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The Permanente Medical Group

Clinical Genomics in Cancer Care

Pathways Forum

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KP Northern California Precision Medicine & Genomics

TPMG

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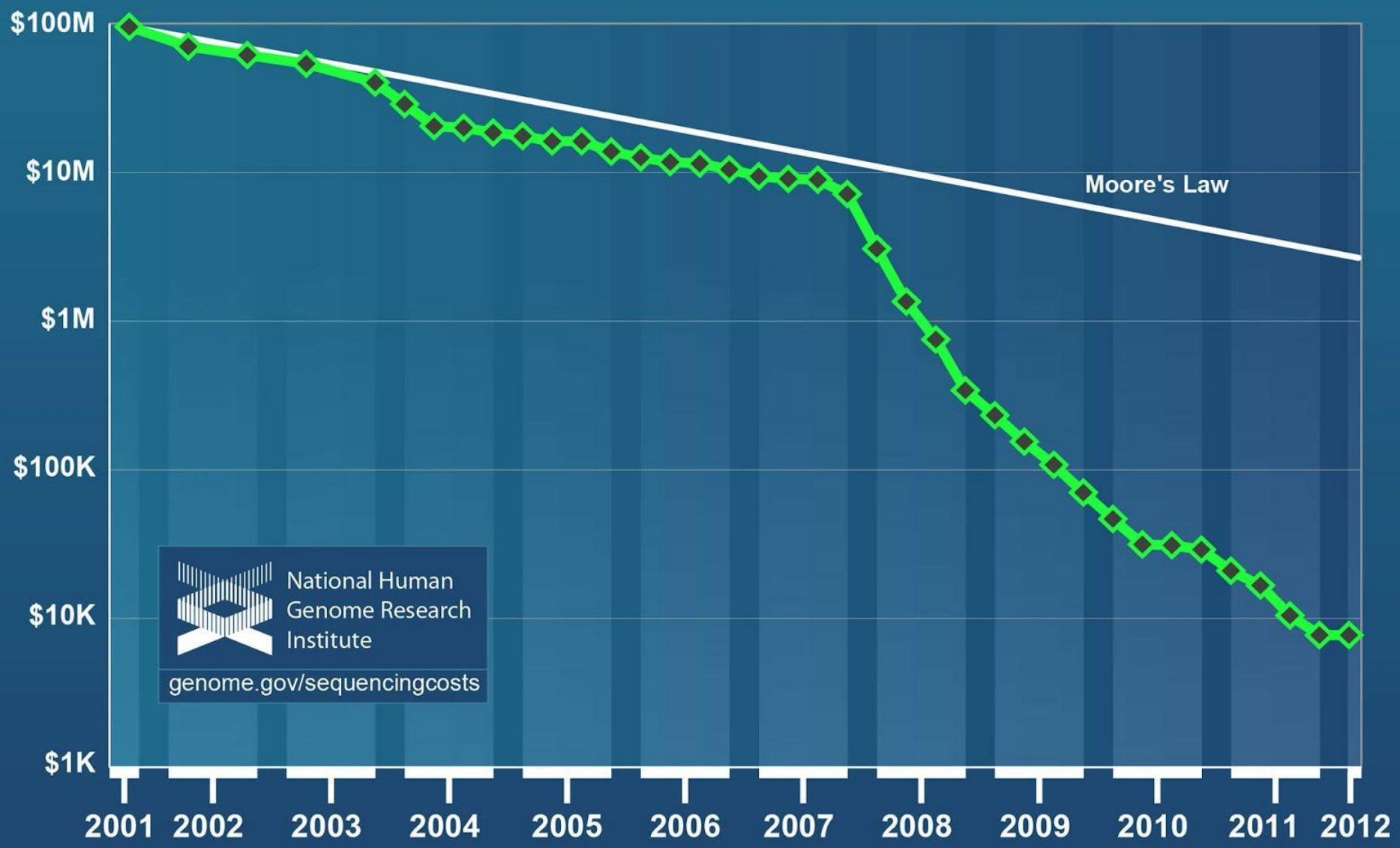
Disclosure of Relevant Financial Relationships

- Leslie Manace Brenman and the planners of this activity have no relevant financial relationship(s) with ineligible companies to disclose.

- Ineligible companies are those whose primary business is producing, marketing, selling, re-selling, or distributing healthcare products used by or on patients.

