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2023
ACG HEPATOLOGY
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WASHINGTON, DC
Register online: meetings.gi.org

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Virtual Grand Rounds

universe.gi.org

Moderators

Julie Yang, MD

Elana Levinson, MS, CGC

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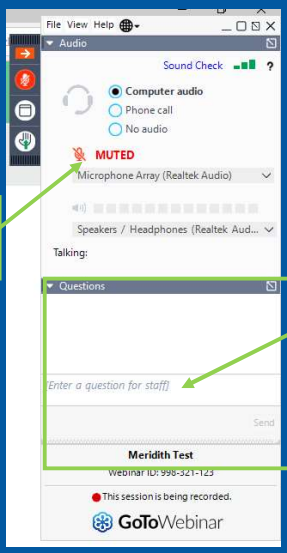
Participating in the Webinar

All attendees will be muted and will remain in Listen Only Mode.



Type your questions here so that the moderator can see them. Not all questions will be answered but we will get to as many as possible.

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How to Receive CME and MOC Points

LIVE VIRTUAL GRAND ROUNDS WEBINAR

ACG will send a link to a CME & MOC evaluation to all attendees on the live webinar.

ABIM Board Certified physicians need to complete their MOC activities by December 31, 2023 in order for the MOC points to count toward any MOC requirements that are due by the end of the year. No MOC credit may be awarded after March 1, 2024 for this activity.

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MOC QUESTION

If you plan to claim MOC Points for this activity, you will be asked to: Please list specific changes you will make in your practice as a result of the information you received from this activity.

Include specific strategies or changes that you plan to implement.
THESE ANSWERS WILL BE REVIEWED.

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NSGC CEU Credit

twitter Join the Conversation #CGAWebinar

The National Society of Genetic Counselors (NSGC) has authorized CGA-IGC to offer up to

0.6 CEUs or 6 Category 1 contact hours for the activity

CGA-IGC 2023 Webinar Series about Inherited GI Cancers.

The American Board of Genetic Counseling (ABGC) will accept CEUs earned at this program for the purposes of genetic counselor certification and recertification.

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HOW TO CLAIM NSGC CEUS

Join the Conversation #CGAWebinar

- **If you are attending the live event:**
  - Sign into the webinar with your first and last name
  - Check your email after the webinar for a link to complete an evaluation form
  - If you do not receive the email, please contact info@cgaigc.com
- **If you are watching a previously recorded event:**
  - Complete an evaluation form
  - Take a quiz
    - You must score 80%
  - The link to the evaluation form and the quiz are available on the CGA website, below the link you used to access the webinar

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FUTURE CGA-IGC WEBINARS

Join the Conversation #CGAWebinar

STAY TUNED FOR OUR 2023 WEBINAR SERIES

May 3: Joint webinar with NASPGHAN: Constitutional mismatch repair deficiency syndrome
Speakers: Carol Durno, MD; Melyssa Aronson, MS, CGC

Summer - date TBD: Living with FAP: Life after prophylactic surgery and other quality of life considerations
Speakers: Paul Wise, MD; Karen Hurley, PhD

Sep 28: Joint webinar with ACG: Surveillance for hereditary pancreatic cancer
Speakers: Bryson Katona, MD, PhD; Beth Dudley Yurkovich, MS, MPH, CGC

Nov - date TBD: Emerging topics in the field of hereditary gastrointestinal cancer

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ACG Virtual Grand Rounds

Join us for upcoming Virtual Grand Rounds!


Week 13 –Thursday, March 30, 2023
Colon Polypectomy Techniques: Big Polyps, Small Polyps, and Everything in Between
Faculty: Charles J. Kahi, MD, MSc, FACG
Moderator: Jennifer K. Maratt, MD
At Noon and 8pm Eastern

Please NOTE: there will be no ACG Virtual Grand Rounds on April 6 and 13 due to low attendance from Spring Breaks.


Week 16 –Thursday, April 20, 2023
Quality Indicators for Capsule Endoscopy and Deep Enteroscopy: an ACG and ASGE's Joint Publication
Faculty: Jonathan A. Leighton, MD, FACG
Moderator: Carol E. Semrad, MD, FACG
At Noon and 8pm Eastern

Visit **gi.org/ACGVGR** to Register

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ACG 2023

OCTOBER 20–25, 2023

VANCOUVER, CANADA

VANCOUVER

Save the Date!

Be sure your passport is up to date!

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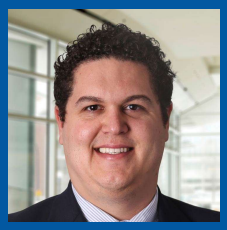
Disclosures

Heather Hampel, MS, CGC
Genome Medical *(Advisory Board and Stock)*
Natera *(Advisory Board)*
Promega *(Advisory Board)*
23andMe *(Consultant)*
GI OnDemand *(Consultant and Stock)*
AIM Specialty Health *(Consultant)*

Julie Yang, MD
Cook *(Consultant)*
Olympus *(Consultant)*
Steris *(Consultant)*
Interscope *(Consultant)*



Peter Stanich, MD
Pfizer *(Research Support)*
PTEN Research Foundation *(Research Support)*
Janseen *(Research Support)*
Emtora *(Research Support)*
Freenome *(Research Support)*

Elana Levinson, MS, CGC
Ms. Levinson has no relationships with ineligible companies.

**All of the relevant financial relationships listed for these individuals have been mitigated*

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Historical and current approaches to identifying individuals with Lynch syndrome

Peter Stanich, M.D.
2023 CGA-IGC President
Gastroenterologist & Associate Professor
Ohio State University Wexner Medical Center, OH

Heather Hampel, M.S., CGC
Clinical Professor & Associate Director
City of Hope, CA

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Outline

Lynch Syndrome

- Common & Treatable
- Cancer Risks Management

Family History-Based Identification Methods

Tumor-Based Identification Methods

- Columbus-area HNPCC Study
- Ohio Colorectal Cancer Prevention Initiative

Putting it all into Practice

- Universal MGPT for all Colorectal Cancer Patients
- What is the role of the GI practitioner in this process?

