A Multidisciplinary Consortium to Advance Genetic Counseling in Oncology

Lunch and Learn #1

August 20, 2021

Iowa Oncology Society

Introductions: Staff

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Background

The Iowa Oncology Society (IOS) and the Association of Community Cancer Centers (ACCC) are leading this initiative to explore gaps/barriers around hereditary genetic counseling and testing in patients with cancer and their family members.

Consortium Members

William R. Bliss Cancer Center

GENESIS

Grand River MEDICAL GROUP

Heartland ONCOLOGY & HEMATOLOGY
A DIVISION OF AMERICAN ONCOLOGY PARTNERS, P.A.

June E. Nyden CANCER CENTER

McFarland Clinic

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University of Iowa Health Care

UNIVERSITY OF IOWA HOSPITALS & CLINICS
University of Iowa Health Care
Genetic Counseling

Iowa Oncology Society

Tips and Tricks to Optimize Genetic Testing at Your Cancer Program

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Holden Comprehensive Cancer Center

University of Iowa Hospitals & Clinics

Iowa Oncology Society

Disclosures

I have no financial disclosures.

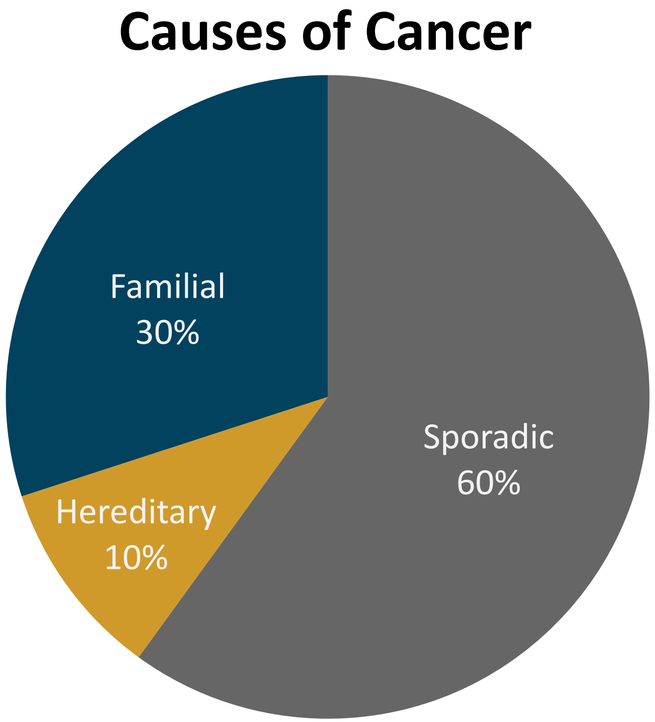
I am a genetic counselor employed by the Holden Comprehensive Cancer Center at the University of Iowa Hospitals & Clinics.

Objectives

- Review the purpose and importance of hereditary cancer genetic testing
- Discuss barriers to genetic testing
- Review resources to assist with family history collection
- Discuss tips to remember when and how to order genetic testing

Cancer Is Common

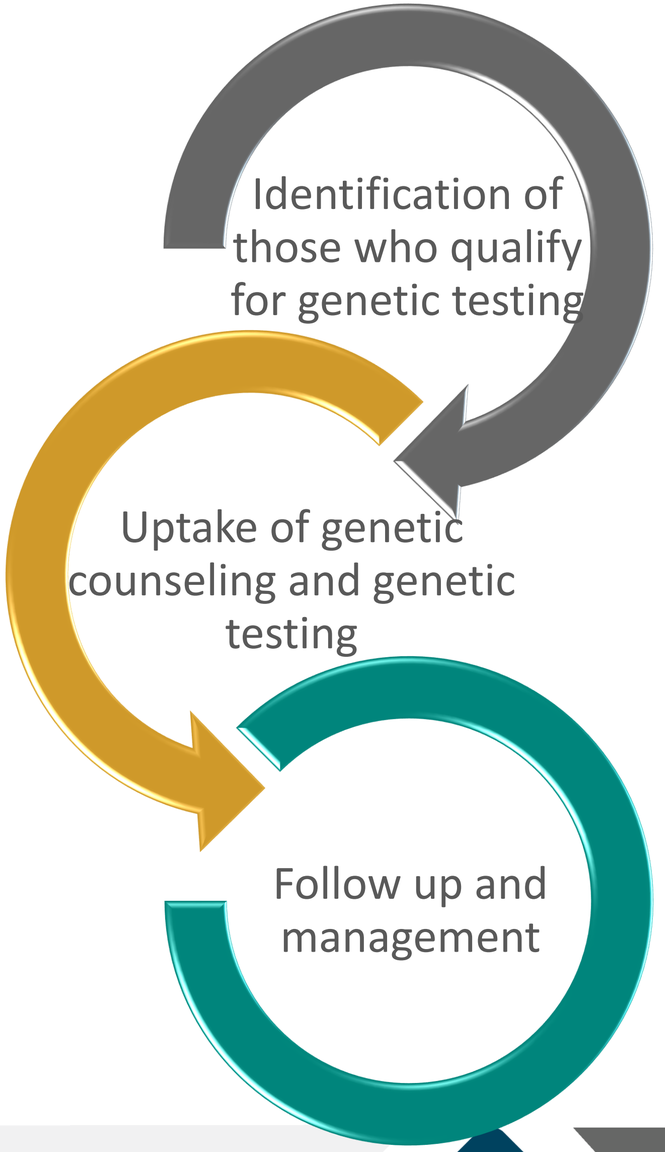
- 1 in 3 individuals develop cancer in their lifetime



