

COVID-19 increases rate of heart attacks in people at genetic risk for heart disease

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Individuals with genetic high cholesterol, heart disease, or both and who were infected with COVID-19 had more heart attacks according to new research by the FH Foundation. While previous studies have speculated

about poorer outcomes if a person with genetic high cholesterol—called familial hypercholesterolemia (FH)—contracts COVID-19, this study from the FH Foundation's national healthcare database is the first to demonstrate higher heart attack rates in the real world. Published online in the *American Journal of Preventive Cardiology*, the study also importantly confirms that COVID-19 increases heart attack rates in individuals with established atherosclerotic cardiovascular disease (ASCVD).

The FH Foundation performed an analysis of 55,412,462 individuals, separating groups into six matched cohorts including diagnosed FH, probable FH, and ASCVD, with and without COVID-19 infection (as identified by the U07.1 ICD-10 code). The researchers found that rates of heart attacks were highest in those with a COVID-19 diagnosis and the presence of diagnosed FH or probable FH with known ASCVD.

"These results are significant because these data underscore the importance of understanding if individuals have underlying [cardiovascular disease](#) or genetic high [cholesterol](#) when treating for COVID-19 infection or considering vaccination," said Kelly Myers, study author and chief technology officer of the FH Foundation.

Familial hypercholesterolemia is a common genetic condition that increases an individual's risk for cardiovascular disease by up to 20-fold due to lifelong elevated low density lipoprotein cholesterol (LDL-C) levels. Today, only 10% of the 1.3 million Americans with FH are diagnosed, due to lack of awareness in the medical community and public. To understand the effect of COVID-19 on these individuals, the researchers applied the FIND FH machine learning model on the dataset.

The study findings have important implications for individuals with FH who are not diagnosed today, say the researchers. "Probable FH" individuals with pre-existing ASCVD who contracted COVID had [heart](#)

attacks at a seven-times greater annual rate than their counterparts who did not contract the virus (AIDR 15.4% vs 2.1% p-value

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