

# Identification of at risk family for hereditary cancer

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# Familial vs. Hereditary Cancers

- **Familial** = clustering within a family due to shared genetic and/or environmental risk factor(s)
- **Hereditary** = transmitted within a family due to inheritance of mutated gene(s)

# Hereditary cancer genes

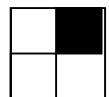
- Oncogene  
mutated proto-oncogene
- Tumor suppressor gene
- DNA repair gene

# Managing Hereditary Cancer

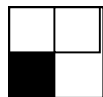
- Detailed pedigree construction
- Clinical and pathologic diagnosis in proband
- Determination of potential testing
- Pre-test genetic counseling
- Psychological evaluation
- DNA-based testing
- Post-test genetic counseling
- Determination of potential prevention

# Pedigree construction

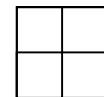
- 3 generations
- Focus on cancer in the family but include other illnesses
- Put as much info as possible into the pedigree
- Indicate who has been tested
- Periodic update is necessary



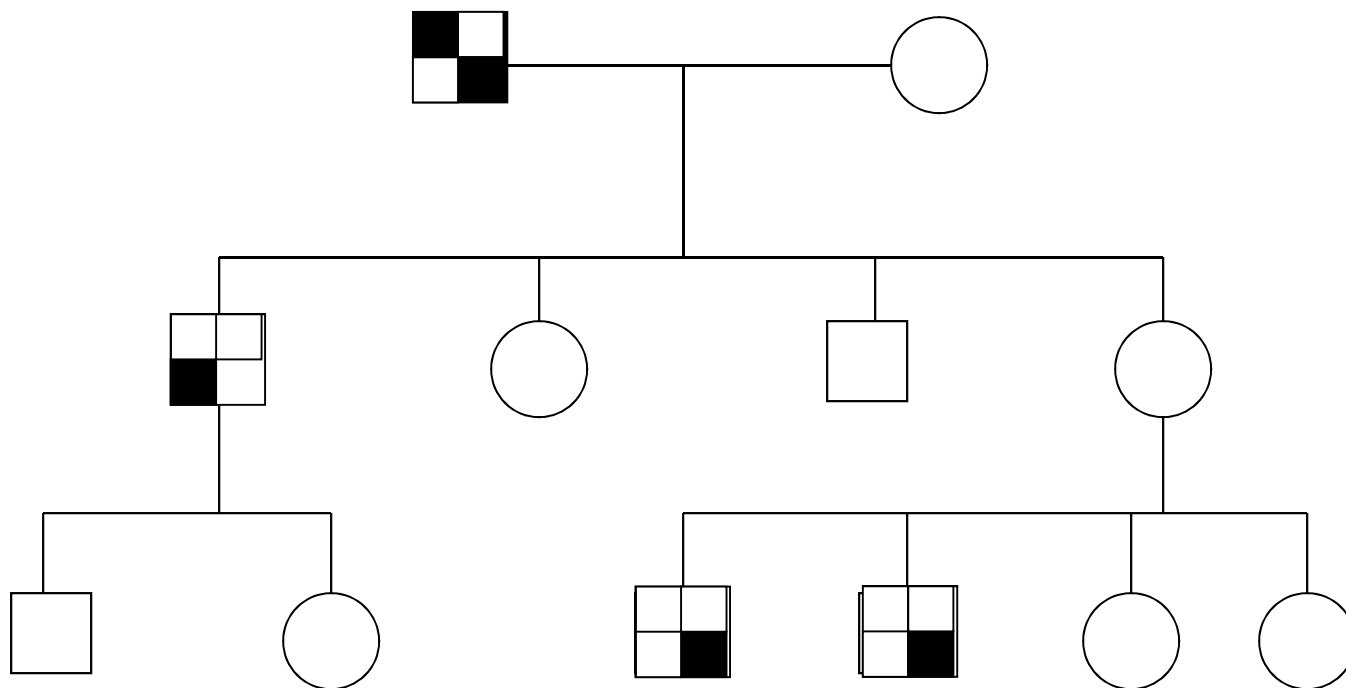
colon



urinary



prostate



# When to suspect hereditary cancer

- **In a patient**

- multiple primary
- bilateral
- young age at Dx
- rare histology
- other related tumor associated
- congenital defects
- associated precursor
- associated karyotypic abnormality

