Updated March 12, 2014

City of Hope

Cancer Screening & Prevention Program

Indications for Referral for Genetic Cancer Risk Assessment

Hallmarks of hereditary cancer

- Cancer occurring at an earlier age than expected
- Multiple generations affected
- Multiple primary cancers in an individual
- Breast cancer in a male
- Clustering of rare cancers in a family
- Bilateral disease

Hereditary Breast and Ovarian Cancer (BRCA1, BRCA2)

Any personal or family history of

Breast cancer (including DCIS):

- Diagnosed ≤ age 45
- Diagnosed ≤ age 50 with ≥ 1 close relative with breast cancer ≤ 50 and/or ≥ 1 close blood relative with epithelial ovarian cancer at any age
- Diagnosed at any age with ≥ 2 close* relatives with breast, epithelial ovarian, pancreatic, or aggressive prostate cancer (Gleason score ≥ 7) at any age
- Two breast primaries when first breast cancer ≤ age 50
- Diagnosed ≤ age 60 with triple negative breast cancer
- Diagnosed ≤ age 50 with limited family history
- If Ashkenazi Jewish, any age
- In a male, any age

Ovarian cancer:

- Epithelial ovarian cancer, any age

Pancreatic cancer:

- Diagnosed at any age with ≥ 2 close relatives with breast, ovarian, or pancreatic cancer at any age

Hereditary Colorectal Cancer

Any personal or family history of colorectal (CRC) or endometrial cancer and at least one of the following:

- Diagnosed < age 50
- In ≥ 2 close* relatives with one diagnosed < age 50
- In ≥ 3 relatives, diagnosed at any age
- CRC and endometrial cancer in the same woman
- Personal history of a Lynch syndrome-related cancer** with one or more 1st degree relatives with an Lynch-related cancer <50 or two or more 1st or 2nd degree relatives with a Lynch-related cancer at any age
- Colonic polyposis (or family history of) at any age (at least 10 cumulative polyps)
- The tumor is MSI-high and/or shows loss of MLH1, MSH2, MSH6, or PMS2 protein expression on IHC

Note: Tumor tissue testing for MSI and IHC for protein expression of the MLH1, MSH2, MSH6, and PMS2 genes are recommended for evaluation of Lynch Syndrome (Hereditary Non-polyposis Colorectal Cancer, HNPCC). Please order MSI/IHC at the time of referral so that results are available for the genetics appointment, if not already done.

**Lynch syndrome-related cancers: colorectal, endometrial, ovarian, duodenal/small bowel, gastric, sebaceous adenomas/carcinomas, ureteral/renal pelvis, hepatobiliary/pancreas, brain tumors (esp. glioblastomas)

Genetic Cancer Risk Assessment: Rare Syndromes

Li-Fraumeni Syndrome (LFS)

Any personal or family history of the following cancers, with at least one cancer prior to age 36:

- Adrenocortical carcinoma (at any age, regardless of family history)
- Bone or soft tissue sarcoma
- Brain cancer, esp. choroid plexus tumor
- Breast cancer (prior to age 36 if no family history of the above cancers)

Note: Due to the possibility of *de novo* mutation, not all affected individuals will have a family history of these cancers. Male breast cancer has never been reported in LFS.

Hereditary Melanoma

- Family history of melanoma in ≥ 3 close relatives prior to age 50
- Personal history of ≥ 3 primary melanomas, with ≥ 1 prior to age 50
- Dysplastic nevi with personal or family history of melanoma prior to age 50

Multiple Endocrine Neoplasia 1

Any personal or family history of **primary hyperparathyroidism** ***plus*** personal or family history of:

- Pituitary tumors (especially prolactinoma)
- Endocrine pancreatic tumors (i.e., gastrinoma, insulinoma)

Familial Medullary Thyroid Cancer / MEN2

Any personal of family history of **medullary thyroid cancer,** at any age, **with or without** features of MEN2:

- Parathyroid hyperplasia
- Pheochromocytoma
- Marfanoid habitus
- Ganglioeuromatosis
- Mucosal neuroma

***Close relatives refers to first, second, or third degree, same side of family**

For more information or patient referrals, contact Clinical Cancer Genetics at 662-256-8662 ext. 2

Reference: http://www.nccn.org/professionals/physician_gls/f_guidelines.asp

Genetic testing is appropriate for individuals who have undergone genetic cancer risk consultation with a qualified cancer genetics provider, have a reasonable likelihood of having a cancer susceptibility mutation, and when the information will influence the healthcare of the individual and/or their family (ASCO, NCCN).