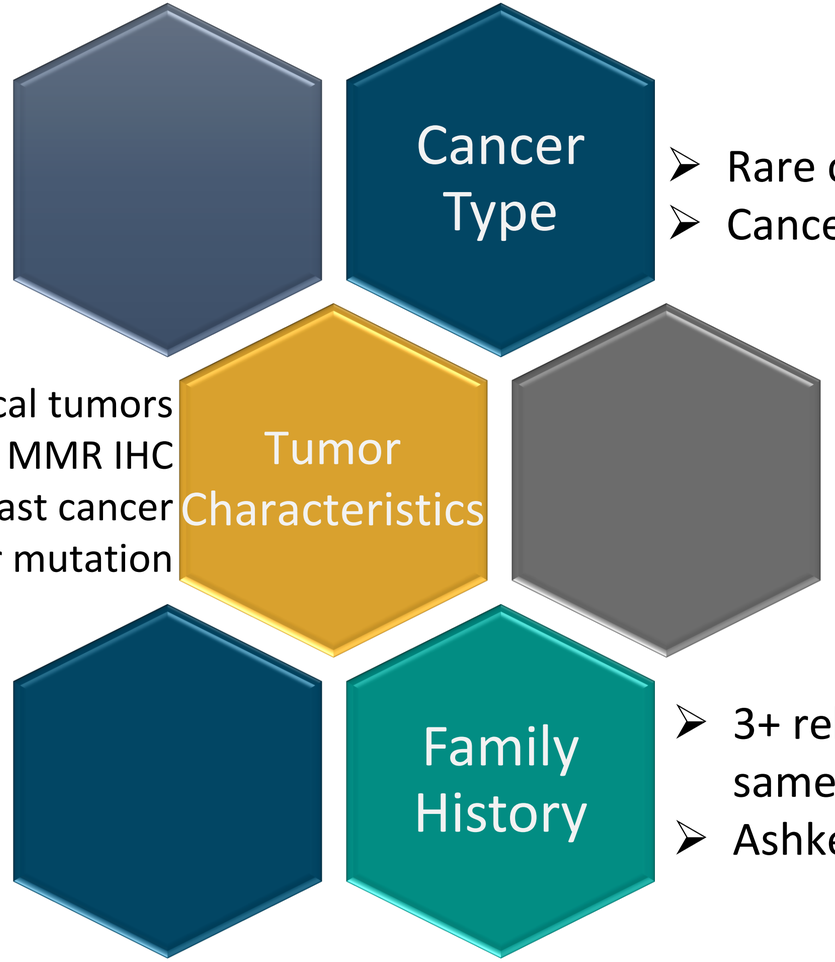
Why does it matter if someone has a hereditary cancer condition?

- Treatment
- Prevention
- Early detection
- Family awareness

How do we identify those with a hereditary cancer condition?



Factors used to identify families with a hereditary cancer condition



- Rare cancers
- Cancers at young ages

- Bilateral or multifocal tumors
- Abnormal MMR IHC
- Triple-negative breast cancer
- BRCA tumor mutation

- 3+ related cancers on the same side of the family
- Ashkenazi Jewish ancestry

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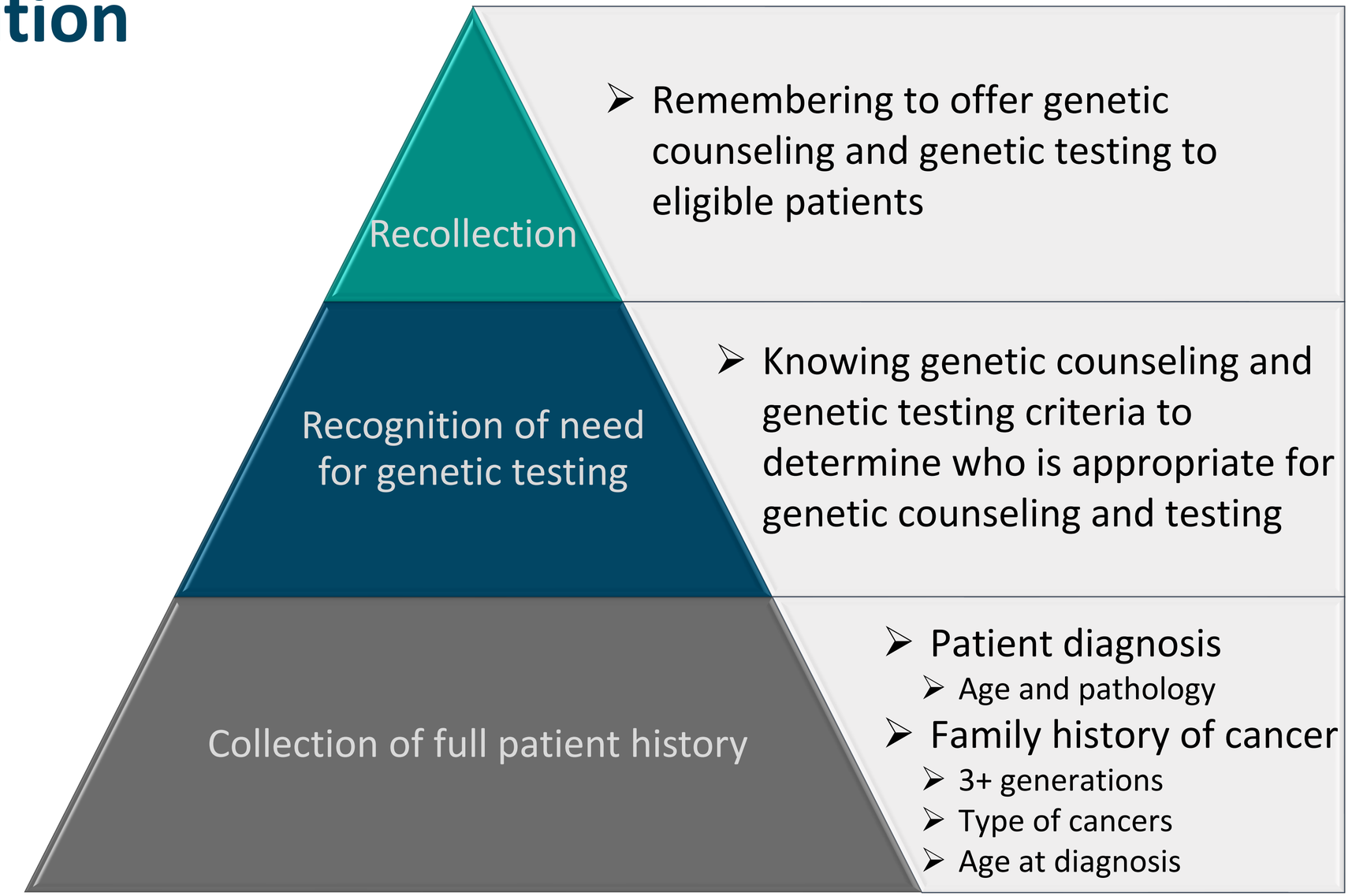
Identification of those at risk to have a hereditary cancer condition



