THE VOICE OF THE PATIENT REPORT

FOR

HYPERTROPHIC CARDIOMYOPATHY (HCM)

Proceedings from an Externally Led
Public Patient-Focused Drug Development Meeting Corresponding
to the FDA's Patient-Focused Drug Development Meeting

Held: June 26, 2020

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Hosted by:

Hypertrophic Cardiomyopathy Association

Submitted to: Center for Drug Evaluation and Research (CDER) &
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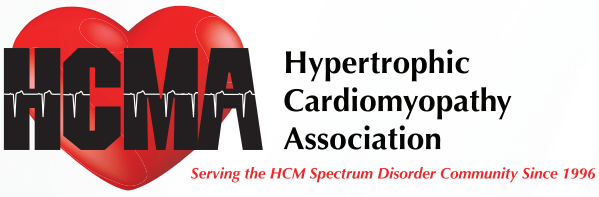

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Disclosure Statement

This document represents a comprehensive summary report composed by a patient advocacy organization as a result of an Externally-Led Patient-Focused Drug Development meeting, a parallel effort to FDA's Patient- Focused Drug Development Initiative. This report reflects the organization's account of the perspectives of patients and caregivers who participated in the virtual meeting and those who responded online.

Submitted to:
Center for Drug Evaluation and Research (CDER) and Center for Biologic Evaluation and Research (CBER) U.S. Food and Drug Administration (FDA).

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Lisa Salberg, CEO and Founder, Hypertrophic Cardiomyopathy Association; Gwen Mayes, JD, MMSc, Consultant and Primary Author; and James Valentine, JD, MHS. Salberg and Mayes have no disclosures. Valentine is employed by Hyman, Phelps & McNamara, P.C., a law firm that represents sponsors who are developing drugs for rare diseases as well as patient advocacy organizations, including HCMA.

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In addition to the data from polling questions associated with this meeting, additional clinical statistics have been provided from the following:

2020 AHA/ACC Guideline for the Diagnosis and Treatment of Patients with Hypertrophic Cardiomyopathy

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INTRODUCTION

On June 26, 2020, the Hypertrophic Cardiomyopathy Association (HCMA) held an Externally Led Patient-Focused Drug Development (PFDD) meeting to hear patients' and caregivers' perspectives on living with hypertrophic cardiomyopathy (HCM) or caring for those who do.

Discussions focused on the burden of the disease, current treatment options, and future treatment options for better outcomes and care. The format of the meeting was based on the Patient-Focused Drug Development meetings developed by the Food and Drug Administration to systematically gather patients' perspectives on their condition and the available therapies to treat the condition. The meeting was held virtually due to the public health recommendations for social distancing to limit the spread of COVID-19 during a global pandemic.

Authors and Collaborators of the report are Lisa Salberg, CEO HCMA, Gwen Mayes JD, MMSc, Consultant and Primary Author, and James Valentine JD, MHS of Hyman, Phelps & McNamara, P.C., a law firm that represents sponsors who are developing drugs for rare diseases as well as rare disease patient advocacy organizations.

Overview of Meeting Format

The meeting provided patients and caregivers an opportunity to share their experiences of living with HCM (or caring for those who do), the impact of current treatment options, and their visions for future treatments. Approximately 280 individuals accessed the event during the live broadcast including patients (160); pharmaceutical representatives (37); healthcare providers (33); caregivers or parents (16); related non-profit organizations (8); friends (6); scientists (4); and other (13). In addition, 2000+ watched the replay online at the HCMA website.

The format of the meeting followed that of prior PFDD meetings, and an agenda (Appendix A) was posted prior to the meeting. The event was moderated by Lisa Salberg, CEO and Founder, HCMA, and James Valentine, Esq., an attorney with Hyman, Phelps & McNamara, P.C., and consultant for the meeting. Preston Dunnmon, MD, Senior Medical Officer. Division of Cardiovascular and Renal Products (CDER) gave opening remarks and Dr. Martin Maron, MD, Director of the Hypertrophic Cardiomyopathy Center and Co-Director of the Cardiac CT and MRI program at Tufts Medical Center and Co-Director of the Chanin T. Mast HCM Center at Morristown Medical Center Morristown NJ presented a medical overview of HCM.