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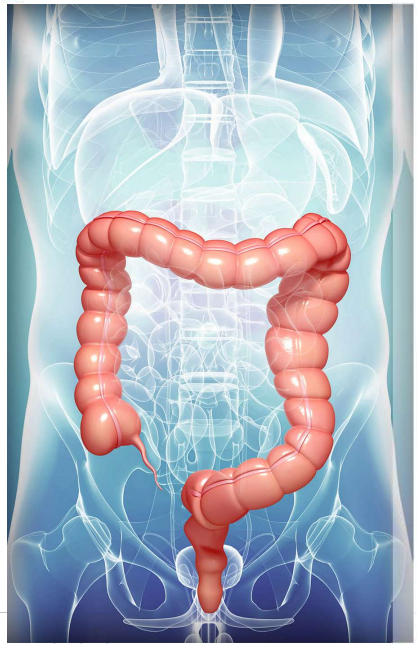

Lynch Syndrome

- Over 1.2 million individuals in the U.S. have Lynch Syndrome
- Inherited condition that causes high risks for colorectal, endometrial, ovarian, gastric, and other cancers
- Preventable cancers with early and more frequent screening
- 95% of affected individuals do not know they have Lynch Syndrome

Lynch Syndrome Awareness: Historical and Current Approaches to Identifying Individuals With Lynch Syndrome

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Lynch Syndrome Cancer Risks (to 70)

Cancer Type	MLH1	MSH2	MSH6	PMS2	General Public
Colon cancer	46-61%	33-52%	10-44%	8.7-20%	4.2%
Endometrial cancer	34-54%	21-57%	16-49%	13-26%	2.7%
Ovarian	4-20%	8-38%	≤1-13%	1.3-3%	1.3 %
Renal pelvis or Ureter	0.2-5%	2.2-28%	0.7-5.5%	≤1-3.7%	Not in SEER
Prostate	4.4-13.8%	3.9-23.8%	2.5-11.6%	4.6-11.6%	11.6%
Stomach	5-7%	0.2-9%	≤1-7.9%	Not known	0.9%
Pancreatic	6.2%	0.5-1.6%	1.4-1.6%	≤1-1.6%	1.6%

NCCN Guidelines for Colorectal Cancer Screening and Prevention v1.2022

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GI cancer risks in Lynch syndrome

NCCN Clinical Practice Guidelines. Genetic/Familial High-Risk Assessment: Colorectal. 2.2022.

	MLH1	*MSH2*	*MSH6*	*PMS2*
CRC	46 - 60%	33 - 52%	10 - 44%	8 - 20%
Gastric	5 - 7%	0.2 - 9%	0 - 8%	NI?
Small bowel	0.5 - 11%	1 - 10%	0 - 4%	NI
Pancreas	6.2%	NI	NI	NI
Biliary	2 - 4%	0 - 2%	NI	NI

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GI cancer screening in Lynch syndrome

NCCN Clinical Practice Guidelines. Genetic/Familial High-Risk Assessment: Colorectal. 2.2022.

- ***MLH1* and *MSH2***
  - Colonoscopy every **1-2 years** starting at **age 20-25**
  - EGD every 2-4 years at age 30-40
    - Consider enteroscopy
    - Stomach biopsies at initial procedure
  - Consider pancreatic screening at age 50 years if ≥1 close relatives from the side of pathogenic variant with MRI/MRCP and/or EUS

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GI cancer screening in Lynch syndrome

NCCN Clinical Practice Guidelines. Genetic/Familial High-Risk Assessment: Colorectal. 2.2022.

- ***MSH6 and PMS2***
  - Colonoscopy every **1-2 years** starting at **age 30-35**
  - EGD every 2-4 years at age 30-40
    - Consider enteroscopy
    - Stomach biopsies at initial procedure
  - Consider pancreatic screening at age 50 years if ≥1 close relatives from the side of pathogenic variant with MRI/MRCP and/or EUS

    *Clinical judgement in *PMS2*

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Lynch syndrome and colonoscopy interval

There is **rapid progression** from adenoma to CRC in comparison to accepted 10-20 year interval for sporadic polyps

Table 5. Dwell Time of Advanced Adenoma and Colorectal Cancer

	Advanced adenoma (*mo*)	Colorectal cancer (*mo*)
Mean ± standard deviation (range)	33.0 ± 16.2 (12–56)	35.2 ± 22.3 (7–96)

Edelstein et al. Rapid development of colorectal neoplasia in patients with Lynch syndrome. Clin Gastroenterol Hepatol. 2011 Apr;9(4):340-3.

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Benefit of Frequent Colonoscopy in Lynch

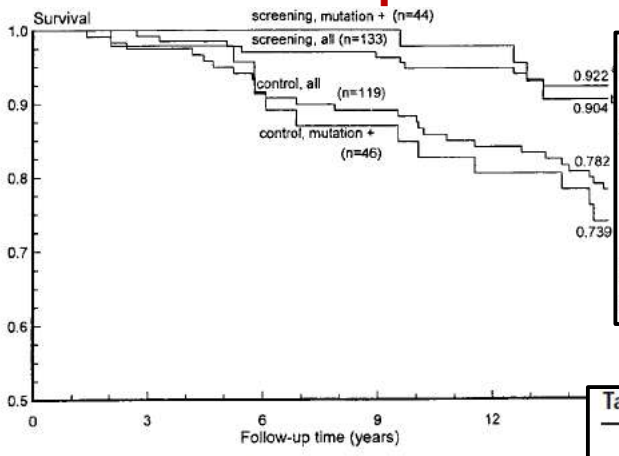

Table 1. Stage Distribution of CRC Cases

Stage[a]	Study group (n = 133)	Control group (n = 119)
A	3	3
B	5	7
C	—	1
D	—	8
Total	8	19

[a] The stages in the study group were significantly more favorable than in the control group ($P = 0.03$).

INEN,* KATJA AKTAN–COLLAN,‡
CHAPELLE,§ and JUKKA–PEKKA MECKLIN‖

Table 2. Causes of Death Within the 15-Year Study Period

Cause	Study group (n = 133)	Control group (n = 119)
CRC[a]	—	9

Figure 3. Cumulative overall survival. [a]P = 0.003 between screening and control groups including all subjects. [b]P = 0 between mutation-positive subjects of the screening and control groups.