- Financial relationships of any dollar amount are defined as relevant if the educational content is related to the business lines or products of the ineligible company.

Cost per Genome



Progress in science depends on new techniques, new discoveries and new ideas, probably in that order." *-Sydney Brenner*

Single gene analysis

Individual gene sequencing, dosage analysis (PCR, MLPA)

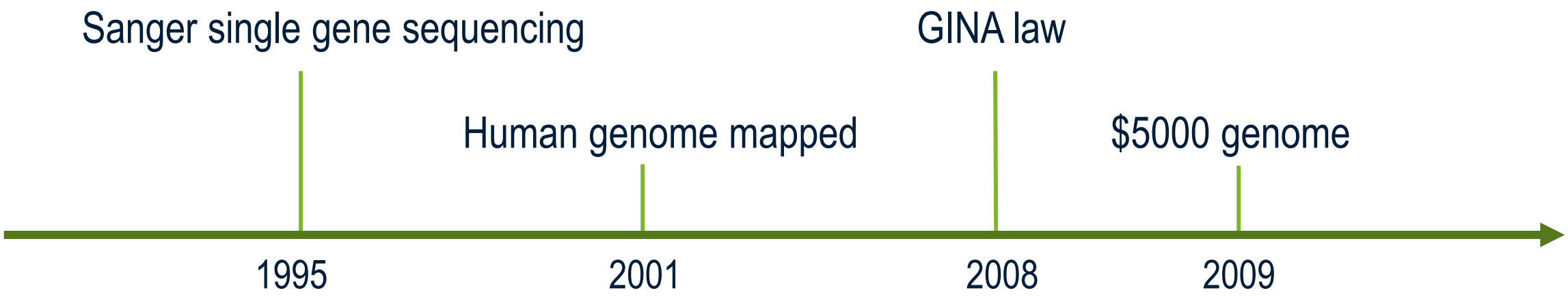