The discussion focused on two key topics: (1) the burden of the disease and the day-to-day challenges to manage complications of the disease; and (2) current and future treatment options. Each of the two key topics was presented with introductory remarks from the moderators, pre-recorded patient stories (Appendix B) followed by interactive, moderated sessions involving live patient panel discussions, questions and comments from callers, polling questions (Appendix C) and related comments submitted online. Additionally, the polling questions were posted on the HCMA website and social media for 45 days following the event and additional comments were welcomed to capture as many perspectives as possible.

Overview of Participants

Meeting participants (both participating live and those commenting afterwards) represented a wide range of HCM patients from the youngest, in their early teens, to those in their elder years. Some were recently diagnosed, and others had lived with the condition for decades.

Approximately two-thirds were female, with the greatest representation in the 56-70 age range. Just over 40% of the participants were from the East Coast, with good representation from the Mid-Atlantic, Midwest and South. A few were from Europe, Asia, and the UK. Not surprisingly, while most participants were middle aged or in their 70s when diagnosed, many reported having symptoms much earlier in life between the ages of 6-18 years (28%) or 31 to 50 (31%) (Appendix C, #1 and #2). This is consistent with the frequent misdiagnosis or lag in diagnosis patients reported.

Due to the inheritability of the condition as an autosomal dominant genetic disease, the importance of family knowledge and genetic testing were reflected in the polling questions and discussion. It was not uncommon for speakers to voice concerns about starting a family, the guilt of unknowingly passing the gene to offspring, an unwillingness of family members to be screened, and other emotional challenges patients and their families face. Equally common among patients was the frustration in the delay to proper diagnosis, some since childhood, and the overall lack of knowledge of the condition among health practitioners.

Participants varied also in their views on how to treat HCM noting the lack of disease-specific drugs and devices currently available for the condition and the challenges of adhering to therapies not originally designed to target HCM. Approaches to treatment varied widely among participants: medical management, surgical intervention, minimally invasive procedures, implantable devices, and heart transplantation. Adding to complexity of disease management is the disconnect often found between how a patient feels and their genetic markers which can lead to patients being told they are at "high risk" (genetically) yet not feeling compromised or symptomatic. Tragically, too often these patients die of sudden cardiac arrest due to the inability to sense the seriousness of their condition.

Overall, HCM is a highly variable, serious cardiac condition that requires accurate diagnosis and aggressive management by knowledgeable healthcare providers, including recognition of the emotional and psychological impact of the condition on a patient, their family, and their personal relationships.

For more information about the meeting and to view the archived video go to the HCMA website at **www.4hcm.org**

Opening Comments from HCMA Founder and CEO

Lisa Salberg, Founder and CEO of HCMA, offered an overview of the HCMA membership and community. The HCMA represents over 20,000 families living with HCM in the United States and 45 other countries. The following characteristics have been noted by members:

- the majority of the HCM population is diagnosed in mid-life (average age 41 years)
- 90% of the population take cardiac medications predominately beta-blockers and calcium channel blockers
- nearly 25% have undergone open heart surgery (myectomy) and 5% have had alcohol septal reduction for the treatment of left ventricular outflow tract obstruction
- 30% of the population have implantable cardioverter defibrillators
- 3% of the population have been evaluated or have had a cardiac transplant
- the community is diversely impacted by symptoms ranging from minor inconveniences to complete disability with 10% of the community unable to work and on disability
- 80% report they are limited from participating in vigorous activity
- 60% report they are limited from even moderate activity
- 50% cannot walk one flight of stairs without significant discomfort
- 41% believe their health will decline in the next five years
- 40% are uncertain of what will happen to their health in the next five years leading to anxiety and stress.

Medical Overview of Hypertrophic Cardiomyopathy

Dr. Martin Maron, Director, HCM Center; Co-Director, Cardiac CT and MRI; Assistant Professor, Tufts University School of Medicine and Co-Director of the Chanin T. Mast HCM Center at Morristown Medical Center Morristown NJ, provided a clinical overview of HCM and its prevalence, genetic expression, and the most common symptoms. HCM is increased wall thickness of the left ventricle (the main pumping chamber in the lower left of the heart), in the absence of another cause like high blood pressure, aortic stenosis. or other diseases that cause multi-organ failure and ventricle wall thickness. It was first identified by Dr. Eugene Braunwald and Dr. Andrew Glenn Marrow in 1959 and due in part to its heterogeneous physical manifestation it has been given 75+ separate names by individual investigators over the last 50 years. Symptoms vary greatly; the most common are shortness of breath, palpitations, fatigue, and cardiac arrhythmias. Sudden cardiac death is a known potential outcome in HCM.

