

Genetics 101 for the Ovarian Cancer Patient

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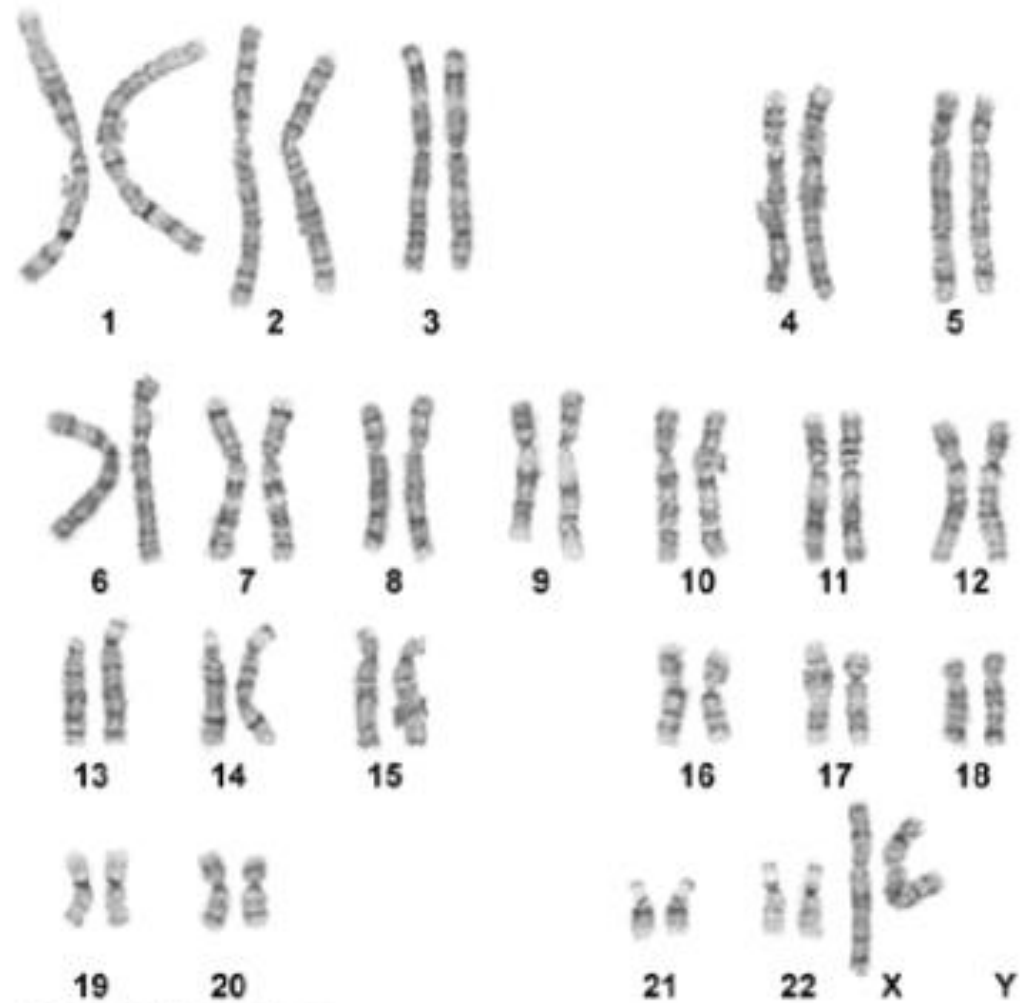
Gynecologic Cancer Prevention Clinic

