tests

**Home brew**

- "Kitchen" Inspection (CLIA)
- Chef with culinary degree

**Test kit**

- "Kitchen" Inspection (CLIA)
- Chef with culinary degree
- Cake Mix FDA Approved
What is Not Currently Subject to Federal Oversight?

- No premarket approval of most genetic tests.
  - Individual laboratories decide what tests to offer and when.
  - True for genetic tests used in adults, children, prenatally, or in PGD.

- Only handful of tests that have been approved by the FDA
- CMS has not created specialty area for most genetic tests under CLIA, unlike other complex tests
Consequences of Inadequate Oversight

1. Unnecessary or harmful treatments undertaken

2. Missed opportunity for early and effective intervention

3. Bad tests = public mistrust = thwarted promise of genetics

Timeline of Inaction

- 1997 NIH/DOE Task Force Recommendations
- 2000 SACGT Recommendations
- 2000 CMS issues Notice of Intent to develop specialty area for molecular and biochemical genetic tests
- January 2001 Secretary Shalala indicates HHS intends to implement enhanced system of oversight for genetic tests
- September 2001 SACGT retracts proposed classification methodology for genetic tests
Why are we immobilized?
Was the 2000 proposal uniformly hated?
We FOIA’d the comments and took a look.

Surprisingly, there were strong areas of consensus about the need for a genetic testing specialty and consensus concern about labs being responsible for what happens in the doctor’s office.

11/26/05 – Center sends report on our analysis to McClellan along with a letter asking that CMS expedite a proposed regulation.

1/12/06 – Center receives letter from CMS stating they intend to issue an NPRM “in the coming months.”

2/28/06 – Genetic Alliance sends letter to CMS requesting issuance of NPRM.

4/24/06 – CMS publishes Semiannual Regulatory Agenda stating intention to publish NPRM in 11/06.
What is going on in labs?
What is rate and source of errors?
What do lab directors think about current and proposed oversight?

Survey of genetic testing laboratory directors

Enhanced oversight of genetic testing laboratories:

Necessary but not sufficient.

• Premarket review
• Postmarket surveillance
Timeline of FDA Action on Pharmacogenetics

- November 2003 Guidance for Industry: Pharmacogenomics Data Submissions (Draft)
- March 2005 Guidance for Industry: Pharmacogenomics Data Submissions (Final)
- April 2005 Drug-Diagnostic Co-development Concept Paper
- February 2006 Draft Guidance for Industry and FDA Staff: Pharmacogenetic Tests and Genetic Tests for Heritable Markers

The quality of genetic tests is falling between regulatory gaps.
Benefit to Public Health of Improved Test Quality

Costs

Delay

Burden

Disincentives to Innovation

What is Needed?

1. High quality laboratories-demonstrated ability to get the right answer reliably

2. Validity of tests supported by the science in advance of clinical offering

3. Educated and skilled health care providers

4. “Safety” of test results
   Non-Discrimination legislation