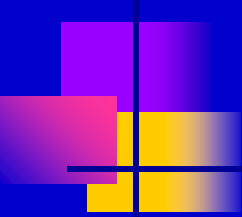


# Managing Breast Cancer from the PCP's Perspective

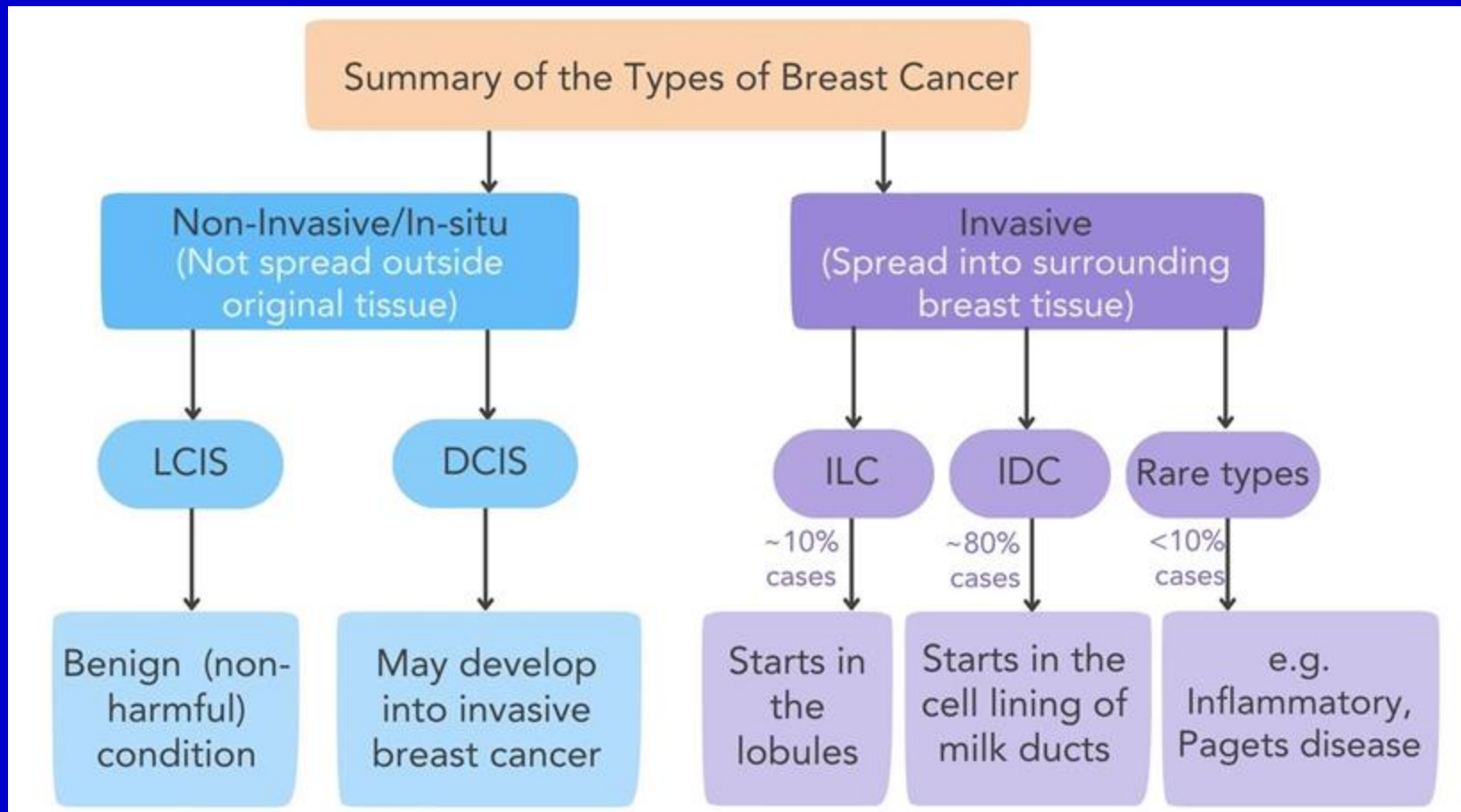


# Your patient has breast cancer. Now what?

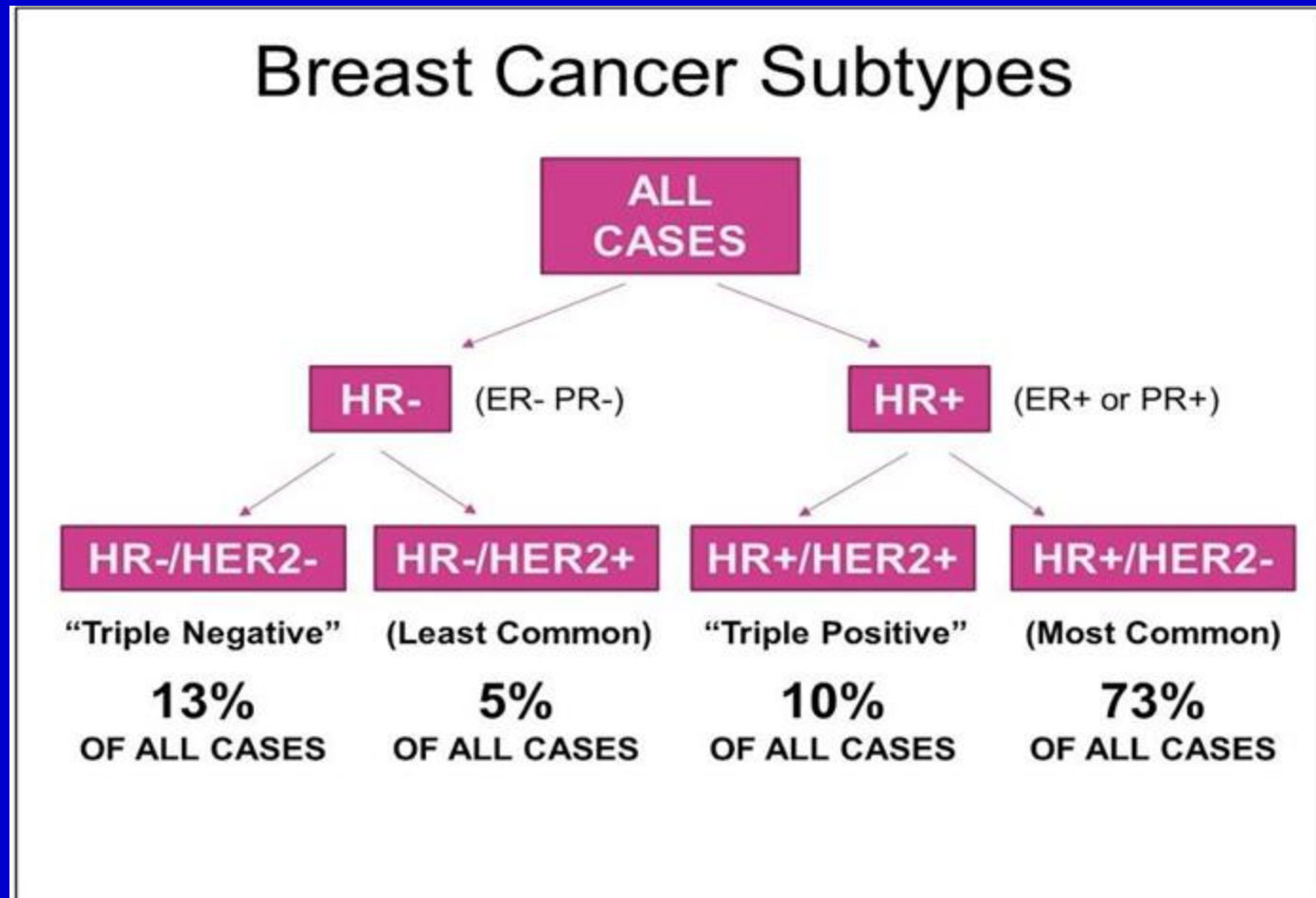
---

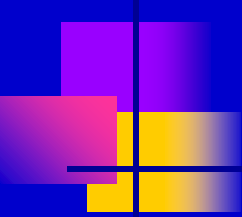
- Types of breast cancer and growth rate
- Workup for breast cancer
- Surgical treatment options
- Role of predictive/genomic tests
- Role of chemotherapy/radiation therapy
- Role of reconstruction
- Role of genetic testing

# What kind of cancer do I have?



# Is my cancer hormone related?





# How Fast Is My Cancer Growing?

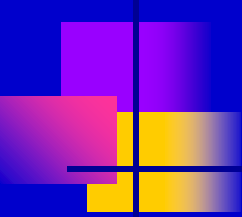
---

## The path to 1 cm

- **Origin:** Breast cancer begins as a single malignant cell that divides repeatedly.
- **Invisibility:** At first, a tumor is too small to be felt during a self-exam. It takes about 30 cell divisions to form a mass of approximately 1 billion cells, which is roughly 1 cm in size.
- **Years of growth:** Because each cell division takes weeks to months, even a tumor that grows steadily can be in the body for two to five years before it's big enough to be felt. Very slow-growing tumors can take much longer.
- **Early detection:** Mammograms are able to detect tumors when they are smaller than 1 cm, sometimes up to a year before they would be felt by hand.