20th Annual Ovarian Cancer National Conference

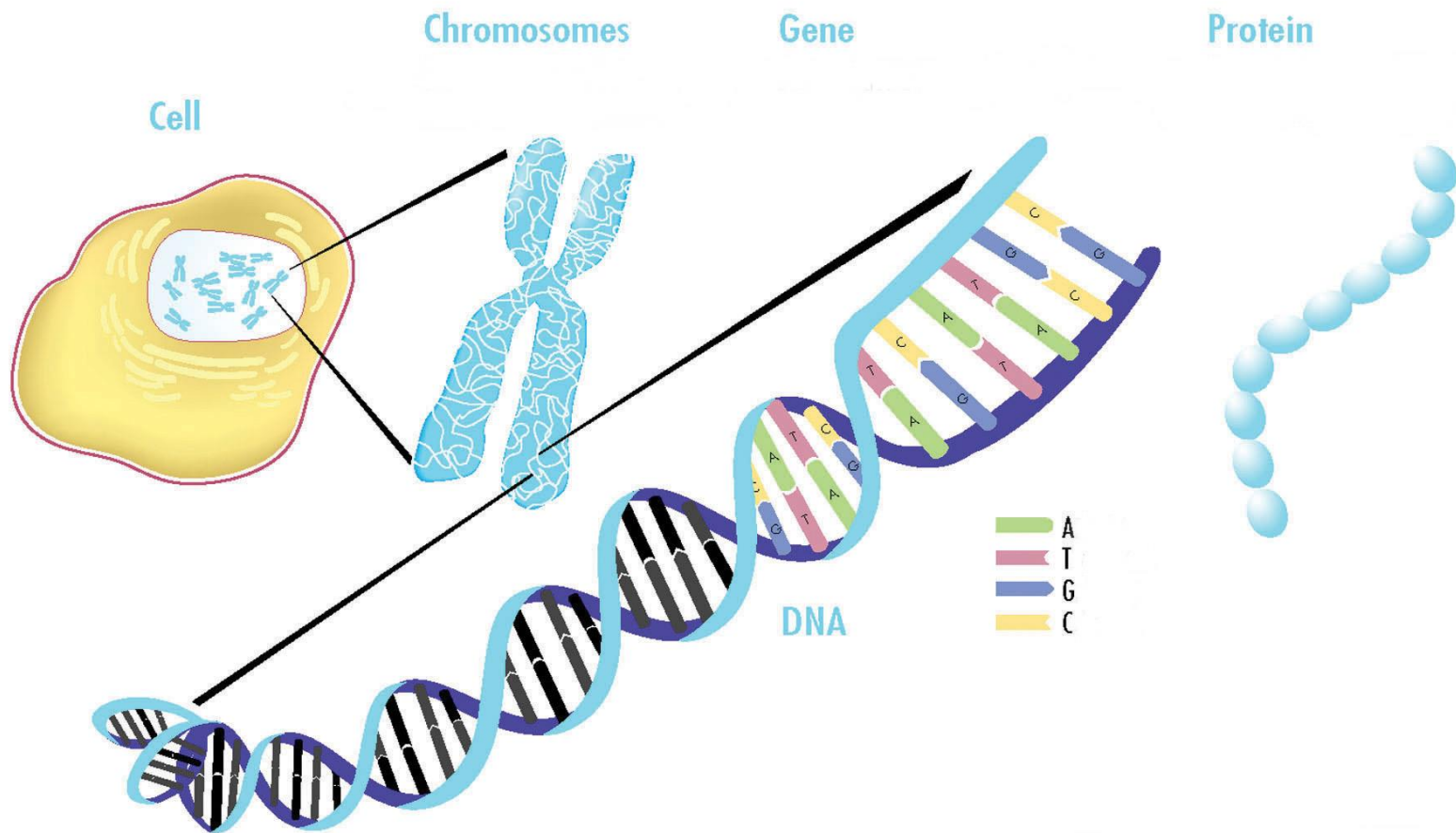
July 8, 2017

Basic Genetics

Chromosomes

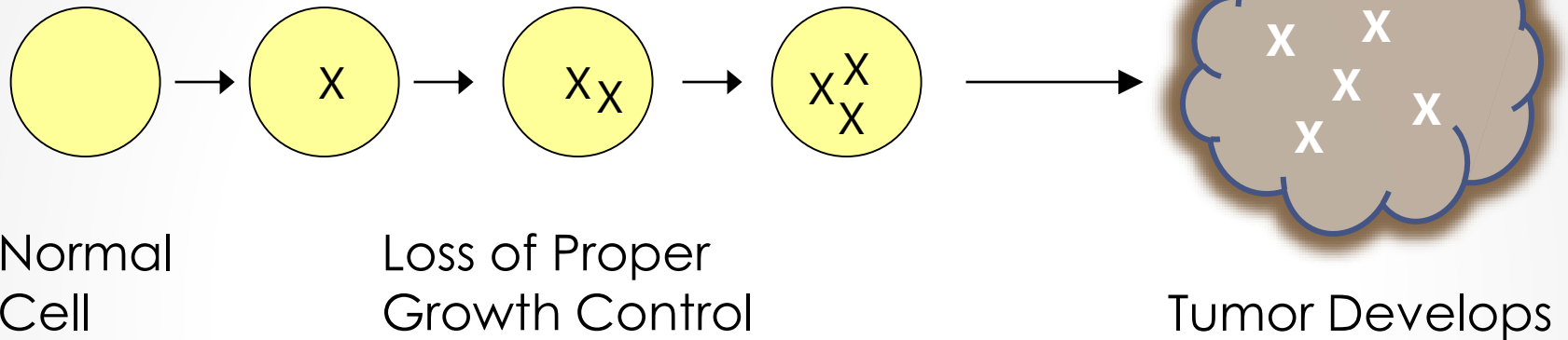


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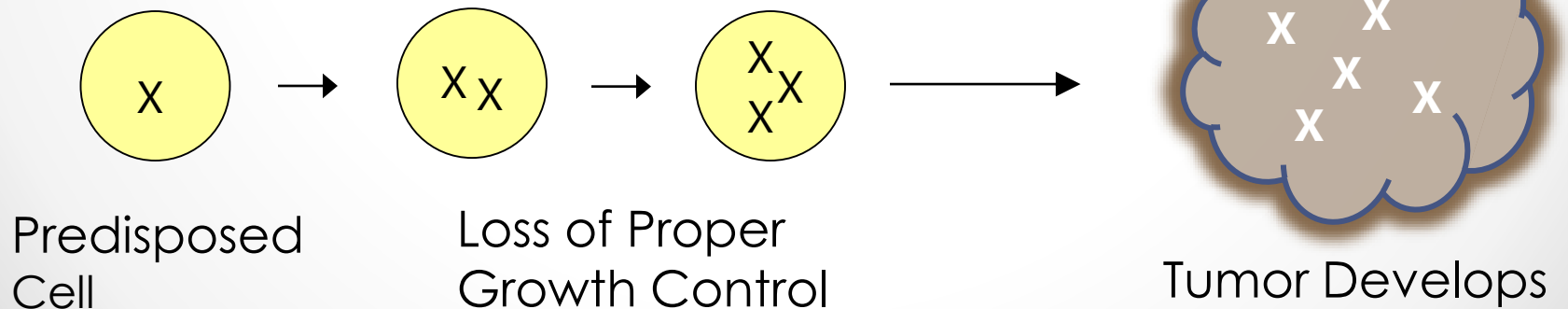


