Sharing Genetic Test Results with Adult Family Members

The results from genetic tests have an impact on your patient’s family, regardless of whether the results detected a mutation, were uninformative, or demonstrated that your patient does not carry the mutation identified in their family. While there is no legal obligation to share the results from genetic testing with relatives, patients may feel ethically or morally responsible for sharing test results that could have a significant impact on the health and well-being of family members. As the healthcare provider, it is not your role to disseminate or disclose genetic test results within your patient’s family. The patient who is tested has the responsibility to disseminate the information to their own relatives. However, this can be complicated by family dynamics, individual beliefs, and the physical location of relatives.

It should never be assumed what relatives will want to know. All family members should have equal access to the information from genetic testing, regardless of how close or distant your patient is to that relative. Even if your patient is not interested in sharing his/her own genetic status, family members should be notified that there is some important medical information that is available to them. Your patient should not act as gatekeeper of the family genetic results.

We have collected some of the most commonly asked questions regarding sharing test results with family members and hope that the answers listed below will be helpful to your patients when creating a plan for disseminating information within families.

**HOW CAN MY PATIENT LOCATE RELATIVES WITH WHOM THEY HAVE LOST CONTACT?**

Our digital age is making it easier to locate lost relatives. Social media sites such as Facebook and Linked-In are resources that can be used to search for relatives. Online white pages, peoplefinders.com, and genealogy websites are also effective at finding family members. Adoption agencies can be contacted to attempt to locate relatives who were placed for adoption. Our program website (www.yalecancercenter.org/genetics/resources) lists several databases and resources for locating family members.

**HOW CAN MY PATIENT NOTIFY DISTANT FAMILY MEMBERS?**

If your patient is trying to contact a relative that he/she may not be close with and does not feel comfortable calling, they may wish to consider sending an e-mail or letter. Have the patient introduce themselves, how they are related, and the reason for their contact. Warn them against over-sharing information in their initial contact. Relatives can be caught off-guard or at a less than perfect time and risk sharing information that the relative is not prepared to learn. At first, your patient should be general and explain that they have learned some genetic information that may be relevant to them and their branch of the family. Your patient can determine when it is a good time to talk and once contact has been made share more details and facts about the genetic information that has been learned and their next steps. Your patient can share information about how to locate a genetic counselor in their area and where to read more information. They may find a genetic counselor in their area at www.nsgc.org. Your patient may also wish to share a copy of his/her summary letter, a fact sheet on the topic, or websites.

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**Featured Syndrome: Hereditary Endocrine Cancer Syndromes - Part II**

A variety of hereditary cancer syndromes involve endocrine cancers and tumors. Some of these syndromes also involve non-malignant, non-endocrine findings. Such findings are critical to document when obtaining a family history and can help to guide the determination of which genetic test to order (1). The following is a summary of the currently known hereditary endocrine cancer syndromes for which genetic testing is available, arranged according to the clinical endocrine finding. This is the second article in a two-part series on this topic; please see part I in the Fall 2011 issue of Advances (available online at www.yalecancercenter.org) for information about syndromes involving the thyroid and parathyroid glands.
Welcome to the Spring issue of Advances. And, although change and growth are the norm in the field of cancer genetics, this year marks some exceptional changes for our program.

Many of you have commented on the increasing number of patients who need cancer genetic counseling and testing, and your unease in ordering genetic testing without referring to a certified genetic counselor. We understand your concerns and in response we have opened two new monthly outreach clinics that may be more convenient for many of your patients. We now have monthly outreach clinics at the The Center for Cancer Care at Griffin Hospital in Derby and at the Norma F. Pfriem Cancer Institute in Trumbull. We feel confident that your patients will benefit from these convenient locations, and you can feel confident that each of your patients is receiving accurate genetic counseling and testing from a certified professional.

We have also responded to the growth in our referral patterns by expanding our current office space by >600 square feet and hiring an outstanding new Office Manager and a 5th full-time Certified Genetic Counselor to serve you and your patients. Please read more about our new staff members and continue to let us know how we can better serve you.

It appears that all of our growth and expansion won’t stop here! The National Comprehensive Cancer Network (NCCN) guidelines for which patients should receive genetic counseling and testing are also expanding, as you will see on page 3. This means that a larger percentage of your patients will be candidates for counseling and testing, and that information will help you, and them, personalize their risk reduction, surveillance, and surgical planning. It also means that more of these patients will have health insurance coverage for such testing.

We plan to continue to expand – in size, personnel, location, and knowledge – to keep up with the ever-growing field of cancer genetics. We look forward to working with you and your patients in these exciting times.

Sincerely,

Ellen T. Matloff, MS
Director, Cancer Genetic Counseling

Editor’s Letter

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SHOULD MY PATIENT NOTIFY THE MEN IN THE FAMILY?