Chromosome microarray

Chromosome microdeletion/ duplication detection

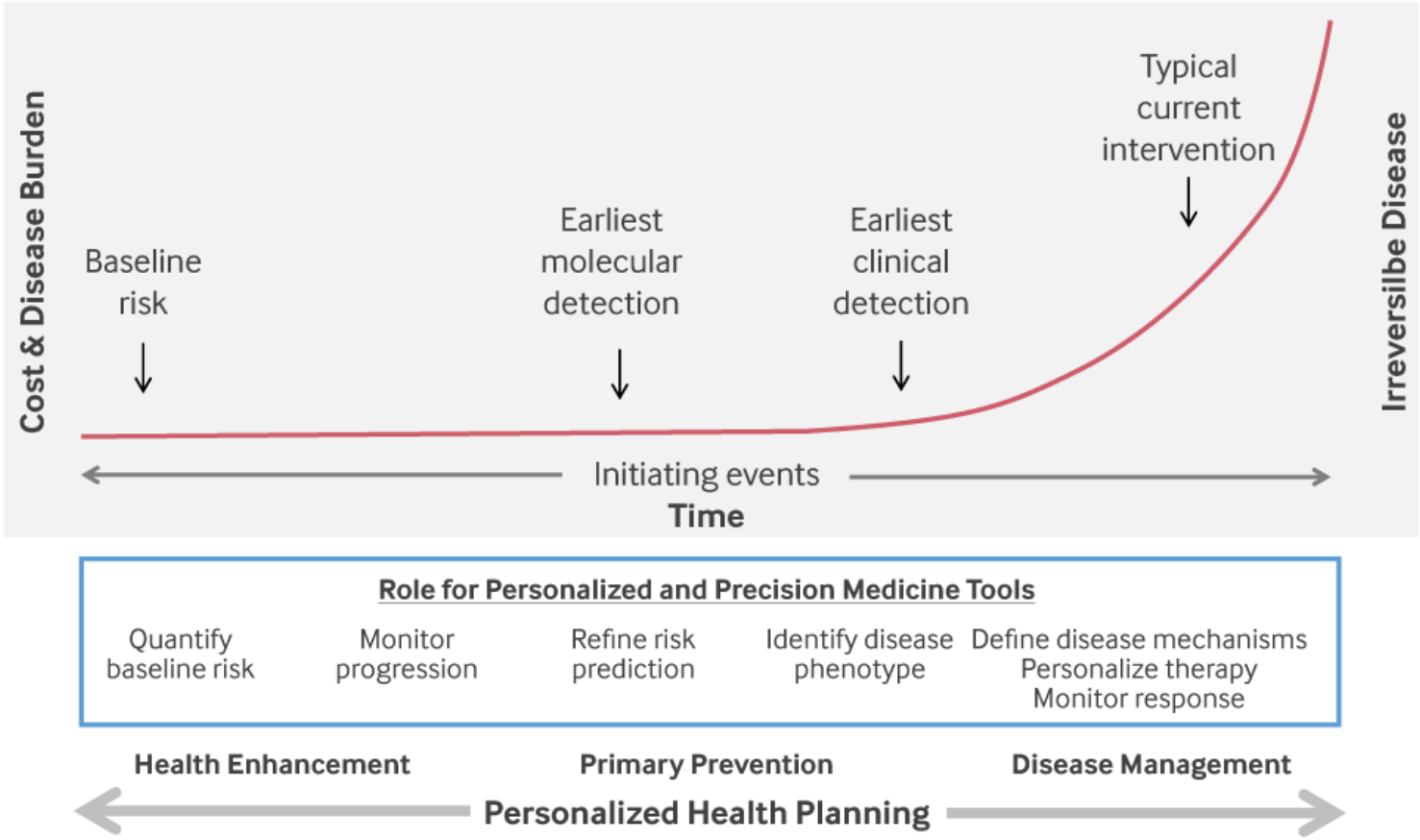
Next generation

Multiple gene panels
Whole exome / genome

Timeline

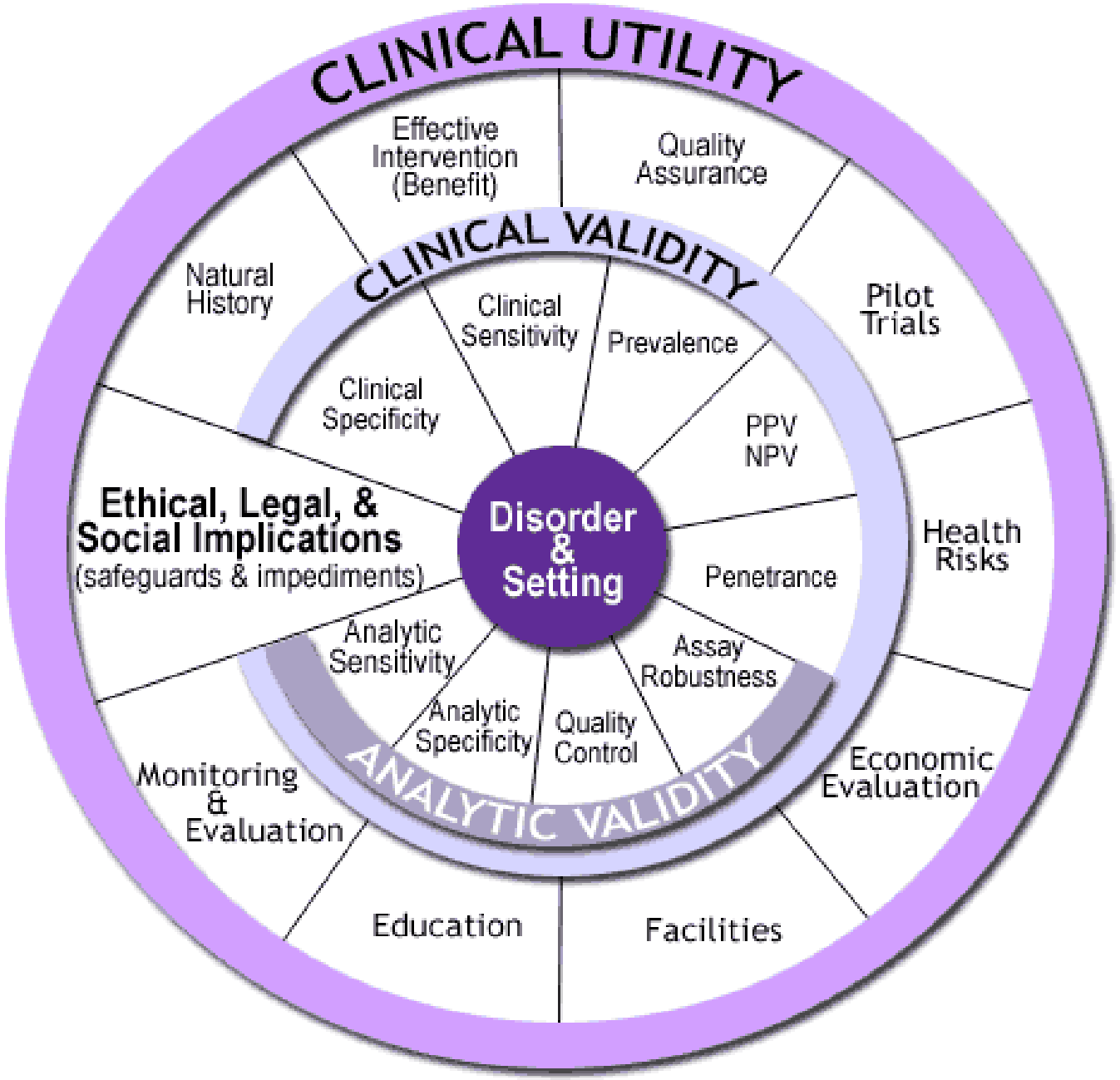

Sanger single gene sequencing
GINA law
Human genome mapped
$5000 genome
1995
2001
2008
2009

Inflection Curve of Disease Development

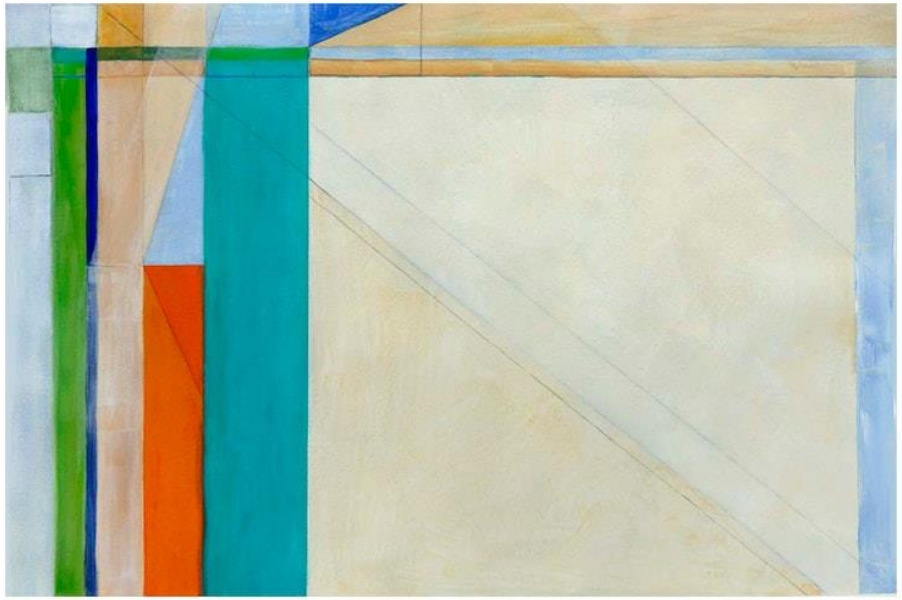


Source: Duke Center for Research on Personalized Health Care

NEJM Catalyst (catalyst.nejm.org) © Massachusetts Medical Society



multifactorial *vs.* mendelian



“Hi doctor,

As you know I want to be as proactive as possible given my family history.

My aunt was just diagnosed with breast cancer—since this also affected my mother, and there are other cancers on that side, should I have any specific testing?”