While once considered rare and life-threatening, HCM is now known to affect approximately 1:500 individuals in the US and is considered a manageable condition when identified and treated at high volume centers. Since patients can be asymptomatic and undiagnosed, experts believe the prevalence may be as high as 1:200. The numbers suggest there are approximately 750,000 individuals with HCM in the US; however, only 120,000 are currently diagnosed and recognized with HCM (per insurance databases). It is the most common genetic heart disease in the US and while the mortality rate is considered low (0.5%), it remains the primary cause of sudden cardiac death in individuals under the age of 40 and infamously in young athletes. It is also a significant cause of disability among HCM patients at middle age. While mortality is low; morbidity and symptom burden are high.

Most often, HCM is caused by a genetic mutation in the heart muscle, or sarcomere. Currently, there are 13 genes known to encode the heart muscle; Beta Myosin Heavy Chain (MYH7), Myosin Binding Protein-C (MYBPC3), Cardiac troponin T (TNNT2), and Cardiac troponin–I (TNNI3) are the most associated with HCM. In these genes, over 3,000 different mutations can cause HCM. A precise mutation is not identified or there is the presence of a variant of uncertain significance in 50% of the HCM patients genetically tested.

There are also adults who have thickened ventricular walls due to genetic changes within the heart that do not involve the sarcomere. There is a spectrum of HCM disorders that include “HCM” phenotypes that are associated with syndromes such as Noonan's Syndrome and LEOPARD syndrome (typically diagnosed in children but can defy diagnosis until adulthood). Other disease states can include disorders with storage disorders including AMP- kinase, Danon disease (LAMP2), and Fabry (GLA) disease. (These disorders not covered in this report)

One of the most challenging aspects in the diagnosis and treatment of HCM is its heterogeneity or the wide variability in the extent and distribution of the ventricular wall thickness and related symptoms. This is referred to as the “phenotypic expression” of the disease. While advancements in imaging and genetic testing have led to more reliable diagnoses, it is a not uncommon for

HCM patients to have been misdiagnosed or mismanaged for many years due not only to the sometimes vague and intermittent variability of symptoms, but the lack of knowledge of the condition in the medical community.

The average age of an HCM diagnosis is at midlife, mid to early forties. Patients are categorized based on hemodynamic blood flow patterns as either 1) obstructive or 2) non-obstructive. Approximately 70% of all HCM patients are considered "obstructive" because the natural flow of blood is obstructed by the mitral valve or other cardiac anatomy including papillary muscles or chordae tendineae. Blood can build up in the left ventricle causing an increased pressure in the heart as well as regurgitate back into the left atrium causing left atrial distension. Of all HCM patients with obstructive (HOCM) disease, approximately 70% will suffer symptoms such as shortness of breath, fatigue, and debilitating arrhythmias.

The remaining 30% of HCM patients are categorized as non-obstructive; one-fourth of them will have symptoms that require medical intervention. Some patients have apical involvement and others will develop worsening of diastolic function. Progression of the disease for non-obstructive patients is difficult to treat; approximately 4% will lead to heart transplantation.

Overall, HCM patients have a high burden of arrhythmias, either atrial fibrillation (25%) or ventricular tachycardia (rapid, potentially deadly heart rhythm), and have a high premature ventricular contraction burden. Medications to treat arrhythmias carry their own side effects, many of which patients simply cannot tolerate. With newer interventions and earlier diagnosis, the challenge is to manage patients over longer periods of time. Many with paroxysmal atrial fibrillation may require cardioversion to restore sinus rhythm. In the most extreme cases, patients with atrial fibrillation have been converted more than 40 times. Atrial fibrillation can lead to advanced heart failure and stroke in HCM patients at any age.

There continues to be an unmet need in disease-specific drugs applicable to HCM patients whether obstructive or non-obstructive. Additionally, while surgical and minimally invasive procedures have good results, these are limited to Centers of Excellence and knowledgeable practitioners who are not accessible by all patients.

