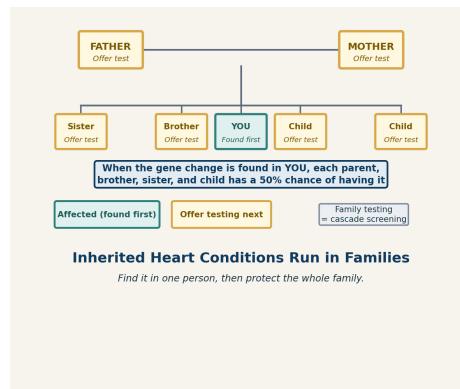


Genetic Testing for Inherited Heart Conditions

Inherited Heart-Muscle and Rhythm Conditions, and Family Screening

Some heart conditions run in families because of one changed gene. Finding it early — and testing close relatives — can prevent heart failure and sudden cardiac death, even in young, healthy-looking people. This guide is about protecting your family.



Online: <https://go.riasalimd.com/inherited-heart-guide>

Rias KS Ali, MD FACC

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1 of 23 | Page



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Names & Terms You Will Hear

Term	Meaning
Inherited Heart Condition	A heart problem caused by a gene change passed down in a family. Also called a genetic or familial heart condition.
Cardiomyopathy	A disease of the heart muscle itself. It can be too thick, too weak and stretched, or scarred. Several types run in families.
Channelopathy	An inherited rhythm problem. The heart muscle looks normal, but the tiny electrical 'channels' in the cells do not work right.
Proband	The first person in a family found to have the condition. Genetic testing starts here, to find the exact gene change.
Cascade Screening	Testing close relatives after a gene change is found in the proband. Each first-degree relative has a 50% chance of having it.
First-Degree Relative	A parent, a brother or sister, or a child. They share half of your genes. They are offered testing first in cascade screening.
Pathogenic Variant	A gene change known to cause disease. This is a 'positive' result. It confirms the diagnosis.
Variant of Uncertain Significance (VUS)	A gene change found in your DNA that we cannot yet call harmful or harmless. It is NOT used to guide your care.
Sudden Cardiac Death (SCD)	A death from the heart stopping suddenly, often from a dangerous rhythm. For some inherited conditions, it can be the first sign.
Genotype-Positive, Phenotype-Negative	You carry the gene change but your heart looks normal so far. You still need regular checkups, and sometimes activity limits.
Genetic Counselor	An expert who maps your family tree, explains the test, and helps you understand what your result means for your family.



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Term	Meaning
GINA	The Genetic Information Nondiscrimination Act. A U.S. law that bars health insurers and employers from using your genetic results.

The big idea in three lines:

1. **Some heart conditions run in families** because of one changed gene — heart-muscle conditions and rhythm conditions.
2. **Test the affected person first**, then offer each first-degree relative a targeted test (cascade screening).
3. **This is about protecting your family** — finding it early can prevent heart failure and sudden cardiac death.



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Genetic Testing for Inherited Heart Conditions?

- Some heart conditions run in families because of a single changed gene. This guide is about the inherited heart-muscle conditions and the inherited rhythm conditions — and how to protect relatives.
- Most are passed down in a 'dominant' way. That means each first-degree relative — parent, brother, sister, or child — has a 50% chance of having the same gene change.
- The inherited heart-MUSCLE conditions are called cardiomyopathies. The main ones are a thick muscle (HCM), a weak stretched muscle (DCM), a scarred right-side muscle (ARVC), and a spongy muscle (LV non-compaction).
- The inherited RHYTHM conditions are called channelopathies. The heart muscle looks normal, but its signals misfire. The main ones are long QT, Brugada, and CPVT.
- Two other inherited problems are touched on here, each with its own guide: inherited high cholesterol (FH), and aorta problems like Marfan and a family history of aorta aneurysm.
- Testing usually starts with the person who already has the condition — the proband. The goal is to find the one exact gene change behind the family's condition.
- Once that change is known, cascade screening begins. Each first-degree relative is offered a simple, targeted test for that one change. It is fast and very accurate.
- The whole point is early protection. For some of these conditions, the first sign can be a sudden cardiac arrest in a young person. Finding carriers early lets us act before that happens.