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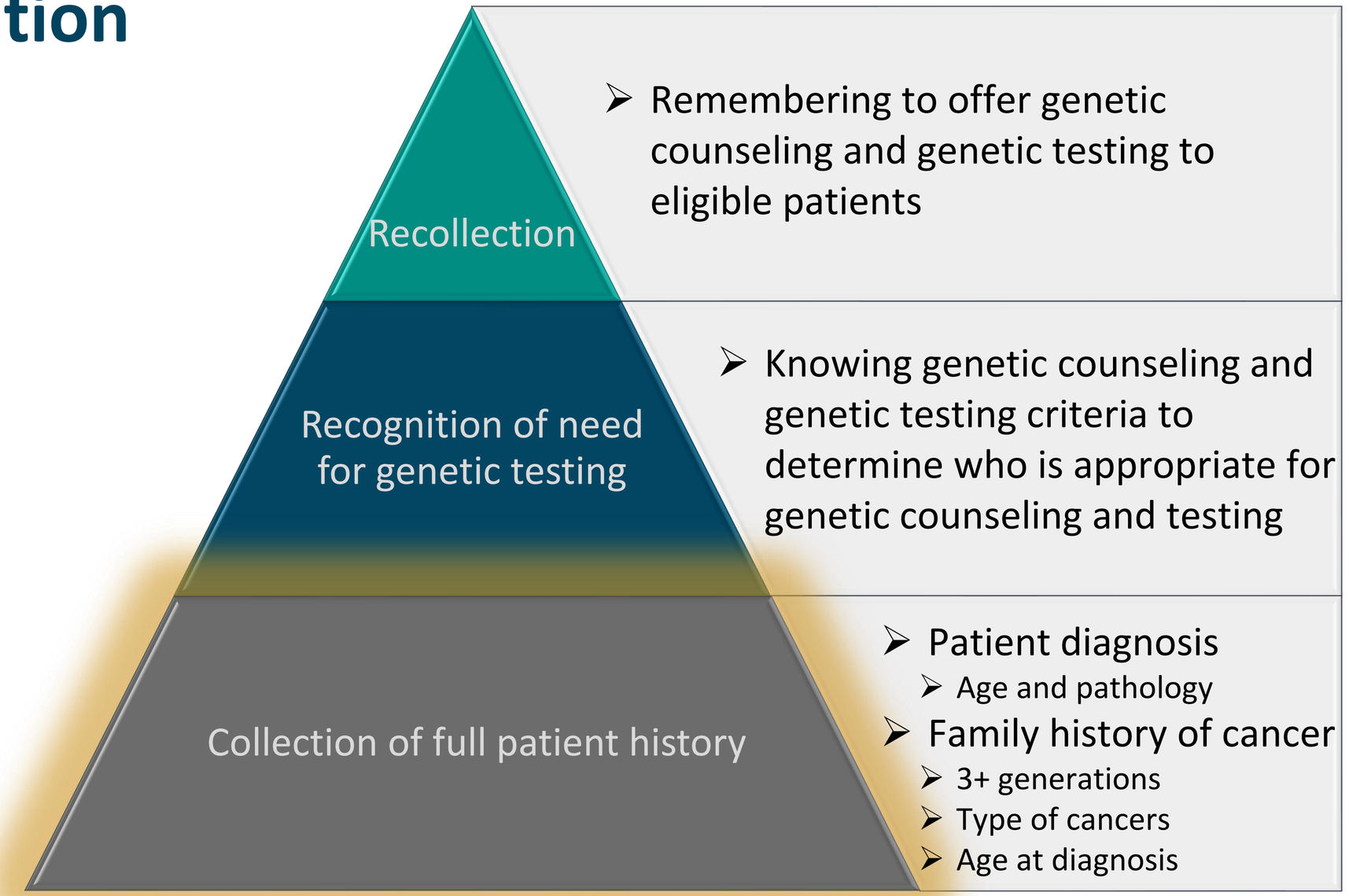
Identification of those at risk to have a hereditary cancer condition



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Collection of Patient History

- Ensure you have **all** relevant information about the patient's own diagnosis for a hereditary risk assessment **(current and past cancer diagnoses)**
  - Universal MMR IHC and/or MSI testing on **ALL** colorectal and endometrial cancers **regardless** of patient age or family history
    - If MLH1/PMS2 absence on IHC, automatically reflex to BRAF testing (CRC tumors only) or MLH1 promoter methylation (CRC or endometrial tumors)
  - If patient has a past history of cancer, details of that cancer are important, even if unrelated to their current diagnosis
    - Age at diagnosis, Gleason score for prostate cancer, hormone receptor status of breast cancer

★ Involve the pathology department! Ensure IHC is built into SOPs for CRC and endometrial cancer

