A Health Message Testing Survey of Health Care Providers on a New Recommendation for Lynch Syndrome Genetic Testing

Sara Bedrosian, BA, BFA, Health Communications Specialist, Office of Public Health Genomics, CDC

1. Lynch syndrome definition

Lynch Syndrome: Refers to individuals with an inherited predisposition to colorectal and other malignancies as a result of a germline mismatch repair gene mutation. Includes those with an existing cancer as well as those who have not developed cancer.

- Also referred to as hereditary nonpolyposis colorectal cancer (HNPCC)
- Autosomal dominant inheritance pattern
- Lifetime risk for colorectal cancer 50-80%
- Mean age of onset of CRC ~ 45 years
- Increased risk for other malignancies including: endometrial, ovarian, urinary tract, gastric, small bowel, pancreatic, sebaceous skin tumors

2. Clinical Context

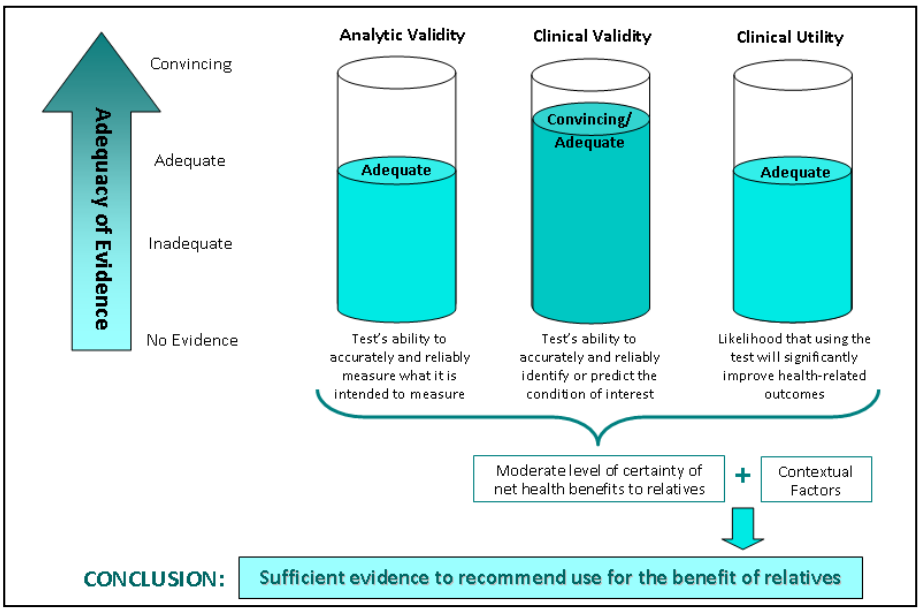
Approximately 3% of cases of colon cancer are due to an autosomal dominant hereditary condition known as Lynch syndrome (also referred to as hereditary nonpolyposis colorectal cancer or HNPCC). If an individual is found to carry a mismatch repair gene mutation associated with Lynch syndrome, at-risk relatives can be tested to determine if they also carry the mutation. Targeted management and surveillance of mutation-positive individuals can prevent colon cancer and reduce mortality.

3. Summary statement (from EGAPP recommendation)

"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." *Genet Med* 2009;11(1):35-41

4. Evidence at a Glance Graphic

Genetic testing strategies in newly diagnosed individuals with colorectal cancer aimed at reducing morbidity and mortality from Lynch syndrome in relatives



5. **Counseling for Genetic Testing**

Patients with newly diagnosed colorectal cancer should be routinely offered counseling and educational materials regarding genetic testing for Lynch syndrome.

6. **Implications for Patients**

There is not sufficient evidence to make specific recommendations for changes in CRC *treatment* in patients identified with Lynch syndrome. However, these individuals are at increased risk for second primary cancers. Colonoscopy every 1-2 years is recommended for patients and relatives testing positive for Lynch syndrome.

7. **Comparison of Testing Strategies**

Several testing strategies are potentially effective, but none is clearly superior when cost is considered:

- Germline testing for *MLH1*, *MSH2, MSH6* (and *PMS2*) mutations
- Microsatellite Instability (MSI) testing of tumor followed by germline testing if indicated
- Immunohistochemistry (IHC) testing of tumor followed by germline testing if indicated
- Methylation testing (*BRAF*) if loss of MLH1 expression on IHC followed by germline testing if indicated

8. **Insurance Coverage**

Preliminary and diagnostic testing for Lynch syndrome is not covered by all insurance carriers.

9. **Role of Family History**

The recommendations indicate that family history should not be used to *exclude* individuals with newly diagnosed colorectal cancer from genetic testing. However, family history remains a very important tool to identify *unaffected* individuals in the population who should be referred for genetic consultation.

Read a CDC Summary of the EGAPP™ Lynch Syndrome Genetic Testing Recommendation
(www.cdc.gov/genomics/gtesting/EGAPP/recommend/lynch.htm)

Read the EGAPP™ Recommendation
Genetic Testing Strategies in Newly Diagnosed Individuals with Colorectal Cancer Aimed at Reducing Morbidity and Mortality from Lynch Syndrome in Relatives
(www.egappreviews.org/docs/EGAPPWG-LynchRec.pdf)