# What stage am I?

| pT            |                                                                                           | pN                      |                                                                                                                                                                                                              | pTNM-Stage  |                  |
|---------------|-------------------------------------------------------------------------------------------|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|------------------|
| <b>Tis</b>    | DCIS<br>LCIS<br>Paget nipple                                                              | <b>pN<sub>1mi</sub></b> | Micrometastasis > 0,2 mm to 2 mm                                                                                                                                                                             | <b>0</b>    | DCIS             |
| <b>T1 mic</b> | ≤ 0,1 cm                                                                                  | <b>pN<sub>1a</sub></b>  | 1-3 axillary nodes                                                                                                                                                                                           | <b>IA</b>   | T1N0             |
| <b>T1a</b>    | ≤ 0,5 cm                                                                                  | <b>pN<sub>1b</sub></b>  | Internal mammary nodes with microscopic/macrosopic metastasis by sentinel node biopsy but not clinically detected                                                                                            | <b>IB</b>   | T0-1N1mi         |
| <b>T1b</b>    | > 0,5 - 1 cm                                                                              |                         |                                                                                                                                                                                                              | <b>IIA</b>  | T0-1N1<br>T2N0   |
| <b>T1c</b>    | > 1 cm - 2 cm                                                                             |                         |                                                                                                                                                                                                              | <b>IIB</b>  | T2N1<br>T3N0     |
| <b>T2</b>     | > 2 cm - 5 cm                                                                             | <b>pN<sub>1c</sub></b>  | 1-3 axillary nodes and internal mammary nodes and internal mammary nodes with microscopic/ macrosopic metastasis by sentinel node biopsy but not clinically detected                                         | <b>IIIA</b> | T0-2N2<br>T3N1-2 |
| <b>T3</b>     | > 5 cm                                                                                    |                         |                                                                                                                                                                                                              | <b>IIIA</b> | T4N0-2<br>T3N1-2 |
| <b>T4a</b>    | Extension to chest wall (does not include pectoralis muscle invasion only)                | <b>pN<sub>2a</sub></b>  | 4-9 axillary nodes                                                                                                                                                                                           | <b>IIIC</b> | anyT N3          |
|               |                                                                                           | <b>pN<sub>2b</sub></b>  | Internal mammary nodes, clinically detected, without axillary nodes                                                                                                                                          |             |                  |
| <b>T4b</b>    | Ulceration, ipsilateral satellite skin nodules, or skin oedema - including peau d'orange. | <b>pN<sub>3a</sub></b>  | ≥ 10 axillary nodes or infraclavicular                                                                                                                                                                       | <b>IV</b>   | systemic         |
|               |                                                                                           | <b>pN<sub>3b</sub></b>  | Internal mammary nodes, clinically detected, with axillary node(s) or > 3 axillary nodes and internal axillary mammary nodes with microscopic metastasis by sentinal node biopsy but not clinically detected |             |                  |
| <b>T4c</b>    | a+b                                                                                       | <b>pN<sub>3c</sub></b>  | Supra-clavicular                                                                                                                                                                                             |             |                  |
| <b>T4d</b>    | Inflammatory ca                                                                           |                         |                                                                                                                                                                                                              |             |                  |



# Will I be OK?

## 5-year breast cancer survival rate

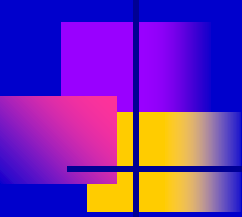
Stage 0  Close to 100%

Stage 1  98%

Stage 2  93%

Stage 3  72%

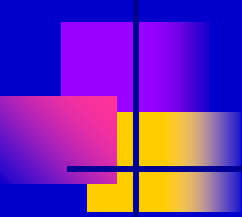
Stage 4  22%



# Breast Cancer Workup

---

- 3-D Mammogram/ultrasound
- Biopsy
- MRI if indicated
- Possible biopsies
- Role of genetic testing
- Role of predictive/genomic test
- Multidisciplinary tumor board
- Surgery
- Chemotherapy, radiation or endocrine therapy