- **In a family**

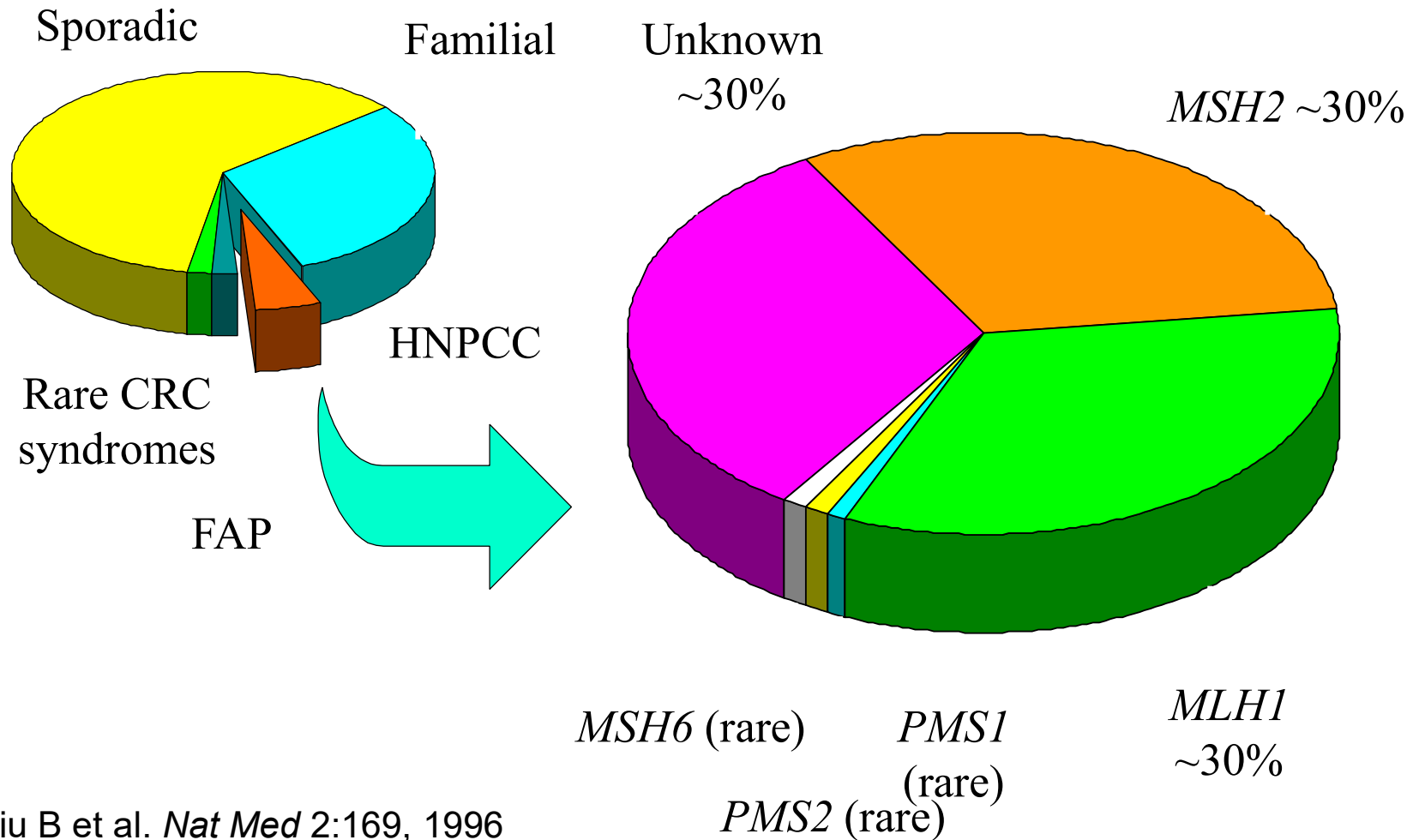
- $\geq 2$  FDR with similar cancer
- $\geq 2$  FDR with related cancer
- $\geq 3$  any R with similar cancer
- R with feature of a syndrome

