Prevention Matters

| FOX CHASE CANCER CENTER RISK ASSESSMENT PROGRAM PUBLICATION | FALL/WINTER 2025 |

When Should I Recontact my Genetic Counselor?

Ananya Jain, ScM, LCGC, Licensed Certified Genetic Counselor

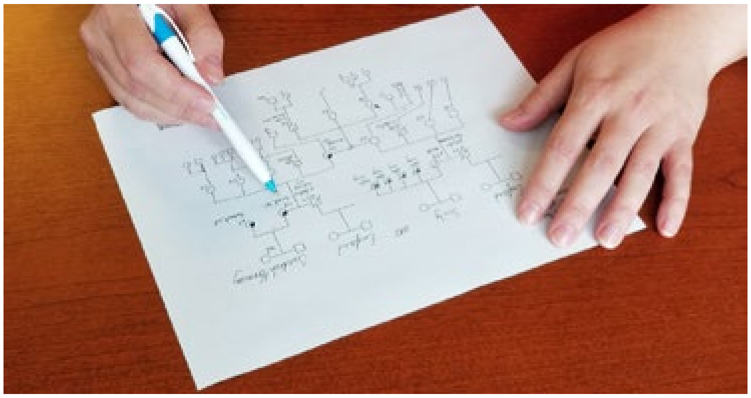
Over the past two decades, our understanding of how genes can influence cancer risk has grown tremendously. Subsequently, we have made rapid advances in genetic testing for and management of hereditary cancer syndromes. As genetic testing becomes more common, it is important to stay connected with your cancer genetics team to ensure you have the most up-to-date information about you and your family's cancer risk.

Here are some reasons to recontact your genetic counselor after having cancer genetic testing:

1. **If you received a positive result.** Although our genetic code doesn't change over our lifetime, our knowledge about it and medical guidelines for people with cancer-causing (pathogenic) genetic variants continues to grow. We recommend patients with a positive genetic testing result check in every 1-2 years to learn about updates to medical management recommendations and guidelines. Patients can also follow in one of our high-risk clinics at Fox Chase to receive this information.
2. **If your testing found a variant of uncertain significance.** A genetic finding is classified as a variant of uncertain significance (VUS) when the lab does not have enough information about that specific variant to determine if it is cancer-causing or benign (harmless). Most VUS results turn out to be harmless, but it's important to stay updated. Current NCCN guidelines recommend that patients recontact their genetic counselor every 3-5 years to receive updates about the classification of their VUS.
3. **If there is a new cancer diagnosis in you or your family.** A new diagnosis of cancer in you or in a family member can prompt additional genetic testing and change cancer screening recommendations. Keep your genetic counselor informed about changes to the family history, especially if cancers such as ovarian, pancreatic, metastatic prostate, or early-onset breast, colon, kidney, or uterine cancer are diagnosed in your family.
4. **If a relative had cancer genetic testing and tested positive.** When a family member is found to have a positive genetic testing result, their result can help clarify genetic risk for the rest of the family. Your genetic counselor can help re-assess your risk for cancer based on a relative's genetic testing result and compare your results to determine if any updated genetic testing is needed.

5. **If your genetic testing was done more than 10 years ago or if you had limited genetic testing.** Genetic testing panels now include many more genes than they did a decade ago. If you had genetic testing over 10 years ago or had limited genetic testing done (only testing for a few genes), you may be eligible for updated genetic testing.

Genetic testing can provide important information about your cancer risks and options for managing them. Stay updated on your results and guidelines, and don't hesitate to reach out to your genetic counselor anytime with questions or concerns — we're here to help.



Please contact the Risk Assessment Program at 877-627-9684

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Fox Chase Cancer Center
Temple Health

What's my Breast Cancer Risk Score?

Kathleen Henderson, MSN, ANP-BC, ACGN, Advanced Practice Clinician

Breast cancer is the most common cancer in women. Average risk females have an approximate 12% lifetime risk and should begin annual mammograms at age 40. Screening mammograms have been shown to decrease breast cancer mortality, and specifically tomosynthesis (3D) images may improve cancer detection.

Inherited genetic mutations contribute to only ~ 10% of all breast cancers. Since 2014, we can test for 13 genes that increase breast cancer risk– *BRCA1, BRCA2, CDH1, PALB2, PTEN, STK11, TP53, NF1, BARD1, CHEK2, ATM, RAD51C, RAD51D*.