Report Overview

This report summarizes the input shared by HCM patients, caregivers, health practitioners, and other stakeholders during the live event and afterwards on the HCMA website. It also includes a summary of written comments submitted before, during, and after the event. To the extent possible, the terms used in this report to describe specific symptoms, limitations, or treatment courses are the actual words used by individuals.

Living with a chronic condition such as HCM is highly subjective and varies across the individual's lifespan. The report is not intended to represent every possible variation of the disease, nor the full capacity of health providers to diagnose and manage the condition.

Accordingly, there may be symptoms or beliefs about the disease and the benefit or risks of treatments that are not included in this report. It is also important to note that some HCM patients live full and active lifestyles and require minimal medical intervention. This report, however, focuses primarily on those who do not and centers on their experiences with daily living and treatment choices in an effect to guide the development of future research and care.

Most importantly, patient and caregiver input underscore the diversity of experiences with HCM and the far-reaching impact on family members who are genetic carriers and those who are not yet diagnosed. While there has been considerable growth in the medical community's understanding and recognition of the disease, there remains considerable confusion about the progression of the disease. Even in those patients who are asymptomatic or have minimal symptoms, not knowing if symptoms will occur is worrisome.

KEY THEMES FROM THE MEETING

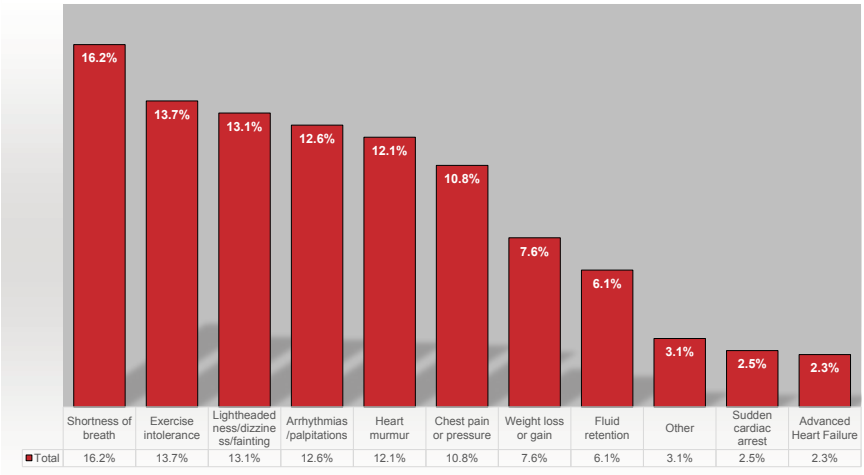
- HCM afflicts approximately 1:500 in the US and is the most known genetic heart condition. To date, there is no disease-specific drug available for HCM patients. This means that most patients are treated as symptoms arise with drugs and devices that were not designed with HCM in mind which can lead to off target effects that compromise quality of life.
- The health effects of HCM are variable, affecting individuals regardless of age, gender, race, education, or lifestyle. Many patients experience minimal if any symptoms; however, others face highly variable symptoms from mild to debilitating which may last hours, days, weeks, or months and shorten life expectancies regardless of available therapies.
- Patients report the most burdensome symptom of HCM is living with shortness of breath, followed by fatigue, exercise intolerance, palpitations, and fainting. While this can cause patients to limit many forms of exercise (e.g., team sports, hiking, biking, etc.) it can also impact simple activities of daily living such as ironing, house cleaning, and getting dressed. Some patients report HCM adversely impacts their sex life. The simplest of activities can leave the most severely affected patient exhausted.

