Epidemiology

- (HCM) is the most common inherited cardiovascular disorder, affecting **1 in 500 individuals worldwide**

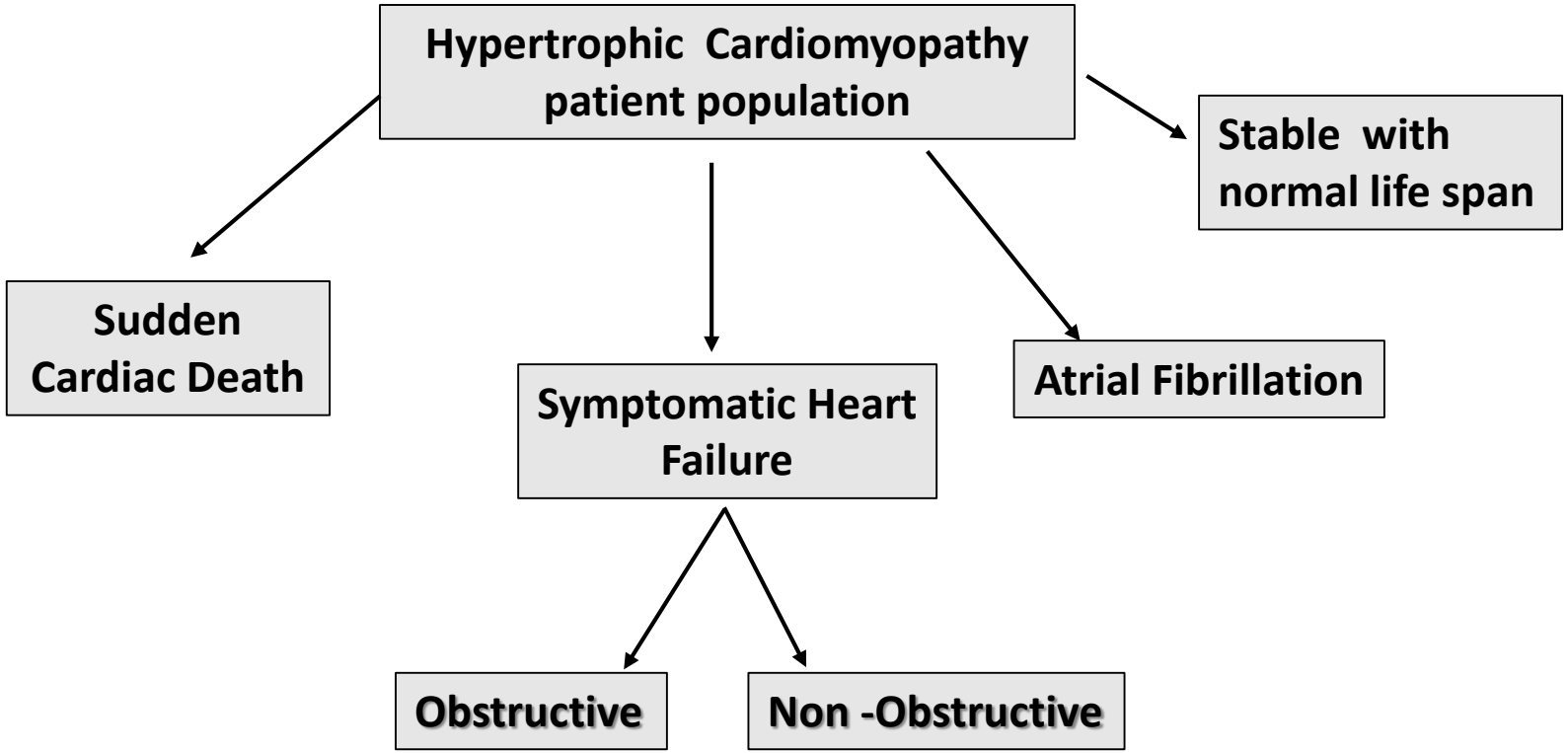
- Clinical manifestations :
- **diastolic dysfunction,**
- **left ventricular outflow tract obstruction, ischemia,**
- **atrial fibrillation, abnormal vascular responses**
- **In 5% of patients, progression to a 'burnt-out' phase characterized by systolic impairment.**

- Disease-related mortality :
- **sudden cardiac death,**
- **Heart Failure,**
- **Embolic stroke**

- The majority of individuals with HCM, however, **have normal or near-normal life expectancy,** owing in part to contemporary management strategies including **family screening, risk stratification, thromboembolic prophylaxis, and implantation of ICD**

Pathogenic mutations of HCM.		
Gene	Protein	Frequency (%)
Cardiac myosin-binding protein C	MYBPC3	30–40%
β cardiac myosin heavy chain	MYH7	20–30%
Cardiac troponin T	TNNT2	5–10%
Cardiac troponin I	TNNI3	4–8%
Regulatory myosin light chain	MYL2	2–4%
Essential myosin light chain	MYL3	1–2%
α tropomyosin	TPM1	<1%
α cardiac actin	ACTC1	<1%
Muscle LIM protein	CSRP3	<1%

