PATIENT GUIDE TO **HEREDITARY CANCER TESTING**

Precision Medicine *by* Mercy

WHAT IS **GENETIC TESTING**

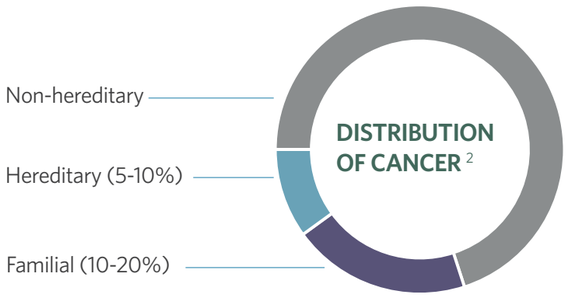
Genetic testing is used to look for changes, called variants, in our genes. In cancer, these changes can affect how cells may grow or multiply, and different types of genetic tests are used to look for germline variants (variants a person has had since birth).

- **Germline testing** (or hereditary testing) looks for genetic variants a person has had since birth that can increase an individual's risk for developing a hereditary cancer.

Genes are the body's instructions that determine how our bodies develop, grow and function. Most cancers are caused by changes to one's genes that happen by chance or due to environmental factors; these are called non-hereditary (sometimes called sporadic) cancers.

Some cancers are due to a combination of environmental and genetic factors; these are called "familial cancers." Individuals who have a family history of cancer may have a slightly increased risk to develop that cancer type.

More rarely, gene changes may be inherited (these are called germline variants) from a parent and passed on to one's children and can cause hereditary cancers. The most common types of hereditary cancers are breast, ovarian, colorectal, endometrial, prostate and pancreatic cancer.[1]



PERSONAL HISTORY OF CANCER

- Early age at diagnosis (<50y)
- Ovarian, pancreatic, colorectal or metastatic/high-grade prostate cancer diagnosed at any age
- Rare tumors/cancers diagnosed at any age, including male breast cancer, paragangliomas, pheochromocytomas, medullary thyroid cancer, etc.
- Multiple primary cancers or bilateral tumors
- Ashkenazi Jewish ancestry

FAMILY HISTORY OF CANCER

Multiple relatives on the same side of the family with the same or related types of cancers:

- Breast, ovarian, pancreatic and/or prostate
- Colorectal, endometrial and/or gastric
- Blood relative with a germline variant associated with a cancer risk

POSSIBLE RESULTS

POSITIVE RESULT | +

A genetic variant was identified in a specific gene that confirms a hereditary cancer syndrome. Your other at-risk relatives may also be tested for the specific variant.

NEGATIVE RESULT | –

No clinically significant germline variants were identified. There are other environmental, family or medical factors that could increase your likelihood of developing cancer.

"VARIANT OF UNCERTAIN SIGNIFICANCE" RESULT | ?

A genetic variant was identified, but it's not currently known if the variant increases cancer risk at this time. These variants shouldn't be used to guide your medical care. Updated results will be sent to your health care provider when new information is available.

HOW ARE **RESULTS FROM GENETIC TESTING USEFUL**?

If you have a germline mutation, there's

UP TO A 50% CHANCE

your first-degree relatives carry the same mutation.

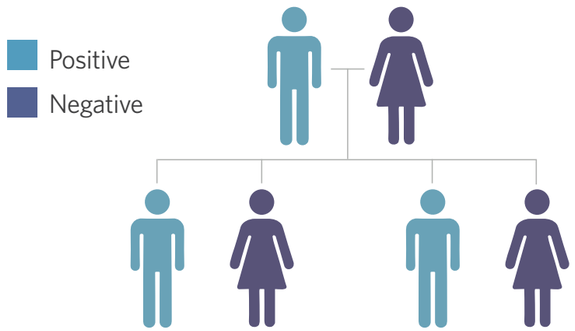
Based on your results your health care provider may recommend:

- Increased cancer screening
- Risk reduction measures to help reduce the likelihood that you'll ever develop a cancer
- Specific treatments/medications to help treat or prevent cancer
- Testing for family members

If you're tested and found to have a germline variant associated with an increased risk of cancer, then other family members may be at an increased risk of carrying the same variant.

Identification of at-risk family members is an important part of hereditary cancer testing. If your germline test showed a positive result, testing for that specific variant is available for your family members through Tempus.

Please reach out to your provider to request more information about free known variant analysis testing.



GENE LIST
COMMON HEREDITARY CANCERS

Genetic testing includes but is not limited to these genes associated with common hereditary cancers.

