Prevention Matters

| A FOX CHASE CANCER CENTER RISK ASSESSMENT PROGRAM PUBLICATION | SPRING/SUMMER 2022

What You Can Learn From Tennis Legend's Chris Evert's Ovarian Cancer Diagnosis

Tennis star Chris Evert recently revealed that she was diagnosed with Stage 1C ovarian cancer. The reason why Evert chose to share so much of her private medical information, is to help others and bring awareness to these forms of cancer. Her younger sister, Jeanne, died of the disease in 2020 at age 62. Jeanne had genetic testing and found that she carried a variant of uncertain significance (VUS) in the BRCA1 gene. A VUS is a variant for which there is not enough information to predict whether it has any relationship to cancer.

Doctors do not recommend any change in treatment based on a VUS. Over 90% of VUS's are eventually reclassified as benign. However, four years after her diagnosis, the VUS found in Chris's sister was reclassified as pathogenic, meaning it increases the risk of developing ovarian cancer as well as breast, pancreatic, and prostate cancers. Upon getting this news, Chris had genetic testing and found she also carried the BRCA1 pathogenic mutation. She then decided to undergo a preventative surgery to remove the ovaries, fallopian tubes, and the uterus. An early stage cancer was found in one fallopian tube. After surgery, her treatment will continue with chemotherapy. Because the cancer was found so early, there is a good chance that it will not recur.

Experts know that variations in certain genes can increase the risk for ovarian cancer. Around 1 in 100 US women will get ovarian cancer by age 70, but among women with a mutation in the BRCA1 or BRCA2 genes, that number is much higher. Mutations in other genes, including BRIP1, RAD51C, and RAD51D, can also raise ovarian cancer risk.

Getting tested can help women better understand their chances for developing ovarian cancer and allow them to take steps to protect their health. And, if they've already been diagnosed with ovarian cancer, it may open the door to new treatment options and provide risk information about developing other types of cancer.

Consultation with a genetic counselor to discuss testing is recommended:

- If you or a close relative has had ovarian, fallopian tube, or peritoneal cancer
- If you have been diagnosed or have a close relative who has been diagnosed with high risk breast cancer, cancer of the pancreas, or aggressive prostate cancer
- If you have a close relative with a BRCA1, BRCA2, or other pathogenic mutation

To make an appointment with a genetic counselor to discuss your risk, call **Risk Assessment Program** at **1-877-627-9684**

FOX CHASE CANCER CENTER
TEMPLE HEALTH

IN THIS ISSUE

Weighing in: Commentary from Chau Nguyen, MS, CGC, a Cancer Genetic Counselor

How does a VUS impact a patient's care or a patient's family members?

A variant of uncertain significance (VUS) is a genetic change in a person's genes. In the world of cancer genetics, it means the risks associated to develop cancer is unknown. VUS results can arise in any patient who chooses to undergo hereditary cancer genetic testing and often occurs as one of the three most common answers in genetic testing.

Currently, VUS results do not impact a patient's care in anyway, regardless of what gene the VUS was detected in. Some uncertain variants can be seen in very well-known genes, such as the BRCA1 or BRCA2 genes. As each gene a person carries is tremendously large, not every single change, even in a well-known gene like BRCA1 has been studied.

Since the impact of a VUS is unknown or uncertain at the time it was detected, it is not used to impact a patient's care. Instead, a patient's personal and family history is used to guide medical care.

When a VUS is detected in a family, family members are often not recommended to undergo genetic testing for the VUS detected. Since the impact of the VUS is unknown, and does not change how a patient is treated, detecting that same VUS in family members would also result in no change to medical care.

Will a patient always have a VUS?

No, variants of uncertain significance are reclassified over time to disease causing (pathogenic) or non-disease causing (benign). This occurs once more research is conducted to better understand a patient's specific variant. However, there is no designated timeline to know when a VUS will be reclassified.

Once a VUS is reclassified as pathogenic or benign, genetic testing laboratories often release new amended results to clinicians that outline the new classification of a VUS. From there, clinicians often recontact their patients to inform them of the new changes and impacts to medical care their amended results could have.