Disease manifestations



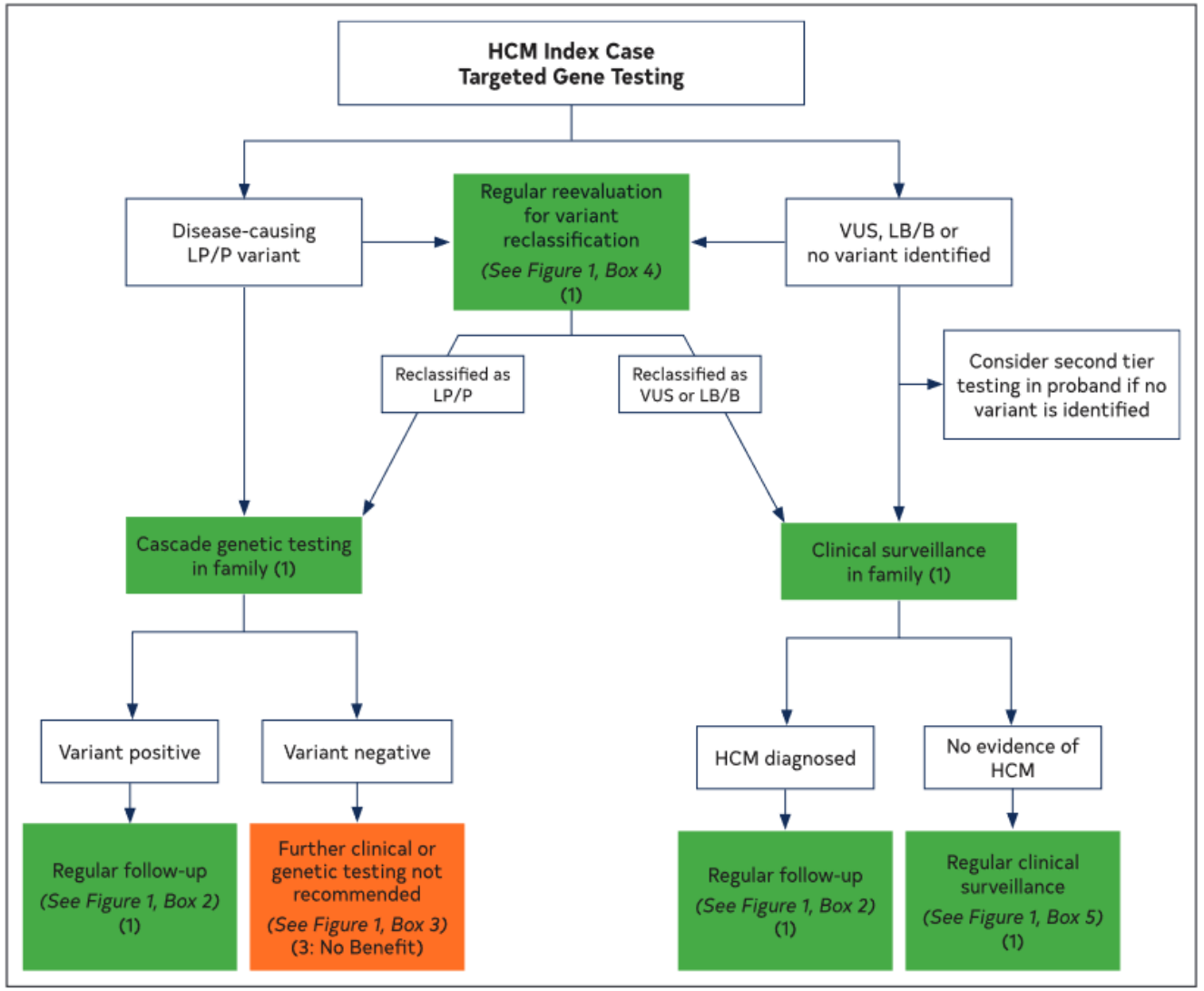
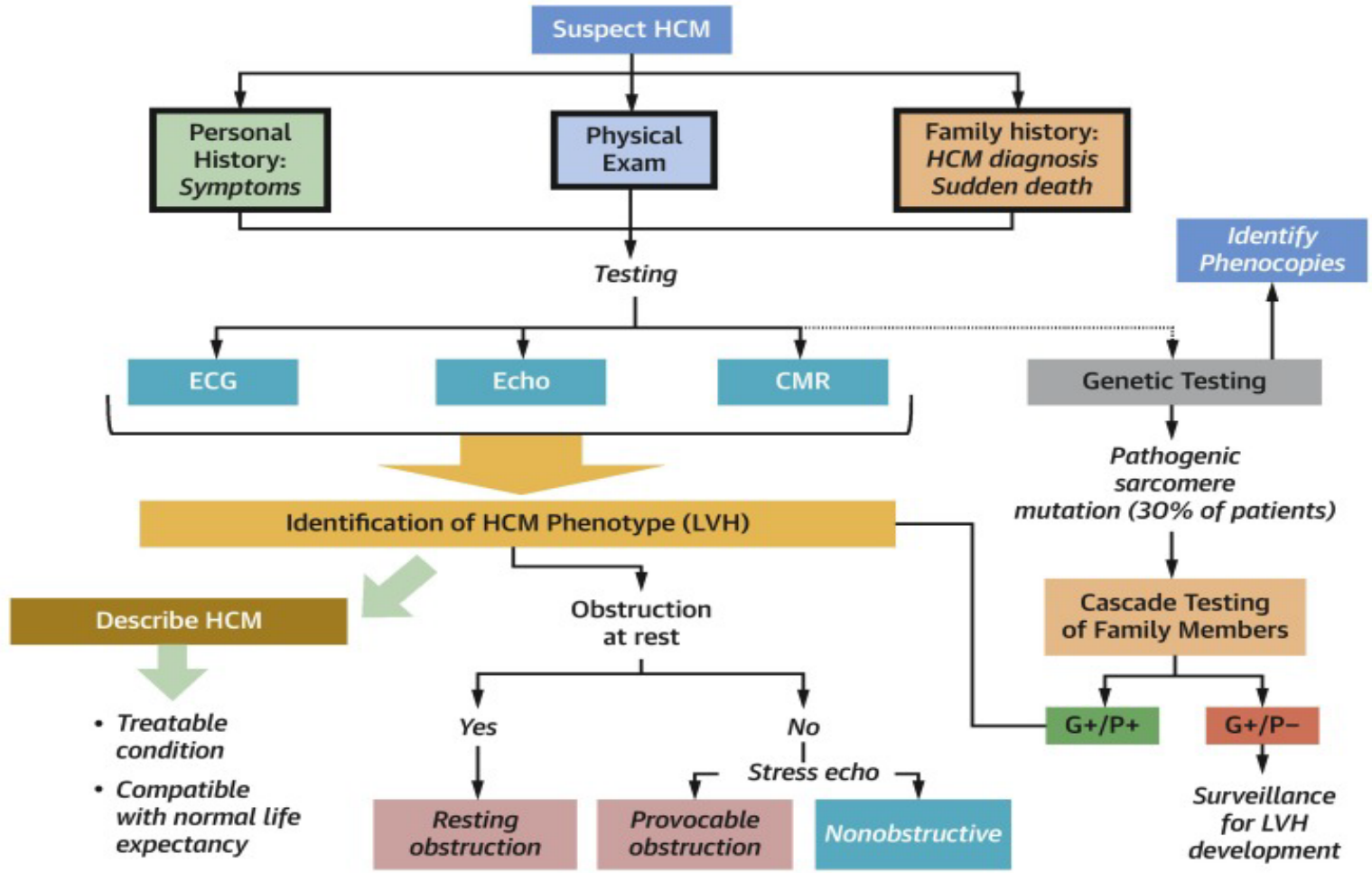