Depending on the gene, the risk of breast cancer in someone with a mutation can range between 20 to 70%. Therefore, annual breast MRI is recommended with mammogram at varying ages of initiation.

There are multiple risk factors for breast cancer:

- Family history of breast cancer
- Increased age
- Early first menstrual cycle, late menopause, older age at first live birth, or no live childbirths
- Combination estrogen and progesterone use
- Breast density (heterogeneously or extremely dense)
- Atypical hyperplasia or LCIS (Lobular Carcinoma in Situ)
- Prior breast biopsies
- Chest radiation prior to age 30
- Increased BMI
- Alcohol intake

For women who do not have a personal history of breast cancer or a genetic mutation, we have several tools to estimate their lifetime risk of developing breast cancer. These risk assessment models are based on family history and personal factors.

Different risk models may result in varying scores because each model uses different risk factors to generate their scores. Risk scores may change over time and should be recalculated when there are changes in family history or personal factors such as breast density, breast biopsies, or aging. NAPBC- accredited breast centers like Fox Chase are required to perform risk assessments during mammogram screening beginning in 2024.

In our high-risk breast clinic, we use the *Tyrer-Cuzick* risk model. Based on a woman's calculated lifetime breast cancer risk, we can provide individualized breast screening.

When a woman has a lifetime breast cancer risk of 20% or higher, we can add breast MRI alternating with mammogram each year. This allows women with an increased risk to be evaluated every 6 months with breast imaging and a clinical breast exam, similar to women with a genetic mutation.

High risk screening can sometimes start before age 40 if there is a family history of early onset female breast cancer in a close relative. In that case, a woman can begin breast screening 10 years prior to diagnosis of the youngest relative with breast cancer (breast MRI not before age 25 and mammogram not before age 30). If a woman is unable to tolerate breast MRI, then she may discuss other radiologic screening options.

Since September 2024, breast density is included in patient letters with each mammogram, as required by the FDA. Approximately 40-50% of women over the age of 40 have dense breasts. Radiologists designate breast density into 4 categories from lowest to highest density: almost entirely fatty, scattered areas of fibroglandular density, heterogeneously dense, and extremely dense. Dense breast tissue can make mammograms more difficult to read. Updated NCCN (National Comprehensive Cancer Network) guidelines in 2025 have expanded breast MRI scans to women with extremely dense breasts starting at age 50, even when their lifetime breast cancer risk is less than 20% on the *Tyrer-Cuzick* model.

Women with heterogeneously dense breasts and a lifetime breast cancer risk less than 20% on the *Tyrer-Cuzick* model can pursue screening breast ultrasound with mammogram to improve cancer detection.

In summary, every woman should have a breast risk assessment. First, she should pursue genetic testing if she meets criteria based on personal and family history to determine any inherited mutation. If there is no personal history of breast cancer or genetic mutation, then she should discuss her personal factors and family history to determine her breast cancer risk score.

Risk scores can change over time and medical guidelines are routinely updated.

Our Risk Assessment Program has high risk breast clinics at Fox Chase, Temple hospital, Chestnut Hill hospital, and Buckingham office.

Genetic Testing Guideline Updates

By Chau Nguyen, MS, LCGC, Licensed Certified Genetic Counselor

For patients interested in undergoing hereditary cancer genetic testing, many may remember meeting with a cancer genetic counselor who discussed if a patient met the National Comprehensive Cancer Network (NCCN) criteria for testing.

The NCCN criteria are reviewed annually, and updates are made frequently that can impact who meets criteria for genetic testing. The latest NCCN guidelines suggested some changes for testing eligibility and screening. To keep our patients up to date, we highlighted some of the latest NCCN guideline changes.