Roughly 90% of uncertain variants will be reclassified to benign, demonstrating that most changes are normal, they just weren't well understood at the time they were found!

Weight is more informative than body mass index for predicting postmenopausal breast cancer risk: Prospective Family Study Cohort (ProF-SC)

Body composition and breast cancer risk have been of interest for researchers for many years. Several studies have confirmed that obesity is an established risk factor among post-menopausal women. The body composition measure traditionally used in most studies is body mass index (BMI) a combination of weight and height, specifically weight/height. Investigators in the Breast Cancer Family Registry (BCFR) were interested in whether measures of body size other than BMI were better predictors of breast cancer.

In this study, 6761 post-menopausal women who did not have breast cancer when they joined the BCFR were followed for over 11 years. 416 new breast cancers were reported during that time. The investigators looked at whether weight alone, height alone, BMI alone, or combinations of these variables were the best predictors of breast cancer. They found that weight alone was the best fit in the statistical models they used, suggesting that both fat tissue and non-fat tissue contribute to breast cancer risk. The association of weight to breast cancer was stronger among women with high levels of familial risk.

These findings suggest that weight rather than BMI should be used to predict breast cancer risk in post-menopausal women, particularly among women with a strong family history of breast cancer.

To read the full study:
https://pubmed.ncbi.nlm.nih.gov/34965921/

LGBTQ AFFIRMING CARE PROVIDERS AT TEMPLE HEALTH

Equality is at the heart of the mission at Temple Health. Temple Health is committed to providing the best healthcare to all identities including lesbian, gay, bisexual, transgender, queer, intersex, asexual, and gender (LGBTQIA+) persons. Patient, visitor, employee - no matter how they identify or who they love - all deserve access to excellent healthcare in a safe, comfortable and unbiased environment.

Recently, the Department of Clinical Genetics' clinicians, nurses and genetic counselors joined the list of the designated LGBTQ Affirming Care Providers who are dedicated and specially trained to provide clinical care to meet the needs of the LGBTQ+ community. They're devoted to making sure all of our patients, regardless of race, ethnicity, religion, sexual orientation, and gender identity are treated with dignity and respect.

Why it is important to be aware of gender identity and sexual orientation when counseling patients on genetic risk for cancer?

Hannah Campbell, ScM, LCGC, genetic counselor and LGBTQ affirming provider:

Understanding a patient's identity not only helps me create a comfortable clinic environment, but is often medically important. For every patient, I gather information about why they are coming for genetic counseling, their social support system, and what goals they have for the future. A person's sexual orientation, history of gender-affirming treatments, and reproductive goals can all play a role when making decisions about lowering cancer risk.

For example, if I meet with a trans male who has a strong family history of breast cancer, it is important for me to know which organs they have and whether they take hormones, as this will change their cancer risk. This medical history will also impact the outcomes of learning their genetic test results. Genetic test results may change not only the type of surgeries someone pursues, but the timing of these surgeries, and insurance coverage.

If this patient plans to have top surgery, we would talk about the difference between top surgery (removal of breast tissue to create a more masculine appearance) and a bilateral mastectomy (removal of breast tissue to lower breast cancer risk). I would want to refer this person to a surgeon who is familiar with both gender-affirming and risk-reducing surgeries, and would work with this patient to achieve their specific goals.

Ultimately, my approach to caring for a person from the LGBTQ+ community is the same as anyone else – I want to know who they are and how genetic test results will uniquely fit into their life. Many people from the LGBTQ+ community have experienced poor treatment by the healthcare system, and providing good care means to take into account all aspects of a person's identity in a respectful and thoughtful way.