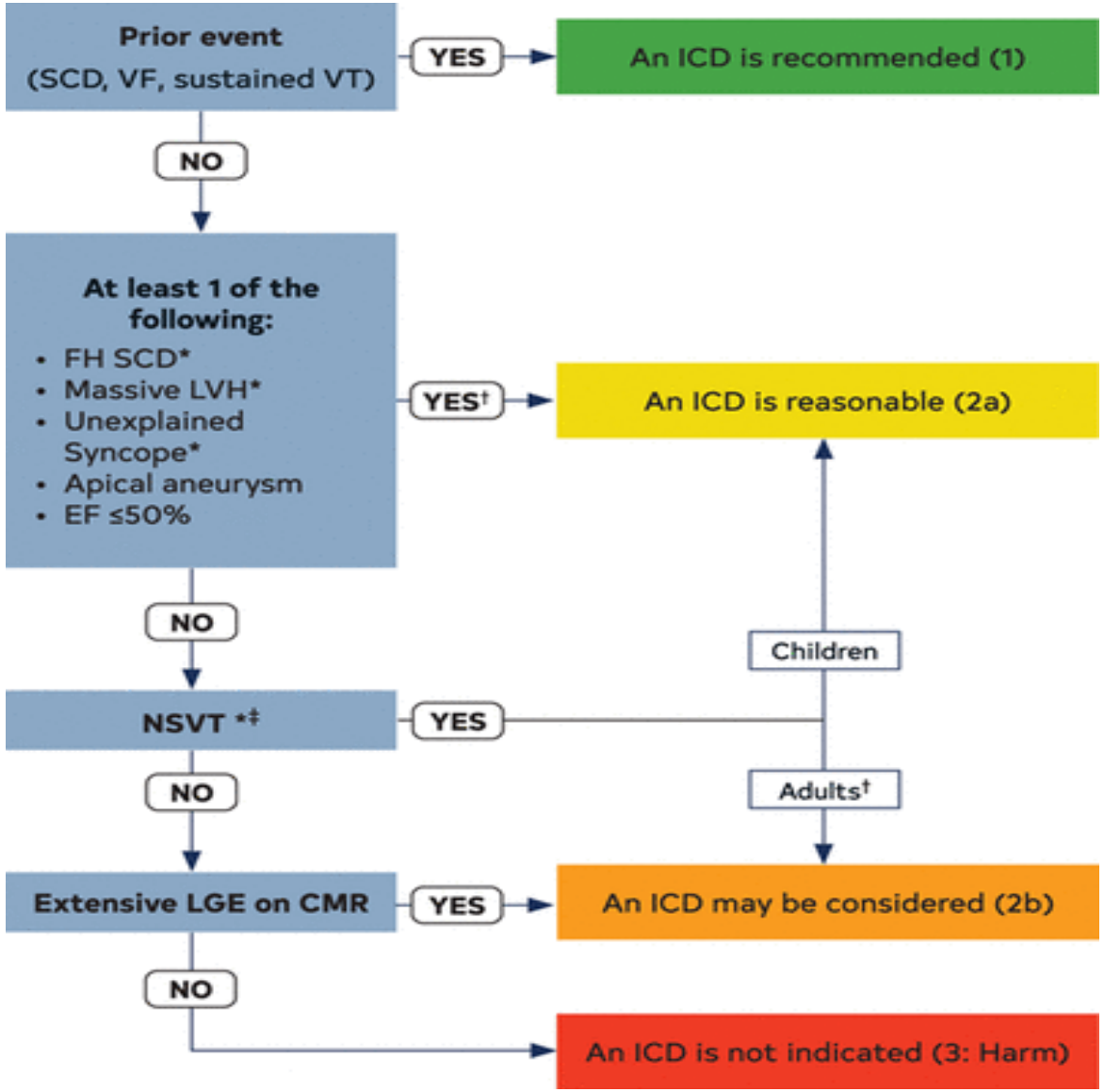
Figure 2. Genetic testing process in HCM.
Colors correspond to the Class of Recommendation in Table 2. HCM indicates hypertrophic cardiomyopathy; LB/B, likely benign/benign; LP/P, likely pathogenic or pathogenic; and VUS, variant of unknown significance.

