Implementation of Lynch Syndrome Genetic Testing and Cascade Screening in the United States

A Collaborative Clinical/Public Health Meeting

Office of Public Health Genomics

Centers for Disease Control and Prevention

September 8-9, 2010

Meeting Purpose

Begin to develop a framework and partnerships to address the overarching goal of:

Implementing an clinical/public health approach to reduce morbidity and mortality associated with Lynch syndrome in the United States

EGAPP Lynch Recommendation Genetics in Medicine January 2009

Recommendations from the EGAPP Working Group: genetic testing strategies in newly diagnosed individuals with colorectal cancer aimed at reducing morbidity and mortality from Lynch syndrome in relatives

GIM, 2009;1:35

Evidence Report/Technology Assessment
Number 150

Hereditary Nonpolyposis Colorectal Cancer: Diagnostic Strategies and Their Implications

May, 2007
www.ahrq.gov/downloads/pub/evidence/pdf/hnpcc/hnpcc.pdf

EVIDENCE REVIEW

EGAPP supplementary evidence review: DNA testing strategies aimed at reducing morbidity and mortality from Lynch syndrome

GIM, 2009;1:42

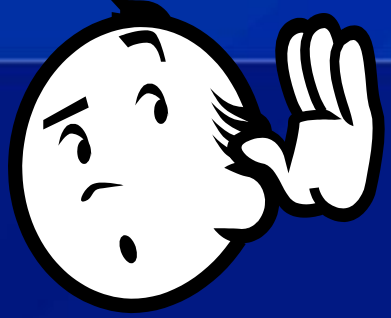
Summary Statement

"The Evaluation of Genomic Applications in Practice and Prevention (EGAPP) Working Group found sufficient evidence to recommend offering genetic testing for Lynch syndrome to individuals with newly diagnosed colorectal cancer (CRC) to reduce morbidity and mortality in relatives.

We found insufficient evidence to recommend a specific genetic testing strategy among the several examined."

Healthy People 2020 Approved Genomics Objective: (Developmental)

Increase the proportion of persons with newly diagnosed colorectal cancer who receive genetic testing to identify Lynch syndrome



Meeting Goals

- Listen and learn from multiple perspectives and areas of expertise
- Collect opinions, ideas and insight to lay the framework for an implementation strategy
- Develop relationships that will provide a foundation for future endeavors

Participants

- **Non-genetic physicians:**
  - Gastroenterology
  - Surgery
  - Family practice
- **Genetics professionals**
  - Clinical geneticists
  - Genetic counselors
  - Laboratory geneticist
- **Epidemiologists and physicians from the CDC's Division of Cancer Prevention and Control and the National Cancer Institute**
- **State level public health genetics professionals**

Questions to be considered:

- What are the opportunities and challenges for implementing the EGAPP recommendation on Lynch syndrome genetic testing and cascade screening for newly diagnosed CRC patients?
- What strategies, tools, and infrastructure are needed for implementation of Lynch syndrome genetic testing and cascade screening on a national level?
- Are there complementary approaches that should be considered to maximize the identification of individuals with Lynch syndrome in the US population?

What CDC ultimately hopes to achieve:

Implementation of Lynch syndrome genetic testing and cascade screening on a population basis through multi-disciplinary development of common protocols and tools

and……

Creation of a model that can be used to facilitate implementation of other evidence-based genomic applications in the future……

Identified Challenges/Barriers

- Lack of provider knowledge of LS and testing issues
- Screening limitations (e.g. IHC accuracy)
- Question of need for informed consent for tumor testing
- Communication of screening results – lag time
- IHC results affected by neo-adjuvant chemotherapy – need to perform on rectal cancer biopsies
- Availability of genetic services for screen+ individuals
- Cost and insurance coverage — screening, genetic counseling, mutation analysis
- Patient and provider compliance — follow-up genetic counseling/testing, recommended surveillance
- Informing relatives – who is responsible?
- Psychosocial impact on patient and family
- Infrastructure needs

Identified Successes/Opportunities

- Possible to make tumor screening standard via pathology labs/lab reports
- Increased sensitivity compared to family history criteria
- Use of IHC with *BRAF* – ≥50% reduction in false positives
- IHC proven equivalent of MSI
- LS tumor screening on endometrial ca – feasible, accurate
- Automatic genetic counseling for screen-positive patients at post-op appointment
- Centralized/regionalized labs and counseling services
- Dedicated personnel as advocates (genetics, GI, pathology, surgery)
- IT involvement – EMR, decision support, tracking[a]
- Clinician education via grand rounds, tumor boards[b]
- Support from administration for “personalized medicine” initiatives

Meeting Conclusions & Recommendations

1. Genetic screening of all newly diagnosed CRC cases for LS (universal LS screening) can theoretically result in population health benefits, and feasibility has been demonstrated in research and clinical settings.

2. Utilizing a public health approach strongly integrated with all aspects of clinical care may provide the greatest opportunity for successful implementation on a regional or national scale.

3. There are several challenges and barriers to implementation of universal LS screening which need to be evaluated and addressed prior to consideration of large scale efforts at the state, regional or national level.

4. Education of clinicians, patients, families, healthcare system administrators, payers, and state and national public health entities and policy makers will be critical to any national effort.

5. National level conferences should be convened to allow further dialogue among key organizations, groups, and individuals regarding development of protocols, policies and guidelines addressing universal LS screening on a state and/or national level.

6. Serious consideration should be given to the paradigm of newborn screening as a model for implementing universal LS screening on a national level.

7. Carefully constructed pilot implementation projects and “real-world” studies are needed to demonstrate effectiveness and provide additional evidence of the feasibility and utility of population-level universal LS screening.

"…no important health problem will be solved by clinical care alone, or research alone, or by public health alone- But rather by all public and private sectors working together….."

JS Marks. Managed Care 2005;14:p11

Supplement on "The Future of Public Health"