

# C-31

## Tumor Detection Rates Using Standard Screening Protocols in Patients with SDHX Pathogenic Variants



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**BACKGROUND:** Patients with germline SDHx pathogenic variants are at increased risk for pheochromocytomas, paragangliomas, renal cell carcinomas and gastrointestinal stromal tumors. Most experts recommend SDHx carriers undergo biennial whole-body imaging (neck to pelvis) and annual biochemical testing (plasma or urine metanephrines and catecholamines) beginning in childhood. Minimal data exist regarding screening protocol efficacy. This study aimed to evaluate the tumor detection rate using standard screening protocols of whole-body imaging and biochemical testing in SDHx pathogenic variant carriers.

**METHODS:** An IRB approved multi-center retrospective analysis was conducted at the Universities of Michigan, Pennsylvania, and Utah Huntsman Cancer Institute. All clinical imaging and biochemical screening data from each center's start of screening program through March 1, 2018 were abstracted, including subsequent clinical management of patients with tumor(s) detected.

**RESULTS:** In total, 262 SDHx pathogenic variant carriers completed 498 screens. The mean age was 41.9 years (range 6.5-90.7 years), and 55.3% were female (n=145). SDHB pathogenic variant carriers were the most common (n=188,

71.8%), followed by SDHD (n=34/13.0%), SDHC (n=28/10.7%), SDHA (n=9/3.4%) and SDHAF2 (n=3/1.1%). The average number of screens per patient was 1.9 (range 1-8). In total, 19.8% (n=52) SDHx carriers had a positive screen for SDHx-related tumors (n=48) or other cancer (n=4). Across all screens, 11.4% (57/498) were positive and 77.2% (44/57) were from the first screen. Negative bloodwork was seen in 40.4% (23/57) of the positive screens.

**CONCLUSION:** The combination of full body imaging and biochemical testing is effective for screening SDHx pathogenic variant carriers and identifies SDHx-related and incidental tumors. Imaging is essential as biochemical testing alone does not detect all disease. Three-fourths of tumors were identified on the first imaging screen, suggesting that it may be possible to increase the suggested imaging interval. Future longer-term studies are needed to determine the appropriate interval for imaging screening for SDHx pathogenic variant carriers.