

When do Clinicians Cast a Wider Net? Utilization of the Largest Comprehensive Cancer Panel at One Commercial Laboratory

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Background: Multigene panels (MGP) for hereditary cancer are now widely available, including smaller, tumor-specific panels, as well as comprehensive panels addressing a range of tumor types. A trend towards larger, comprehensive panels has been recently described; however, further research is needed to understand the motivations for ordering the largest available panels. This study aims to explore the association between clinical history and utilization of an expanded comprehensive panel offered at one commercial laboratory. The expanded MGP includes additional genes, beyond other comprehensive MGPs, related to rare cancers/tumors including endocrine, brain, and renal.

Methods: Clinical data was retrospectively reviewed for all patients tested with the largest available comprehensive panel (49 to 67 genes) at one commercial laboratory between July 2014 and December 2016. Personal and family history data was assessed for presence of rare tumor types including brain, renal, and endocrine (paraganglioma, pheochromocytoma and thyroid), as these cancer types distinguish the expanded panel genes from other comprehensive testing options.

Results: 11,173 total cases tested with an expanded comprehensive panel were reviewed. 10.5% (n=1173) of the cases had a personal history and 3.7% (n=415) had a family history of one of the assessed rare cancers. 8.2% (n=915), 1.2% (n=135) and 1.1% (n=17) of these cases had personal histories of renal, brain and endocrine cancers respectively. Family histories of brain, renal and endocrine cancers were found in 1.5% (n=172), 2.0% (n=218) and 0.2% (n=25) of cases, respectively.

Conclusions: The overwhelming majority of patients tested with an expanded, comprehensive panel do not have a reported personal or family history of distinguishing tumor types. This study suggests that clinical history is not a key driver in decision-making when selecting an expanded MGP. Further research is needed to elucidate which factors influence clinicians when selecting the largest available panel option for their patients.