Expanded Access for Genetic Testing	
Ovarian cancer	• Genetic testing is now indicated for individuals with ovarian cancer with the following pathology: o Sex-cord tumors o Small cell carcinoma of the ovaries, hypercalcemia type (SCCOHT) • Testing for ovarian cancer should be considered for females with a personal history of serous tubal intraepithelial carcinoma (STIC)
Prostate cancer	• Genetic testing based on a family history of prostate cancer has expanded to include both 1st and 2nd degree relatives. o For example: Patients who do have a personal history of prostate cancer but have/had a brother, father, uncle, or grandfather who meet NCCN criteria for testing now meet testing criteria themselves
Li-Fraumeni Syndrome or Cowden Syndrome	• Genetic testing based on a family history suspicious for Li-Fraumeni Syndrome or Cowden Syndrome has expanded to include both 1st and 2nd degree relatives.
Associated Cancer Risk/Screening Changes	
PALB2 gene	• The PALB2 gene is now associated with an increased risk for prostate cancer due to emerging evidence. o There has not been clear evidence to suggest if prostate screening should change for families with PALB2 mutations
TP53 gene	• The TP53 gene is now strongly associated with a risk for prostate cancer. o The lifetime risk is suggested to be 25-50% compared to the general population risk of 12%. Prostate cancer screening is recommended to begin at 40 years old
MSH2 gene	• The MSH2 gene, related to Lynch syndrome is now associated with an increased risk for sarcomas o The lifetime risk is estimated to be 4.24% compared to 0.1% for the general population. • Although the risk is estimated to be higher, there is no clear evidence to support surveillance screening for MSH2 positive patients
PMS2 gene	• Cancer screening for the PMS2 gene, also related to Lynch syndrome have been updated o The guidelines now only list a lifetime risk for PMS2 carriers related to colon and endometrial cancer. o While other Lynch related cancers such as ovarian, renal/ureter/bladder, gastric, small bowel, pancreas, biliary tract, prostate, breast (in females), brain and skin cancer have been seen in families with PMS2 mutations, it is unclear if there is an elevated risk for these cancers compared to the general population. o The NCCN guidelines now suggest surveillance for these other cancers be individualized and based on personal and family history, in addition to clinical judgement.

Genetic testing guidelines can change frequently. Should patients have questions or concerns regarding their testing eligibility or changes to screening management, we encourage them to contact our office at 877-627-9684.

Source:
NCCN Guidelines: Breast, Ovarian, Pancreatic & Prostate Cancer (Version 1.2026)
NCCN Guidelines: Colorectal, Endometrial, & Gastric (Version 1.2025)

RESEARCH OPPORTUNITY

Pancreatic Cancer Early Detection Consortium

Mission: ***To transform the landscape of pancreatic cancer risk assessment, early detection, prevention and survival***

What is the PRECEDE Consortium?

The PRECEDE Consortium is a collaborative group of academic and research centers, striving to improve pancreatic cancer outcomes. We are working to identify family members of pancreatic cancer patients, who may be at high risk of developing pancreatic cancer. The most important part of the PRECEDE Consortium is participants like you. Your participation will help us to improve pancreatic cancer assessment, early detection, prevention, and survival.

Who is eligible to participate?

- Adults 18 to 90 years old with one or more of the following:
- One or more family members have pancreatic cancer
- You have pancreatic cancer
- You have pancreas cyst(s)
- You have a pathogenic or likely pathogenic gene mutation in genes like ***ATM, BRCA1, BRCA2, CDKN2A, EPCAM, MLH1, MSH2, MSH6, PALB2, PMS2, PRSS1, STK11***

What will I be asked to do as a participant in the PRECEDE Consortium?

- Attend an annual or semi-annual clinical appointment
- Provide an annual sample of blood
- Provide a one-time DNA sample
- Provide your medical and family medical history
- Permission to access your medical records to include information in PRECEDE database, including results from your routine clinical care, genetic testing results, imaging results (MRI/MRCP, endoscopic ultrasound, CT scan of abdomen).
- If you are diagnosed with pancreatic cancer, you will be asked to donate extra tissue at the time of clinical biopsies or surgery

All your personal information and samples will be de-identified to protect your privacy and confidentiality.

Contact us
Eberechukwu Muoneke, Research Assistant
Email: Eberechukwu.muoneke@fccc.edu
Phone: 215-728-2183
Monday-Thursday, 7am-3:30pm

Dr. David Weinberg, MD
Chair Department of Medicine,
Fox Chase Cancer Center
PRINCIPAL INVESTIGATOR

WELCOME TO THE TEAM!

Eberechukwu Muoneke, BSN, MPH, Research Study Assistant

It is a privilege to be part of Fox Chase Cancer Center. Originally from Nigeria, I am a registered nurse in Pennsylvania with a Bachelor of Nursing degree from the University of Sunderland (UK) and a Master of Public Health in Epidemiology from Temple University.