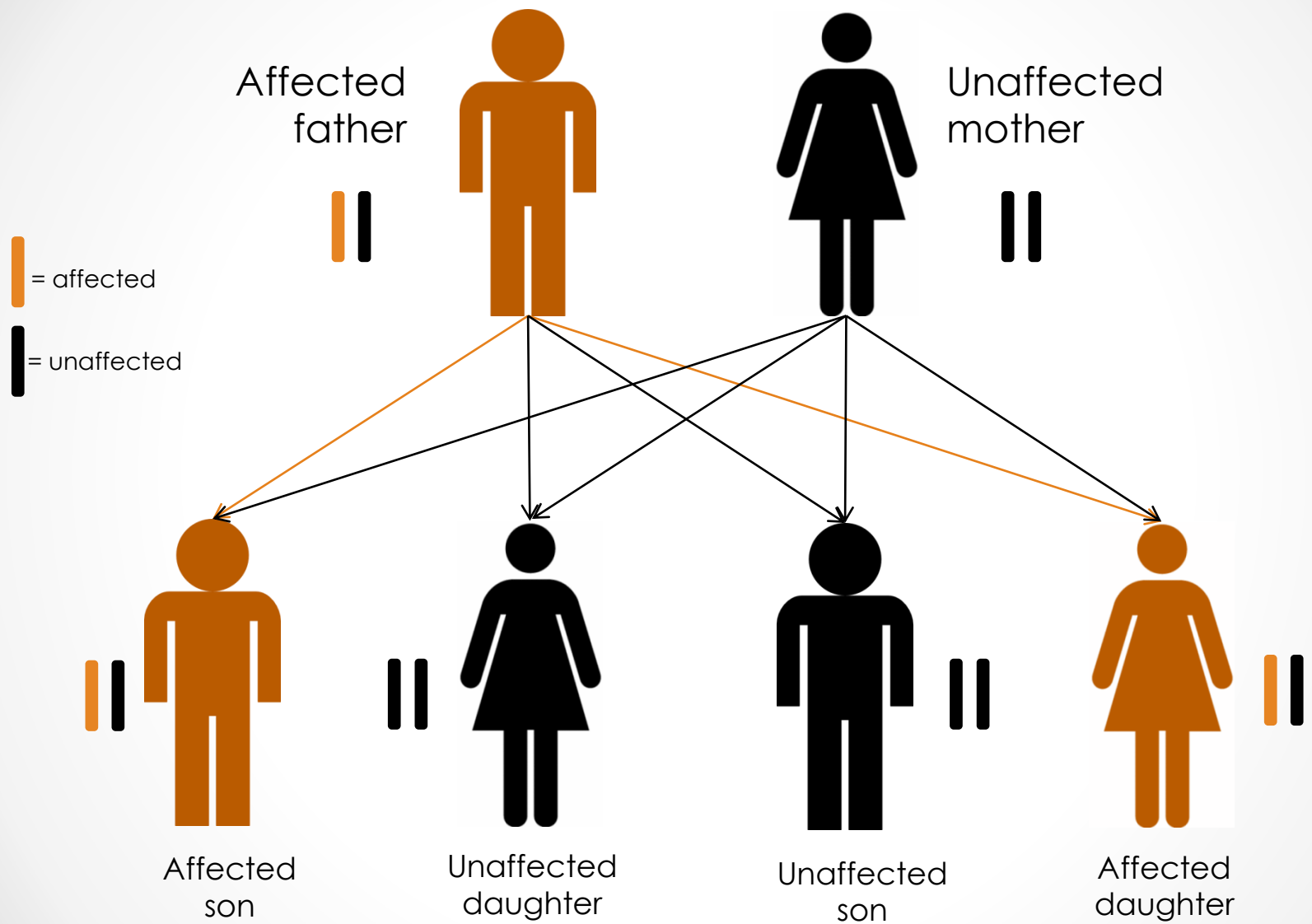
How Cancer Forms

Sporadic cancer



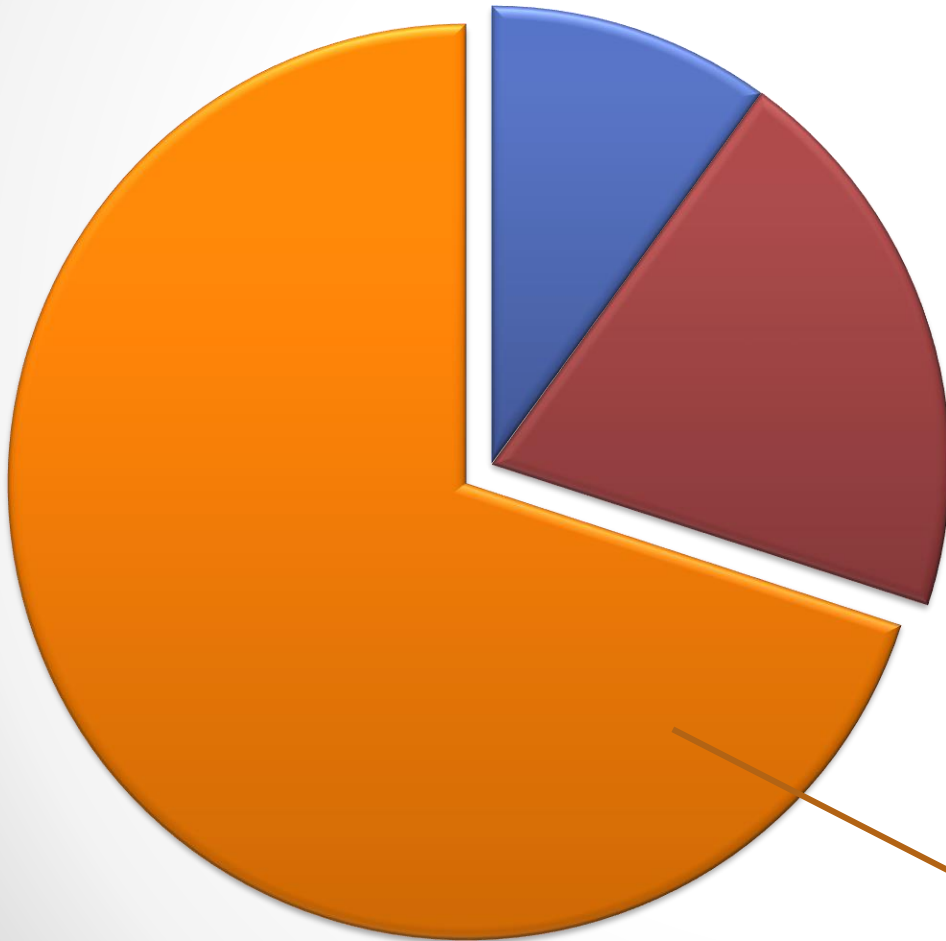
Hereditary cancer





Basics of Cancer

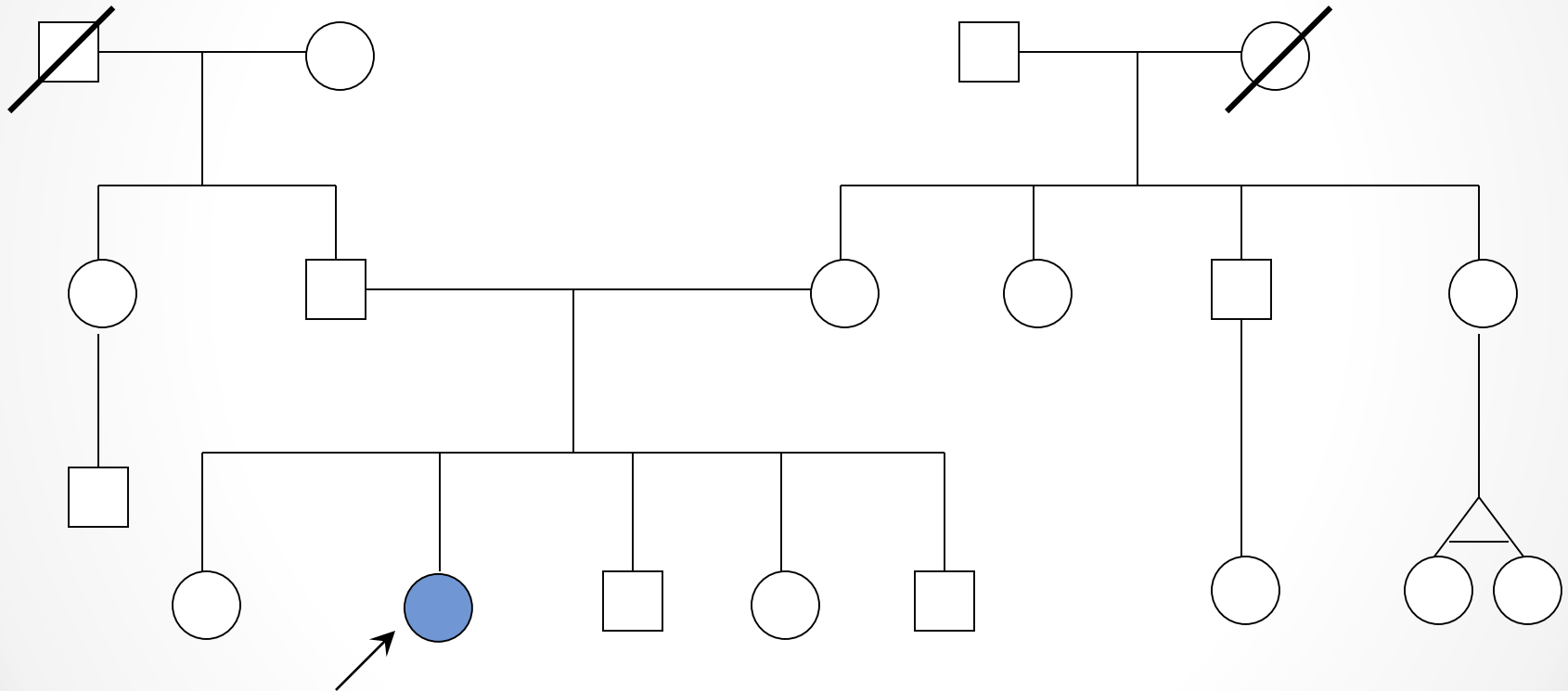
Origin Cancer



Sporadic (70%)

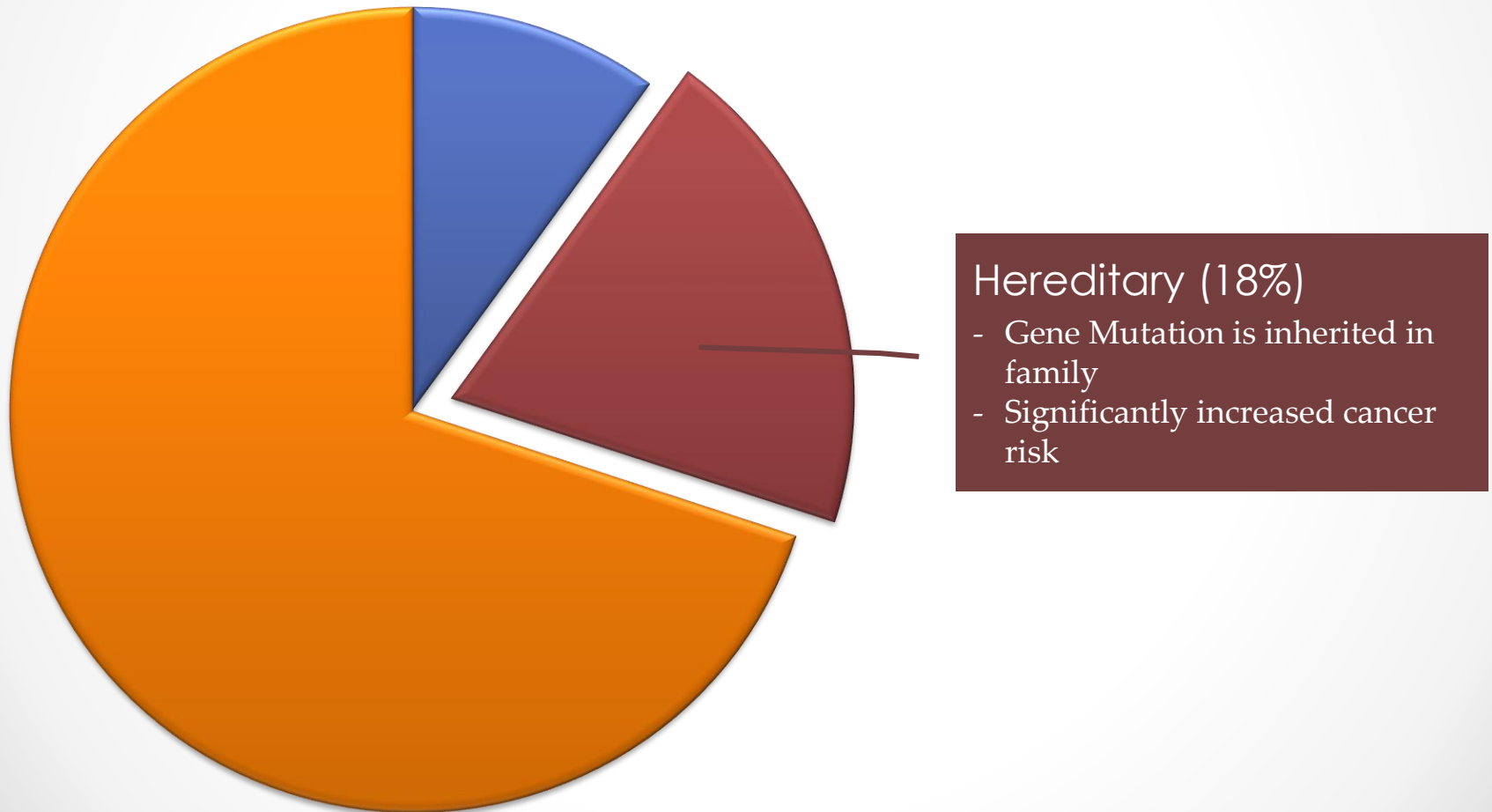
- Cancer occurs by chance or related to environmental factors