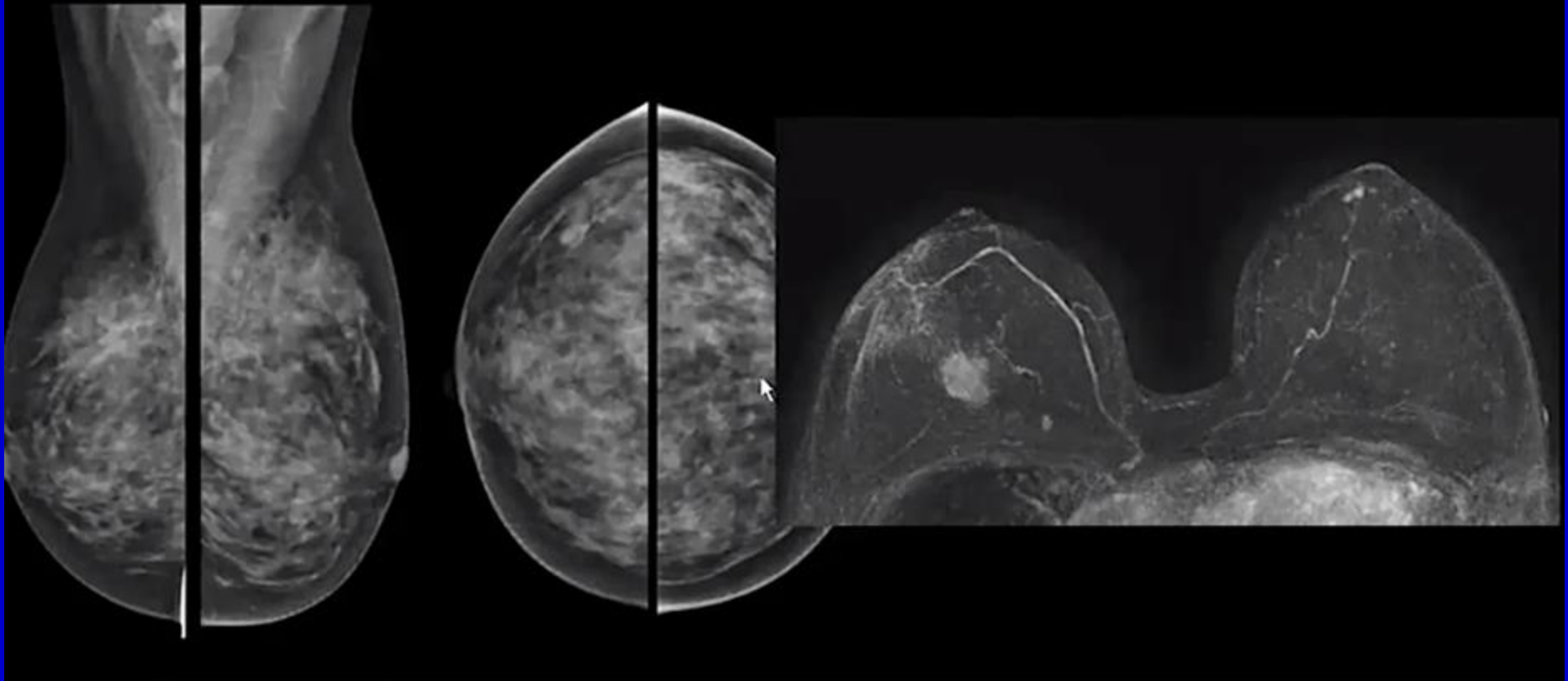


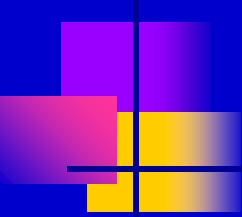
# Breast MRI

---

- Most sensitive test to detect breast cancer with sensitivity of 75-100%
- May help to identify the extent of the disease better than mammogram
- Useful in women with dense breast tissue or have breast implants
- Identifies cancer in the opposite breast 3-5% of the time
- However it is not standard of care, can't be done pacemaker or renal insufficiency

# Mammogram vs. MRI

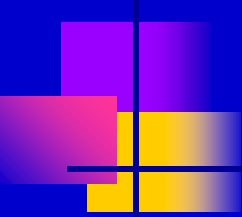




# Genetic testing

---

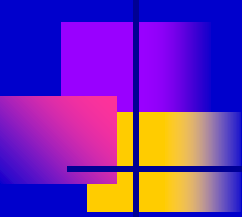
- breast cancer age < 50 depends on insurance
- more than one primary cancer
- Strong family history of breast cancer
- Family history of male breast cancer
- Family history of ovarian cancer
- Triple negative breast cancer
- Ashkenazi Jewish ancestry



# Predictive/Genomic tests

Genomic tests analyze a sample of a cancer tumor to see how active certain genes are. The activity level of these genes affects the behavior of the cancer, including how likely it is to grow and spread. Genomic tests are used to help make decisions about whether more treatments after surgery would be beneficial.

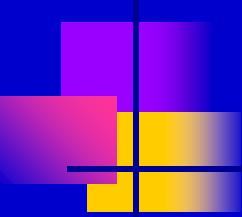
- MammaPrint - assess activity of 70 genes and then calculates a recurrence score that is either low risk or high risk.
- Oncotype DX - analyzes the activity of 21 genes that can influence how likely a cancer is to grow and respond to treatment.



# Multidisciplinary Tumor Board

---

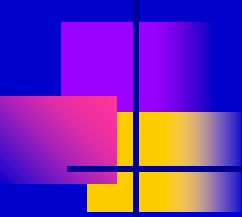
- Breast surgeon
- Radiologist
- Pathologist
- Oncologist
- Radiation oncologist
- Plastic surgeon
- Cancer navigator



# Surgery

---

- Management of the breast
  - lumpectomy
  - mastectomy
- Management of the lymph nodes in the axilla
  - sentinel node biopsy
  - axillary node dissection



# Lumpectomy or mastectomy

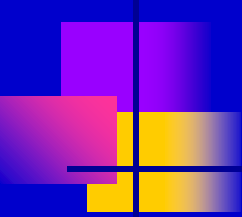
- tumor size relative to breast size
- multifocality
- history of breast radiation
- radiation preference
- genetic predisposition
- patient preference