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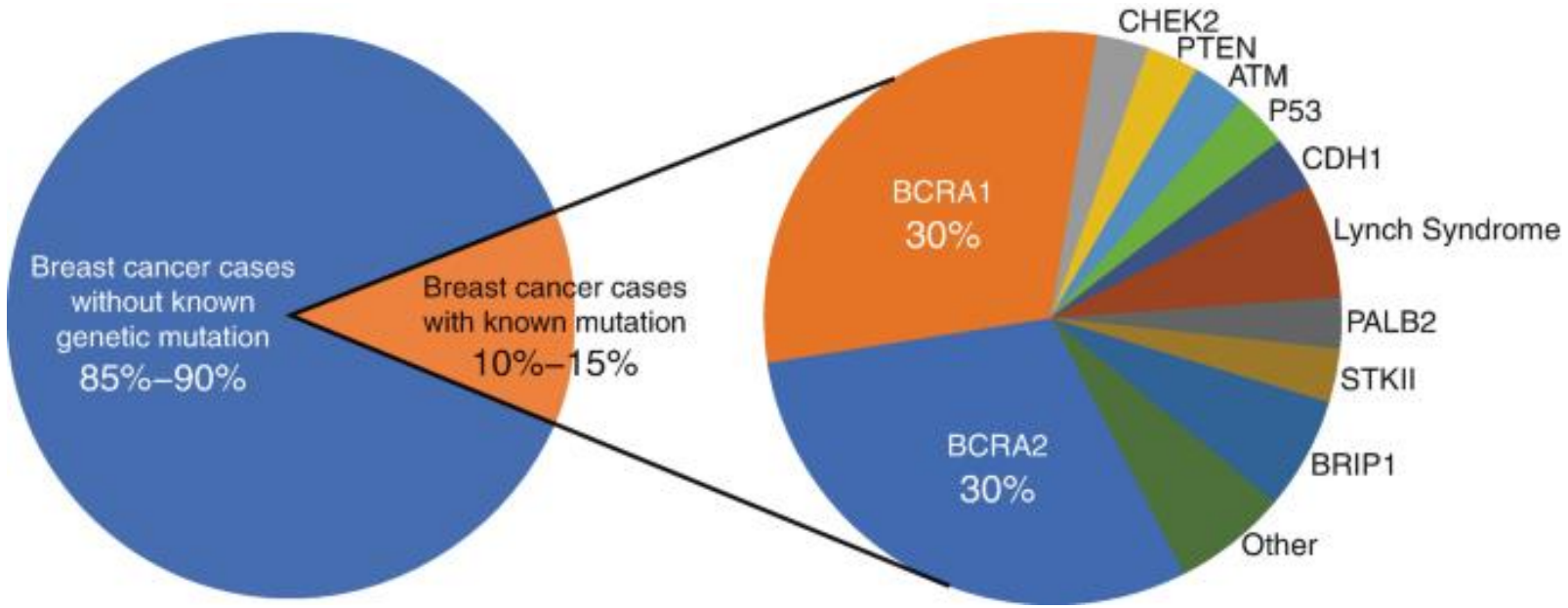
Common complex breast cancer

Familial breast cancer

Hereditary predisposition syndrome breast cancer



Bernsetin-Mohlo, R et al. Breast Can Rad Therapy 2022

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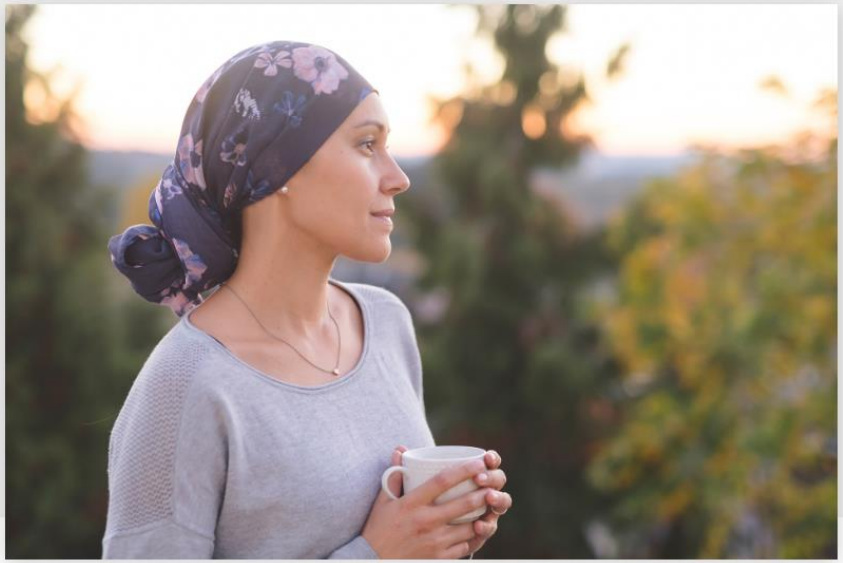
Genetic testing to become a regular part of cancer care

Up to 15 percent of cancers are caused by a hereditary gene change. It can be helpful to know if you have a mutation.