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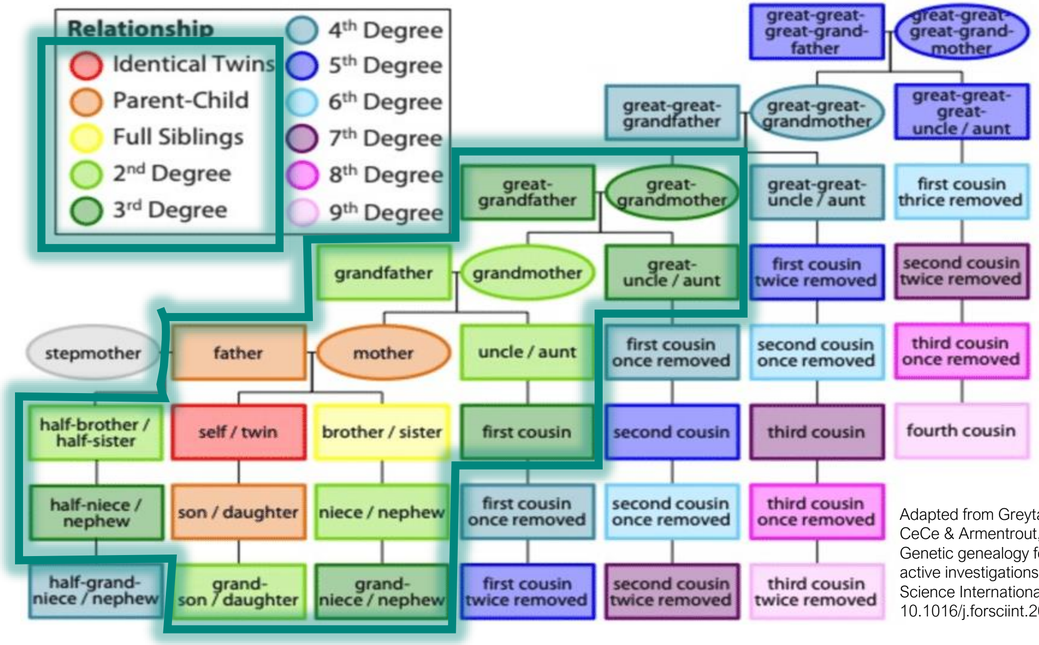
Collection of Family History

- A complete, detailed family history is key
  - Three generations necessary to determine if NCCN genetic testing guidelines are met
    - First-, second-, and third-degree relatives needed



Adapted from Greytak, Ellen & Moore, CeCe & Armentrout, Steven. (2019). Genetic genealogy for cold case and active investigations. Forensic Science International. 299. 103-113. 10.1016/j.forsciint.2019.03.039.

  - Obtain approximate age at diagnosis
    - In general, you need to know if they were diagnosed before age 50 or after age 50
    - For breast cancer, it can be helpful to know if they were diagnosed before age 45, between age 45-50, or after age 50

Collection of Family History

- Types of cancer in family is very important
  - Ask about ALL types of cancer in the family, not just the type of cancer the patient has
    - Someone with breast cancer can still have Lynch syndrome
  - Try to clarify the type of cancer by asking additional questions

Patient says their family member had..	Ask…	Because it may mean…
"Ovarian cancer"	About treatment	They had some other type of gynecologic cancer. Treatment with hysterectomy +/- radiation (no chemo) is likely cervical or uterine cancer
"Brain cancer" or "Bone cancer"	Did their cancer start somewhere else in the body and spread to the brain/bone, or did it start in the brain/bones	They had metastatic cancer to the brain or bone
"Stomach cancer"	Are you referring to the actual stomach, or something in their abdomen?	They had some type of unknown abdominal cancer, not necessarily gastric cancer
"Prostate cancer"	Did they die from that cancer?	They had metastatic prostate cancer. Metastatic prostate cancer in a first-degree relative meets NCCN 2.2021 genetic testing criteria, regardless of family history

These are only clues to the type of cancer, but there are exceptions to all of these. Pathology review is the only way definitively determine cancer type