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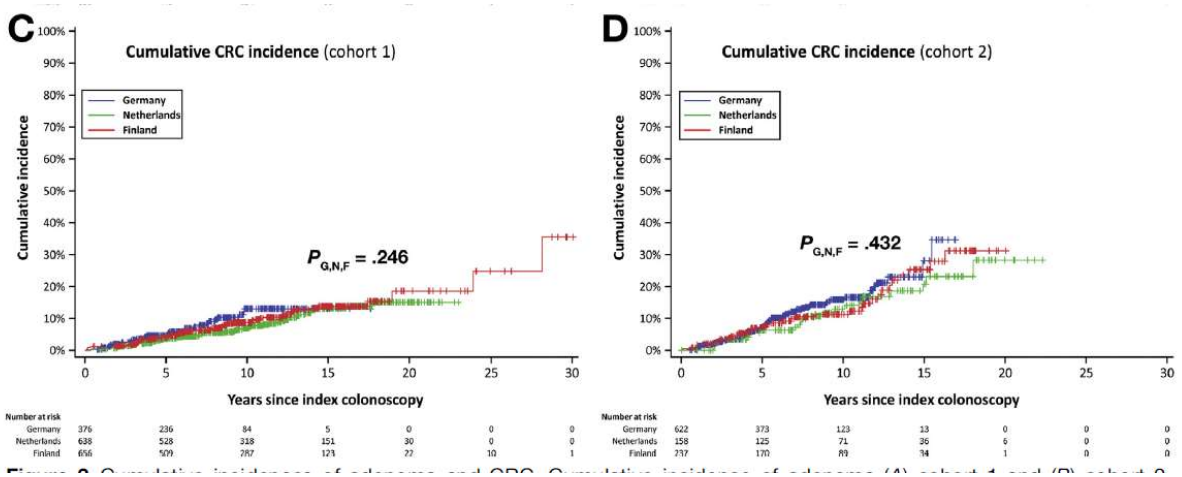
Optimal interval still remains to be determined



Engel et al. Gastroenterology. 2018 Nov;155(5):1400-1409

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How was Lynch Syndrome Diagnosed in the Past?

- Had to rely on family history
- Amsterdam II criteria
  - 3 cases of LS-associated cancers
  - 2 generations affected at least
  - 1 affected individual is a first-degree relative of the other 2
  - 1 diagnosed <50
- Bethesda criteria
  - CRC dx <50
  - 3 cases of LS-associated cancers at any age
  - CRC + 1 relative with a LS-associated cancer dx <50
- None of these models worked very well even if someone was taking a good family history and trying to apply them

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NCCN Referral Criteria for Lynch Syndrome

National Comprehensive Cancer Network®

NCCN Guidelines Version 1.2022
Lynch Syndrome

NC

CRITERIA FOR THE EVALUATION OF LYNCH SYNDROME BASED ON PERSONAL OR FAMILY HISTORY OF CANCER[bb]

- Known LS pathogenic variant in the family
- An individual with colorectal or endometrial cancer and any of the following:
  - Diagnosed <50 y
  - A synchronous or metachronous LS-related cancer[e] regardless of age
  - 1 first-degree or second-degree relative with an LS-related cancer[e] diagnosed <50 y
  - ≥2 first-degree or second-degree relatives with an LS-related cancer[e] regardless of age
- Family history[dd] of any of the following:
  - ≥1 first-degree relative with a colorectal or endometrial cancer diagnosed <50 y
  - ≥1 first-degree relative with a colorectal or endometrial cancer and a synchronous or metachronous LS-related cancer[e] regardless of age
  - ≥2 first-degree or second-degree relatives with LS-related cancers,[e] including ≥1 diagnosed <50 y
  - ≥3 first-degree or second-degree relatives with LS-related cancers[e] regardless of age
- Increased model-predicted risk for LS
  - An individual with a ≥5% risk of having an MMR gene pathogenic variant based on predictive models (ie, $PREMM_5$, MMRpro, MMRpredict)
    - ◊ Individuals with a personal history of CRC and/or endometrial cancer with a $PREMM_5$ score of ≥2.5% should be considered for MGPT.
    - ◊ For individuals without a personal history of CRC and/or endometrial cancer, some data have suggested using a $PREMM_5$ score threshold of ≥2.5% rather than ≥5% to select individuals for MMR genetic testing. Based on these data, it is reasonable for testing to be done based on the ≥2.5% score result and clinical judgment. Of note, with the lower threshold, there is an increase in sensitivity, but a decrease in specificity.
- Personal history of a tumor with MMR deficiency determined by PCR, NGS, or IHC diagnosed at any age[cc] →

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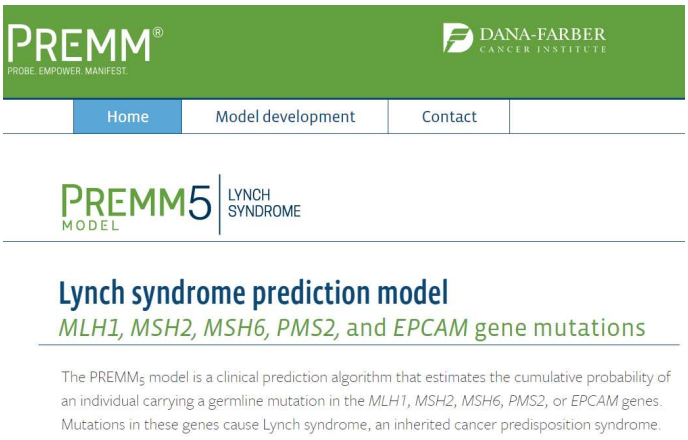
Tools to Use in Clinic: PREMM5 - http://premm.dfci.harvard.edu

- Probability of *MLH1, MSH2, MSH6, PMS2 or EPCAM* mutation
- Proband
  - # of CRCs & youngest age at dx
  - Y/N adenomas & youngest age at dx
  - Y/N EC & youngest age at dx
- FDRs & SDRs
  - # with CRC & youngest age at dx
  - # with EC & youngest age at dx
  - Y/N any with another HNPCC cancer
- Refer patients with ≥ 2.5% chance of having LS
- Distinguishes LS patients with an AUC of 0.83
- Not as good for PMS2 (AUC, 0.64)



Kastrinos, F. JCO. 2017. PMID: 28489507

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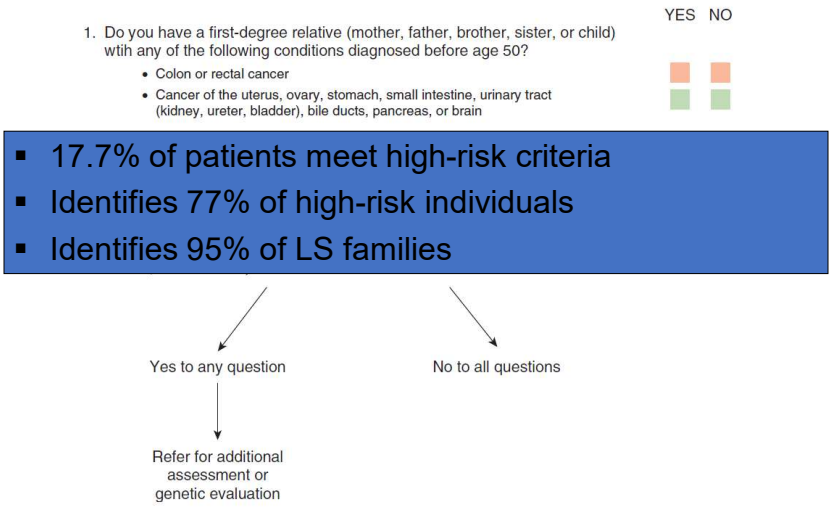
Tools to Use in Clinic: Colorectal Cancer Risk Assessment Tool



- 17.7% of patients meet high-risk criteria
- Identifies 77% of high-risk individuals
- Identifies 95% of LS families

Kastrinos F et al. Am J Gastroenterol 2009;104:1508-18.