Prior to joining Fox Chase, I worked in diverse healthcare settings as a nurse and collaborated with communities to provide healthcare, education, and preventive medicine for underserved populations. These experiences shaped my interest in public health and research.

As a Graduate Research Assistant at Temple University's Risk Communication Lab, I supported projects focused on risk assessment, improving public health decision-making, enhancing health communication, and translating research findings to advance population health.

My goal is to leverage my nursing and public health background to support research activities that promote evidence-based practices and improve patient outcomes.

YOUNG ADULT CANCER PROGRAM

Comprehensive treatment and support for a growing population of cancer patients.

Compassionate Care for the Life You're Building

Cancer can feel isolating-especially when it happens at a young age. The Fox Chase Young Adult Cancer Program was created specifically for people ages 18 to 39 who are navigating cancer care while balancing school, work, relationships, and family life. Our team understands that young adults have unique challenges — and we're here to support every part of your journey.

You're Not Alone

Each year, more young adults are diagnosed with cancers that were once seen mostly in older adults— like breast, colorectal, lymphoma, melanoma, and sarcoma. At Fox Chase, you'll find a program built to meet your distinct needs, connect you with peers, and help you move forward with confidence.

Comprehensive Support Beyond Treatment

Personalized Care

Your care team could include doctors, nurses, genetic counselors, social workers, and fertility experts who understand the medical and emotional needs of young adults. Every treatment plan is designed around you-your goals, your future, and your life beyond cancer.

Fertility and Sexual Health Support

We'll connect you with specialists who can help preserve fertility before treatment begins and offer guidance on sexual health during and after cancer care.

Emotional and Mental Health Resources

Our psychologists, social workers, and numerous support groups help you and your loved ones find strength, share experiences, and stay connected.

Financial Counseling

Our financial counselors help you navigate the costs of treatment, insurance questions, and financial challenges unique to early adulthood—including student loans, new careers, or family responsibilities.

Genetic Risk and Family Counseling

Some cancers in young adults may be linked to inherited risk. Our genetics team offers testing and counseling for you and your family to understand your risk and plan for the future.

Education and Family Support

We provide education and guidance for parents, partners, and caregivers to help them support you through every phase of treatment and recovery.

Need Help?

Chris Cann, MD
Clinical Director, Young Adult Program
Christopher.Cann@FCCC.edu

Disha Sawhney, MHA, FACHDM, DHA (C)
Program Manager, Young Adult Program
Disha.Sawhney@FCCC.edu

General Questions?
YAP@FCCC.edu

Get Connected

Learn more about the Fox Chase Young Adult Cancer Program or request an appointment today:
888-FOX-CHASE (888-369-2427)
FoxChase.org/YoungAdult
Your Voice Matters.

Help us shape the future of care for young adults with cancer. Take our short **Needs Assessment Survey** and tell us how we can better support you.

MAN 2 MAN

REVIEWING GENETIC TESTING CRITERIA FOR PROSTATE CANCER RISK

Maria Kadlec, BSN,RN, Nurse Navigator

Genetic factors (both inherited gene mutations and family history) can meaningfully raise someone's risk of developing prostate cancer, change when screening should start, and how aggressively they should be evaluated.

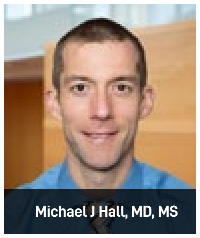
The National Comprehensive Cancer Network (NCCN) has provided testing criteria for prostate cancer genes. You can have genetic testing if you:

1. Have a personal history of high risk or metastatic prostate cancer
2. Have Ashkenazi Jewish ancestry and a personal history of prostate cancer or a family history of a first or second-degree relative with prostate cancer
3. Have prostate cancer and a family history of at least one first degree or second-degree blood relative with metastatic or high-risk prostate cancer, male breast cancer, female breast cancer under age 50, ovarian cancer, or pancreatic cancer
4. Have three or more close relatives (first, second, or third-degree relatives) with any of the above-mentioned cancers that are on the same side of the family

Fox Chase Cancer Center has a PRAP (Prostate Risk Assessment Program) clinic in the Department of Clinical Genetics. It is a research and clinical program for men at high risk of developing prostate cancer with family history or genetic predisposition.