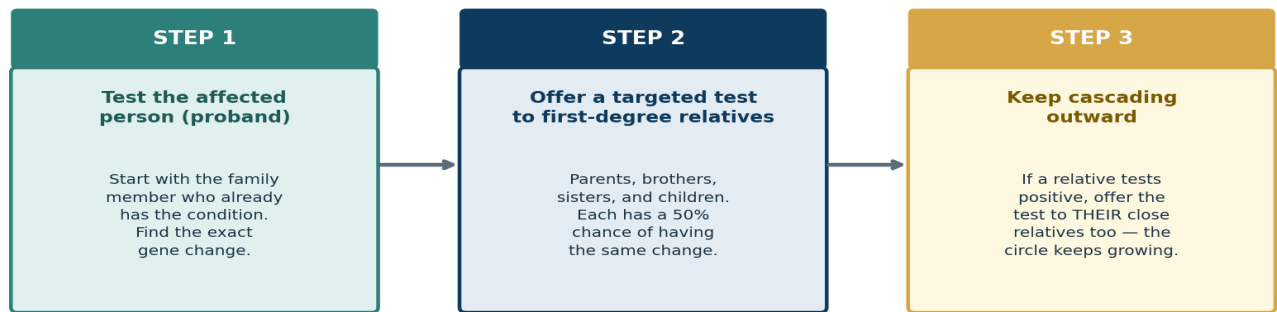
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Cascade Family Screening: Test the Affected Person First



Cascade family screening. Step 1: test the affected person (the proband) to find the exact gene change. Step 2: offer a targeted test to each first-degree relative — each has a 50% chance of having it. Step 3: if a relative tests positive, offer the test to their close relatives too. Source: 2022 EHRA/HRS cardiac genetic-testing consensus.

Which heart conditions are often inherited — and who to screen

Condition	Inheritance note	Who to screen
HCM — thick heart muscle (cardiomyopathy)	Often a single gene change; 50% per first-degree relative	Parents, siblings, children — gene test if a family change is known, plus echo and ECG
DCM — weak, stretched heart muscle (cardiomyopathy)	A large share is inherited; some genes carry higher rhythm risk	First-degree relatives — gene test and periodic echo and ECG
ARVC — scarred right-side muscle (cardiomyopathy)	Strongly familial; passed down in most families	First-degree relatives — gene test plus heart imaging and ECG
LV non-compaction — spongy heart muscle	Can be inherited; overlaps with other cardiomyopathies	First-degree relatives — imaging and gene test as advised
Long QT, Brugada, CPVT — rhythm (channelopathies)	Inherited; the heart muscle can look normal	First-degree relatives — gene test and ECG; some need a treadmill or drug test



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Condition	Inheritance note	Who to screen
FH — inherited high cholesterol (see FH guide)	Very common inherited heart-risk condition	First-degree relatives — a simple cholesterol check, plus gene test
Marfan / familial aortic aneurysm (see aorta care)	Inherited weakness of the aorta wall	First-degree relatives — aorta imaging and gene test



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Inherited Heart-MUSCLE Conditions (Cardiomyopathies)

- **HCM (hypertrophic cardiomyopathy)** — the heart muscle grows too thick. It is the most common inherited heart-muscle condition. It is a top reason for gene testing. It can raise the risk of a dangerous rhythm.
- **DCM (dilated cardiomyopathy)** — the heart muscle gets weak and stretched, so it pumps poorly. A large share runs in families. Some genes (like LMNA) carry a higher rhythm risk and may call for a defibrillator.
- **ARVC** — the muscle of the right side of the heart is slowly replaced by scar and fat. It is strongly familial and can cause dangerous rhythms, especially with hard exercise.
- **LV non-compaction** — part of the heart muscle looks spongy and 'non-compacted.' It can be inherited and sometimes overlaps with the other cardiomyopathies.
- With all of these, a gene carrier can have a normal-looking heart for years. That is why carriers still need regular echo and ECG checks, even when they feel well.
- Each of these has its own care plan. See the companion guides for HCM, DCM, and ARVC linked at the end of this guide.