Sporadic Cancer

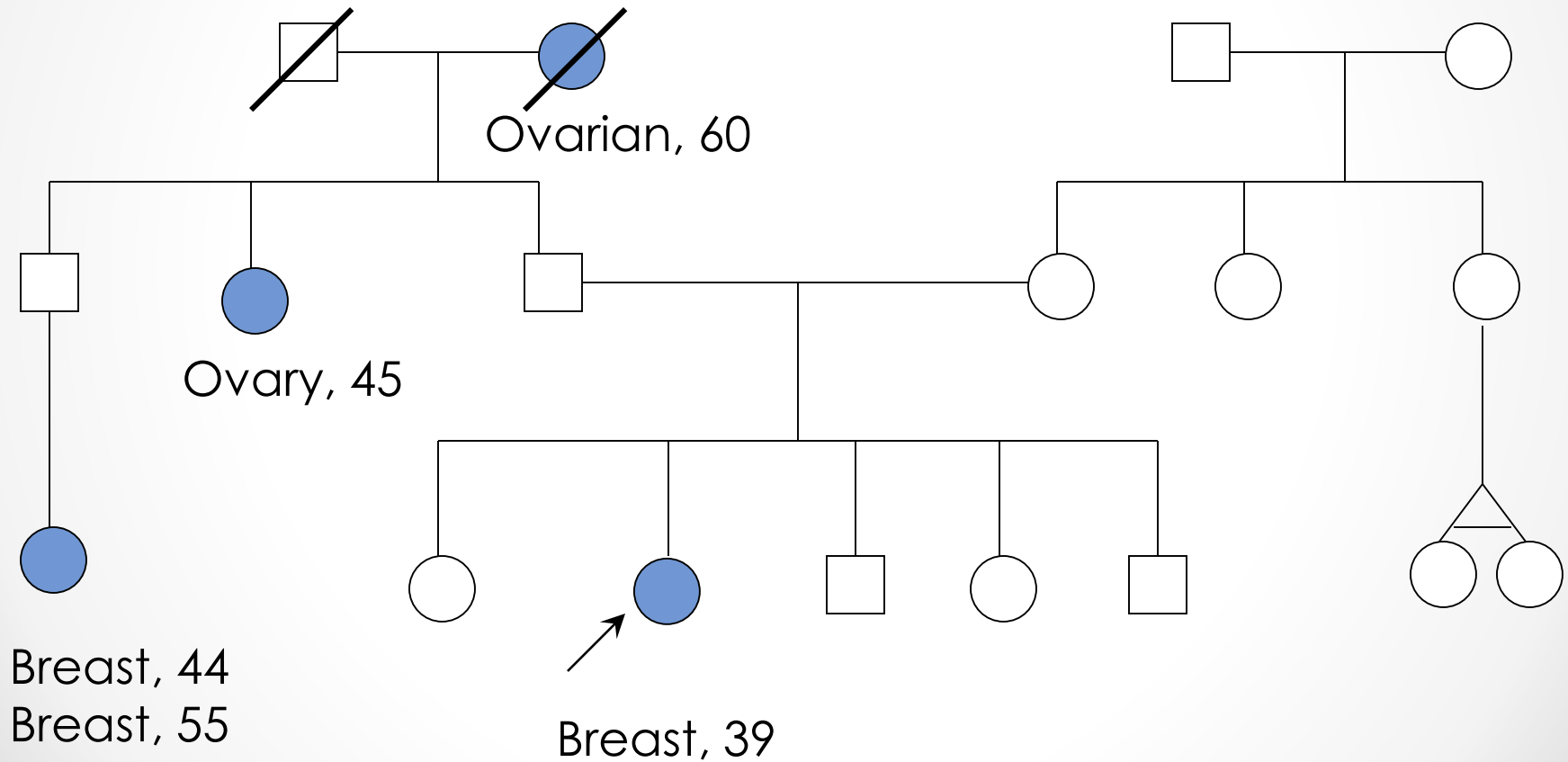


Ovarian, 60

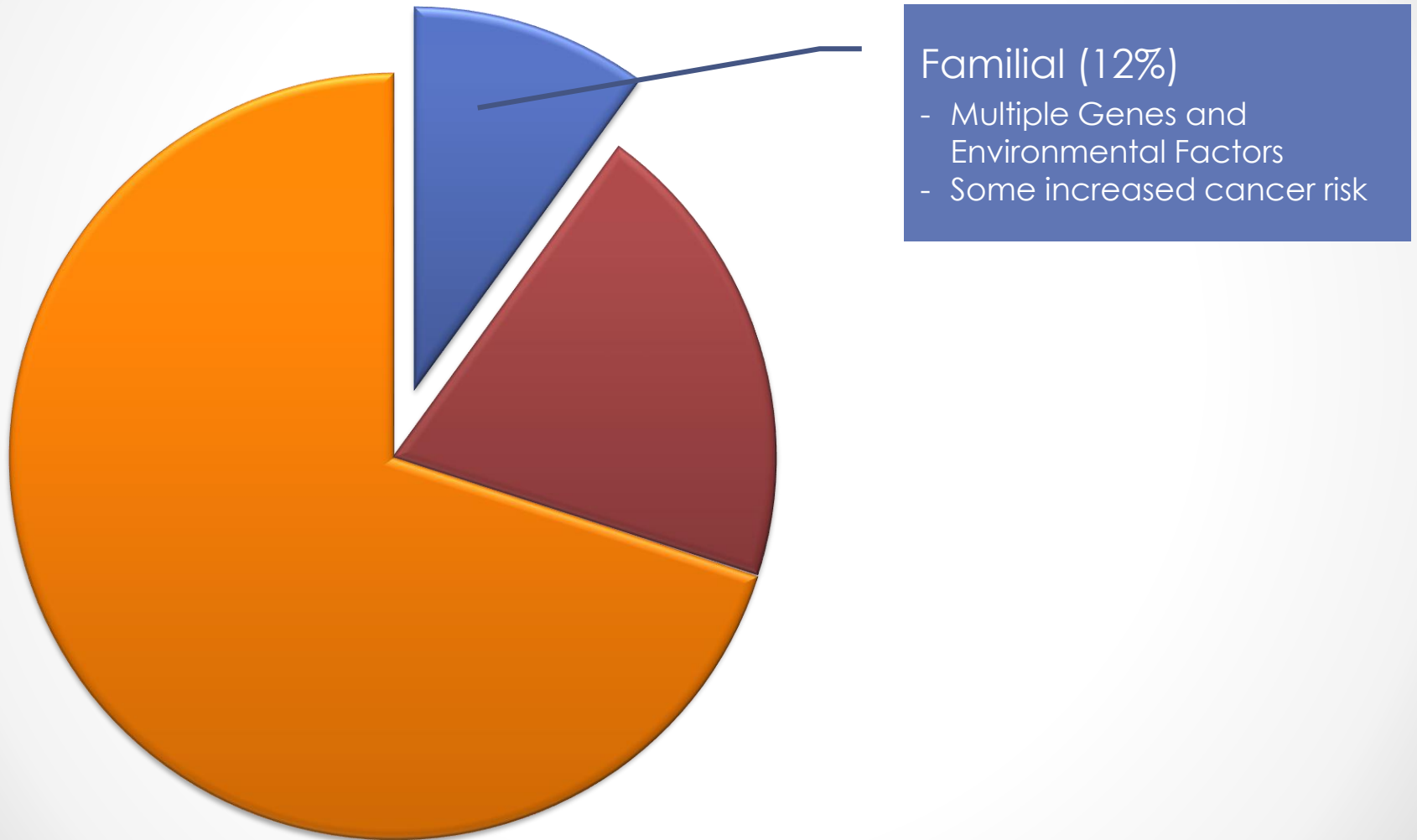
Origin Cancer



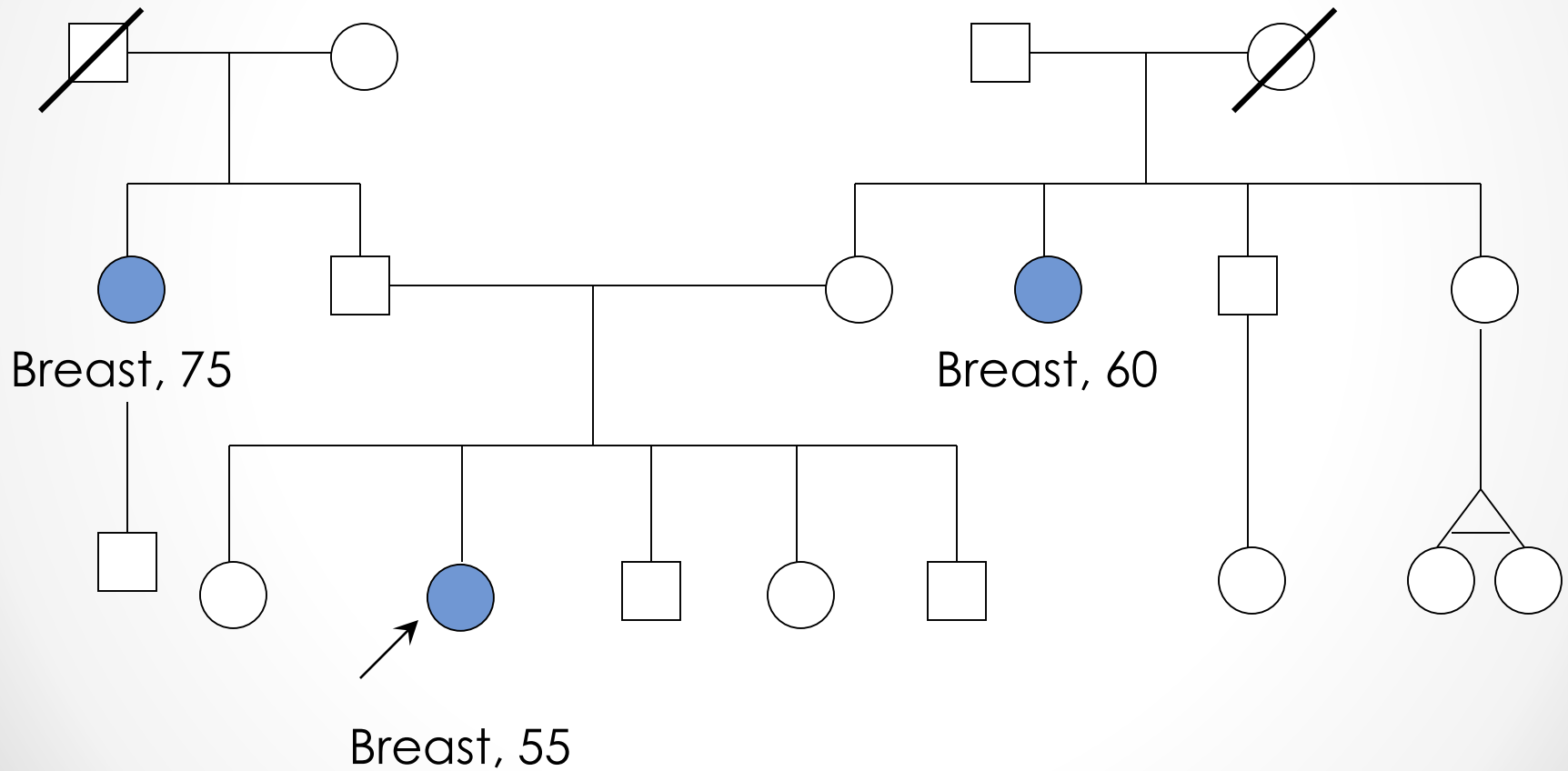
Hereditary Cancer



Origin Cancer



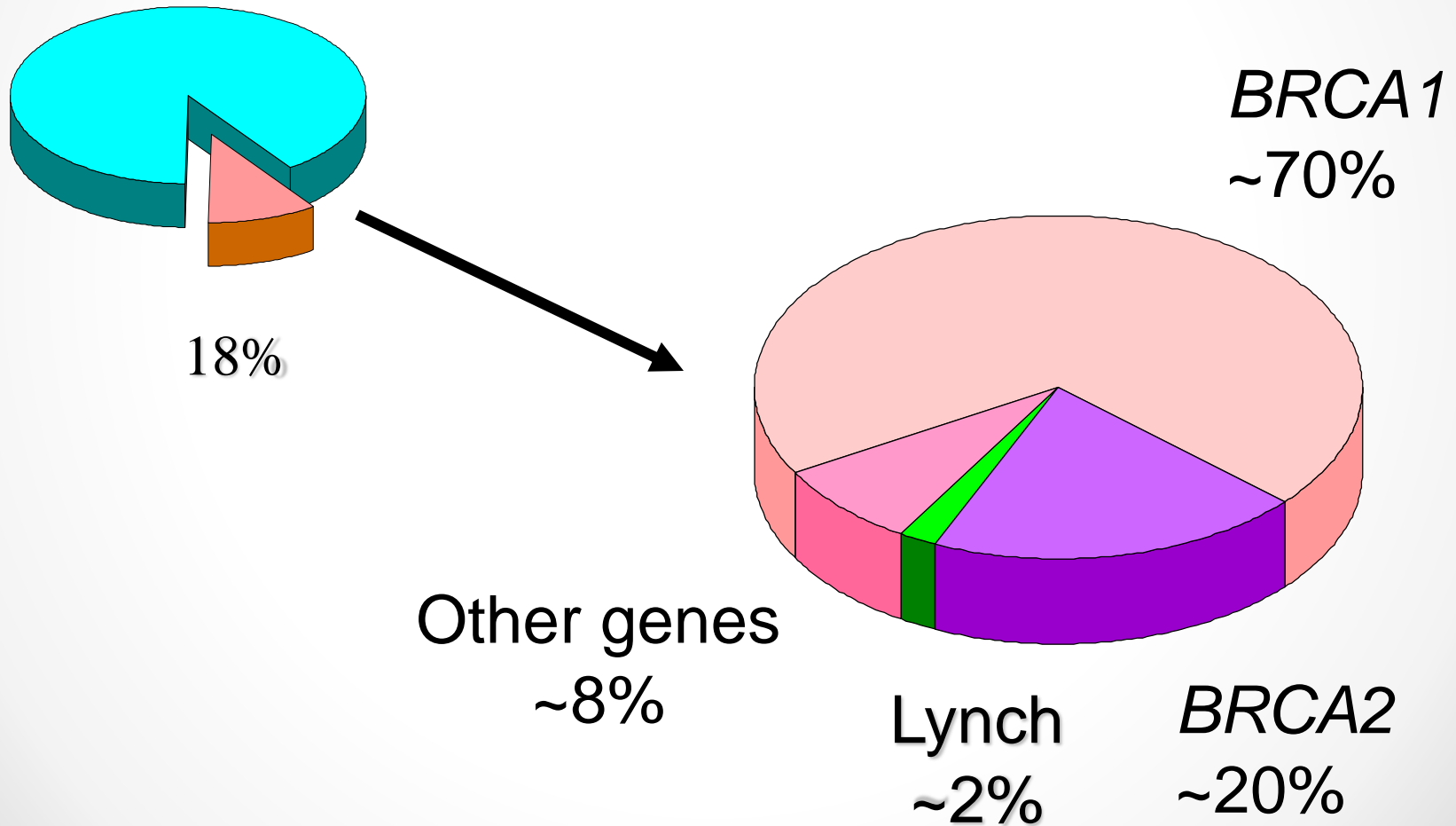
Familial Cancer



Indications of an Inherited Cancer Family

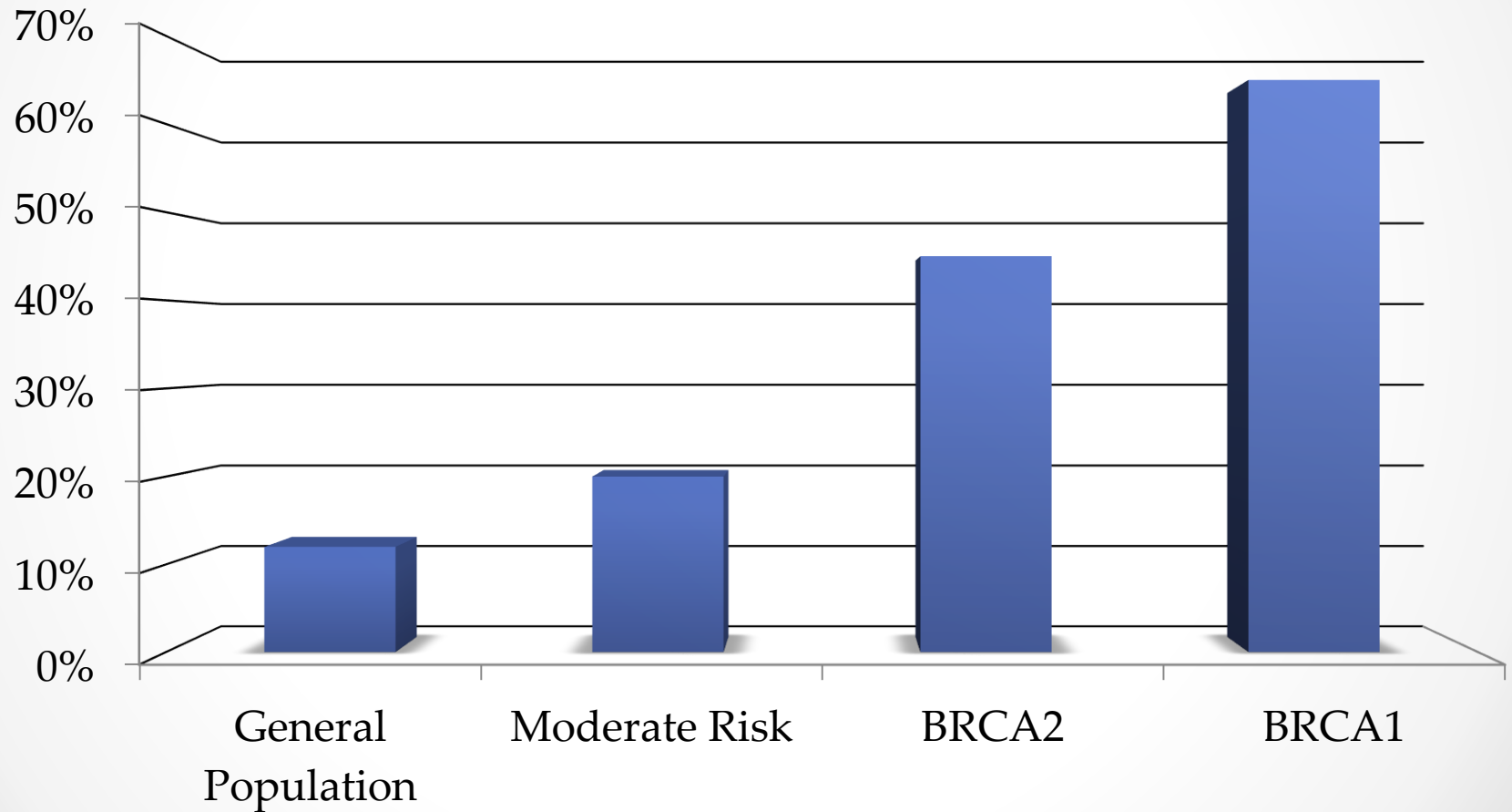
- Early age at diagnosis
- Multiple primary cancers or bilateral cancers
- Multiple family members affected with the same cancer or related cancers
- Multiple generations affected with cancer
- Rare cancers (i.e. male breast cancer)
- Clustering of certain cancers within a family (i.e. breast/ovarian, colorectal/endometrial, breast/pancreatic)
- Ashkenazi Jewish ancestry

Ovarian Cancer Genes



Why it matters
to you..

Breast Cancer Risk



Therapy Decisions

- PARP inhibitors
 - December 2016- rucaparib (Rubraca) approved for *BRCA*-positive patients who have received at least two prior lines of chemotherapy
 - 2017- olaparib (Lynparza) approved for *BRCA*-positive patients who have received at least three prior lines of chemotherapy