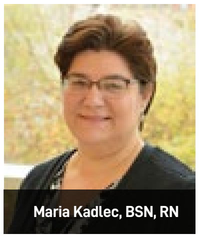
If you have a family history of prostate cancer and no genetic mutation, you qualify to be part of the PRAP clinic for high-risk screening surveillance if the following pertains to you:

- You are between the ages of 35-69 with one first degree relative (such as father, brother, or son) who has been diagnosed with prostate cancer.



Michael J Hall, MD, MS

David Chen, MD, FACS



Maria Kadlec, BSN, RN

- You have two second degree relatives (grandfather, uncle, half-brothers, or nephews of your full siblings) from the same side of the family.
- You are African American with or without a first degree relative with prostate cancer.

If you are found to have a gene that can predispose you to prostate cancer, you can come to our PRAP clinic (ages 35-69) to discuss and have preventative screening with more intensity of surveillance with our providers. This screening is done by rectal exam, PSA blood testing with repeat intervals, prostate MRI and prostate biopsy if warranted.

Our clinic team consists of Dr. Michael Hall and Dr. David Chen, who are the providers for the program. Maria Kadlec, RN, who is the contact for clinical matters, such as PSA, MRI, and mammogram results. Deb Zakrzewski, coordinator, helps with scheduling visits and testing. Deb Grace, research assistant, conducts research aspects of the clinic.

Please do not hesitate to contact us if you have any questions about this process. 215-728-2406.

Research opportunity for individuals with a mutation in the *ATM* gene.

We are inviting those who have tested positive for a genetic mutation in the ATM gene to participate in our new research study! To be part of this study we will ask you to donate research blood to the Risk Assessment Program (RAP) registry to help us develop new technologies to more accurately assess cancer risk and interpret genetic variants.

In this study, the RAP registry collaborates with Dr. Sanjeevani Arora's lab at Fox Chase Cancer Center. Dr. Arora is a trained molecular geneticist. Her research focuses on understanding inherited genetic mutations in DNA repair genes. DNA repair genes have the job of fixing mistakes in DNA. When there is a mutation in one of these genes, it may allow mistakes to build up inside the cell, which may lead to the cell growing out of control. Dr. Arora's research on DNA repair genes can help us determine an individual's cancer risk and understand the outcomes for patients undergoing DNA-damaging treatments, such as chemotherapy and radiation. Dr. Arora's goal is to identify biomarkers, such as unique genes, proteins, and other molecular signifiers that can shed light on both cancer risks and patient outcomes.

All information and samples will be handled with the highest respect for privacy and confidentiality.

Sanjeevani Arora, PhD

If you are interested, please contact **Deb Grace at 215-214-3788** or email **deborah.grace@fccc.edu**.

The Clinical Genetics team from Fox Chase Cancer Center presented their research at the annual meeting of the Collaborative Group of the Americas on Inherited Gastrointestinal Cancer, held this October in St. Louis.

From left to right: Devora Schapiro, Hannah Campbell, Erica Trujillo, Ananya Jain, Corinne Zrada,Chau Nguyen, and Michelle Mcsweeny

The following research studies were presented as posters:

CLINICAL AND MOLECULAR CHARACTERISTICS OF YOUNG ADULT PANCREATIC CANCER: A SINGLE-CENTRE REVIEW
General Research - Pancreatic cancer-related syndromes
Authors: Devang Namjoshi, Deborah Grace, Michael Hall
Institutions: Saint Vincent Hospital, Fox Chase Cancer Center

EARLY EXPERIENCE WITH CLINICAL SOMATIC MOSAIC APC TESTING FOR COLONIC POLYPOSIS OF UNKNOWN ETIOLOGY (CPUE)
General Research - Adenomatous polyposis syndromes including FAP
Authors: Michelle McSweeny, Corinne Zrada, Michael Hall
Institutions: Department of Clinical Genetics, Fox Chase Cancer Center, Philadelphia, PA,

MICROSATELLITE INSTABILITY HIGH (MSI-H) COLORECTAL CANCER (CRC) ASSOCIATED WITH A GERMLINE PATHOGENIC VARIANT (GPV) IN BRCA1
Case reports / Case series
Authors: Devang Namjoshi, Michael J Hall, Eric Tetzlaff
Institutions: Fox Chase Cancer Center, Philadelphia, PA, USA, Saint Vincent Hospital, Worcester MA, USA