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Inherited RHYTHM Conditions (Channelopathies)

- **Long QT syndrome** — the heart takes too long to reset between beats. Fainting can happen with exercise, swimming, loud noises, or some medicines. Certain common drugs are avoided in long QT.
- **Brugada syndrome** — a problem with the heart's sodium 'channels.' Dangerous rhythms can strike at rest or during sleep, and fever can bring them out. It is more common in men.
- **CPVT** is a rhythm condition set off by adrenaline. Exercise or strong emotion can trigger a dangerous rhythm. Fainting during exercise is a key warning sign.
- The big difference from the muscle conditions: with channelopathies, the heart muscle and the echo usually look completely normal. The problem is electrical, not structural.
- Because the heart looks normal, a careful ECG, the family story, and sometimes a treadmill or medication test are key — alongside genetic testing.
- These conditions are very treatable once known. Care can include avoiding trigger drugs. It can include certain medicines, activity advice, and sometimes a defibrillator. See the long QT and Brugada companion guides.



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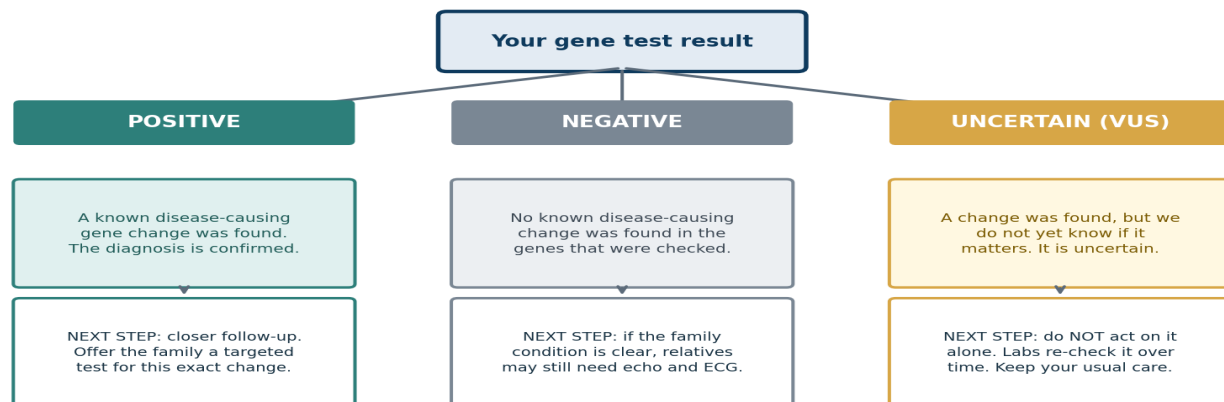


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Why It Matters

- These conditions can be serious. They can lead to heart failure. They can also cause a dangerous rhythm and sudden cardiac death — sometimes in young, healthy-looking people.
- For some of them, the very first sign is a sudden cardiac arrest. That is why family screening matters so much. It can find at-risk relatives BEFORE anything happens.
- Finding the gene change protects more than one person. One positive result in the proband lets the whole family be tested. Then we can watch the right people closely.
- A clear answer guides real choices. It can show who needs a yearly echo, who should avoid certain drugs or hard sports, and who may need a defibrillator one day.
- A negative result in a relative can bring real relief. Say a family gene change is known and your child tests negative for it. That child usually does not need lifelong heart checks.
- Knowing also helps families plan. Some couples want to know their status before having children. A genetic counselor can walk through the choices. There is no pressure.

What Your Result Means, and What Happens Next



Your result, and what happens next. POSITIVE: a known disease-causing change was found — closer follow-up, and the family is offered a targeted test. NEGATIVE: none found — but relatives may still need echo and ECG if the condition runs in the family. UNCERTAIN (VUS): a change of unknown meaning — not acted on alone. Colors are neutral on purpose. Source: ACMG variant classification, 2015.



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Understanding Your Result: Positive, Negative, or Uncertain

- **POSITIVE** means a known disease-causing change was found. It confirms the diagnosis. You may need closer follow-up. Sometimes you need activity limits or treatment, even if your heart looks normal now.
- A positive result is the key that unlocks family testing. Relatives can now be tested for that exact change. Those who carry it start checkups; those who do not are usually put at ease.
- **NEGATIVE** when a family change is already known is reassuring. If you test negative for your family's exact change, you usually can step back from the lifelong monitoring that carriers need.
- **NEGATIVE** when no family change is known is read with care. Science has not found every gene. If the condition clearly runs in the family, you may still need periodic echo and ECG checks.
- **UNCERTAIN (VUS)** means a change was found, but we do not yet know if it matters. Do NOT act on a VUS alone — it is not used to guide care or to test relatives.
- A genetic counselor is part of every result. They explain what your result means for you and your family. They also cover the GINA law, which keeps it private from health insurers and employers.