# Lumpectomy with SLN



# Bilateral mastectomy



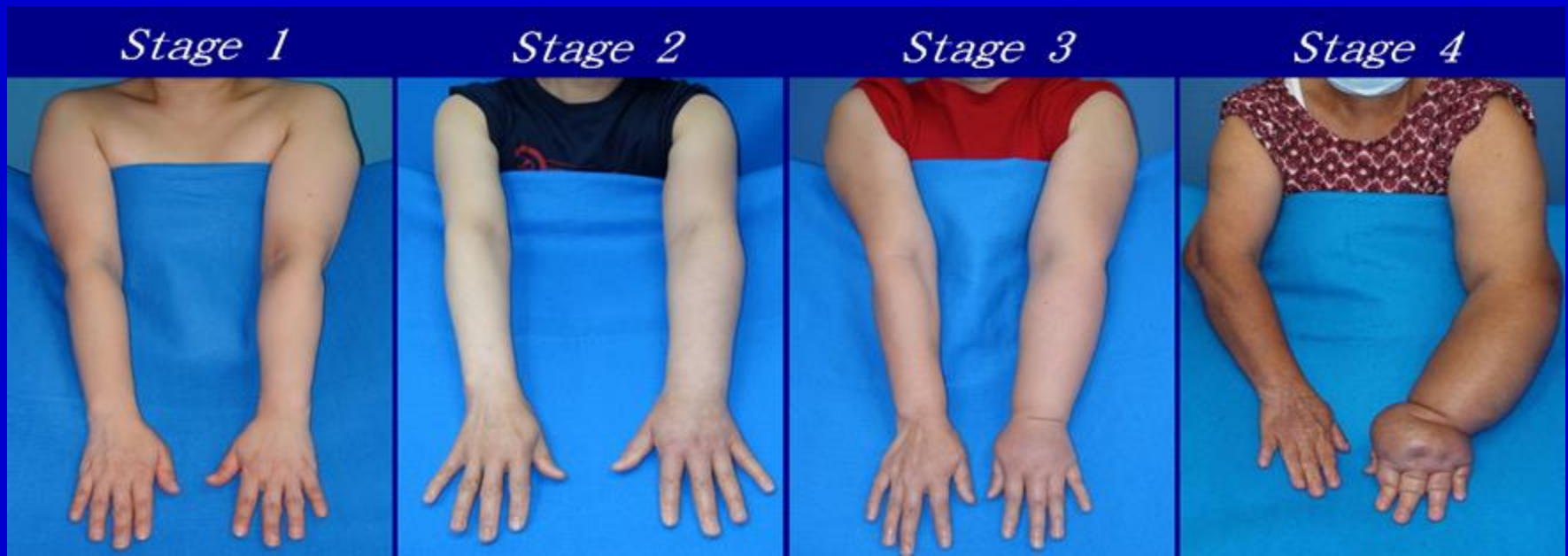


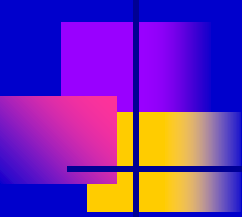
# Sentinel node biopsy or axillary dissection

- sentinel node biopsy allows identification of the first few nodes the cancer may have spread to. It is indicated when there is no clinical evidence of positive lymph nodes
- axillary dissection removes majority of the level 1 and 2 lymph nodes. It is indicated when there is confirmed positive lymph nodes

# Risk of lymphedema

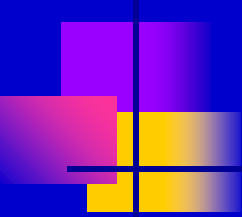
- Sentinel node risk is 7%
- Axillary node dissection 10-20%
- Axillary dissection and radiation 30%





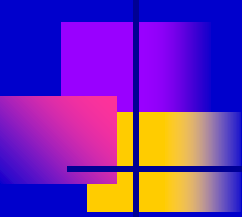
# Indication for chemotherapy

- lymph node status
- tumor size
- tumor grade
- hormone receptor status (triple negative)
- HER2 status (HER2 +)
- age of diagnosis
- genomic testing



# Indications for radiation

- After lumpectomy
- After mastectomy
  - positive lymph nodes
  - positive or close surgical margin
  - Tumor is > than 5 cm
  - lymphovascular invasion or high grade
  - invasion into chest wall or skin
  - inflammatory breast cancer



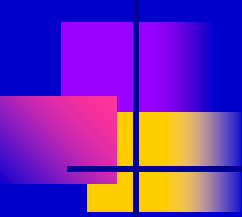
# Indications for Endocrine Therapy

---

- adjuvant treatment for hormone receptor positive tumor (5-10 years)
  - Tamoxifen (premenopausal)
  - Arimidex, letrozole, aromasin (post menopausal)
- neoadjuvant treatment for post menopausal patient to down stage tumor or are poor candidate for surgery
- metastatic or advanced breast cancer
- breast cancer risk reduction

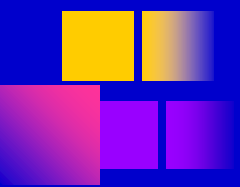
# Locally Advanced Breast Cancer





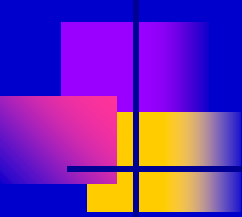
# Living Life after Breast Cancer

- Physical therapy
- Nutrition evaluation
- Exercise program
- Weight loss management
- Emotional support/self care
- Vitamin D replacement
- continued follow up with breast team