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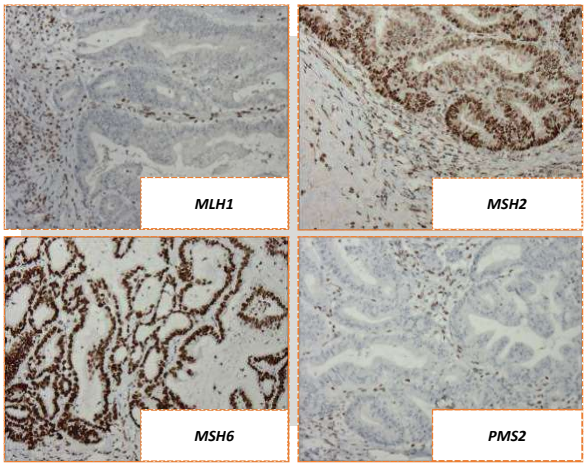
Genetic Features of Lynch Syndrome

- Genes belong to DNA mismatch repair (MMR) family
- Mutations in MMR genes lead to microsatellite instability (MSI)
  - Test is positive in 15% of colorectal and 24% of endometrial tumors
  - Sensitivity is 77-89% for Lynch Syndrome
- MMR proteins missing in tumor tissue making Immunohistochemical (IHC) staining useful
  - 1-2 proteins absent in 20% of colorectal and 25% of endometrial tumors
  - Sensitivity is 83% for Lynch Syndrome
- Immune therapy very effective in treating patients whose tumors have defective MMR



Le DT et al. N Engl J Med. 2015;372(26):2509-20.

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Citywide 1999-2008

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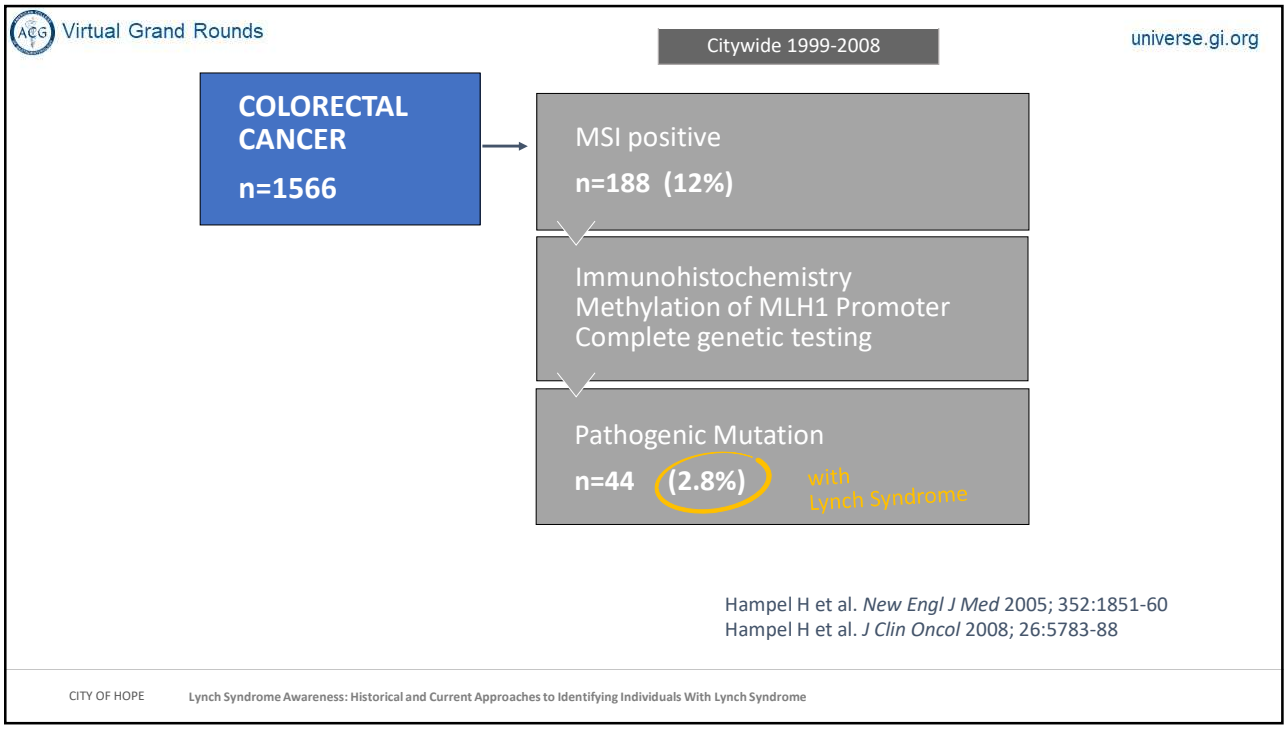
Feasibility of Screening for Lynch Syndrome Among Patients with Colorectal and Endometrial Cancer

R01 CA 67941

30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Citywide 1999-2008
COLORECTAL CANCER
n=1566
MSI positive
n=188 (12%)
Immunohistochemistry
Methylation of MLH1 Promoter
Complete genetic testing
Pathogenic Mutation
n=44 (2.8%)
with Lynch Syndrome
Hampel H et al. New Engl J Med 2005; 352:1851-60
Hampel H et al. J Clin Oncol 2008; 26:5783-88
CITY OF HOPE
Lynch Syndrome Awareness: Historical and Current Approaches to Identifying Individuals With Lynch Syndrome