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Risk Factors

Some patients are more likely to develop this condition. Knowing your risk helps your care team take extra precautions.

Risk Factor	Why It Increases Risk
A close relative has an inherited heart condition	If a parent, sibling, or child has one of these conditions or a known gene change, you may be offered testing. Each first-degree relative has a 50% chance of having the same change.
Sudden death of a young family member	A sudden death before age 50 with no clear cause can point to an inherited rhythm condition. The clue is stronger if it happened during sleep, exercise, or after a loud noise.
Heart-muscle disease found at a young age	A thick, weak, or scarred heart muscle found early in life raises the chance of a gene cause. Testing can help confirm it and guide the family.
Fainting or seizures with exercise, swimming, or a loud noise	These can be signs of an inherited rhythm condition like long QT or CPVT. A gene test, along with an ECG, can help find the cause.
The same heart problem in several relatives	When the same heart-muscle or rhythm problem shows up across generations, an inherited cause is more likely. Testing can find the change behind it.
A cardiac arrest you survived with no clear cause	If your heart stopped and was restarted, and no cause was found, we often test for an inherited rhythm or muscle condition.
A known family gene change waiting to be checked in you	If a relative's exact gene change is already known, your test is simple and very accurate — we look for that one change only.



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Treatment Options

- **Test the affected person first (the proband).** Genetic testing works best when it starts with the family member who already has the condition. The goal is to find the one gene change behind the family's heart problem.
- **Use genetic counseling before and after.** A counselor maps your family tree. They explain what the test can and cannot tell you. They review privacy and the GINA law. After testing, they help you read the result. The choice is yours.
- **Then offer cascade screening to first-degree relatives.** Once the proband's change is known, each parent, sibling, and child is offered a test for that one change. Those who carry it start checkups. Those who do not are usually put at ease.
- **A positive result guides care — it does not start a pill by itself.** It shows how closely to watch your heart. It shows which drugs or sports to avoid. And it shows whether a defibrillator may help. The treatment then follows each condition's own plan.
- **A negative gene test does not always mean 'all clear.'** Science has not found every gene yet. So if the condition clearly runs in the family, relatives may still be offered regular heart checks — an echo and an ECG.
- **A VUS is not acted on.** A 'variant of uncertain significance' is not used to make decisions or to test relatives. Labs re-check these over time; your counselor keeps you posted if the meaning changes.
- **Treatment follows the condition, not the test.** Genetic testing points to the right diagnosis. The actual care — medicines, devices, activity guidance — comes from each condition's own plan. See our companion guides below.

When the gene test is negative but the family clearly has the condition.

Science has not found every gene yet. So a negative test does not always mean 'all clear.' If a heart-muscle or rhythm condition clearly runs in your family, your relatives may still be offered periodic heart screening — an echo and an ECG — even without a gene change to test for.



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Comfort Measures at Home (No Medication Needed)

These simple steps support healing and ease symptoms. Use them alongside any medication your doctor prescribes.

- Bring your family history to the visit. Write down which relatives had heart problems or sudden deaths, at what age, and how. A clear family tree is one of the best tools your team has.
- Ask the genetic counselor your questions. Good ones include: What will a positive result change for me? What about a negative one? Who in my family should be tested, and when?
- Know your privacy rights. GINA stops health insurers and employers from using genetic results. It does NOT cover life, disability, or long-term care insurance, so ask your counselor about timing.
- Keep a copy of your result. Save the lab report. Relatives and future doctors will need the exact gene and variant name to test for the same change.
- Tell your relatives if you test positive. A short, kind message lets them get tested and protected. Your counselor or doctor can give you a family letter to share.
- Keep up your heart checkups. A gene result does not replace your regular care. Echo, ECG, and clinic visits still find problems early and guide treatment — especially if your heart looks normal now.
- Move your body the way your team advises. Some inherited conditions call for activity limits; many do not. Ask what is safe for you before changing your exercise routine.



