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Summary of “Genetic evaluation of cardiomyopathy: a clinical practice resource of the American College of Medical Genetics and Genomics (ACMG)”

Cardiomyopathy is also known as “heart muscle disease”. Cardiomyopathy is an acquired or inherited disease of the heart muscle which makes it hard for the heart to pump blood to the body. The cause of Cardiomyopathy is still unknown but most think it is due to other prior conditions or inherited. Cardiomyopathy is treatable, some of the treatments are medications, and surgery. The main point of Cardiomyopathy that we are looking at is the genetic evaluation of cardiomyopathy and to provide an updated version of guidance for cardiomyopathy. This document discusses the progress in understanding the genetic basis of cardiomyopathy and the collaboration between cardiovascular and genetics professionals to provide state-of-the-art genetics services. It highlights the emergence of clinical exome sequencing and the ACMG recommendation to return relevant and actionable secondary findings list is based on the medically actionable nature of cardiomyopathies. The document emphasizes the essential contribution of cardiovascular physicians in assessing nuances of cardiomyopathy phenotypes. Significant progress has been made in understanding the genetic basis of cardiomyopathy, with guidelines first developed around the year 2008 and then undated by ACMG and HFSA. These groups working together shows the increasing establishment of specialized cardiovascular genetics clinics. This is where cardiologists and genetics professionals work together to provide state-of-the-art genetics services to patients and families with cardiomyopathy. The growth of these clinics has been driven by advancements in technology for clinical genetic testing, such as the availability of large clinical genetic testing panels and continually developing DNA sequencing technologies. Furthermore, the prominence of cardiovascular genetics and genomics has been propelled by the emergence of clinical exome sequencing and the ACMG recommendation to return relevant and actionable secondary findings. This document emphasizes the essential contribution of cardiovascular physicians in assessing the nuances of cardiomyopathy phenotypes and sub phenotypes, with the current approach stratified by cardiomyopathy phenotype. Despite the complexity of genetic cardiomyopathy, the current knowledge combined with expert phenotyping and genetic testing is sufficient to conduct genetic cardiomyopathy evaluation. Overall, thoughtful and rigorous variant interpretation is essential, leveraging the most up-to-date approaches and key resources, including the ACMG/AMP guidance and ClinGen initiative.

Hershberger, R. E. et al. Genetic evaluation of cardiomyopathy: A clinical practice resource of the American College of Medical Genetics and Genomics (ACMG). *Genetics in Medicine*; https://pubmed.ncbi.nlm.nih.gov/29904160/ (2018).