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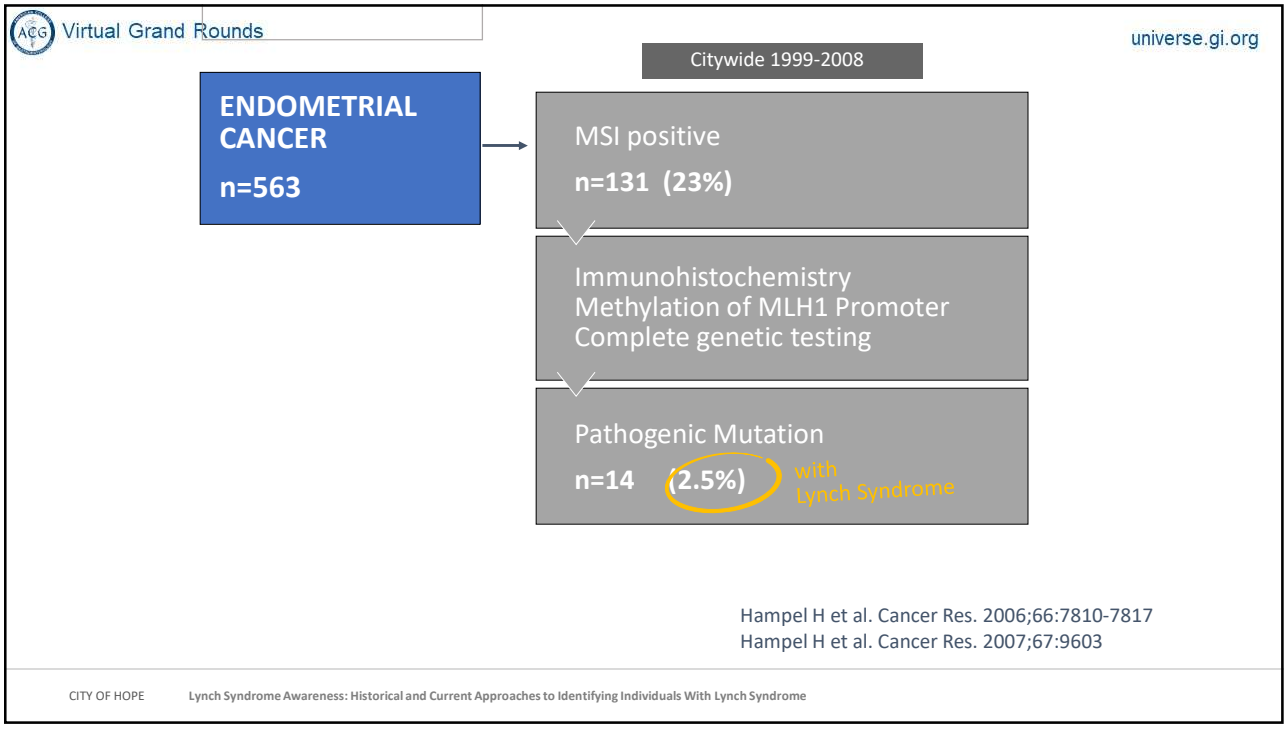
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Citywide 1999-2008
ENDOMETRIAL CANCER
n=563
MSI positive
n=131 (23%)
Immunohistochemistry
Methylation of MLH1 Promoter
Complete genetic testing
Pathogenic Mutation
n=14 (2.5%)
with Lynch Syndrome
Hampel H et al. Cancer Res. 2006;66:7810-7817
Hampel H et al. Cancer Res. 2007;67:9603
CITY OF HOPE
Lynch Syndrome Awareness: Historical and Current Approaches to Identifying Individuals With Lynch Syndrome

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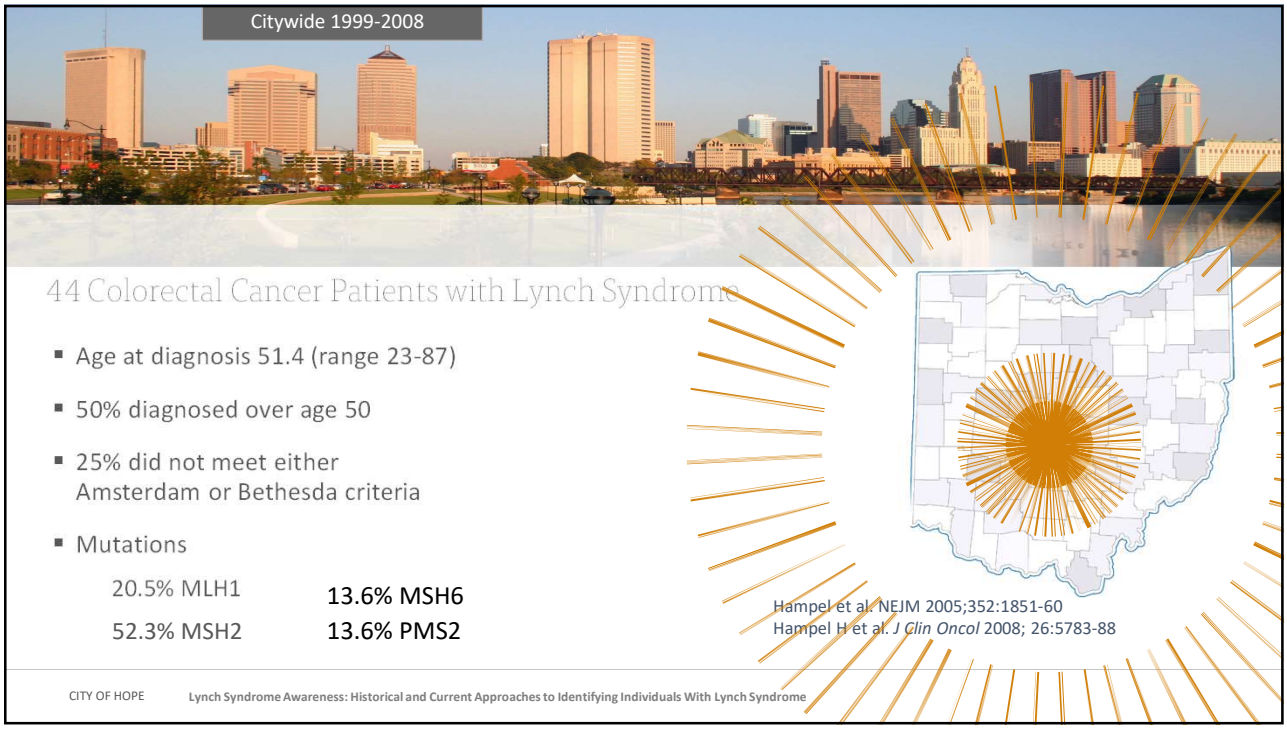
Citywide 1999-2008
44 Colorectal Cancer Patients with Lynch Syndrome
Age at diagnosis 51.4 (range 23-87)
50% diagnosed over age 50
25% did not meet either Amsterdam or Bethesda criteria
Mutations
20.5% MLH1
52.3% MSH2
13.6% MSH6
13.6% PMS2
Hampel et al. NEJM 2005;352:1851-60
Hampel H et al. J Clin Oncol 2008; 26:5783-88
CITY OF HOPE
Lynch Syndrome Awareness: Historical and Current Approaches to Identifying Individuals With Lynch Syndrome