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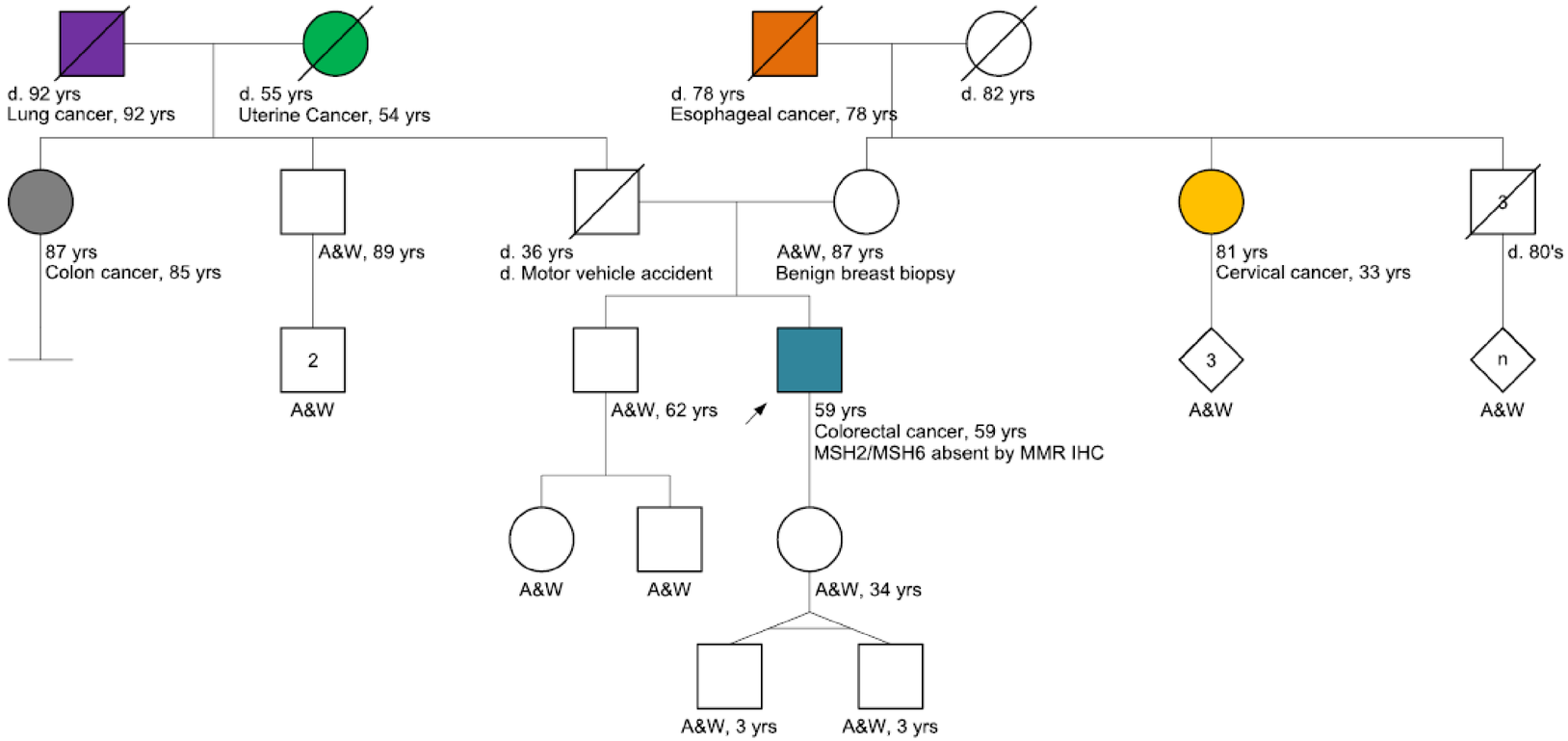
Collection of Patient History

- Ideally—get a comprehensive, detailed, three-generation pedigree for every single patient
- Obtaining a detailed three-generation pedigree is time consuming and not always practical



★ Try a family history collection tool

Family History Tools

- Various paper and online questionnaires exist to gather family history information
  - Patient checks off which family members have had cancer, the type of cancer, and age at diagnosis

Pros

- Can sometimes be completed by the patient ahead of time or at home so they have more time to gather family history information
- The provider does not need to spend appointment time gathering family history information

Cons

- Typically requires manual review by the healthcare team to determine who qualifies for genetic counseling and/or testing
- Not all tools are comprehensive. For example, many tools exist to assess the risk for a BRCA mutation, but no other hereditary cancer conditions

Other tools exist to serve as scoring system to help indicate who is appropriate for genetic counseling and/or testing. Most are geared towards breast cancer and *BRCA1/2* mutations

See handout of family history resources

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Family History Tools

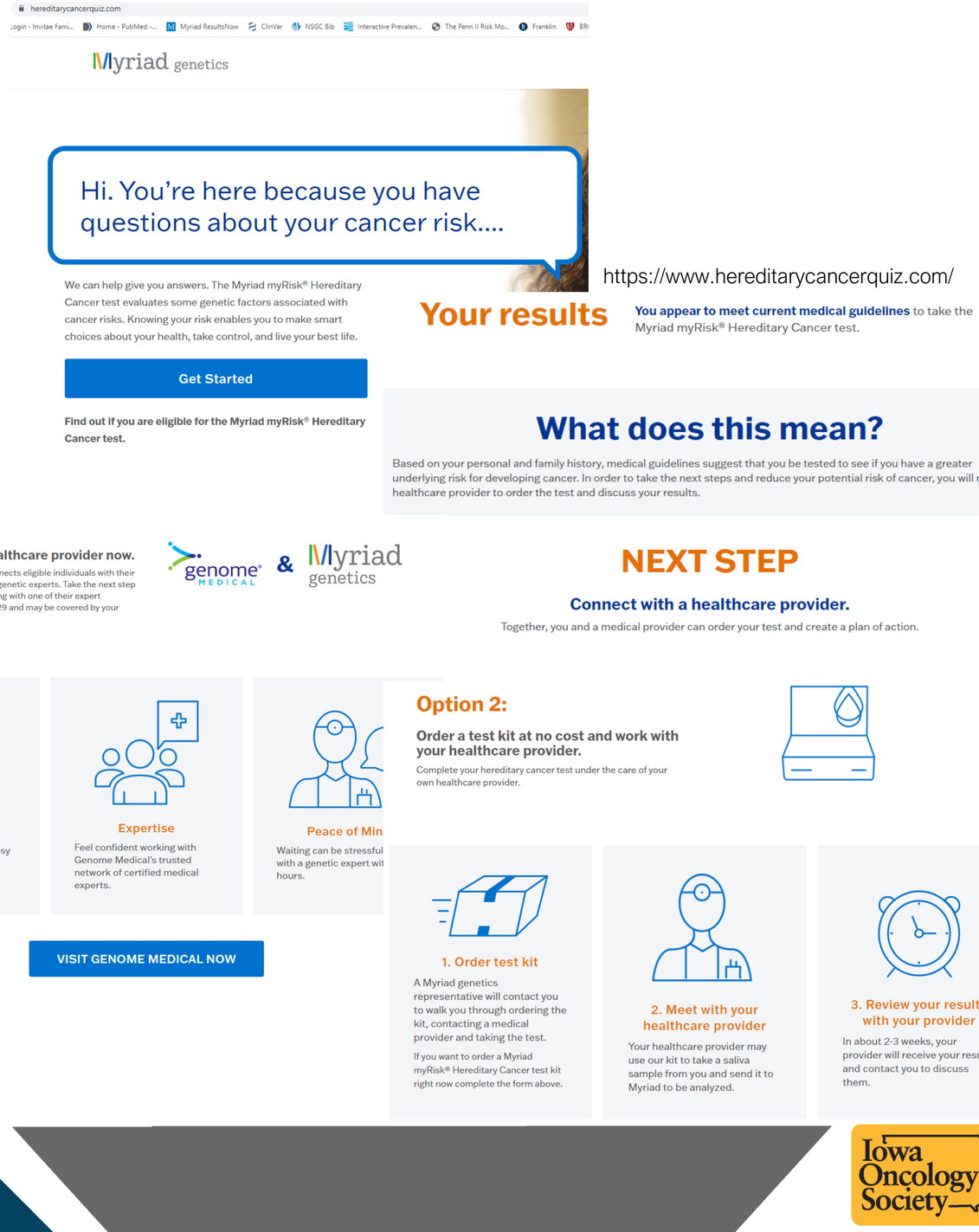
- Online tools exist that gather family history information and automatically assess if genetic counseling and/or testing is appropriate