# Presymptomatic testing –Why doing it ?

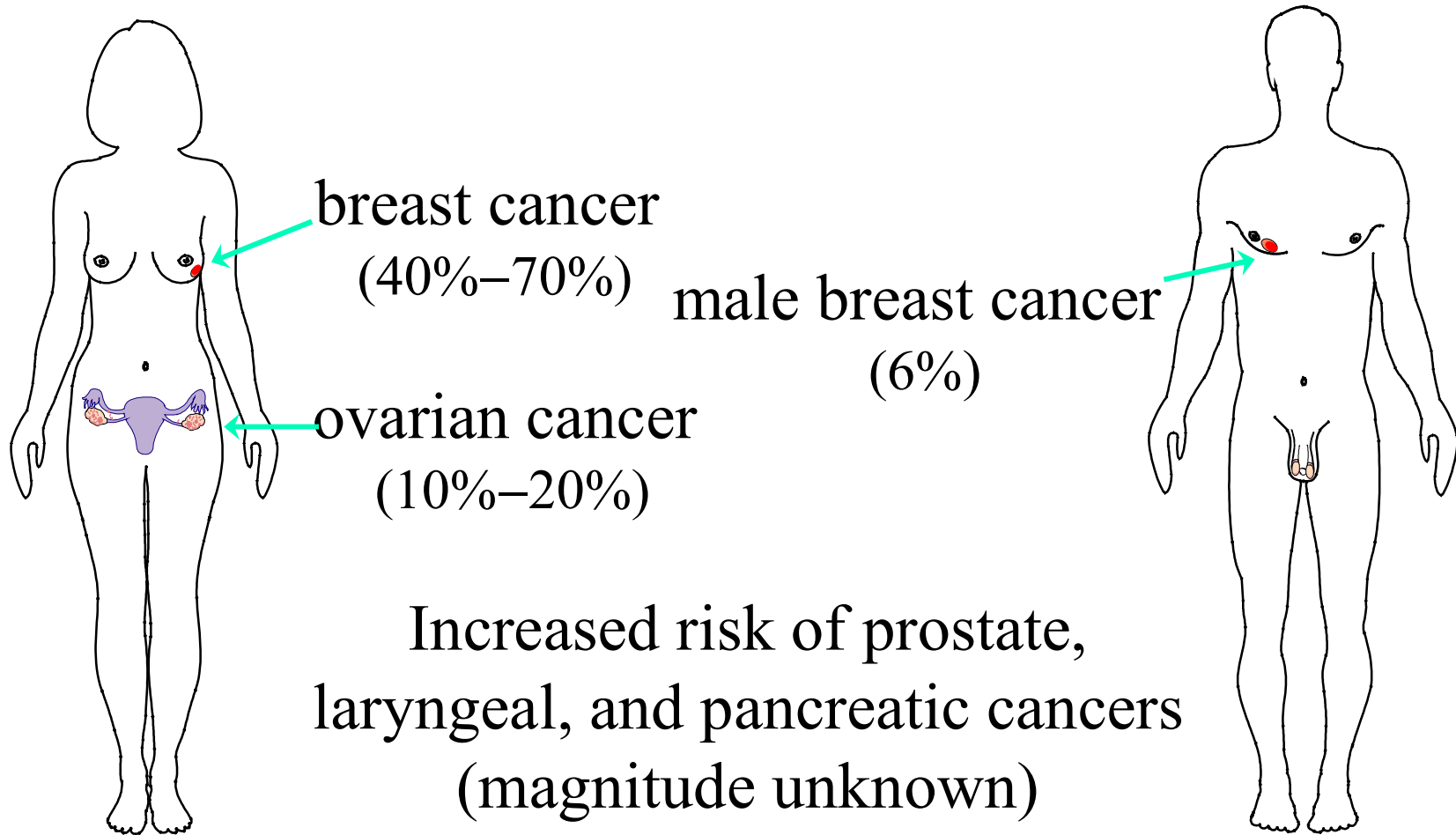
- To know the risk
- To lessen anxiety
- To justify lifelong surveillance
- To benefit family members
- To decide on prophylactic treatment if possible
- To make reproductive choices