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Risks, Benefits, and Alternatives

Every choice has trade-offs. Use this table to start the shared decision conversation.

Option	Risks	Benefits	Alternatives
Test the proband (affected person)	May return a VUS that brings worry without a clear answer. May reveal a condition the family did not expect.	Finds the exact gene change behind the family's condition. This is the key that unlocks accurate testing for every relative.	Diagnose by exam, ECG, and imaging alone, without a gene test. Less able to guide precise family screening.
Cascade screening of relatives	Relatives must decide whether to know. Some feel anxious while waiting. A positive result means lifelong monitoring.	Finds at-risk relatives before symptoms — sometimes before a sudden cardiac event. Those who test negative are usually freed from extra testing.	Screen relatives with echo and ECG only, without gene testing. Useful, but may miss carriers whose hearts look normal today.
Genetic counseling	Adds a visit before testing. Rarely, raises hard questions about family and future plans.	Helps you make an informed choice, understand your result, and protect your privacy. Reduces confusion and worry.	Order testing without counseling — not advised; raises the chance of a misread result and missed family screening.
Acting on a VUS	A VUS is uncertain. Treating it as a real cause can lead to needless tests, devices, activity limits, or worry.	None proven. Guidelines say a VUS should NOT change your care or be used to test relatives.	Wait and watch. Labs re-classify VUS results over time as more is learned. Your counselor will update you.



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Option	Risks	Benefits	Alternatives
No testing	May miss an inherited cause and the chance to protect relatives. For some conditions, the first sign is a sudden cardiac event.	No cost, no chance of a VUS, no privacy questions to weigh right now.	Test the affected person first; then test the family. This is the path we suggest when a condition looks inherited.



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Common Misconceptions

Myth	Reality
"If my heart looks normal on the echo, I cannot have an inherited heart condition."	Not true. With the rhythm conditions, the heart muscle looks normal. And a gene carrier can have a normal echo for years before the muscle changes. So testing and follow-up still matter.
"A positive result means I will definitely get sick or die young."	Not always. Some gene changes cause disease in nearly everyone. Others cause it in only some carriers. This is called penetrance. A positive result raises your risk. It is not a sure thing.
"We should test the healthy children first."	No. Testing starts with the person who already has the condition — the proband. Finding their exact gene change is what makes a relative's test simple and accurate.
"A negative gene test means no one in the family needs screening."	Not always. Science has not found every gene. If the condition clearly runs in the family, relatives may still need periodic echo and ECG checks even when the gene test is negative.
"A VUS means I have the disease."	No. A 'variant of uncertain significance' is a change we cannot yet call harmful or harmless. Guidelines say it should NOT change your care or be used to test relatives.
"My insurance can drop me if I test positive."	The GINA law bars health insurers and employers from using your genetic results. It does not cover life, disability, or long-term care insurance. Ask your counselor about those.
"Only the affected person needs to do anything."	The opposite. Once a gene change is found, each first-degree relative has a 50% chance of having it. Cascade screening is the most powerful step after a diagnosis.
"There is nothing anyone can do if it is genetic."	Not true. Knowing lets your team watch you closely, avoid risky drugs or sports, consider a defibrillator if needed, and protect relatives. Early action prevents harm.



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Possible Complications

Knowing what can go wrong helps you spot problems early. Most complications are uncommon, especially with treatment.

Where / What	What Can Happen
Heart failure	The heart-muscle conditions (HCM, DCM, ARVC) can weaken or stiffen the heart over time, leading to breathlessness, swelling, and fatigue. Early diagnosis lets treatment start sooner.
Dangerous rhythms and sudden cardiac death	Both the muscle and the rhythm conditions can trigger fast, dangerous rhythms. For some people the first sign is a cardiac arrest — the reason family screening saves lives.
Uncertain result (VUS)	A change is found, but its meaning is unknown. This can cause worry. A good counselor explains that a VUS should not change your care and may be re-classified later.
False reassurance	A negative gene test may feel like an 'all clear' when screening is still needed. Your doctor must read it alongside your exam, ECG, echo, and family history.
Emotional and family stress	Learning you carry a gene change — or passed it on — can be hard. Results affect relatives, not just you. Counseling and support help, and knowing brings the power to act early.
Insurance gaps	GINA protects health insurance and employment, but not life, disability, or long-term care insurance. The timing of those policies is worth discussing before you test.