For more information visit:
https://www.templehealth.org/services/lgbtq-health

FOX CHASE'S DEPARTMENT OF CLINICAL GENETICS PROVIDES SERVICES AT FOUR DIFFERENT LOCATIONS:

Fox Chase Cancer Center Main Campus
333 Cottman Avenue Philadelphia, PA 19111
Services: Genetic Counseling and Testing, High-Risk Clinics, Research

Temple University Hospital – Main Campus
3401 N Broad Street Ambulatory Care Center, 4th Floor Philadelphia, PA 19140
Services: Genetic Counseling and Testing and High-Risk Clinics for Breast/Ovarian and Prostate Cancer

Fox Chase Cancer Center Buckingham
2365 Heritage Center Drive Furlong, PA 18925
Services: Genetic Counseling and Testing

Fox Chase Cancer Center East Norriton— Hospital
Outpatient Center 2701 Dekalb Pike East Norriton, PA 19401
Services: Genetic Counseling and Testing

To schedule an appointment at any location, call 877-627-9684 or email rapinfo@fccc.edu

WHAT'S NEW IN THE COLON POLYP WORLD? Colonic Adenomatous Polyposis of Unknown Etiology or CPUE

by Kim Rainey, MS, MEd, LCGC, Genetic Counselor

Colon polyps are common and depending on the type of polyps, they may have the ability to become colon cancer. Let's focus on adenomatous polyps, also called colon adenomas. Your gastroenterologist may call them "pre-cancerous" polyps when reviewing the results of your colonoscopy. Some people make a lot of these polyps and require more frequent colonoscopies to remove the polyps so they don't have time to become cancer.

Genetic testing for an inherited colon polyposis syndrome is often covered by insurance for individuals with more than 20 adenomatous polyps over a lifetime. Genetic testing looks for mistakes (mutations) in genes that increase the likelihood of many (10's-1000's) pre-cancerous polyps and colon cancer. Some of these gene mutations are inherited from one parent with a 50% chance to pass it on to the next generation (such as Familial Adenomatous Polyposis caused by mutations in the APC gene) while others need to be inherited from both parents (such as MUTYH-Associated Polyposis). Fortunately, the way genetic testing is done these days, we are able to look at many genes at the same time to be sure there aren't any mutations.

Most people who have a visit with a genetic counselor and decide to have genetic testing don't have a mutation found in any of their genes. That can be a relief but it doesn't explain why they make more polyps than the average person. That brings us to the new category called Colonic Adenomatous Polyposis of Unknown Etiology or CPUE, which is defined as anyone with more than 10 to 20 adenomas over a lifetime without finding a gene mutation.

The screening guidelines for CPUE depend on the polyp count: 10 to 19, 20 to 100, or more than 100 polyps. These guidelines are relatively new so be sure to ask your gastroenterologist or genetic counselor about it if you think you may fit into this category. If you have a close relative (parent or sibling) who makes lots of polyps, you may be eligible to start your colonoscopies early and have them more often.

The bottom line: If you have made more than 20 polyps, get genetic testing and talk to your GI doctor about screening for your close relatives.

For details see: NCCN Genetic/Familial High-Risk Assessment: Colorectal Guidelines, page 63.
(https://www.nccn.org/professionals/physician_gls/pdf/genetics_colon.pdf)

YOU'RE INVITED!

Fox Chase Cancer Center's Lippincott Resource & Education Center (REC) invites you to attend upcoming virtual free education sessions.

REC Education Series: Whole-Person Cancer Care: Talking About Mental Health
Date & Time:
Wednesday, May 25, 2022
1:00pm to 2:00pm

REC Education Series: Understanding Skin Cancer
Date & Time:
Wednesday, June 15, 2022
12:00pm to 1:00pm

REC Education Series: Tumor vs. Inherited Genetic Testing: What's the Difference?
Date & Time:
Tuesday, July 12, 2022
12:00pm to 1:00pm

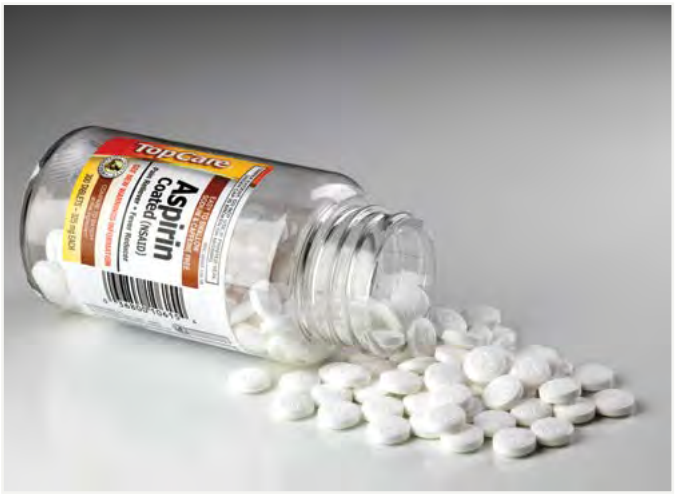
For more information, please call **215-214-1618** or email: **RECstaff@fccc.edu.**