OVARIAN CANCER DREAM TEAM



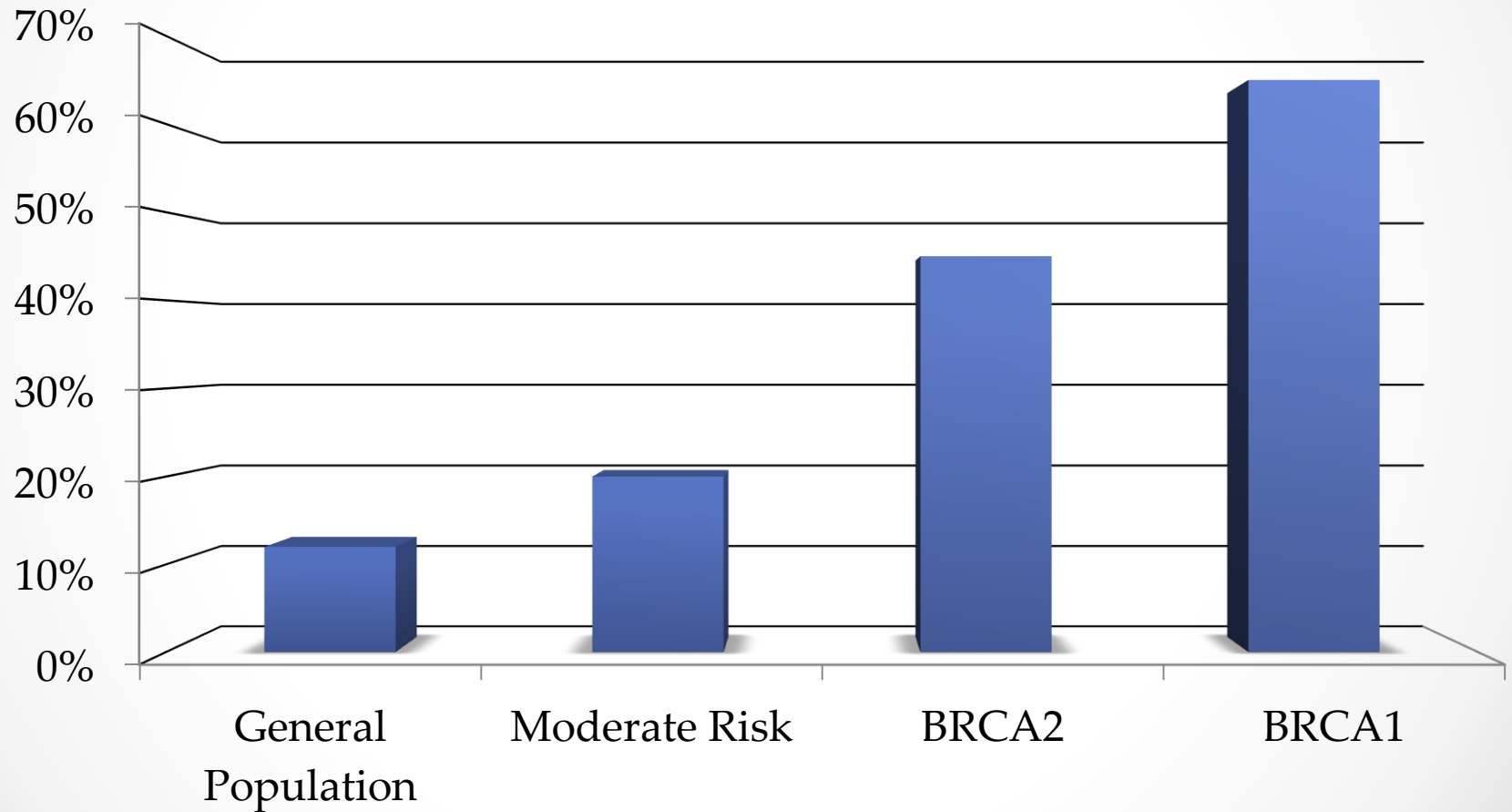
Aim 2: Four clinic trials with novel *drug combinations to extend PARP inhibitor use*

Other Cancers

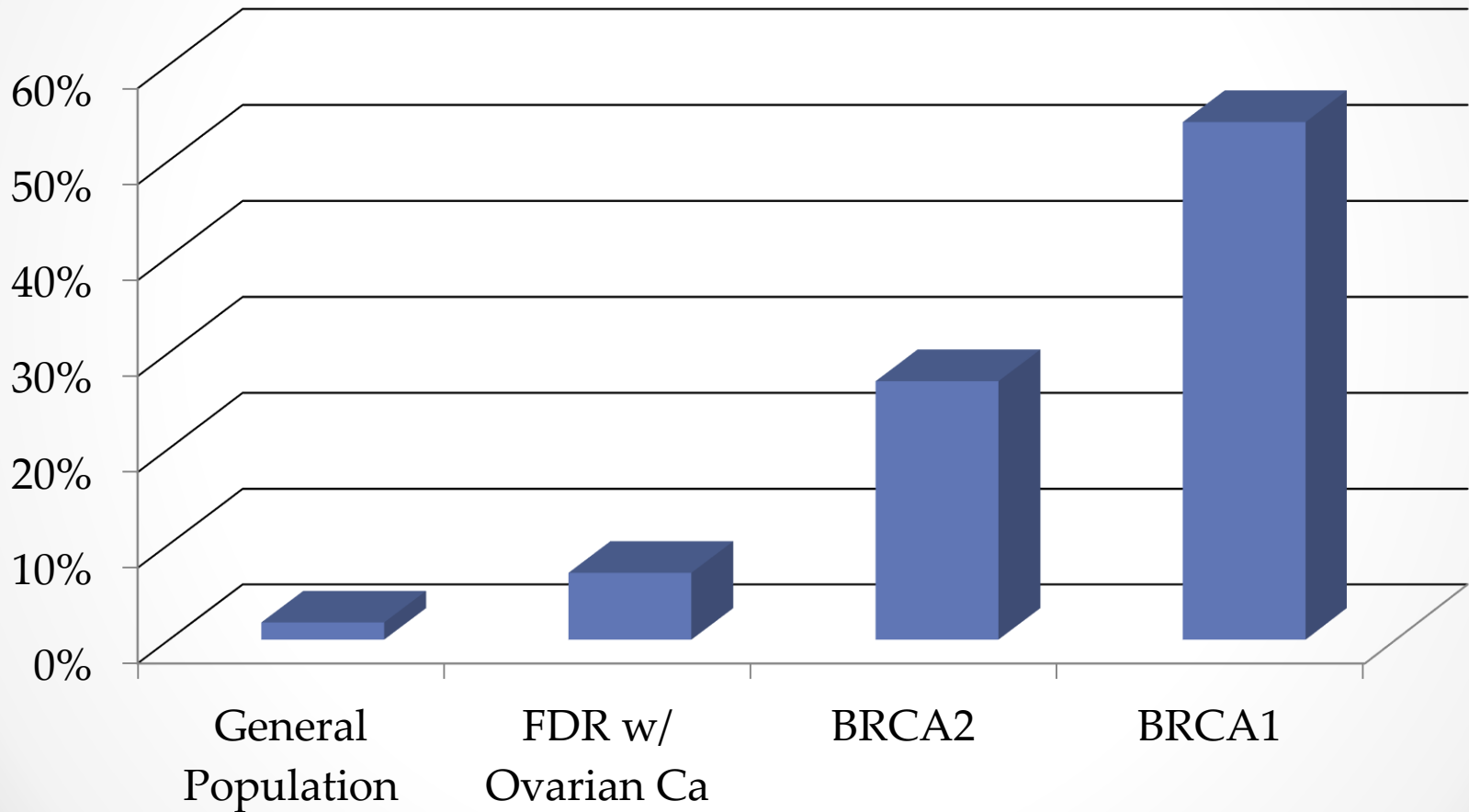
- Pancreatic
- Melanoma
- TBD

Why it matters
to your family..

Breast Cancer Risk



Ovarian Cancer Risk



BRCA Cancer Risk in Men

- Male Breast Cancer
 - Up to 7% lifetime risk
- Prostate Cancer
 - Elevated risk

Should you do the test...

...

Yes if..

• • •

It will benefit you

Or

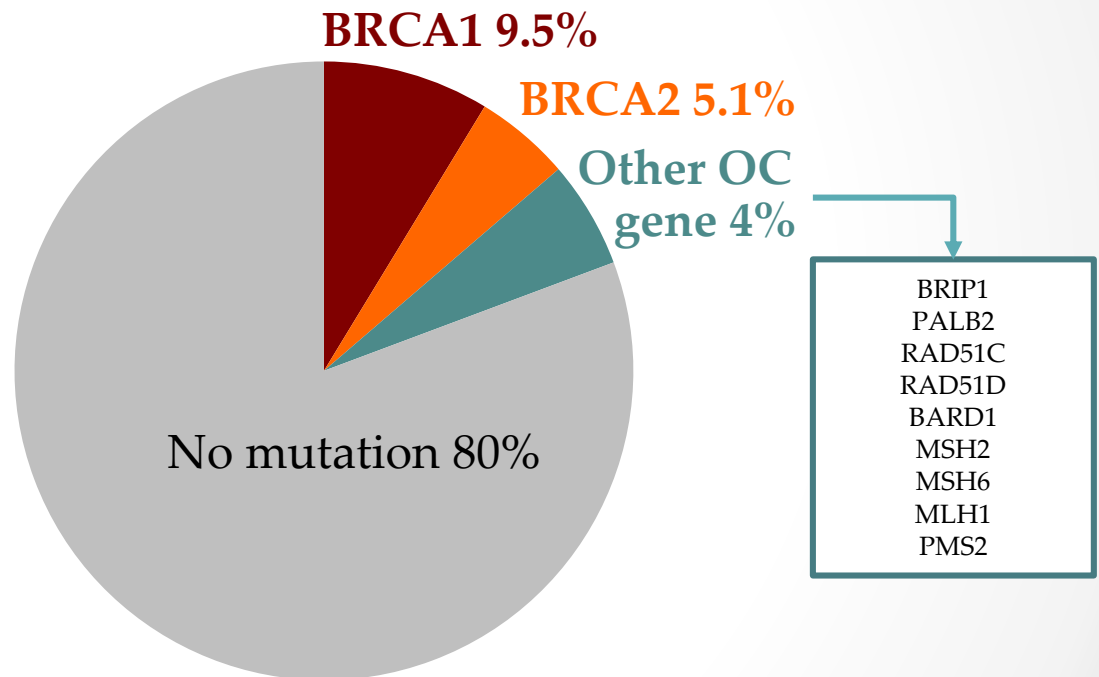
Its will benefit your family

What test should you do...

...