# High Risk: Breast Cancer



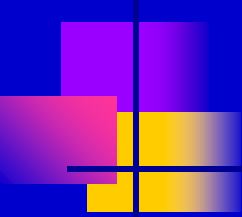


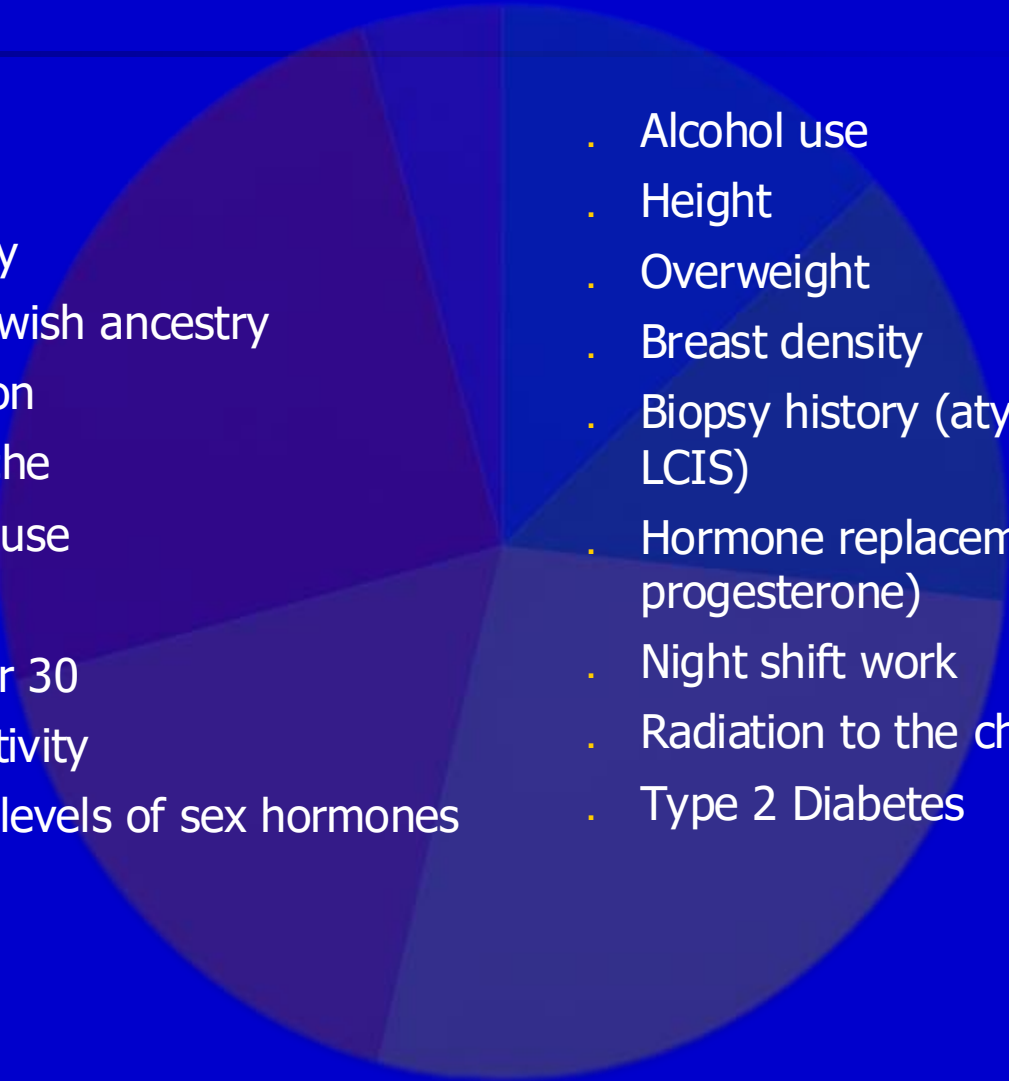
# Breast Cancer High Risk

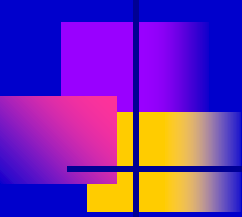
---

- Risk Factors
- Risk Assessment
- Genetic Testing
- High Risk Lesions
- Breast Screening
- Risk Reduction
- Long term management

# Breast Cancer Risk Factors

- 
- . Aging
  - . Family history
  - . Ashkenazi Jewish ancestry
  - . Gene mutation
  - . Early menarche
  - . Late menopause
  - . Nulliparity
  - . 1st child after 30
  - . Physical inactivity
  - . High natural levels of sex hormones

- 
- . Alcohol use
  - . Height
  - . Overweight
  - . Breast density
  - . Biopsy history (atypical hyperplasia, LCIS)
  - . Hormone replacement (estrogen + progesterone)
  - . Night shift work
  - . Radiation to the chest
  - . Type 2 Diabetes



# High Risk Assessment

- Risk calculators:
  - Tyrer-Cuzick (IBIS), Gail, Claus, CanRisk, BOADICEA, ASK2ME, BRCAPRO
- 5-year, 10-year, lifetime risk
- Intermediate risk (15-19% lifetime risk)
- High risk ( $\geq 20\%$  lifetime risk)

| Government          | Percentage |
|---------------------|------------|
| Current government  | 65%        |
| Previous government | 35%        |

Ready

# Genetic Counseling & Testing

- Who to refer?

- NCCN criteria
- Update testing

- Types of testing

- Breast/ovarian genes
- Multigene (81 gene) panel

- Results

- High, moderate and low penetrance genes; VUS

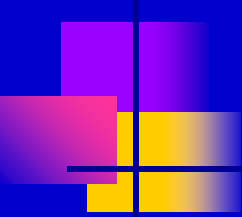
NCCN Guidelines v2.206

► Any age (continued):  
◊ Family history<sup>o</sup>  
– ≥1 close blood relative<sup>p</sup> with ANY:  
▪ breast cancer at age ≤50 y  
▪ male breast cancer  
▪ ovarian cancer  
▪ pancreatic cancer  
▪ prostate cancer with metastatic,<sup>q</sup> or high- or very-high-risk group (Initial Risk Stratification and Staging Workup in [NCCN Guidelines for Prostate Cancer](#))  
– ≥3 diagnoses of breast and/or prostate cancer (any grade) on the same side of the family including the patient with breast cancer