Lynch Syndrome Patients Not Likely to Adopt Aspirin Chemoprevention

According to a new study from Fox Chase Cancer Center, only one-fourth of patients with Lynch syndrome take aspirin to reduce their risk for colorectal adenomas and colorectal cancer (CRC), despite large data supporting the drug's efficacy. "The uptake of aspirin chemoprevention by Lynch syndrome patients is overall modest," said Michael J. Hall, MD, MS, the chair of the Department of Clinical Genetics and co-leader of the Cancer Prevention and Control Program at Fox Chase Cancer Center. "Among aspirin users, fewer than one in four take the recommended dose of 600 mg daily."

In 2011, Hall noted, the phase 3 CAPP2 trial showed that 600 mg of aspirin daily reduced the risk for Lynch syndrome-associated CRC by 59% in people who adhered to this protocol for at least two years. More recently, a preplanned 10-year follow-up published in 2020 confirmed the findings. (https://pubmed.ncbi.nlm.nih.gov/32534647/)

Hall and his team sought to learn more about aspirin use in this population and determine factors of uptake by examining patients with Lynch syndrome treated at Fox Chase. The findings were presented at the 2021 Gastrointestinal Cancers Symposium.
The researchers reviewed data on 127 patients who received in-person medical recommendations and written information about cancer prevention measures, including the use of aspirin, through Fox Chase's Risk Assessment Program, beginning in 2011. The majority of the patients (94.5%) had documentation of ongoing disease by endoscopic screening; in the past three years only 3.2% had no follow-up and 2.4% died.



Overall, 24% of the patients (n=31) reported using aspirin for chemoprevention. Of these, more than half (55%) took only 81 mg daily and 16% took more than 600 mg daily.

It was found that aspirin use was associated with age older than 60 years, mutations in MLH1/MSH2 versus MSH6/PMS2, and personal history of colorectal cancer.

Adopted with permission from
https://www.clinicaloncology.com/

RESEARCH OPPORTUNITY: LATINX PATIENTS NEEDED FOR FOCUS GROUP

Dr. Michael Hall of Fox Chase Cancer Center and Dr. Sarah Bass of the Temple University School of Public Health invite you to participate in a research study

Study Purpose:
The goal of the study is to examine beliefs and perceptions of genetic risk and medical mistrust among Latinx patients.

Who may join:
Latinx patients who are treated at:
Fox Chase Cancer Center or Temple University Hospital

Study Requirements:
Participate in 1- hour focus group discussion either in-person or virtually

It is important to remember...
- It is OK if you don't have previous knowledge in the topic
- Your participation is confidential
- We offer a $50 gift card upon completion of participation in focus group discussion

Please contact:

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Tel: 215- 214-3216 email: yana.chertock@fccc.edu

Patrick Kelly, Temple University Hospital
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MAN 2 MAN

Genetic Score Predicts Lifetime Risk of Prostate Cancer Death

Routine screening for prostate cancer in healthy men has been debated in recent years due to possible over-diagnosis and unnecessary treatment for men who have a lower risk for prostate cancer.

A new study suggests that an extensive genetic risk score – polygenic score- (called PHS290, which incorporates 290 inherited variants in genes associated with prostate cancer) could be an effective tool to guide screening decisions by identifying people at high or low risk of developing metastatic prostate cancer.

Researchers used participants from the Million Veteran Program which has over 650,000 people receiving medical care that are part of the Veterans Health Administration system. Approximately 600,000 participants were men, where clinical information as well as family history of prostate cancer was collected. About 425,000 were of European ancestry, 105,000 had African ancestry, and the remaining participants were of Asian or Hispanic heritage. The median age was 69 years and all participants had consented to donate blood for genotyping.