- Other reported symptoms of HCM are arrhythmias, palpitations, chest pain, and brain fog. HCM can cause arrhythmias (atrial fibrillation, ventricular fibrillation, ventricular tachycardia, and ventricular fibrillation) as well as stroke, heart failure and sudden cardiac arrest/death. While sudden cardiac death is rare (0.5%) HCM is the most common cause of sudden cardiac death in individuals under 40 and young athletes.
- Regardless of age, the overall impact of living with HCM is reflected in the emotional and psychological toll patients experience living with uncertainty of if, and to what degree, the condition will progress. This can lead to chronic anxiety, depression, isolation, failed relationships, and lost job opportunities. The path to diagnosis is often long and difficult; many people remain undiagnosed or misdiagnosed leading to lengthy disability and early death.
- The inheritability/genetics of the condition leaves many parents feeling guilty about passing the gene to their children and other adults with family tension when others refuse testing. There are generational effects on families as the loss of a parent can lead to a variety of challenges in the family structure including the need for surrogate parents, foster care, and adoption and create financial strain due to consequences of the loss of parental or spousal income.
- Current treatments and management options for HCM involve medical management, implantable cardioverter defibrillators, septal reductions (surgical or catheter based), and radiofrequency or cryogenic ablation. In non-refractory cases, heart transplantation may be necessary.
- HCM patients make lifestyle changes including diet changes, adjustments in work schedules, and most often, changes in exercise and social interactions to accommodate for burdensome symptoms and fatigue. Symptoms can occur due to HCM itself or as a side effect of medications.
- Overall, about half of the HCM patients surveyed for this event believe that treatments and lifestyle choices have made their life “somewhat better” while another 37% indicated they had “helped a lot” or led to “significant improvement.” Patients recognize the need for ongoing monitoring to gauge further disease progression.
- Looking ahead, HCM patients want disease-specific drugs developed that target the pathology of the condition. In addition, improvements in genetic modification and further research are desired, including patient reported outcomes with mental health endpoints.
- Awareness of HCM is growing and the need for more professional education and understanding of the disease are needed for patients to be accurately diagnosed and gain consistency in treatment options.

TOPIC 1: BURDEN OF THE DISEASE AND IMPACT ON DAILY LIVING

The first discussion topic was focused on gaining patient and caregiver perspectives on the burden of disease and its impact on daily living. It was especially important that individuals expressed themselves in their own words. Due to the need to host the event virtually, patient presentations were prerecorded and short 3-5 minute videos were shown that included photos of the patient’s family, home life, neighborhood, and other personal events such as weddings and hobbies to give as meaningful a portrayal of the patient as possible. While it's understood that not all symptoms and challenges exist every day and for every patient, most patients make lifestyle, career, and financial adjustments to manage the disease.

Which of the following HCM-related health effects do you experience? Select ALL that apply.

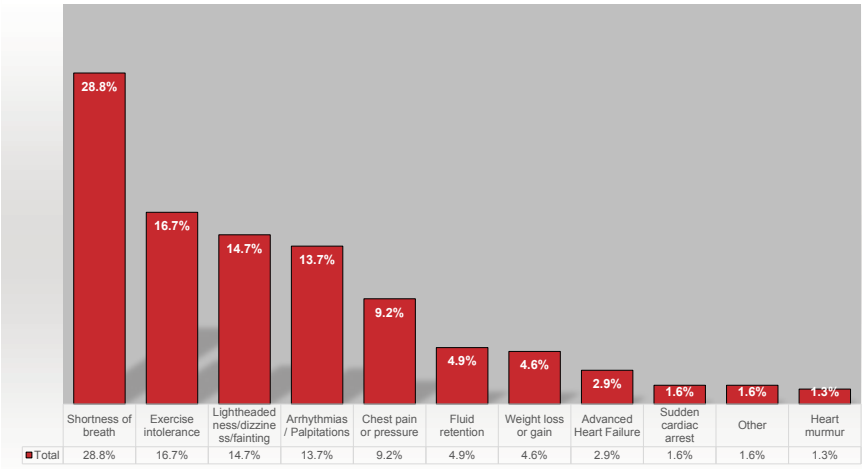


	Shortness of breath	Exercise intolerance	Lightheadedness/dizziness/fainting	Arrhythmias /palpitations	Heart murmur	Chest pain or pressure	Weight loss or gain	Fluid retention	Other	Sudden cardiac arrest	Advanced Heart Failure
Total	16.2%	13.7%	13.1%	12.6%	12.1%	10.8%	7.6%	6.1%	3.1%	2.5%	2.3%

The topic was introduced by five pre-recorded patients (Appendix B). Panelists included a 25 year old Eagle Scout from Pennsylvania whose life was saved by an appropriate shock from an implantable defibrillator; a 41 year old Texas man who battled multiple arrhythmias, four ablations in two years, and heart failure as a young man prior to having a myectomy; a retired, former nursing assistant from New York whose 37 year old daughter died of a sudden cardiac arrest after being told she was not a genetic carrier; a 54 year old Florida woman who slept in her car at lunch to get through the day as a single mom and practicing lawyer

until her life unraveled and she was in financial ruin; and a 54 year old former police detective in North Carolina who had a cardiac arrest at the police station and was revived only when an off-duty EMS worker heard the dispatch for an defibrillator on the radio.