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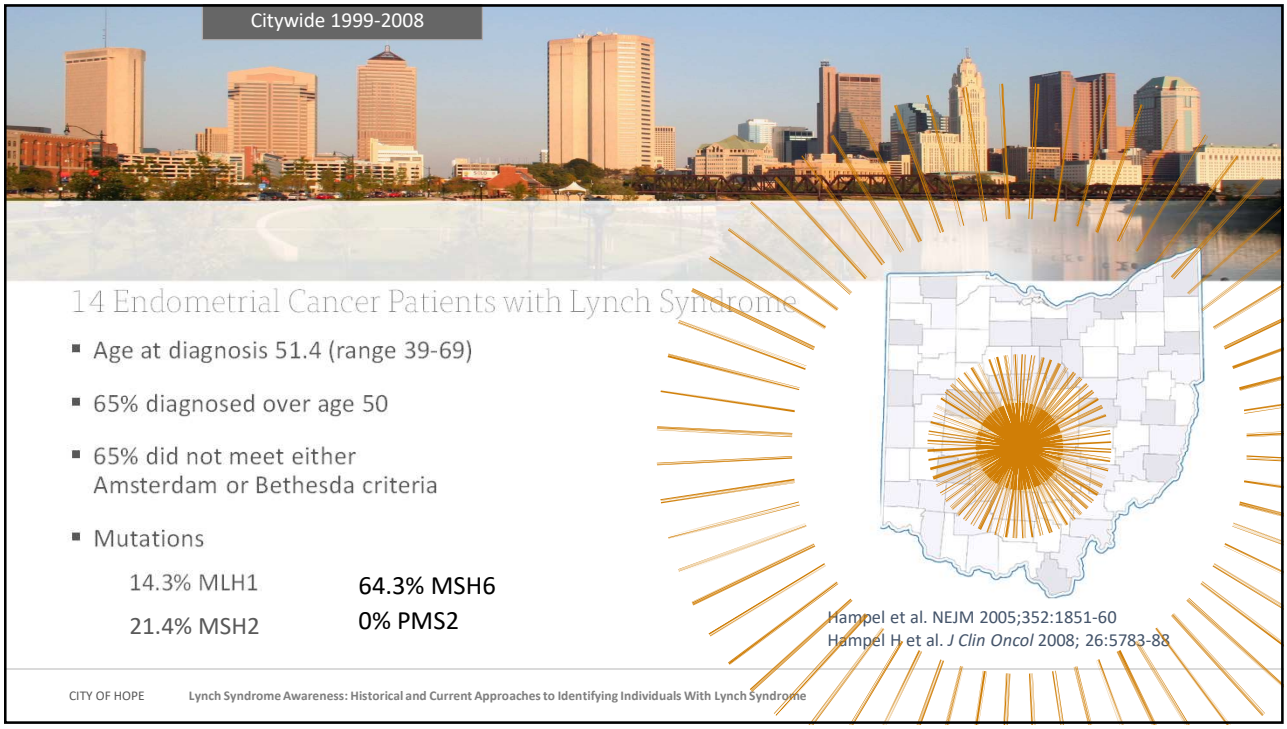
Citywide 1999-2008
14 Endometrial Cancer Patients with Lynch Syndrome
Age at diagnosis 51.4 (range 39-69)
65% diagnosed over age 50
65% did not meet either Amsterdam or Bethesda criteria
Mutations
14.3% MLH1
21.4% MSH2
64.3% MSH6
0% PMS2
Hampel et al. NEJM 2005;352:1851-60
Hampel H et al. J Clin Oncol 2008; 26:5783-88
CITY OF HOPE
Lynch Syndrome Awareness: Historical and Current Approaches to Identifying Individuals With Lynch Syndrome

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Cascade Testing: Follow Mutation through Lynch Syndrome Families

297 Relatives Tested

130 Positive

Average **6** relatives tested per family revealing **3** with Lynch Syndrome

Differentiators of Citywide Initiative

1. Free genetic counseling
2. Free genetic testing
3. Counseling provided locally

Citywide 1999-2008

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Universal Tumor Screening for Lynch Syndrome Cost Effective and Recommended

- Incremental Cost Effectiveness Ratio = $31,391 per year of life saved
  - Experts agree that interventions with an Incremental Cost Effectiveness Ratio <$50,000 per year of life saved are cost effective
- Universal tumor screening for Lynch Syndrome is recommended by:
  - Evaluation of Genetic Applications in Practice & Prevention (CDC)
  - National Comprehensive Cancer Network
  - American College of Gastroenterology
  - US Multi-Society Task Force on Colorectal Cancer
  - Society for Gynecologic Oncology & American College of Obstetrics and Gynecology
  - Healthy People 2030 goal: Increase # of newly diagnosed colorectal patients screened for Lynch Syndrome at diagnosis

Citywide 1999-2008

Mvundura et al, Genet Med 2010;12:93-104; Grosse et al, Genetic in Med 2015;17;510-11; EGAPP, Genet Med 2009;11:35-41; Giardiello et al, Am J Gastroenterol 2014;109:1159-79; ACOG & SGO Practice Bulletin Number 147, 2014

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Slow Adoption of Universal Tumor Screening for LS

Cancer Center Adoption Rates:

2012		2018
71%	NCI-Comprehensive Cancer Centers	89%
36%	COS-accredited Community Hospital Comprehensive Cancer Programs	81%
15%	Community Hospital Cancer Programs	75%

80% of cancer patients are treated in community hospitals with lowest adoption rates

Beamer et al, JCO 2012;30(10):1058-63

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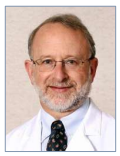
OCCPI Ohio Colorectal Cancer Prevention Initiative

Supported by Pelotonia
$ 4.5 Million

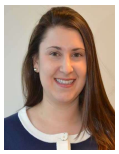
Research Project	1	2	3
	Universal Screening for Lynch Syndrome	Adherence to Colorectal Cancer Screening	Molecular Epidemiology of Colorectal Cancer