Gene(s)	Breast	Ovarian	Colorectal	Endometrial	Pancreatic	Prostate	Other*
APC			●		●		●
ATM	●	●			●	●	
AXIN2			●				
BAP1							●
BARD1	●						
BMPR1A			●				●
BRCA1	●	●			●	●	
BRCA2	●	●			●	●	●
BRIP1	●	●					●
CDH1	●						●
CDKN2A					●		●
CHEK2	●					●	●
EPCAM		●	●	●	●	●	●
FH							●
FLCN							●
GREM1							●
HOXB13							
MBD4			●				●
MET							●
MLH1		●	●	●	●	●	●
MLH3			●				
MSH2		●	●	●	●	●	●
MSH3			●				
MSH6		●	●	●	●	●	●
MUTYH			●				
NF1	●						●
NTHL1			●				
PALB2	●	●			●		
PMS2		●	●	●	●	●	●
POLD1			●				
POLE			●				
PTEN	●		●	●			●
RAD51C	●	●					
RAD51D	●	●				●	
RPS20			●				
SMAD4			●				●
STK11	●	●	●		●		●
TP53	●	●	●	●	●	●	●
TSC1							●
TSC2							●
VHL							●

BILLING INFORMATION **STEP BY STEP**

01

When your doctor orders Tempus testing, insurance information is submitted along with the request for testing. Tempus has a fixed out-of-pocket price if insurance does not cover testing.

02

Tempus will bill your insurance directly. We accept all insurance plans including Medicare and Medicaid.

03

You may receive an Explanation of Benefits (EOB) from your insurance company. This is not a bill; it shows the specific Tempus test that was billed and what insurance covered.

04

Tempus will not bill you for any amount not allowed by your insurance. You may receive a bill for out-of-pocket expenses resulting from the application of coinsurance percentage or deductibles in your insurance policy. The financial assistance program is designed to help patients in financial need afford the cost of testing.

Financial Assistance

Tempus is committed to providing easy and affordable access to our tests and services. The Tempus financial assistance program is designed to help patients in financial need afford the cost of testing.

1. Apply for financial assistance online at **access.tempus.com** or call the Client Services team at 800.739.4137 for immediate review.
2. If approved, you'll know immediately about the maximum out of pocket cost of your testing.

Please contact **billing@tempus.com** if you're concerned about out-of-pocket costs and would like to discuss your options.

All U.S.-based patients are eligible to apply for financial assistance regardless of insurance status. Self-pay forms are also available for both domestic and international patients. If you have any questions, please email **patients@tempus.com**.

For more information, visit **tempus.com/patients/oncology/**

What is the process for hereditary cancer testing?

- Your health care provider will collect a sample (either blood or saliva) or request a kit to be sent to your home.
- Your sample is sent to Tempus for processing. Your testing results are generally available in about two weeks or less.
- Once your result is ready, your health care provider will review the results with you and determine next steps.

Will my genetic test results affect my insurance coverage?

Since 2008, a U.S. federal law called the Genetic Information Nondiscrimination Act (GINA) has protected individuals from genetic discrimination in health insurance and employment. Other laws meant to protect against the misuse of genetic information may also be in place depending on where you live in the world. Germline mutations can impact life, long-term care and disability insurance. To learn more about GINA visit **ginahelp.org**.

Genetic testing and insurance

If genetic testing finds an inherited change that raises your risk for cancer, here's what you should know:

- Your health insurance and job are protected
- A federal law called the Genetic Information Nondiscrimination Act (GINA) protects you. Your health insurance company cannot use your genetic test results to deny you coverage or charge you more. Your employer cannot use this information to make decisions about hiring, firing or promotion.

GINA does not cover these policies:

- Life insurance
- Long-term-care insurance
- Disability insurance

If life, disability or long-term-care insurance is important to you, consider securing these policies before you have genetic testing.

How will my test results be protected?

In accordance with the Health Insurance Portability and Accountability Act (HIPAA), Tempus is required by law to maintain the confidentiality of your protected health information. To learn more about HIPAA, visit **HHS.gov**.

Who can I talk to about my genetic testing results?

Your health care provider will review the results with you.
You also may wish to discuss the results with a genetic counselor.
Free genetic counseling may be available to you through Tempus.

Genetic counselors in your area can be found here:
FindAGeneticCounselor.nsgc.org.

FREQUENTLY ASKED **QUESTIONS**

Tempus is here to help.

For all other concerns, our customer service team is available from 7 a.m.–7 p.m. CST, Mon.–Fri.

Call us at 800.739.4137

Email us a **support@tempus.com**

TEMPUS.COM

REFERENCES

[1] Eckerle Mize D, Bishop M, Resse E, Sluzevich J. Familial atypical multiple mole melanoma syndrome. In: Riegert-Johnson DL, Boardman LA, Hefferon T, Roberts M, eds. Cancer Syndromes. National Center for Biotechnology Information (US); 2009. Accessed February 29, 2024. http://www.ncbi.nlm.nih.gov/books/NBK7030/

[2] American Cancer Society. Family Cancer Syndromes. Accessed February 29, 2024. https://www.cancer.org/cancer/risk-prevention/genetics/family-cancer-syndromes.html

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