Absolutely. Men and women have an equal chance of carrying (or not carrying) a mutation associated with any hereditary cancer syndrome. Many patients wrongly assume that the men in their family cannot carry a mutation associated with hereditary breast and ovarian cancer, when in fact male carriers are at increased risk for their own personal risks of cancer. Their children (daughters and sons) can also be at increased risk to have inherited the familial mutation.

HOW DOES MY PATIENT NOTIFY ESTRANGED RELATIVES?

It can be challenging to re-contact family members after months or years of no contact, or after a serious illness. Despite this, these relatives should not be excluded from such information. Enlisting other family members who may be in closer contact with these relatives can be helpful. If your patient knows how to contact these relatives they may also wish to consider enlisting the help of their genetic counselor. Their genetic counselor may provide permission for the estranged relatives to contact them directly; therefore, bypassing the patient and allowing the relative to gain access to the information they are interested in learning.

DO FAMILY MEMBERS WITH CHALLENGES (I.E. MENTAL, INTELLECTUAL, OR PHYSICAL) NEED TO KNOW?

Physicians, other healthcare providers, and patients should not try to make this decision on their own. If the relative has someone who is legally responsible for their medical decisions, contact that person first to discuss the relevance of the genetic information to that person’s medical care and to determine the next steps. Medical providers, social workers, psychologists, and care providers who work directly with the relative may be useful contacts to develop a plan for his/her medical care.

WHAT IF FAMILY MEMBERS DO NOT WANT TO KNOW?

This can be challenging, especially if your patient feels differently. While it is important to respect the beliefs and feelings of the family member, sometimes it can be helpful to give the relative some time to process and research the information on their own and at their own pace. Give them some room at first and then your patient can consider revisiting the issue at a different time in a non-pressured atmosphere.

Before reaching out to relatives, attempt to prepare your patient for the different possible responses and reactions he/she may receive. While this is no reason not to reach out to family members, it is important that your patient understands that any anger or frustration they may encounter is not directed at them personally.

If your patient is interested in meeting with a genetic counselor to discuss their family history, which at-risk family members to contact, and develop a plan for contacting family members, please ask your patient to call our office to schedule an appointment.
Several studies have examined the rates of BRCA mutations in women with triple negative breast cancers (TNBC), which range from 11-38% depending on the population studied (1-4).

In 2011, researchers found that 19.5% of women with a TNBC diagnosis, who were unselected for age and family history, carried a BRCA mutation (1). Of mutation carriers, 64% had no first-degree family members with breast or ovarian cancer and 43% had never been referred for genetic counseling. Although small, this sample of unselected patients revealed a significant number of BRCA mutations. The researchers concluded that the diagnosis of a triple negative breast cancer should prompt the consideration of a referral to genetic counseling.

Another 2011 study assessed the contribution of BRCA mutations in selected individuals with pancreatic cancer: Seven BRCA mutations were detected in the 29 patients (24%) enrolled in the study (5). Patients diagnosed with pancreatic cancer were eligible if they had a separate primary diagnosis of breast or ovarian cancer or had a family history that included: a) two or more family members with pancreatic cancer and at least one family member with breast or ovarian cancer or b) one case of pancreatic cancer and one case of breast or ovarian cancer.

These studies sparked The National Comprehensive Cancer Network (NCCN) to expand guidelines for genetic testing to include women diagnosed with a TNBC under age 60 and to consider those with a personal or family history of pancreatic cancer. See below for the additions to the guidelines and visit NCCN.org for the complete criteria for BRCA testing under the category “Genetic/Familial High-Risk Assessment: Breast and Ovarian.”

**Revised NCCN criteria for BRCA1 and BRCA2 Testing**

- Personal history of a triple negative (ER-, PR-, HER2-) breast cancer under age 60.
- Personal history of breast cancer diagnosed under age 50 with a limited family history.
- Personal history of breast or ovarian cancer with two close blood relatives with pancreatic cancer.
- Personal history of pancreatic adenocarcinoma with two close blood relatives with breast, ovarian, or pancreatic cancer.

References:
ADRENAL GLANDS
Li-Fraumeni (p53)
Germline p53 mutations are responsible for an increased risk of a variety of cancers including adrenocortical carcinomas, soft tissue sarcoma, breast, brain, bone, gastrointestinal, pancreatic cancers, melanoma, leukemia, and lymphoma. There is a greater than 90% risk to develop a cancer for individuals with a germline p53 mutation, and a greater risk for multiple primary cancers (2).

MEN2
Pheochromocytomas occur in approximately 50% of individuals (3).

MEN1
Pheochromocytomas are sometimes, but rarely, seen.

NF1 (NF gene)
Pheochromocytomas have been reported in 0.1-5.7% of individuals with NF1. The most common clinical features of NF1 include multiple neurofibromas, café-au-lait spots, axillary and inguinal freckling, and Lisch nodules (4).

SDHD and SDHB
Mutations in these two succinate dehydrogenase subunits are associated with an increased risk for pheochromocytoma and paraganglioma (5).