Pros

- Can sometimes be completed by the patient ahead of time or at home so they have more time to gather family history information
- The provider does not need to spend appointment time gathering family history information
- Tells the provider if certain criteria are met to indicate genetic counseling/testing is indicated, removing the need to have guidelines memorized

Cons

- Not all tools are comprehensive. For example, many tools exist to assess the risk for a BRCA mutation, but no other hereditary cancer conditions.
- Some tools are free—most often, these only assess certain types of cancer (typically breast cancer) and are sponsored by a genetic testing lab to promote their test.
- Some tools cost money, but they often provide additional resources for genetic risk assessment in your clinic
- Some tools are available to anyone online, some tools require IT integration with your institution



See handout of family history resources

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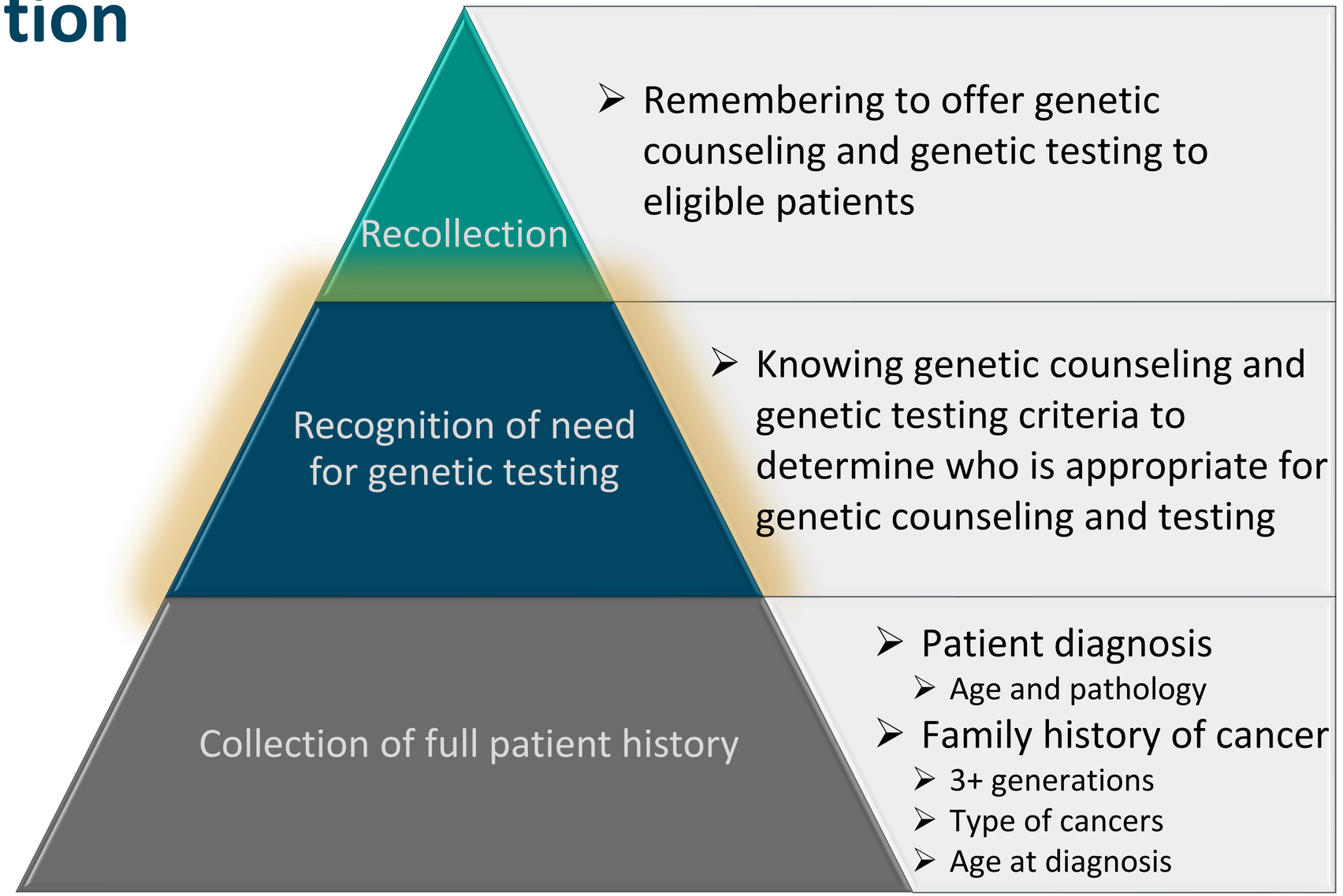
Identification of Those at Risk to Have a Hereditary Cancer Condition



