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*
			• Age 25 years[1]:
			  ○ Clinical breast exam every 6 months
			  ○ Mammogram and breast MRI annually
			Surgery
			• 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* • Initiate in late teens[1] (or 8 years):[2] ○ Colonoscopy every 2-3 years
Stomach	29%	<1%	*Surveillance* • Initiate in late teens[1] (or 8 years):[2] ○ Upper endoscopy every 2-3 years
Small Intestine	13%	<1%	*Surveillance* • Initiate at age 8-10 years: ○ 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) • Repeat small intestinal exam is indicated in the presence of symptoms
Pancreas	11-36%	<1%	*Surveillance* • Initiate at age 30-35 years[3]: ○ 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 • 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* • Initiate at age 18-20 years: ○ Pelvic exam and Pap smear annually

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

Other Features/ Risks:

- 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.*