*Updated December 2019 (NCCN Colon v3.2019 and Breast/Pancreas v1.2020)*

**Peutz-Jeghers Syndrome (PJS): *STK11* Mutations**

*Cancer Risks and General Management Recommendations*

| Cancer Type | *STK11* Mutation Carrier Cancer Risks | General Population Lifetime Cancer Risks | Screening /Management Recommendations[1-3] |
|---|---|---|---|
| Female Breast | 32-54% | 12.4% | *Surveillance*<br>• Age 25 years[1]:<br>  ○ Clinical breast exam every 6 months<br>  ○ Mammogram and breast MRI annually<br>*Surgery*<br>• Insufficient evidence to support risk-reducing mastectomy based on *STK11* mutation status alone; management should be based on personal risk factors and family history[3] |
| Colon | 39% | 4.5% | *Surveillance*<br>• Initiate in late teens[1] (or 8 years):[2]<br>  ○ Colonoscopy every 2-3 years |
| Stomach | 29% | <1% | *Surveillance*<br>• Initiate in late teens[1] (or 8 years):[2]<br>  ○ Upper endoscopy every 2-3 years |
| Small Intestine | 13% | <1% | *Surveillance*<br>• Initiate at age 8-10 years:<br>  ○ Small bowel visualization (CT or MRI enterography or video capsule endoscopy baseline with follow up based on findings (at least by age 18); subsequent follow up every 2-3 years (may be individualized)<br>• Repeat small intestinal exam is indicated in the presence of symptoms |
| Pancreas | 11-36% | <1% | *Surveillance*<br>• Initiate at age 30-35 years[3]:<br>  ○ Screening should be considered using annual contrast-MRI/MRCP and/or EUS, with consideration of shorter screening intervals for individuals found to have worrisome abnormalities on screening<br>• Surveillance may be individualized (such as 10 years younger than the earliest age of onset in the family) |
| Gynecologic | *Ovary (benign sex cord/Sertoli cell tumors):* 18-21% | 1-2% | *Surveillance*<br>• Initiate at age 18-20 years:<br>  ○ Pelvic exam and Pap smear annually |

| | | | |
|---|---|---|---|
| | *Cervix (cervical adenoma malignum):* 10%<br><br>*Uterine Cancer*: 9% | <1%<br><br>2.7% | |
| Testes (sex cord/Sertoli cell tumors) | 9% | <1% | *Surveillance*<br>• <u>Age 10 years:</u><br>  ○ Annual testicular exam and observation for feminizing changes |
| Lung | 7-17% | 6% | • Provide education about symptoms and smoking cessation |

<u>Other Features/ Risks:</u>

- Gastrointestinal Polyposis:
  - Peutz-Jeghers-type hamartomatous polyps are most prevalent in the small intestine. The density of polyps is greatest in the jejunum, followed by the ileum, then the duodenum.
  - Peutz-Jeghers-type hamartomatous polyps can cause intussusception and bleeding with secondary anemia. Mucinous cysts of the bowel can cause bowel obstruction.
- Physical Characteristics:
  - Individuals with PJS can have mucocutaneous hyperpigmentation. This causes freckling around the mouth, eyes, nose, and perianal area.
  - Freckling becomes more pronounced in early childhood, later fading in puberty and adulthood.

*Implications for Family Members/Reproductive Considerations*

- First-degree relatives (i.e., parents, siblings, and children) have a 50% chance to have the familial *STK11* mutation. Second-degree relatives (i.e., nieces/nephews, aunts/uncles, and grandparents) have a 25% chance to have the familial mutation.
- For carriers of a known mutation, assisted reproduction (with or without egg or sperm donation), pre-implantation genetic testing, and prenatal diagnosis options exist.
- All family members are encouraged to pursue genetic counseling to clarify their risks. Family members can visit www.FindAGeneticCounselor.com to find a genetic counselor near them.

**References**


1. Genetic/Familial High-Risk Assessment: Colorectal (Version 3.2019). *NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines)* 2019.
2. Achatz MI, Porter CC, Brugières L, et al. Cancer Screening Recommendations and Clinical Management of Inherited Gastrointestinal Cancer Syndromes in Childhood. 2017;23(13):e107-e114.
3. Genetic/Familial High-Risk Assessment: Breast, Ovarian, and Pancreatic (Version 1.2020). *NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines) 2019.*