Steve R. Ommen et al Circulation. 2020 AHA/ACC Guideline for the Diagnosis and Treatment of Patients With Hypertrophic Cardiomyopathy: 142, 25, Pages: e533-e557, DOI: (10.1161/CIR.0000000000000938)

CENTRAL ILLUSTRATION: Recommendations for Initial Clinical Evaluation and Testing Algorithm for Patients With or Suspected of Having Hypertrophic Cardiomyopathy



Maron, B.J. et al. J Am Coll Cardiol. 2022;79(4):372–389.



Steve R. Ommen. Circulation. 2020 AHA/ACC Guideline for the Diagnosis and Treatment of Patients With Hypertrophic Cardiomyopathy: Executive Summary, Volume: 142, Issue: 25, Pages: e533-e557, DOI: (10.1161/CIR.0000000000000938)

New drugs – Mechanism of action

- **Mavacamten**: (1) inhibits the release of Pi, (2) decreases the number of myosin heads that bind to actin.

- **Blebbistatin**: inhibits Pi release after ATP hydrolysis.

Statescu et al Int. J. Mol. Sci. **2021**, 22, 7218

Summary

- **Shared decision-making**
- **Referral to multidisciplinary HCM centers** with graduated levels of expertise can be important to optimizing care
- **Counseling patients** with HCM regarding the potential for genetic transmission of HCM
- **Optimal care for patients with HCM requires cardiac imaging to confirm the diagnosis**, characterize the pathophysiology for the individual, and identify risk factors/markers
- Assessment of an **individual patient's risk for SCD** continues to evolve
- **Septal reduction therapies** (**surgical septal myectomy and alcohol septal ablation**), have better outcomes.
- **Patients with HCM** and persistent or paroxysmal atrial fibrillation have increased risk of stroke such that oral anticoagulation should be considered independent of the CHADS2-VASC score
- **Heart failure in patients with HCM:** an ejection fraction <50% connotes significantly impaired systolic function and identifies individuals with poor prognosis and who are at increased risk for SCD.
- **The beneficial effects of exercise** can be extended to patients with HCM.