Select the TOP 3 most burdensome HCM-related health effects that you have



	Shortness of breath	Exercise intolerance	Lightheadedness/dizziness/fainting	Arrhythmias / Palpitations	Chest pain or pressure	Fluid retention	Weight loss or gain	Advanced Heart Failure	Sudden cardiac arrest	Other	Heart murmur
Total	28.8%	16.7%	14.7%	13.7%	9.2%	4.9%	4.6%	2.9%	1.6%	1.6%	1.3%

A second live, moderated panel of patients and caregivers followed to share additional perspectives. These included a man who moderates over 7,000 HCM patients in an online community; a 64 year old Maryland woman who was told in her 30s she would have a "shortened life expectancy;" a mother of two boys (one with HCM) unfamiliar with the disease until one of them was diagnosed with asthma; and a young mother of two who had six shocks from her ICD during her wedding reception. Polling questions (Appendix C) as well as written comments received during the event and input from callers shaped the findings of this report.

Perspectives on the most troubling symptoms

Both in the prerecorded videos and in the live discussion, patients and their caregivers spoke eloquently about the most troubling symptoms of the condition (Appendix C, #3), including:

– Shortness of Breath

The most frequent health-related symptom as well as the most burdensome symptom experienced was shortness of breath - everything from becoming winded "walking to the mailbox" to a constriction that "feels like a rubber band around your chest" or being "unable to take a deep breath even if I sit down."

> *"Symptoms of HCM got worse after menopause. The hot flashes and night sweats made me short of breath and increased my heart rate." – Anne*
>
> *"I joke that washing off an order of groceries is aerobic exercise. This is all the exertion required to induce SOB." – Tammy*
>
> *"Shortness of breath can be such a problem that I start to experience lightheadedness and have trouble catching my breath if I simply talk too much or when I'm just carrying on normal conversation." – Yvonne*

– Exercise Intolerance

Closely aligned with shortness of breath is exercise intolerance. Exercise, such as participating in sports, fitness training, and even enjoying outdoor events as simple as gardening or walking, ranked number one as the most important limitation for patients. Despite the variations in types of exercise, age, elevation, or weather conditions, symptomatic HCM patients can experience fatigue or the inability to "keep up" when exercising. Some are advised to eliminate all sports or limit exercise to "observational enjoyment" which can be discouraging to young people in the teens and 20s.

> *"Doing things like climbing gradients, going up steps, riding a bike up a hill can be exceptionally difficult. I'm almost always the last person to finish." – Gordon*
>
> *"My daughter does archery, she has HCM. We are careful to limit her activities and her exercise. She's careful in her gym class and archery is a safe sport for now." – Ashley*
>
> *"I go jogging on my own, but it is very slow. I don't really consider it jogging." Amanda*
>
> *"I love to hike and dance but I'm not able to do it to the degree I would like to." – Julie*

– Arrhythmias and Palpitations

Supplemental clinical data indicates that approximately one in four HCM patients will develop atrial fibrillation. The underlying pathology elevates the risk of a stroke and requires medical management and if it worsens – ablation and/or insertion of an implantable cardioverter defibrillator (ICD). The second most common arrhythmia is ventricular tachycardia, which can lead to more serious complications of ventricular fibrillation and cardiac arrest. Due to the hyperdynamic state of the heart's contractions, HCM patients are acutely aware of the fluttering or pounding sensations in their chest associated with these conditions and can experience intense bouts of palpitations leading to anxiety and relentless stress.