Types Of Test

- Panel Testing
OR
- BRCA Only



(Walsh et al, PNAS, 2011)

Panel Testing

Benefits	Limitation	Risks
Identify source of cancer risk in your family	Not all mutations are found	Anxiety and worry
Identify your additional cancer risk	Limited data for some genes	Frustration by lack of data
Future knowledge	May not explain your cancer risk	Confusion
	Lack of clear medical recommendation	Potential negative impact on life insurance

Next generation genetic testing



making genetic testing accessible

*The study of genetic testing from your living room.
A Stand Up to Cancer/SU2C initiative at MD Anderson*

GOAL

Assess how well we can deliver genetic testing for breast and ovarian cancer risk to women in their living room

TARGET Population:

- Women without ovarian cancer
- Age ≥ 30
- No prior genetic testing



Possible Results

- No mutation identified
- Mutation identified in a gene associated with ovarian cancer
- Mutation identified in a gene *not* associated with ovarian cancer
- Variant of uncertain significance (VUS)

Ovarian Cancer Gene Identified

• • •

Now What??

Risk Management

```
graph TD; A[Risk Management] --> B[Increased Surveillance]; A --> C[Chemo-prevention]; A --> D[Preventive Surgery];
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Increased
Surveillance

Chemo-
prevention

Preventive
Surgery

Surveillance and Screening for Women

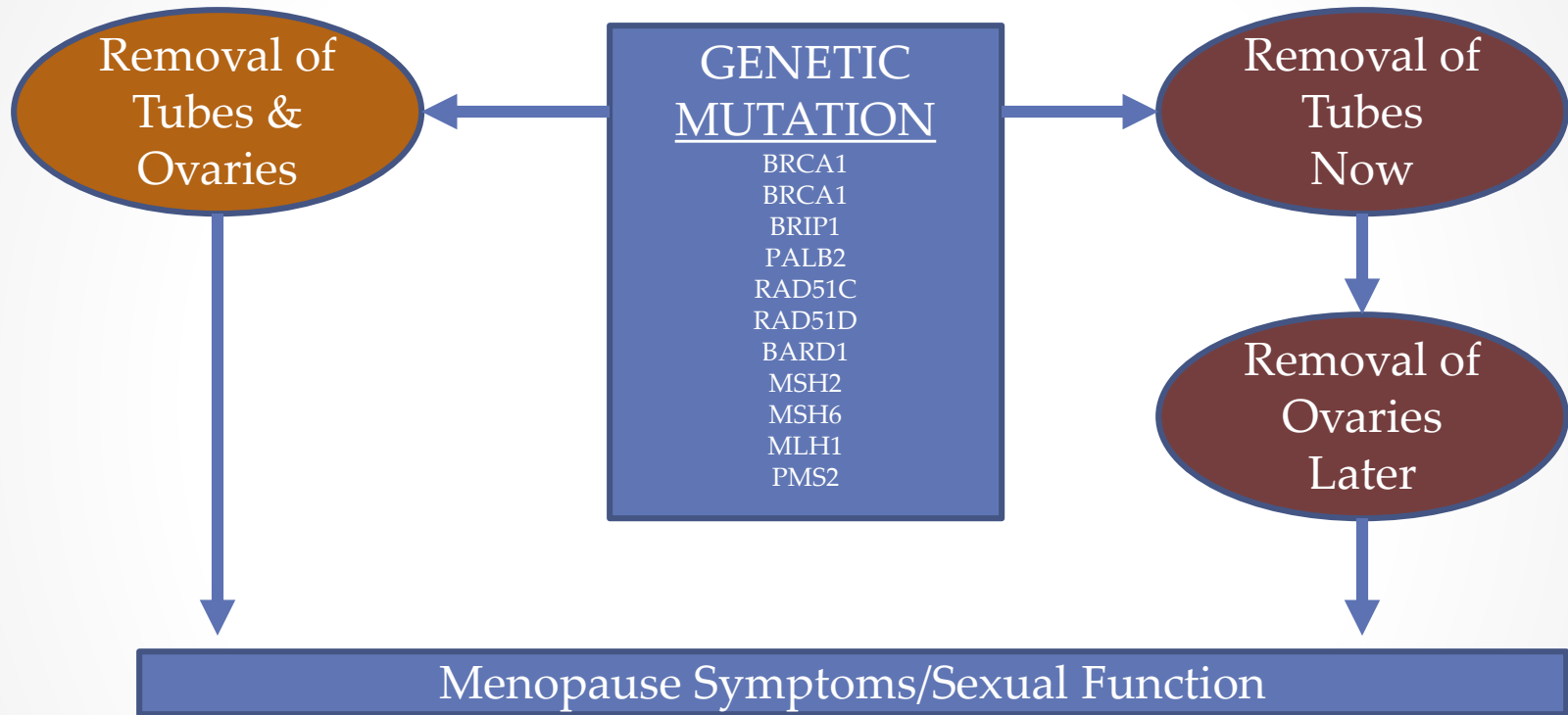


Breast	Clinical breast exam	Once-twice a year starting at age 25
	MRI	Once a year starting at age 25
	Mammogram	Once a year starting at age 30