VHL (VHL gene)
Von Hippel-Lindau is characterized by a variety of malignant and benign tumors including pheochromocytomas (20-30%), cerebellar hemangioblastoma, retinal angioma, renal cell carcinoma, pancreatic tumors, renal and pancreatic cysts, epididymal tumors, and endolymphatic sac tumors (4).

PARAGANGLIOMAS
SDHD, SDHB, and SDHC
Mutations in these three subunits are responsible for hereditary paraganglioma. Mutations in SDHB and SDHC are inherited in an autosomal dominant pattern. Tumors associated with mutations in SDHD only develop if inherited from the father (5).

PITUITARY GLAND
Carney complex (PRKAR1A gene)
Pituitary adenomas, thyroid cancers, large cell calcifying Sertoli cell tumors, and primary pigmented nodular adrenocortical disease are all endocrine findings found within the Carney complex syndrome. The non-malignant findings associated with Carney complex include spotty skin pigmentation, cutaneous/mucosal/cardiac myxomas, acromegaly, schwannomas, and blue nevus (6).

MEN1
The occurrence of anterior pituitary tumors in MEN1 range from 10-60% (7).

OTHER NEUROENDOCRINE TUMORS
MEN1
A number of other neuroendocrine tumors have been reported in individuals with MEN1. These include gastrinomas, insulinomas, and foregut carcinoids (7).

References:

Conference Highlights

The 15th annual meeting of the Collaborative Group of the Americas on Inherited Colorectal Cancer (CGA-ICC) was held in Montreal, Canada in October 2011. This two-day conference was attended by Rachel E. Barnett, MS, CGC. Topics included epigenetics and hereditary colon cancer, defining clinical criteria and management guidelines for the newly named Serrated Polyposis Syndrome, improving detection of colorectal cancers, and insights into other hereditary colon cancer syndromes for which clinical genetic testing is not yet available. We are integrating material learned from this conference into our clinical practice in order to better serve your patients and their families.
Why should clinicians care about the BRCA patent?

The patent on BRCA1 and BRCA2 excludes other companies from offering testing for or conducting research on these genes. This means that the patent holder has complete control over what testing is offered, the price of testing, and what research is performed. Many experts agree that this has limited access to this expensive testing (particularly for uninsured and underinsured individuals), limited how many patients receive all of the BRCA testing available and recommended for each patient (e.g. deletion and rearrangement testing), and has had a negative impact on research and interpretation of test results.

References:

I take back my genes.

Share your story through the ACLU’s public campaign, Take Back My Genes

In 2009, 20 professional medical associations, geneticists, breast cancer and women’s health groups, and patients filed a lawsuit charging that patents on two human genes associated with hereditary breast and ovarian cancer (BRCA1 and BRCA2) are invalid and unconstitutional. The Supreme Court is now hearing an appeal on the case.

For more information please visit: http://www.aclu.org/take-back-your-genes

Announcements

NEW TEAM MEMBERS
We are very pleased to announce the addition of two new members to our program team. Nicole Edwards accepted the position of Office Manager in August 2011. Nicole has worked at Yale for many years, most recently in the Office of the Dean. Her wonderful organizational and administrative skills, combined with her warm, caring, and welcoming demeanor make Nicole a perfect fit for this position.

Justin Leighton, MS, CGC started as our 5th full-time Cancer Genetic Counselor in January 2012. Justin successfully completed our competitive Kurzrok Cancer Summer Fellowship in 2009 and he has since worked as a Genetic Counselor at The Cancer Institute of New Jersey. We are very excited to have Justin back and know that his strong work ethic and drive will make him a wonderful addition to our counseling team.

THE TAKE CHARGE CLINIC
Know it. Face it. Change it.

We are excited to announce the launch of a new concept, multi-disciplinary clinic that will bring together the expertise of Genetic Counseling & Risk Assessment, Breast Oncology, and Gynecologic Oncology in one coordinated Team. Each patient will be seen for risk assessment and then a Personalized Passport will be created for that patient that will guide her to our experts in cancer surveillance, chemoprevention, sexuality, and menopause based on her specific risks, age, needs, and personal and family history. Look for a more detailed description in our Fall 2012 Newsletter after the formal launch, or call us at (203) 764-RISK (7475) for more information.

NEW OUTREACH CLINICS
We are pleased to announce the opening of Yale Cancer Genetic Counseling Clinics at The Center for Cancer Care at Griffin Hospital in Derby and the Norma F Pfriem Cancer Institute in Trumbull. A certified genetic counselor from our program will staff each monthly clinic. To make an appointment at either clinic, please call our main phone number (203) 764-8400.
And, although change and growth are the norm in the field of cancer genetics, this year marks some exceptional changes for our program.

Please visit our new website to learn the facts about genetic testing and to refer a patient for counseling at yalecancercenter.org/genetics.