Elizabeth Schainbaum
November 7, 2023



Kaiser Permanente is making it easier and more convenient for cancer patients to uncover genetic information that can affect their treatment and possibly prevent family members from developing cancer.

The change started two years ago with ovarian cancer patients. Instead of making a separate appointment with the Genetics Department, ovarian cancer patients are offered genetic testing early in their regular cancer care. Usually, 5 to 15% of cancers are a result of a hereditary gene change.

Public health genomics: “CDC3” priorities

> Hereditary breast and ovarian cancer syndrome

> Lynch syndrome

> Familial hypercholesterolemia

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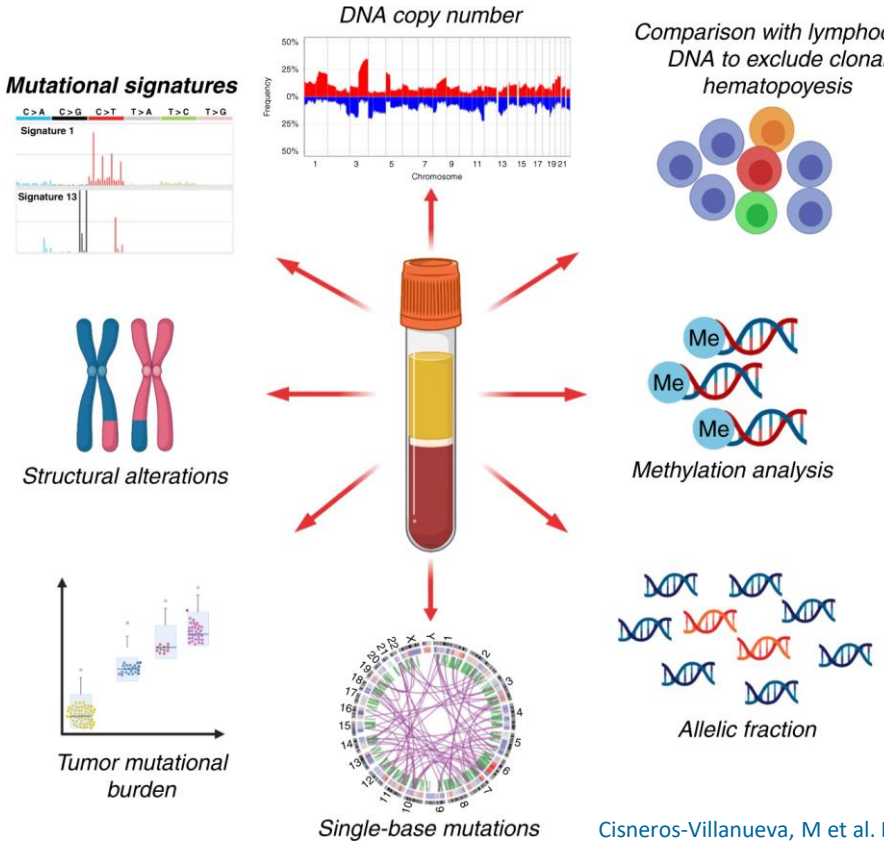
On the horizon

Cell-free DNA screening: "liquid biopsy"



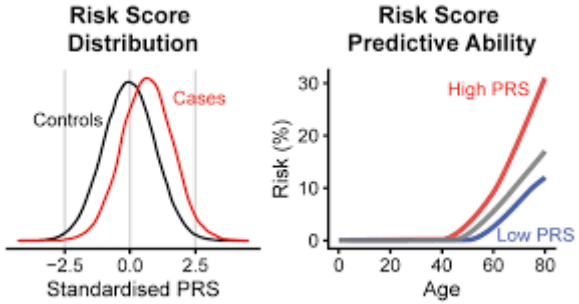
Cisneros-Villanueva, M et al. Brit J Can 2022

Artificial intelligence

When using a negative screening examination, **AI algorithms performed better** than the Breast Cancer Surveillance Consortium (BCSC) risk model for predicting breast cancer risk at 0 to 5 years. Combined AI and BCSC models further improved prediction.