Albert de la Chapelle


Heather Hampel


Richard Goldberg


Wendy Frankel


Rachel Pearlman


Electra Paskett


Peter Shields

Statewide 2012-2017

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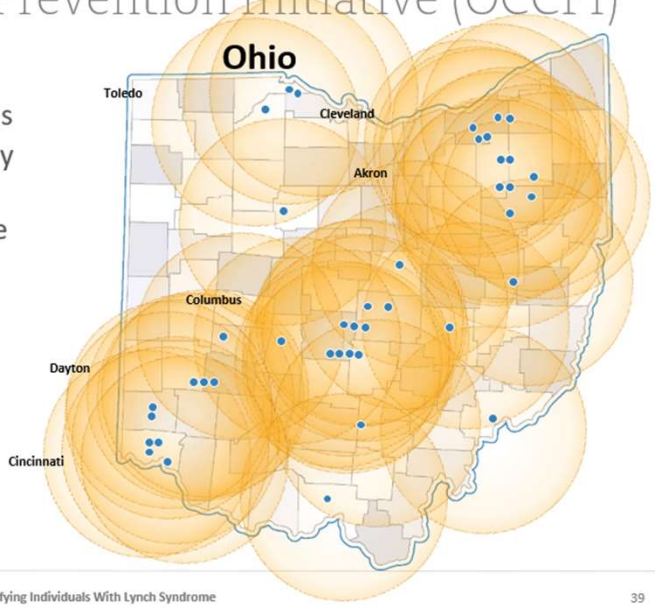
Ohio Colorectal Cancer Prevention Initiative (OCCPI)

- Statewide initiative included **51** hospitals
  - Establish prevalence of hereditary CRC
  - Increase colonoscopy compliance among relatives
  - Establish research infrastructure
- Accrual for **4** years (2013-2016)
  - Patients enrolled from all **88** counties



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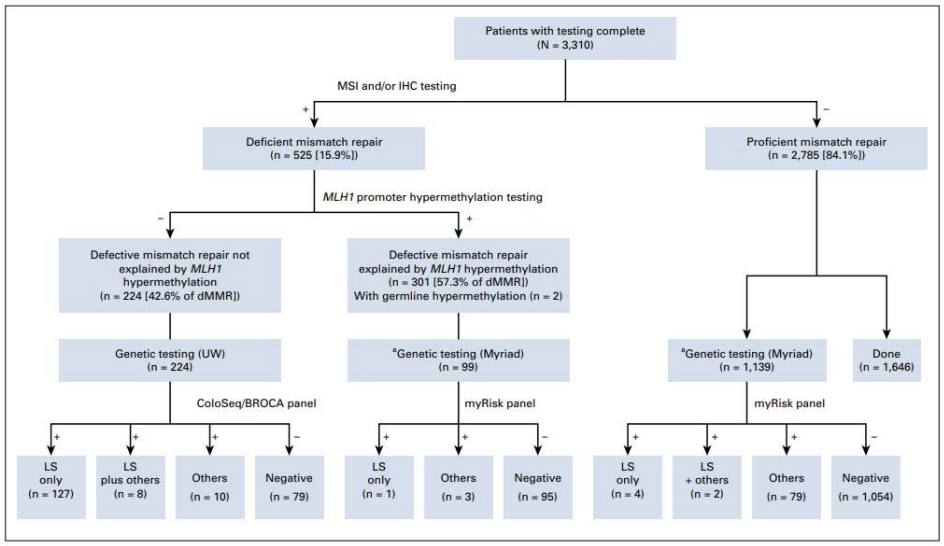
Results



64.7% of dMMR cases +

7.5% of pMMR cases +

7.1% of all patients had a PGV in a CSG; 16% of those tested.

4.0% of methylated cases +

Pearlman R, JCO Precis Oncol 2021;5:779-91.

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Potential Impact

- 151,030 new cases of CRC in the US in 2023
- 4,550 have Lynch syndrome (3%)
- 13,650 of their relatives have LS (~3 per proband)
- 69,950 new cases of EC in the US in 2023
- 2,100 have Lynch syndrome (3%)
- 6,300 of their relatives have LS (~3 per proband)
- Total of 26,600 individuals who could be diagnosed with LS per year with universal screening

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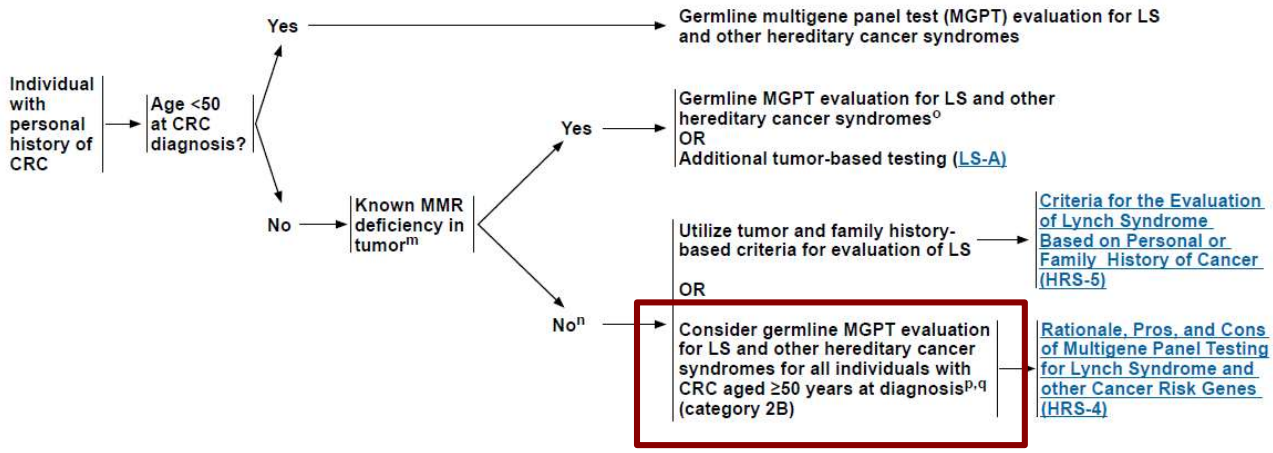
Universal Genetic Testing in CRC



NCCN Clinical Practice Guidelines. Genetic/Familial High-Risk Assessment: Colorectal. 2.2022.

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Results of genetic testing on patients with CRC

- Multigene panel testing performed in 34,244 at commercial lab
  - Pathogenic germline variant (PGV) found in 4,864 (14.2%)
  - 3,111 (9.1%) had a pathogenic variant associated with increased CRC or polyposis risk
  - Across all ages and races/ethnicities, the rate of clinically actionable PGVs on was 7.9% or greater.

Coughlin et al. Multigene Panel Testing Yields High Rates of Clinically Actionable Variants Among Patients With Colorectal Cancer. JCO PO 2022.