Genotype data were used to calculate the genetic score (PHS290). A total of 582,515 men were included in the analysis. Results showed that men of African ancestry had a 1.84 times greater risk of developing prostate cancer compared to men with European ancestry. Risks of metastatic cancer and death were 2.27 times higher in men with African ancestry. Hispanic men had scores similar to men with European ancestry. The study included men of Asian ancestry, but the sample size was too small to estimate risk in this group. Family history of prostate cancer also showed a greater risk for developing and dying from the disease.

The results for the polygenic score showed that men with scores in the top 20% had a 5.6 times higher risk of developing prostate cancer, a 4.18 times higher risk of developing metastatic prostate cancer and a 4.4 times higher risk of death from it than men with scores in the lowest 20%.

One important aspect about this study is that it has included a diverse population. The PHS290 test algorithm is not yet commercially available, and may need further research for validation. This study shows that polygenic scores may provide a measure of assessing risk of dying from prostate cancer particularly for men of African ancestry.

https://www.medscape.com/viewarticle/968982#vp_2
Genitourinary Cancers Symposium (GUCS) 2022: Abstract 155. Presented February 17, 2022

Study Finds COVID-19 Vaccines Using mRNA Technology Safe for People with Cancer

According to a new study from researchers at Fox Chase Cancer Center, mRNA vaccine for COVID-19 is just as safe for people with cancer as it is for cancer-free individuals.

The researchers tracked short-term side effects from more than 1,753 recipients of the Pfizer BNT162b2 vaccine and found no additional reactions for patients undergoing active cancer treatment (surgery, chemotherapy, immunotherapy, or radiation therapy) or who had completed treatment.

"Patients, their families, and their medical caregivers should absolutely find these results reassuring. We surveyed almost 2,000 patients and found that cancer patients aren't at risk for any unexpected reactions to being vaccinated compared to people without cancer," said Eric M. Horwitz, MD, FABS, FASTRO, lead researcher and chair of the Department of Radiation Oncology at the Lewis Katz School of Medicine at Temple University. "We now have the data and the clinical experience from thousands and thousands and thousands of cancer patients who have been vaccinated. We know that the mRNA vaccines are safe and are absolutely the most effective way to prevent hospitalization and death from COVID-19," said Horwitz.

The results come from in person, phone, and online surveys given to people who received two doses of the mRNA vaccine three weeks apart between February 16 and May 15, 2021.

A total of 1,183 people with a history of cancer responded to both surveys, with 17.8% then currently undergoing treatment.

Respondents reported experiencing pain at the injection site, muscle pain, joint pain, fever, chills, headache, nausea, and fatigue at similar rates as those reported by people without cancer from the original clinical trials for the vaccine. Adverse effects for people undergoing immunotherapy also mirrored those in the general population.

"It's crucial that cancer patients get vaccinated against COVID-19 because we know they can be particularly vulnerable to infection and its consequences, but some people have expressed concerns about possible reactions from the vaccines," Horwitz said.

"Before this study, there wasn't a lot of data specifically on the cancer population so we made sure to collect and report this information to help both patients and physicians make informed decisions to get mRNA vaccines," he added.

The study, "***Adverse Events Reported by Patients With Cancer After Administration of a 2-Dose mRNA COVID-19 Vaccine,"*** was published in JNCCN—Journal of the National Comprehensive Cancer Network

https://jnccn.org/view/journals/jnccn/20/2/article-p160.xml

KNOW YOUR SUNSCREEN

Sunscreen come in many formulations and delivery methods, and it can take trial and error to find the one you like best. Whether it's a sport spray, an easy-to-use stick or a rich moisturizer with antiaging ingredients, the best sunscreen is the one you will use every day.

SPF stands for sun protection factor. The number tells you how long the sun's UVB rays would take to redden your skin when using a particular sunscreen compared with the amount of time without sunscreen. So if you use an SPF 15 product exactly as directed (applied generously and evenly, and reapplied after two hours or after sweating or swimming), it would take you 15 times longer to burn than if you weren't wearing sunscreen.

Broad spectrum. The words "broad spectrum" on a label indicate that the sunscreen contains ingredients that effectively protect against UVA rays as well as UVB.