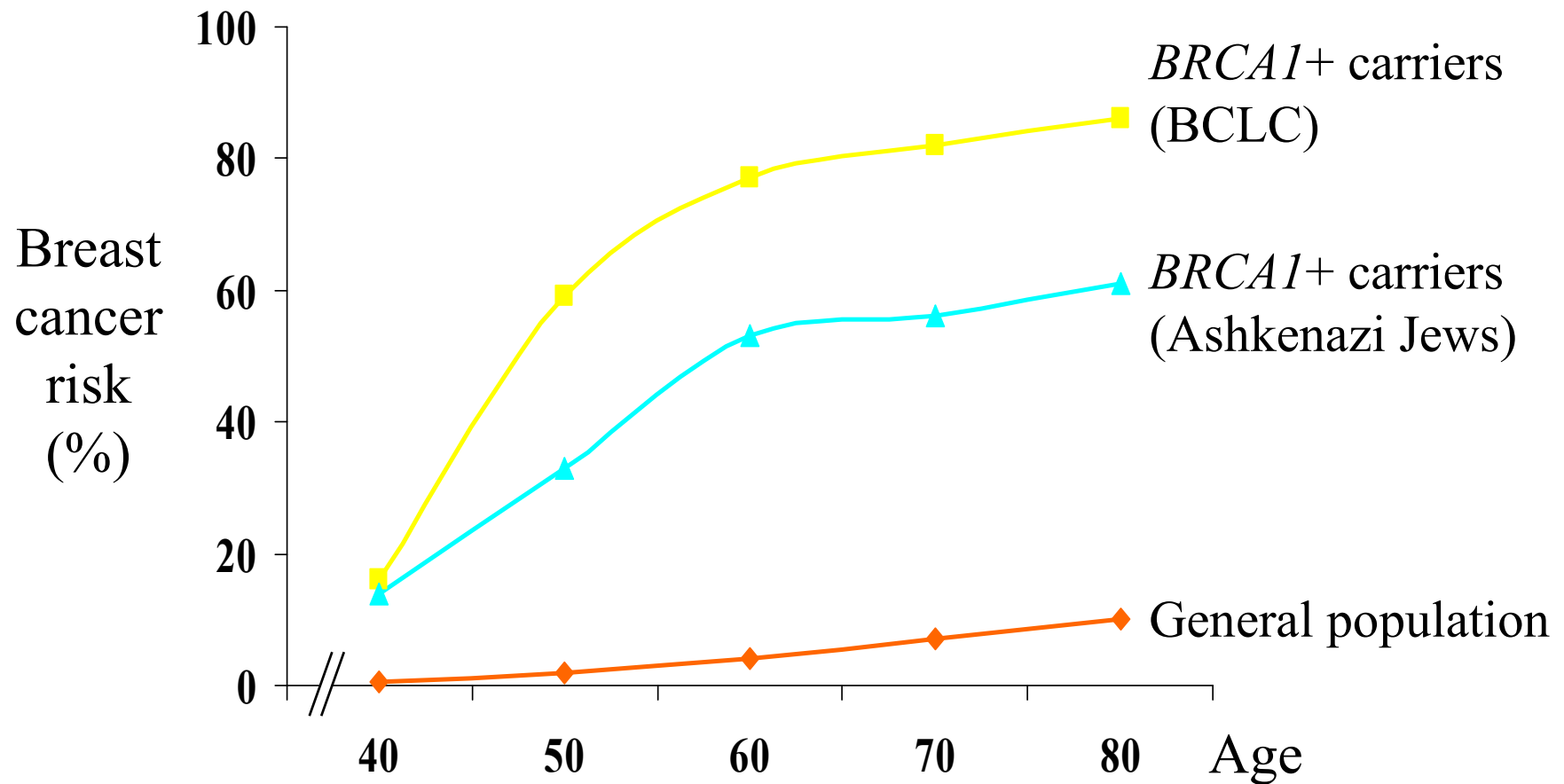
# Contribution of Gene Mutations to HNPCC Families



# ***BRCA2*-Associated Cancers: Lifetime Risk**



# Comparing Breast Cancer Risk Estimates in BRCA Mutation Carriers



Easton DF et al. *Am J Hum Genet* 56:265, 1995  
Struwing JP et al. *N Engl J Med* 336:1401, 1997

# Genetic Testing for cancer susceptibility