Arasu, V et al. Radiology Jun 2023

Polygenic risk Pharmacogenetics



Genomics logistics

Practice support

Streamlined pathways

Screening & tracking

Stewardship

Clinical decision support

Interpretation and data storage

Translational research

Delivery science

Strategic alliances

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Thank you! Stay well

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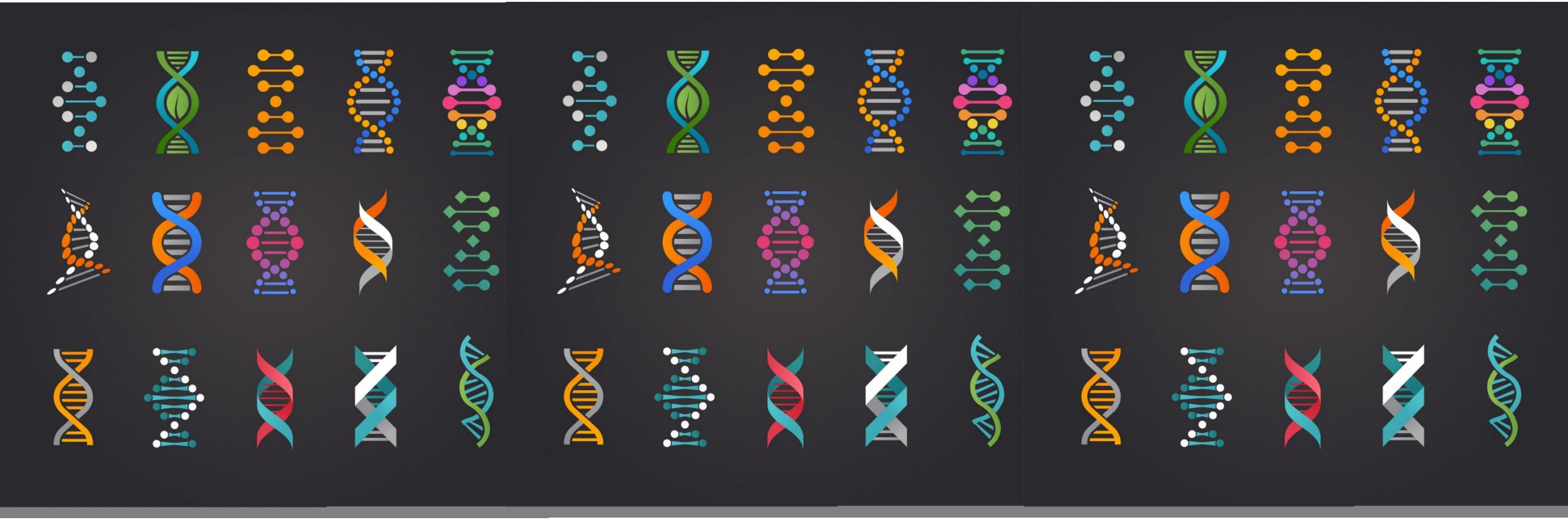

Appendix: A Medical Genetics Department

Clinical Genetics	Laboratory and Research	Multidisciplinary
▪ Prenatal ▪ Cancer ▪ Cardiovascular ▪ Dysmorphology ▪ Metabolic ▪ Screening & Tracking ▪ Graduate Education	▪ Germline molecular/ cytogenetic ▪ Cancer molecular/ cytogenetic ▪ Biochemical ▪ External lab partners ▪ Division of Research ▪ Research Bank	▪ Multispecialty Programs ▪ CA State Public Health ▪ Pharmacogenetics ▪ Reproductive Endocrinology & Infertility ▪ Cancer Care