Your privacy and the GINA law.

The Genetic Information Nondiscrimination Act (GINA) is a U.S. law. It bars **health insurers** from using your genetic results to deny coverage or raise your rates. It bars **employers** from using them in hiring or firing. GINA does **not** cover life, disability, or long-term care insurance — so ask your counselor about the timing of those policies before you test.



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Points to Know

If you remember nothing else, remember these key points.

- Some heart conditions run in families because of one changed gene. Most are passed down so that each first-degree relative has a 50% chance of having it.
- The inherited heart-MUSCLE conditions (cardiomyopathies) include HCM (thick), DCM (weak/stretched), ARVC (scarred right side), and LV non-compaction (spongy).
- The inherited RHYTHM conditions (channelopathies) include long QT, Brugada, and CPVT. With these, the heart muscle can look completely normal.
- These conditions matter because they can cause heart failure or sudden cardiac death — sometimes in young people whose first sign is a cardiac arrest.
- Testing starts with the affected person (the proband). Once their gene change is found, cascade screening offers each first-degree relative a simple, targeted test for that one change.
- Results come in three forms: positive (a change was found), negative (none found), and VUS (a change of uncertain meaning). A VUS is not used to guide care or test relatives.
- If the gene test is negative but the condition clearly runs in the family, relatives may still need periodic echo and ECG checks.
- Your results are private. GINA bars health insurers and employers from using them. This whole process is about protecting your family.



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When to Call Us - and When to Call 911

If you are not sure, call. We would rather hear from you twice than miss a real problem.

- **Call 911** for fainting with no warning, a seizure during exercise or after a loud startle, or sudden chest pain or trouble breathing. In inherited conditions these can be danger signs. Do not drive yourself.
- **Call our office (727-943-5200)** if a close relative was found to have an inherited heart-muscle or rhythm condition, or a known heart gene change. We can arrange targeted testing for you.
- **Call us** if a family member died suddenly and unexpectedly before age 50 — especially during sleep, exercise, or after a startle. We can review whether family testing makes sense.
- **Call us** if you were diagnosed young with a thick, weak, or scarred heart muscle, or a dangerous rhythm. Genetic testing may help confirm the cause and guide the family.
- **Call us** if you carry a known family gene change and have new symptoms — fainting, palpitations, chest pain, or breathlessness. These may mean the condition is becoming active.
- **Call us** if you have a genetic result you do not understand. We will go over it with you, or connect you with a genetic counselor.
- **Call us** if you want to talk through testing before starting a family. We can refer you to a counselor to review your options.

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See also: companion guides from Dr. Ali.

[Cardiac Genetic Testing](#) · [Hypertrophic Cardiomyopathy](#) · [Dilated Cardiomyopathy](#) · [ARVC](#)
· [Long QT Syndrome](#) · [Brugada Syndrome](#) · [Familial Hypercholesterolemia](#).



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Trusted Resources

The links below are the trusted resources Dr. Ali used to write this guide and that he recommends you visit for more information. Each is a clickable link in the digital version and a Short.io tracked URL on the printed version.