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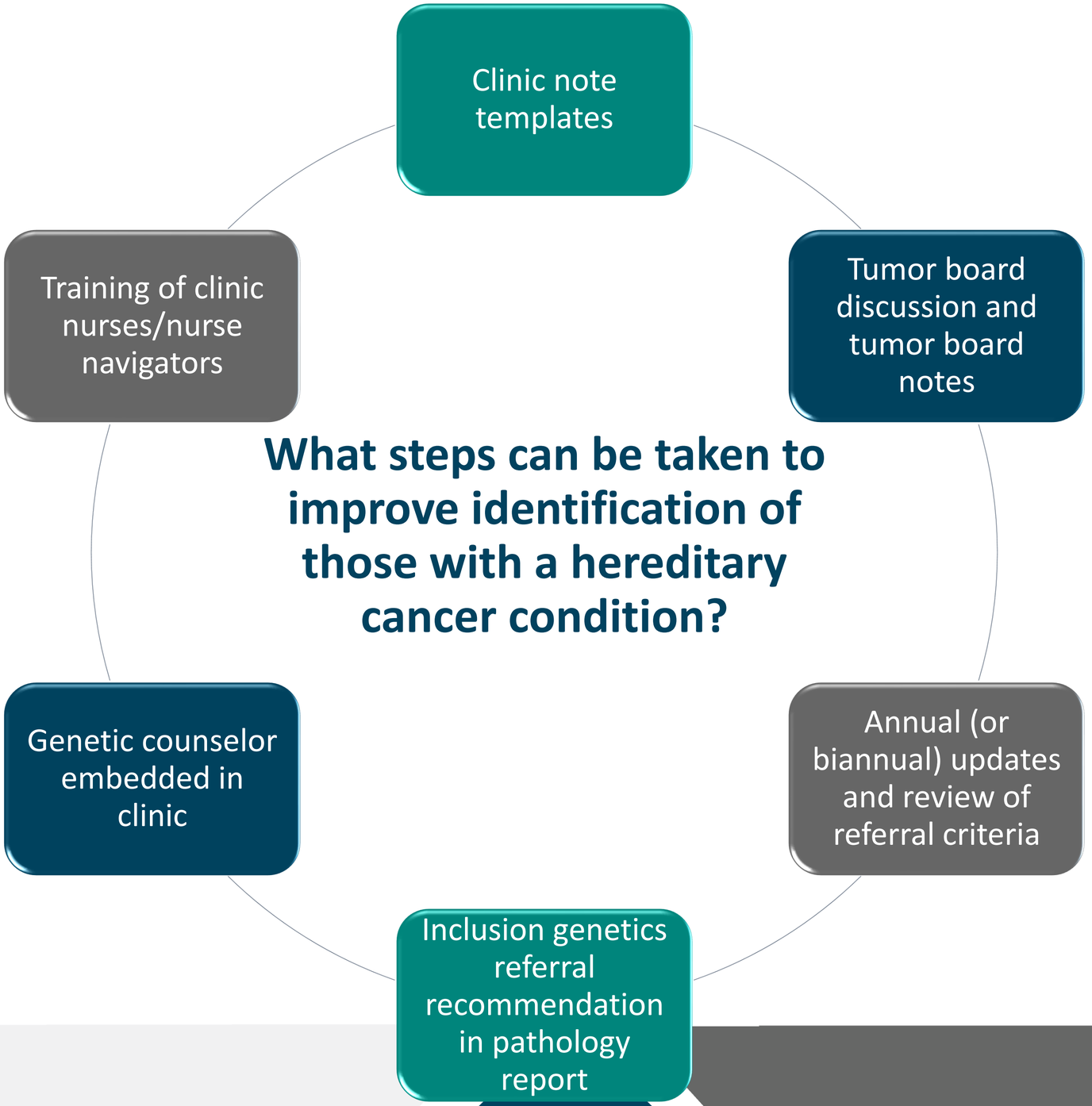
Recognizing When Genetic Testing Is Appropriate

- This is very difficult
  - NCCN guidelines are complicated
  - NCCN guidelines update frequently
  - NCCN has different guidelines for various types of cancer, and they are not all located in the same document
  - Various organizations besides NCCN have genetic testing recommendations
- How do you keep track of all of this???
  - No easy solution unless your institution invests in a genetic counselor or a comprehensive genetic testing assessment program
  - → Create as many reminders throughout your workflow as possible


Clinic note templates
Tumor board discussion and tumor board notes
Annual (or biannual) updates and review of referral criteria
Inclusion genetics referral recommendation in pathology report
Genetic counselor embedded in clinic
Training of clinic nurses/nurse navigators
What steps can be taken to improve identification of those with a hereditary cancer condition?

Recognizing When Genetic Testing Is Appropriate

Pathology

Include genetic testing recommendations on pathology reports

- Several types of cancer automatically indicate genetic testing per NCCN guidelines, regardless of age or family history
  - Based on NCCN guidelines as of July 2021 this includes epithelial ovarian/fallopian tube/primary peritoneal cancer, exocrine pancreatic cancer, intraductal/cribriform histology prostate cancer, high- or very-high-risk group prostate cancer, multifocal papillary renal cell carcinoma, renal cell carcinoma with fumarate hydratase deficiency, SDH-deficient renal cell carcinoma, gastrinomas, pheochromocytomas, paragangliomas, abnormal MMR IHC on any tumor, medullary thyroid cancer
- Include a note in the comments on the pathology report that genetic counseling and/or testing should be considered
- The pathology department reviews guidelines every 6-12 months to update these recommendations

Nurses

Get help from intake nurses and/or nurse navigators

- If the patient meets criteria for genetic testing based on their age at diagnosis alone, the nurse can place a referral or communicate the need to consider genetics
- During the initial intake with the patients after their cancer diagnosis, the nurse can ask some basic family history questions to serve as an initial screen for genetic testing eligibility
  - “Any family history of ovarian or pancreatic cancer? Any family history of breast, colon, or uterine cancer under age 50?”
- Document and/or communicate with the physician that the patient may be indicated for genetic counseling/testing; possibly place a per protocol referral at that time
- This has been very successful in our clinics at UIHC