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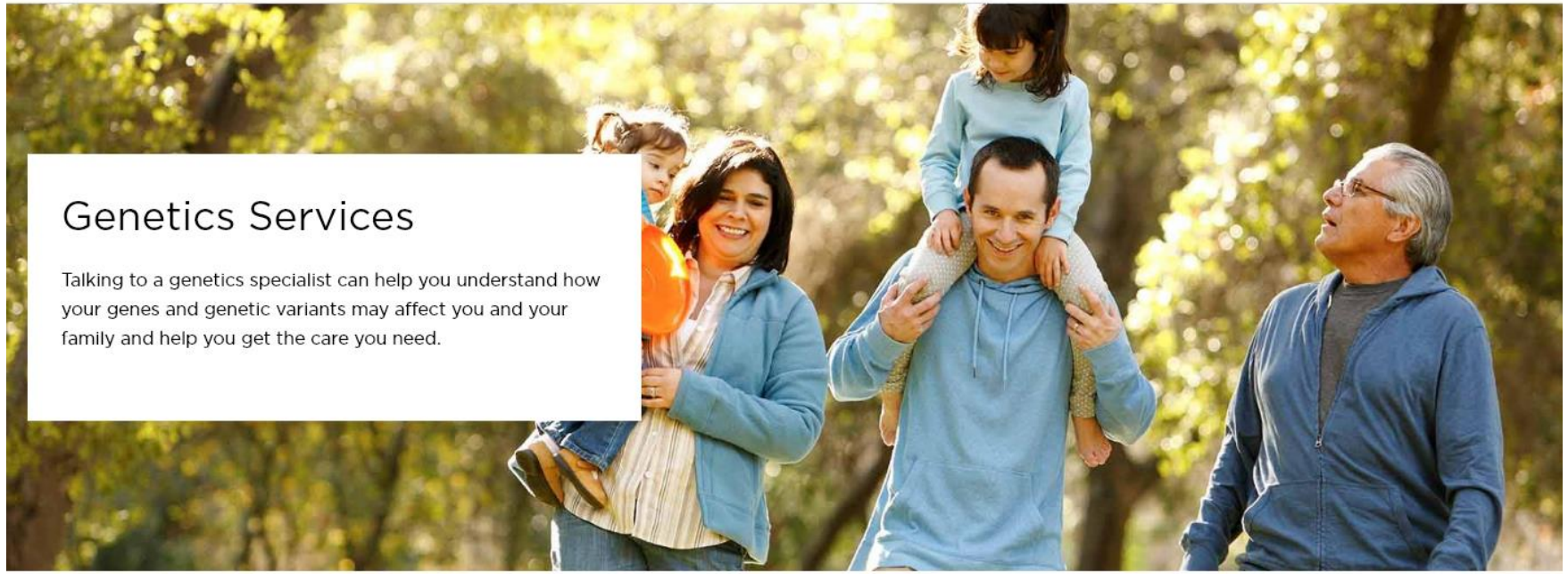

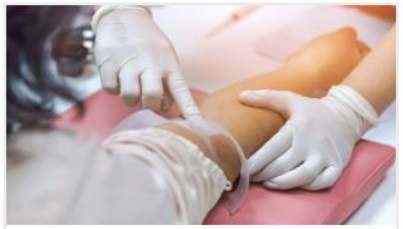

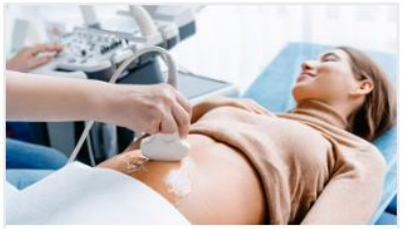

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Hereditary Cancer Program

Home > Specialty Programs > Hereditary Cancer Program

Hereditary Cancer Program

About Our Program
Our Care Team
What to Expect During an Appointment
Creating a Care Plan
Hereditary Cancer Program Locations
Patient Advisory Board
Research Opportunities
Resources and Support

About Our Program

Spanish: Programa de cáncer hereditario

Chinese:您的遺傳性癌症計劃指南

The Kaiser Permanente Hereditary Cancer Program (HCP) is for our members who have an inherited cancer risk. The program serves people who have had cancer, as well as people who have not had cancer. Our goal is to help reduce the risk of future cancers. The Hereditary Cancer Program was awarded the Sydney R. Garfield Exception Contribution Award in 2019.

Click here to watch the 5-minute video about this unique program.

The first step is to talk with a genetic counselor to determine your cancer risk. After your Genetics visit, you may be referred to an HCP center:

1. If you carry a genetic variant that increases your risk for cancer.

OR

2. If there appears to be an inherited cancer risk in your family (even without genetic testing).

Our Care Team

Our program has a care team of experts in many areas of medical care, including genetic counselors, breast surgeons, gynecologic surgeons, plastic surgeons, and other support staff. This program lets you get answers

Our Mission Statement

The Kaiser Permanente Northern California Hereditary Cancer Program offers coordinated multidisciplinary expert care for KP members with inherited cancer risk with equal access throughout the region.

We deliver personalized and excellent patient care experiences, optimal outcomes and provide care for the entire family that is based on evidence and national guidelines for best practice.

We hope to empower and educate our members with resources to make informed decisions in their care and provide access to new research and clinical trials.

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