# Breast Cancer Risk Genes

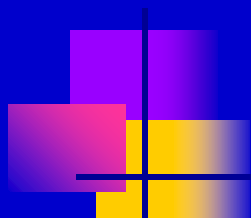
| Gene          | Risk Level (estimated absolute lifetime risk) | Recommended Screening          | Preventive Mastectomy? |
|---------------|-----------------------------------------------|--------------------------------|------------------------|
| <i>TP53</i>   | High (>60%)                                   | MRI at 20, +/- mammogram at 30 | Yes, discuss           |
| <i>BRCA1</i>  | High (>60%); predisposed to TNBC              | MRI at 25, mammogram at 30     | Yes, discuss           |
| <i>BRCA2</i>  | High (>60%); predisposed to ER-positive       | MRI at 25, mammogram at 30     | Yes, discuss           |
| <i>PALB2</i>  | High (40-60%)                                 | MRI and mammogram at 30        | Yes, discuss           |
| <i>PTEN</i>   | High (40-60%)                                 | MRI and mammogram at 35        | Yes, discuss           |
| <i>CDH1</i>   | High (40-60%); predisposed to lobular         | MRI and mammogram at 30        | Yes, discuss           |
| <i>STK11</i>  | High (35-55%)                                 | MRI and mammogram at 30        | Yes, discuss           |
| <i>ATM</i>    | Moderate (20-40%); predisposed to ER-positive | MRI at 30-35, mammogram at 40  | Insufficient evidence  |
| <i>CHEK2</i>  | Moderate (20-40%); predisposed to ER-positive | MRI at 30-35, mammogram at 40  | Insufficient evidence  |
| <i>NF1</i>    | Moderate (20-40%)                             | MRI and mammogram, 30-50       | Insufficient evidence  |
| <i>BARD1</i>  | Moderate (20-40%); predisposed to TNBC        | MRI and mammogram at 40        | Insufficient evidence  |
| <i>RAD51C</i> | Moderate (20-40%); predisposed to ER-negative | MRI and mammogram at 40        | Insufficient evidence  |
| <i>RAD51D</i> | Moderate (20-40%); predisposed to ER-negative | MRI and mammogram at 40        | Insufficient evidence  |