Ovarian	Pelvic exam Transvaginal ultrasound CA-125 blood test	May be considered

Risk Reducing Options for Women

Breast	Chemoprevention <ul style="list-style-type: none">• Tamoxifen for 5 years	% Risk Reduction 50%
	Option of Surgery <ul style="list-style-type: none">• Prophylactic mastectomy• Prophylactic oophorectomy	90-95% 50% (premeopausal)
Ovarian	Chemoprevention <ul style="list-style-type: none">• Oral contraceptives for 5 yr	50-60%
	Option of Surgery <ul style="list-style-type: none">• Prophylactic oophorectomy	96%

Next generation prevention



Women ChoosIng Surgical Prevention

WISP Clinical Trial

Quiz

...

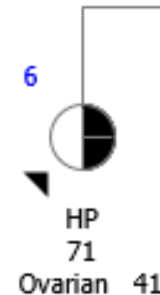
What additional info do you want?



Helen Palmquist

Stage IIIc epithelial ovarian cancer

Age 41



What else do you want to know?

Brother

Prostate Cancer

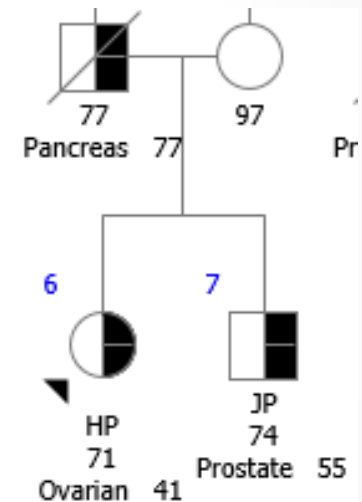
Age 55

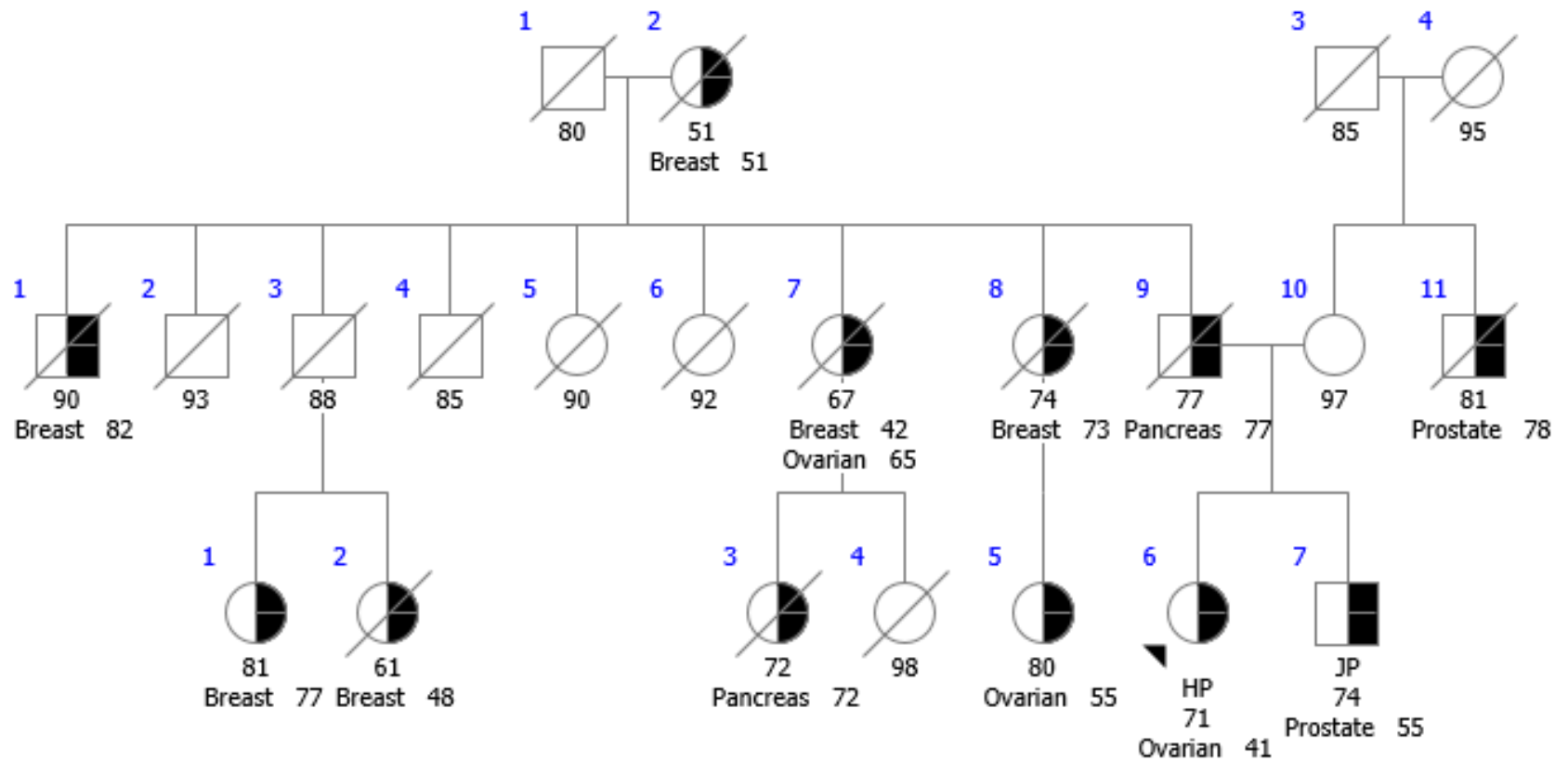
(diagnosed just a few months before Helen)

Father

Pancreatic Cancer

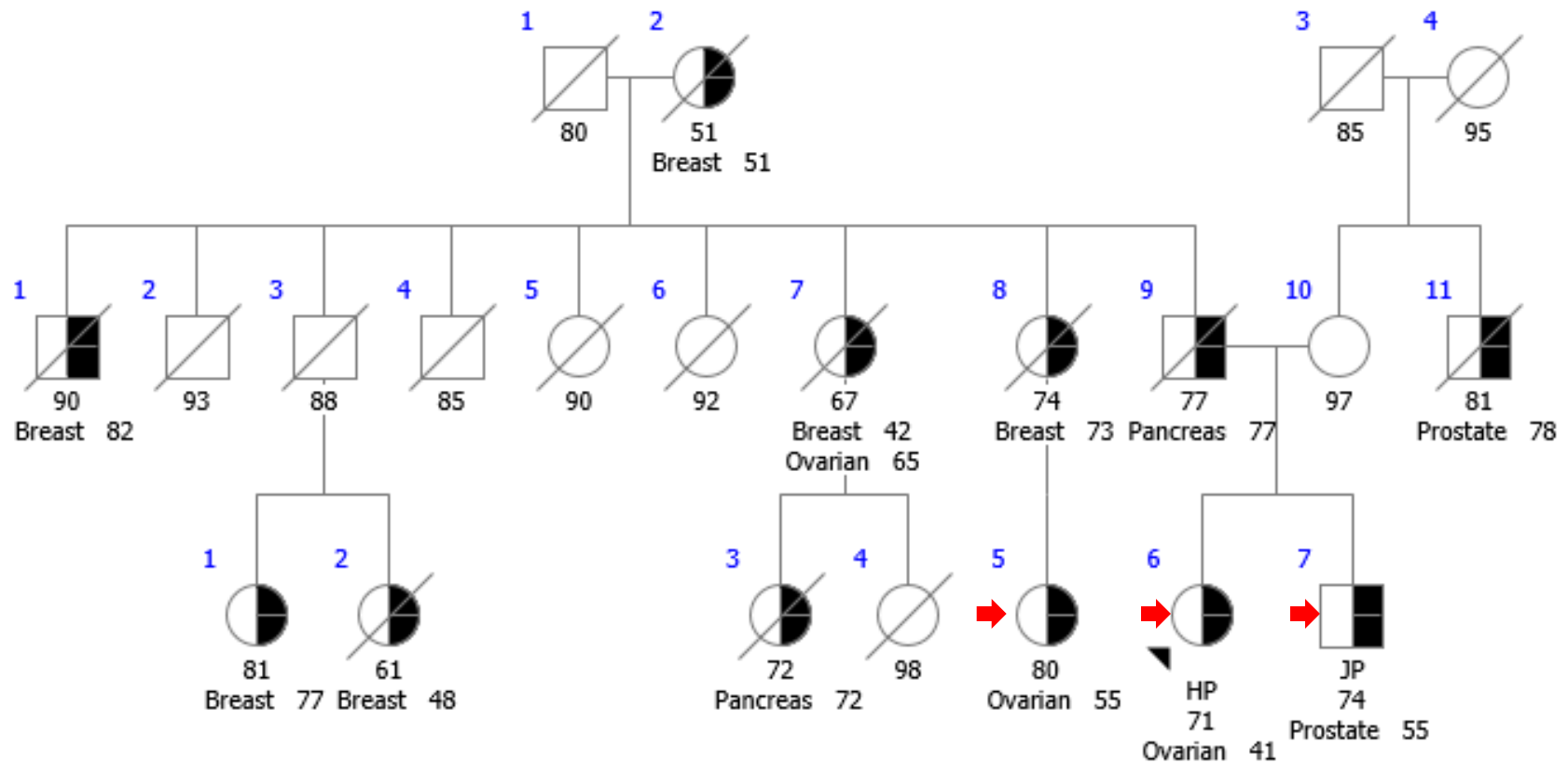
Age 77



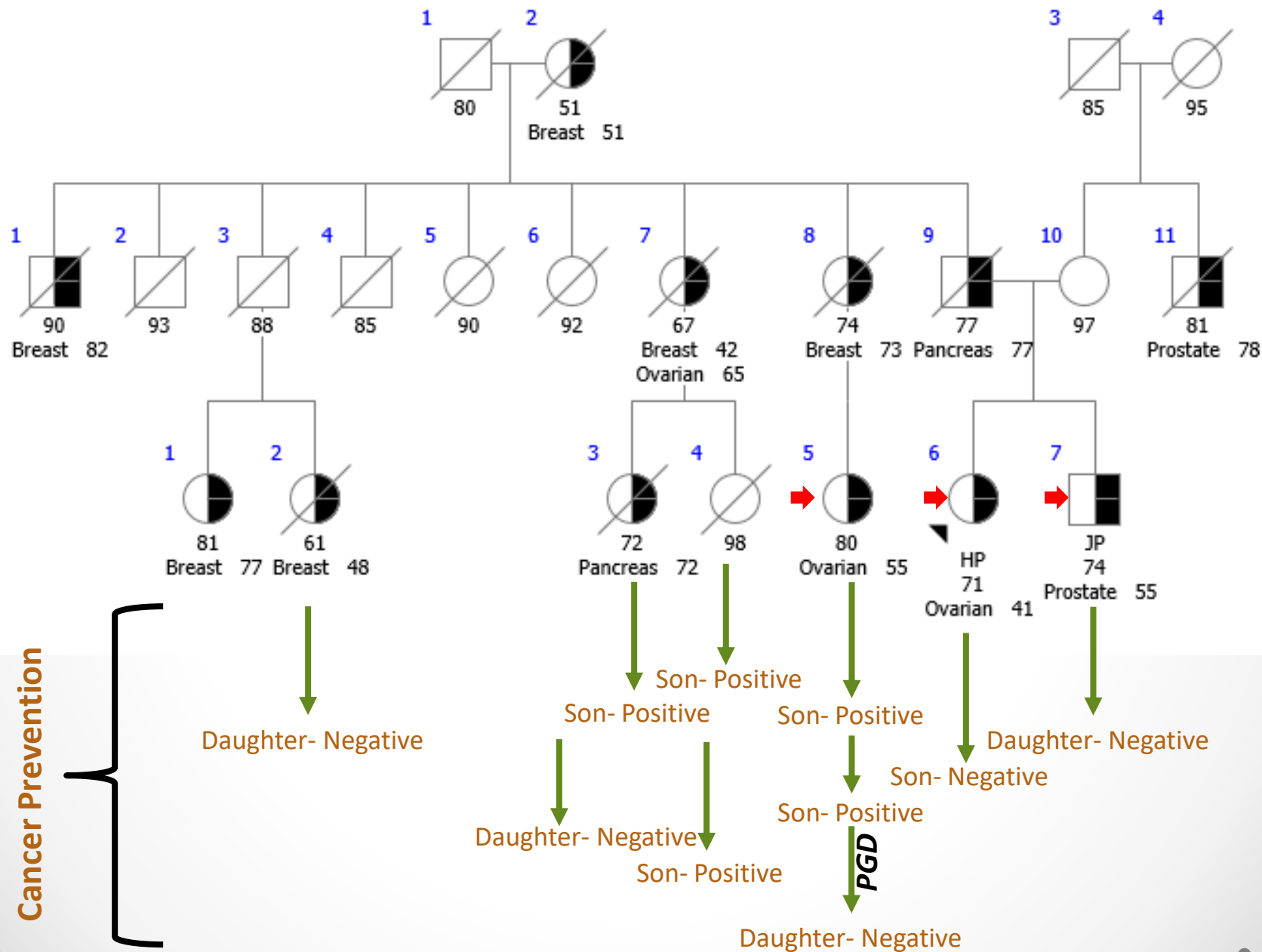


What do you recommend?

➡ = BRCA 2 positive



What do you recommend now?





Questions & Conversations

• •
Helen S. Palmquist
Iris Romero, MD

More Info

- **Iris Romero, MD**

- Gynecologic Cancer Prevention Clinic
- 773-702-6722
- <http://www.uchospitals.edu/physicians/iris-romero.html>

- **Comprehensive Cancer Risk Clinic**

- 1-855-702-8222
- <http://www.uchospitals.edu/specialties/cancer/risk/>

- **Clinical Trial: Stand Up 2 Cancer Women Choosing Surgical Intervention**

- Morgan Whipkey
- 773-702-3972