Tumor Board

Have it on the agenda to discuss if genetic testing is appropriate for every patient

- In tumor board note templates, include a section forcing you to select if genetic counseling and/or testing is appropriate

Clinic notes

Include a section in all clinic note templates to indicate if genetic testing is appropriate

- In tumor board note templates, include a section forcing you to select if genetic counseling and/or testing is appropriate
- You can provide a brief outline of genetic testing criteria in your note template to help you determine if the patient qualifies for genetic testing
  - Update note templates biannually (ideal) or annually, as guidelines update frequently

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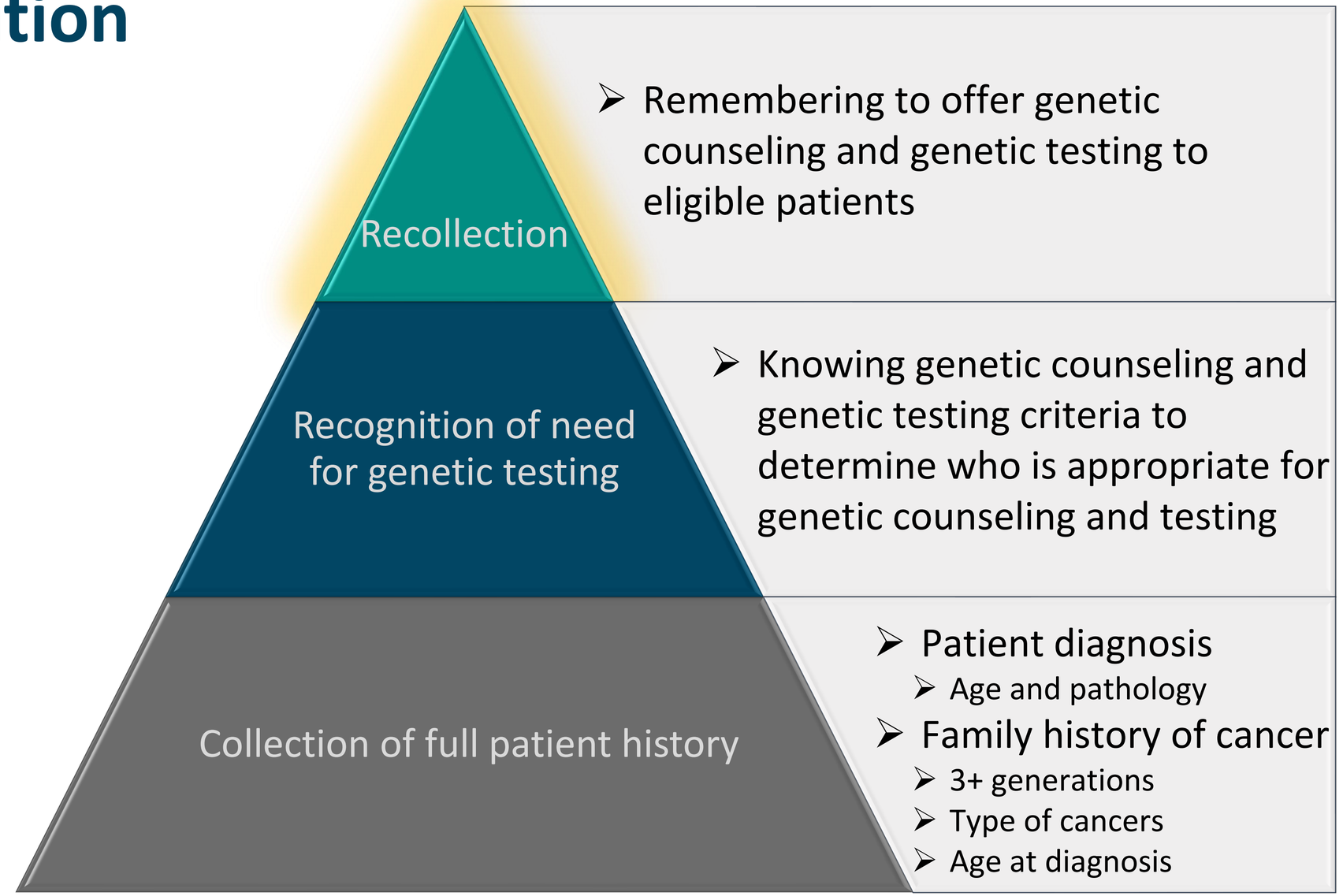
Identification of Those at Risk to Have a Hereditary Cancer Condition



Remembering to Discuss and Order Genetic Testing or Genetic Counseling

- Include a section about genetic counseling/testing eligibility in the clinic note template
  - This can serve as a reminder to discuss genetic testing every time the patient returns to clinic
- If your clinic utilizes a feature such as sticky notes within your EMR, add a reminder to discuss genetics to your sticky note
- Have the patients help you out! Hang posters/flyers in the waiting room or exam rooms telling the patient to ask you if genetic counseling/testing is appropriate for them

Questions?

Hear Joseph Kim, MD, MPH, MBA, *XAF Solutions,* present lessons learned from the Multidisciplinary Consortium to Advance Genetic Counseling in Oncology education project on Friday, September 10 at the Iowa Oncology Society Fall Conference.

Featured Sessions:

Oncology's Hard Look in the Mirror: Steps Toward Achieving Equitable Cancer Care
Leigh Boehmer, PharmD, BCOP, *Association of Community Cancer Centers*

Treatment of Brain Metastases in Metastatic Melanoma
John Reith, MD, *University of Iowa*

Circulating Tumor DNA in Identifying Resistant Subclones Post EGFR Blockade: Implications for EDFR Rechallenge
Adithya Chennamadhavuni, MD, *University of Iowa*

Register: bit.ly/iowa-fall-conference 21

Thank You!