MEASURING PREFERENCES FOR DIETARY PREVENTION INTERVENTIONS AMONG PATIENTS (PTS) WITH LYNCH SYNDROME (LS)
General Research - Lynch syndrome
Authors: Devang Namjoshi, Emma Riggs, Yana Chertock, Michael J Hall
Institutions: Fox Chase Cancer Center, Philadelphia, PA, USA, Saint Vincent Hospital, Worcester, MA, USA

THE LANDSCAPE OF CANCER DIAGNOSES IN PMS2 MUTATION CARRIERS, BY SELF-REPORTED ANCESTRY
General Research - Lynch syndrome
Authors: Shrutika Yeola, Hannah Campbell, Alexandra Katterfield
Institutions: Myriad Genetics, Inc, Salt Lake City, UT, USA, Fox Chase Cancer Center, Philadelphia, PA, USA

Cranberry Flax Pumpkin Bread

Two of the season's most-loved foods come together in this delicious homemade bread. Pumpkin's potent beta-carotene and cranberries' anthocyanin phytochemicals are blended together with flaxseed's protective omega-3 fats. Flax is also being studied for their lignans, plant estrogens which may play a role in protecting against breast cancer.

Ingredients:

- Canola oil spray
- 1/2 cup whole-wheat pastry flour
- 1/2 cup unbleached all-purpose flour
- 1/2 cup ground flaxseed
- 2/3 cup packed light brown sugar
- 1 tsp. baking soda
- 1/2 tsp. salt
- 2 large eggs
- 1 cup canned pumpkin
- 1/4 cup canola oil
- 1/2 cup unsweetened applesauce
- 1/4 cup 100 percent apple juice
- 1/2 tsp. ground cinnamon
- 1/2 tsp. ground ginger
- 1/4 tsp. ground nutmeg
- 1 cup dried cranberries

Makes 12 servings (1 slice). Per serving: 200 calories, 7 g total fat (0.5 g saturated fat, 0 g trans fat), 30 mg cholesterol, 32 g carbohydrates, 3 g protein, 3 g dietary fiber, 220 mg sodium, 21 g sugar, 12 g added sugar.

Directions:

1. Preheat oven to 350 degrees F. Lightly coat 8 x 4-inch loaf pan with canola oil spray and set aside.
2. In large bowl, combine whole-wheat pastry flour, all-purpose flour, flaxseed, sugar, baking soda and salt and set aside. In a medium bowl, lightly beat eggs. Whisk in pumpkin, canola oil, applesauce, apple juice, cinnamon, ginger and nutmeg. Stir in dried cranberries. Add wet ingredients to dry ingredients, mixing until all dry ingredients are incorporated into batter. Do not beat or overmix. Pour batter into prepared pan.
3. Bake for 50-60 minutes, until wooden toothpick inserted into center comes out clean. Cool in pan on wire rack for 10 minutes. Remove bread from pan and continue cooling on rack.

Source: www.aicr.org/cancer-prevention/recipes/cranberry-flax-pumpkin-bread/

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:

1-877-627-9684 | foxchase.org/rap
rapinfo@fccc.edu

Mary Daly, MD, PhD
Director, Risk Assessment Program

Michael Hall, MD, MS
Chair, Department of Clinical Genetics

Fox Chase Cancer Center
Temple Health

TOGETHER FACING PANCREATIC CANCER

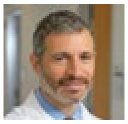
You're invited to a free educational and inspirational event for patients, survivors, families, caregivers and healthcare providers to honor those impacted by pancreatic cancer. This event will also include Pancreatic Cancer Action Network's annual PurpleLight tribute.


Albanese


Astsaturov


Cukierman


Hall


Meyer


Reddy


Simons


Staunton

THURSDAY, NOVEMBER 20, 2025

Registration, dinner and vendor fair: 5:30 – 6:30 pm
Formal program: 6:30 – 7:40 pm
PurpleLight: 7:40 – 8:00 pm

FOX CHASE CANCER CENTER CAFETERIA
2ND FLOOR CENTER BUILDING
333 COTTMAN AVENUE, PHILADELPHIA, PA 19111

Free parking in the Reimann Building lot

Visit **donate.foxchase.org/TogetherFacingPancreaticCancer** to register. If you have any questions, please call **215-728-2745.**

Editors: **Yana Chertock and Deborah Grace**
Design: **Joe Gillespie, 4545 Creative**

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