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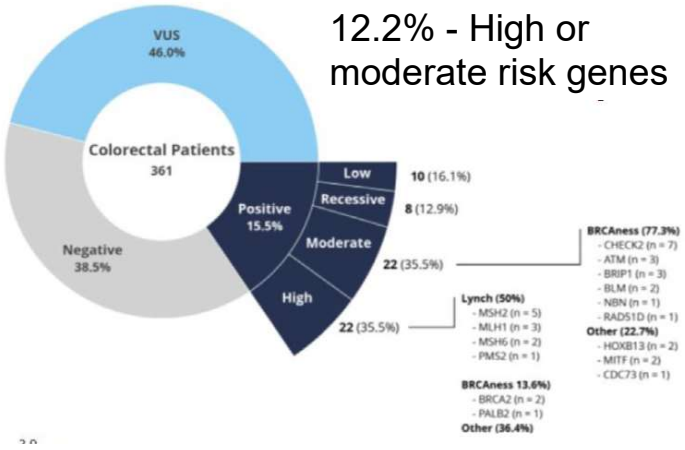
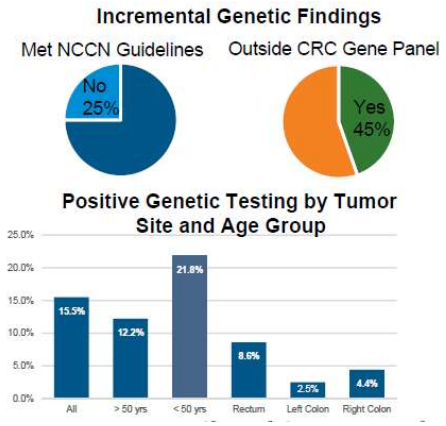
Universal Genetic Testing in CRC



12.2% - High or moderate risk genes



Uson et al. Germline Cancer Susceptibility Gene Testing in Unselected Patients With Colorectal Adenocarcinoma: A Multicenter Prospective Study. Clinical Gastro and Hepatol 2022.

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The Very Near-Future

Genetic Testing of All Cancer Patients

- 2,984 cancer patients
- 1 in 8 patients (13.3%) with pathogenic variant
- **48% outside of guidelines**

JAMA Oncology | Original Investigation

Comparison of Universal Genetic Testing vs Guideline-Directed Targeted Testing for Patients With Hereditary Cancer Syndrome

N. Jewel Samadder, MD, MSc; Douglas Riegert-Johnson, MD; Lisa Boardman, MD; Deborah Rhodes, MD; Myra Wick, MD; Scott Okuno, MD; Katie L. Kunze, PhD; Michael Golafshar, MS; Pedro L. S. Uson Jr, MD; Luke Mountjoy, MD; Natalie Ertz-Archambault, MD; Neej Patel, MD; Eduardo A. Rodriguez, MD; Blanca Lizaola-Mayo, MD; Michael Lehrer, MD; Cameron S. Thorpe, MD; Nathan Y. Yu, MD; Edward D. Esplin, MD; Robert L. Nussbaum, MD; Richard R. Sharp, PhD; Cindy Azevedo, MS; Margaret Klint, MS; Megan Hager, MS; Sarah Macklin-Mantia, MS; Alan H. Bryce, MD; Tanios S. Bekaii-Saab, MD; Aleksandar Sekulic, MD; Keith A. Stewart, MBBS

Samadder JAMA Oncol 2020

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Potential benefit of universal germline testing

- More equitable distribution of genetic referrals
- Traditionally underserved patients are also under-represented in those receiving genetic evaluation
- 89% of underserved patients had their sample collected for genetic testing when offered
  - 86% rate in overall population

Muessig et al. Retrospective assessment of barriers and access to genetic services for hereditary cancer syndromes in an integrated health care delivery system. Hered Cancer Clin Pract 2022.

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Who should refer to Genetics in CRC?

- Possible options –
  - GI doctor at time of endoscopic diagnosis or pathology
  - Colorectal surgeon at time of resection or pathology
  - Oncologist during treatment
  - **Any clinician in the CRC diagnosis/treatment pathway**
- Referral can be done at any time
  - Early referral can impact treatment options
  - Potentially easier to complete than during chemo/radiation?

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Timing of referral to Genetics for GI physicians

- Easy to arrange at time of pathology result discussion
  - Order CEA, CT chest/abdomen/pelvis
  - Colorectal Surgery referral
  - Genetic counseling referral

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Genetic testing points for patients

There are many myths about genetic testing but this is now very common and very easy to obtain!

- **Cost – this is very commonly covered by insurance**. If not, the out of pocket price is usually $250 (if ordered through GC with lab knowledge)
  - Medicare/Medicaid free through many labs
  - Family testing free for several months after a positive result for many labs!
- GINA is an act of congress that prohibits genetic discrimination
  - Protects from employment and health insurance discrimination based on genetic testing
  - Life insurance is not protected

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Identifying Lynch patients prior to CRC

- Community GI practice incorporated a tablet with PREMM into clinic and endoscopy
  - Genetic testing offered to those who qualified
- 5.6% of patients qualified as high risk and 86% of those eventually had genetic testing
- All providers were satisfied with the incorporation and patients had high rates of understanding information

Luba et al. Community Practice Implementation of a Self-administered Version of PREMM$_{1,2,6}$ to Assess Risk for Lynch Syndrome. CGH 2018.

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When to refer patients to Genetics… in past

Table 2. Features that warrant evaluation and possible testing for HCCS

CRC in patients younger than 50 yr
Personal history of multiple cancers (e.g., CRC and endometrial cancer, colonic polyposis, and thyroid cancer)
Personal and family history suspicious for LS[a]
Tumor testing with deficient mismatch repair[b]
More than 10–20 cumulative colonic adenomas
More than 3 colonic hamartomas or 2 small bowel hamartomas[c]
Family members with known genetic diagnosis of HCCS

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Kupfer, Burke. Patients in Whom to Consider Genetic Evaluation and Testing for Hereditary Colorectal Cancer Syndromes. AJG 2019 .

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When to refer patients to Genetics in 2023

Table 2. Features that warrant evaluation and possible testing for HCCS

Colorectal cancer at any age

Personal and family history suspicious for LS[a]
More than 10–20 cumulative colonic adenomas
More than 3 colonic hamartomas or 2 small bowel hamartomas[c]
Family members with known genetic diagnosis of HCCS

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Thank you!

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The Collaborative Group of the Americas on Inherited Gastrointestinal Cancer

October 26-28, 2023

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Questions

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Heather Hampel, MS, CGC

Julie Yang, MD

Peter Stanich, MD

Elana Levinson, MS, CGC

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