- [AHA — Genetics and Cardiovascular Disease](#) - American Heart Association overview of inherited heart conditions, family screening, and why genetics matters for the whole family.
- [MedlinePlus — Genetic Testing \(NIH\)](#) - Federal plain-language overview of what genetic testing is, how it is done, and what the different results mean.
- [NHGRI — Genetic Discrimination and the GINA Law](#) - Official explanation of the GINA law: what it protects (health insurance and jobs) and what it does not (life, disability, and long-term care insurance).
- [Find a Genetic Counselor \(NSGC\)](#) - Search tool from the National Society of Genetic Counselors to locate a certified genetic counselor near you.
- [Cleveland Clinic — Genetic Testing](#) - Plain-language guide to who should consider cardiac genetic testing, how it works, and how families use the result.
- [Cardiac Genetic Testing — Companion Guide](#) - Dr. Ali's companion guide on how cardiac genetic testing works step by step — blood vs. saliva, result types, and the role of the genetic counselor.
- [Hypertrophic Cardiomyopathy \(HCM\) — Companion Guide](#) - Dr. Ali's guide to the thick-heart-muscle condition — the most common inherited cardiomyopathy and a leading reason for testing.
- [Dilated Cardiomyopathy \(DCM\) — Companion Guide](#) - Dr. Ali's guide to the weak, stretched-heart-muscle condition, a large share of which is inherited.
- [ARVC — Companion Guide](#) - Dr. Ali's guide to arrhythmogenic right ventricular cardiomyopathy, a scarred-muscle condition strongly linked to family genes.
- [Long QT Syndrome — Companion Guide](#) - Dr. Ali's guide to this inherited electrical rhythm condition, where genetic testing helps confirm the type and guide treatment.



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Sources Used to Build This Guide

Every recommendation in this guide is grounded in one or more of the studies, guidelines, or trusted resources below. Short links are tracked so Dr. Ali can see which references patients are reading; nothing personally identifying is captured.

- [2022 EHRA/HRS/APHRS/LAHRs Expert Consensus Statement on the State of Genetic Testing for Cardiac Diseases \(Wilde et al., Heart Rhythm 2022\)](#) [Guideline]
Primary international consensus on which inherited cardiac conditions warrant genetic testing (cardiomyopathies HCM/DCM/ARVC/LVNC; channelopathies long QT/Brugada/CPVT), proband-first testing, cascade family screening, and variant interpretation
- [2024 AHA/ACC/AMSSM/HRS/PACES/SCMR Guideline for the Management of Hypertrophic Cardiomyopathy \(Ommen et al., Circulation 2024\)](#) [Guideline]
Current HCM guideline genetics: pre- and post-test counseling, cascade testing of first-degree relatives only when a pathogenic/likely-pathogenic variant is found, clinical screening (echo/ECG) of relatives when no variant is found, and 2-3 year variant re-review
- [ACMG Standards and Guidelines for the Interpretation of Sequence Variants \(Richards et al., Genet Med 2015\)](#) [Guideline]
How gene variants are classified from pathogenic to benign and why a variant of uncertain significance (VUS) arises and should not guide care — frames result interpretation for patients
- [NHGRI — Genetic Discrimination and the GINA Law \(National Human Genome Research Institute\)](#) [Government]
Authoritative explanation of the Genetic Information Nondiscrimination Act protections (health insurance, employment) and its limits (life, disability, long-term care insurance) — the top patient privacy concern
- [MedlinePlus — Genetic Testing \(NIH/National Library of Medicine\)](#) [Government]
Federal plain-language overview of what genetic testing is, how a sample is collected, and what positive, negative, and uncertain results mean
- [AHA — Genetics and Cardiovascular Disease / Cardiomyopathy and Family Screening](#) [Patient-Education]
Plain-language framing of inherited heart-muscle and rhythm conditions, cascade screening of relatives, and the role of a genetic counselor
- [Cleveland Clinic — Cardiac Genetic Testing / Inherited Heart Disease](#) [Patient-Education]
Plain-language patient page on who should consider cardiac genetic testing, how it is done, and how families use the result
- [NSGC — Find a Genetic Counselor \(National Society of Genetic Counselors\)](#) [Patient-Education]
Trusted directory for patients to locate a certified genetic counselor before and after testing



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About This Guide

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Reviewer note: Reviewed Cleveland Clinic, Mayo Clinic, and AHA patient pages, plus the 2022 EHRA/HRS/APHRS/LAHRs genetic-testing consensus and the 2024 AHA/ACC HCM guideline. This guide adds, beyond the companion 'cardiac genetics' guide: a condition-by-condition map of which heart-muscle and rhythm conditions are inherited; a cascade-screening flow that starts with the affected person; a result-meaning map tying each result to its next step; per-group deep-dives for cardiomyopathies and channelopathies; and plain-language GINA privacy framing.

Disclaimer

This guide is for educational purposes only and does not replace medical advice from your physician. Recommendations may not apply to every patient. Always follow the specific instructions of Dr. Ali and your care team. In an emergency call 911 or go to the nearest emergency department.



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