Activate Windows

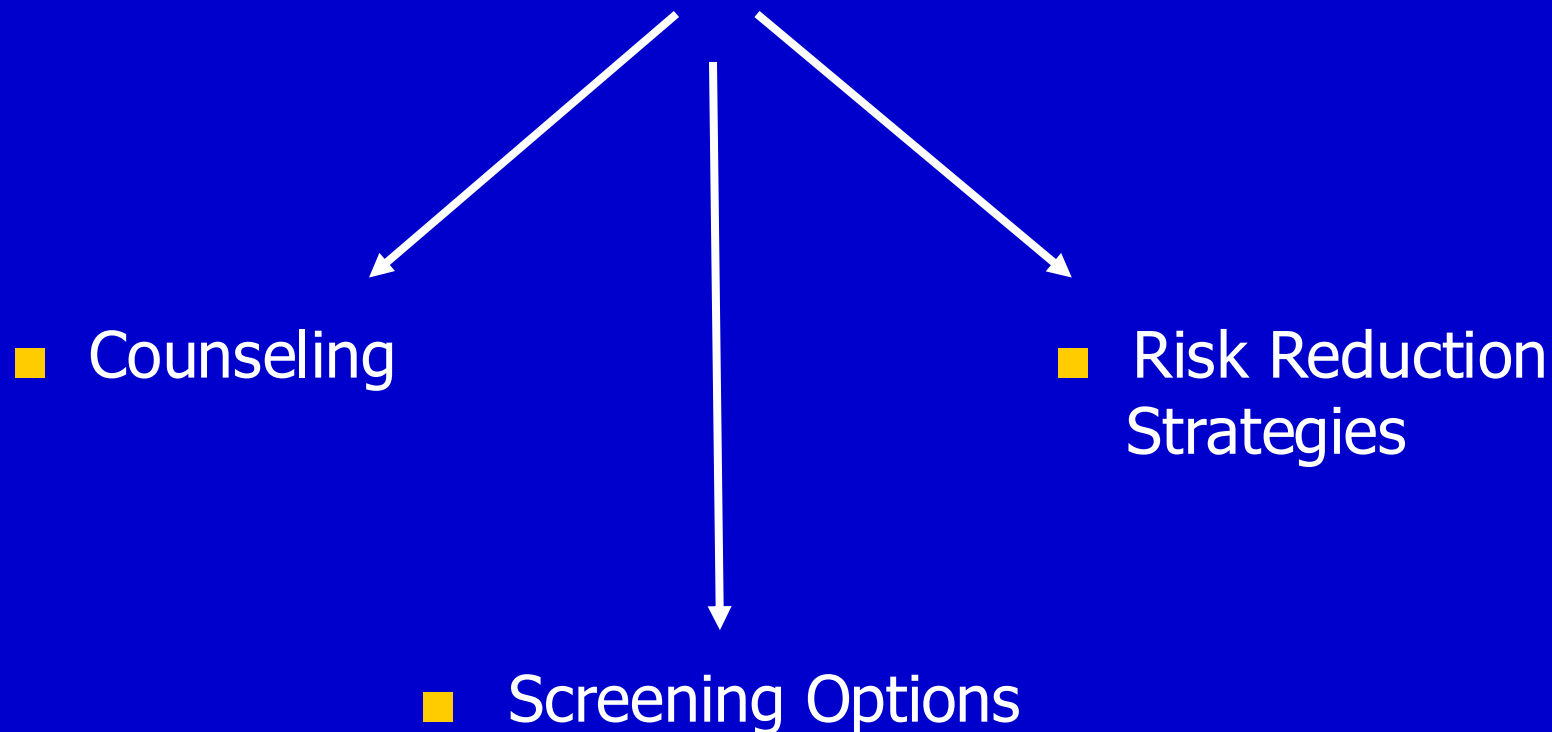


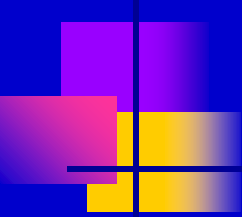
# High Risk Breast Lesions

- Personal history breast cancer
- Atypical hyperplasia (ADH, ALH)
- Lobular Carcinoma In Situ (LCIS)
  - Elevated risk over lifetime



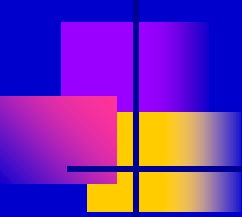
# High Risk – Now What?





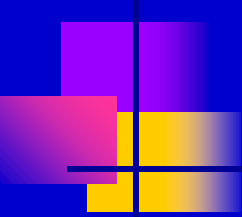
# Breast Cancer Screening

- Average Risk
  - Annual screening mammogram, age 40 (*ASBrS, NCCN, ACOG*)
- Elevated Risk
  - Shared decision making
- High Risk
  - Early and increased screening
  - Annual mammograms starting age 30, annual breast MRIs starting age 25-35
  - Clinic breast exam q6m



# Risk Reduction

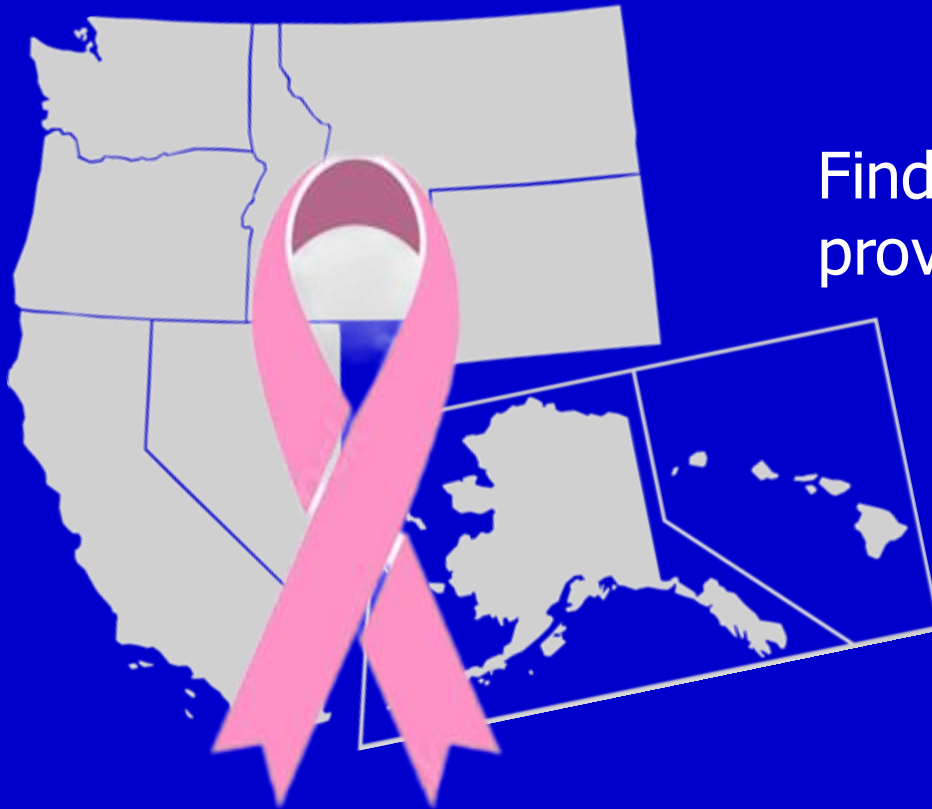
- Chemoprevention / prophylactic endocrine therapy
  - Tamoxifen, Raloxifene, Aromatase inhibitors
  - Duavee
- Bilateral risk reducing mastectomy
- Lifestyle modifications
  - Healthy weight, regular exercise, limit alcohol, smoking cessation



# Long term Management

- High risk breast clinic and PCP follow-up
- HRT- is it safe?
  - 2002 WHI study, public and prescriber fear
  - Individualized approach, formulation, timing relative to menopause, risks/benefits based on menopausal symptoms and overall health
  - Vaginal estrogen, Duavee
  - *Menopause.org*

# High Risk Breast Clinics



Find a high risk breast  
provider near you