Water resistance. While sunscreens can't claim to be waterproof, they can be labeled water resistant for either 40 or 80 minutes. Yes, you can burn even when you're in the water, so reapplying is key!

Sensitive skin. Products containing zinc oxide and titanium dioxide, sometimes referred to as mineral or physical formulas, may be less likely to cause skin irritation in people who have sensitive skin.

The pitfall. Most people don't apply sunscreen exactly as directed. They may not apply it liberally enough, might miss spots and may forget to reapply regularly. Slather it on!

The Skin Cancer Foundation advises everyone to use a broad-spectrum sunscreen with an SPF of 15 or higher every day. For extended outdoor activity, use a water-resistant, broad-spectrum sunscreen with an SPF of 30 or higher. Reapply every two hours or after swimming or sweating.

Source: **https://www.skincancer.org**

Walnut-Encrusted Tilapia

Enjoy the crispiness of fried fish with a healthy twist by baking fresh tilapia, coated in crushed walnuts and whole wheat bread crumbs. Walnuts contain high levels of polyphenols, which are phytochemicals that have antioxidant properties. They're also rich in heart-healthy omega-3 fatty acids and other important nutrients including copper and manganese. Done in 20 minutes, this simple recipe makes the perfect weekday dinner.

Ingredients:

- 1 Tbsp. extra virgin olive oil, divided
- 1 large egg
- Zest of 1 lemon
- 1 clove garlic, finely chopped
- 1 Tbsp. freshly grated Parmesan cheese
- Salt and pepper to taste
- 1/4 cup finely chopped walnuts
- 2/3 cup whole wheat bread crumbs
- 1 lb tilapia

Directions:

1. Preheat oven to 425 degrees and coat baking dish with 1 tsp olive oil.
2. Beat egg in mixing bowl and add lemon zest, remaining olive oil, garlic, Parmesan cheese, salt and pepper.
3. Mix walnuts and bread crumbs in a large bowl.
4. Dip fish into egg mixture. Then dredge in crumb-nut mixture, coating both sides well. Place breaded fillets on prepared cooking dish.
5. Bake for 17 minutes (or until inside of filet appears opaque) and serve.

Makes 4 servings (4 oz). Per serving: 260 calories, 12 g total fat (2.5 g saturated fat, 0 g trans fat), 105 mg cholesterol, 11 g carbohydrates, 28 g protein, 1 g dietary fiber, 125 mg sodium, 1 g sugar, 0 g added sugar.

Nutrition Facts

servings per container
Serving size (154g)

Amount per serving
Calories 260

	% Daily Value*
Total Fat 12g	15%
Saturated Fat 2.5g	13%
Trans Fat 0g	
Cholesterol 105mg	35%
Sodium 125mg	5%
Total Carbohydrate 11g	4%
Dietary Fiber 1g	4%
Total Sugars 1g	
Includes 0g Added Sugars	0%
Protein 28g	
Vitamin D 4mcg	20%
Calcium 54mg	4%
Iron 2mg	10%
Potassium 397mg	8%

*The % Daily Value tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

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Prevention *matters*

The Department of Clinical Genetics offers one of the most comprehensive risk assessment programs in the Philadelphia region. It encompasses all of Fox Chase Cancer Center's clinical services for people at risk for cancer, as well as innovative research in the areas of cancer prevention and genetics.

CONTACT THE RISK ASSESSMENT PROGRAM:

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Fox Chase Team Gearing Up for PurpleStride Philadelphia 2022

More than 100 teams are registered to take part in PurpleStride Philadelphia 2022 on Saturday, April 30, to support the Pancreatic Cancer Action Network (PanCAN). Fox Chase Cancer Center is proud to be one of them, led by team captain Sanjay Reddy, MD, FACS, co-director of the Marvin & Concetta Greenberg Pancreatic Cancer Institute.

The Philadelphia event is being held at Memorial Hall, Fairmount Park, 43 South Concourse Dr.

To join the Fox Chase team or to make a donation, please visit the Fox Chase team page.

For more information at: https://www.pancan.org/

Editors: Yana Chertock, Lisa Bealin, Frank Ingram and Nicole Ventriglia
Designed by **4545 Creative**

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