"If you have that glass of iced tea or don't hydrate enough in the heat…these things and a million other tiny things can send your heart into triple time…when you're in it, it's all you can think about." – Rush

"I went into atrial fibrillation in a restaurant, and once in the middle of a manicure so making plans causes a lot of anxiety. I tend to choose my "date night" locations based on proximity to my choice hospital." – Lauren

"For me the most pronounced symptom was ventricular palpitations. It felt like a horse kicking the inside of my chest. I was literally lying on the floor of the METRO then told I had a heart attack." – Gwen

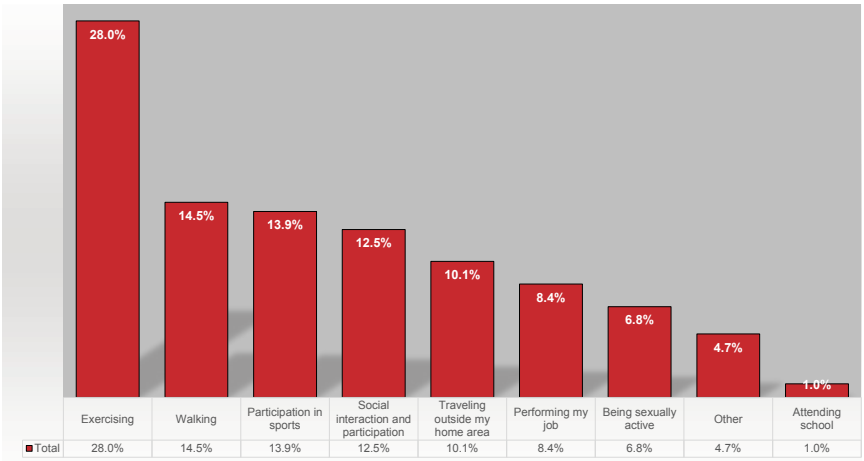
"The sheer force of palpable arrhythmias and palpitations can make it difficult to even hear in conversations which limits social interactions because you're constantly asking people to repeat themselves with all the internal noise. The first thing I noticed when I woke from my heart transplant was how quiet it was. I hadn't heard silence like that since I was 12 years old." – Lisa

– Chest Pain

Chest pain is a highly burdensome aspect of HCM. It is described differently by different patients; however, it's often expressed as a "tightness" or "an elephant sitting on my chest."

"I rarely enjoy a vacation because I am trying to avoid chest pain, shortness of breath, and many other symptoms. So, I pretend to enjoy activities." – Rhoda

Select the TOP 3 activities that are most important to you that you are NOT able to participate in, to the degree you would like, due to HCM?



– Chronic and Acute Fatigue

HCM patients commonly experience fatigue particularly in hot weather, during exertion, and when dehydrated. Many decline social invitations or withdraw from the community to "conserve" energy for more critical functions of daily living.

"Taking a shower, a flight of stairs, and walking from my car to a building was a challenge [before surgery]. I would have palpitations, dizziness, chest pain, and I felt tired all the time." – Priscilla

"I couldn't bike, take a bike ride or enjoy exploring new places. I would even fall asleep watching movies with my family. I thought I was crazy. My husband did too. It's hard to focus most of the time. I was never able to return to work and made the difficult decision to go on disability." – Lynda

"[Exhaustion] is often even less accepted by others as we age. This causes a special terror. I am not sliding into senility because I cannot breathe or walk, but too often that is how I am treated." – Trudy

- Brain Fog

Momentary lapses in mental acuity are common. Seconds can go by when a patient is alert but unable to remember simple tasks (e.g., program a microwave, turn on a computer). While these experiences are minor and more annoying than disruptive, they can create significant problems if, for example, they occur while driving.

> *"The fatigue and brain fog from beta blockers make it difficult to focus or get through the day without taking a nap." – Scott*
>
> *"You could be in the middle of a business meeting or at a store trying to explain something to a clerk and you're completely confused. It happens all the time." – Lisa*

- Sudden Cardiac Arrest

The most concerning complication of HCM is sudden cardiac arrest. Patients are at "high risk" for SCA based on five established factors: 1) history of previous cardiac arrest; 2) ventricular septal wall thickness measured at 3.0 cm or greater; 3) hypertension during a stress test; 4) family history of sudden cardiac death; and 5) history of ventricular arrhythmia. The presence of late gadolinium enhancement (LGE) on cardiac MRI showing scarring of 15% or more of the myocardium has recently been identified as an additional a risk factor.

> *"I was a sophomore in high school when I had my first cardiac arrest. All I was doing was walking up the steps to my first period chemistry class." – Ben*
>
> *"After the cardiac arrest, I had to wait about three weeks before my kidneys were able to function. I was really scared because I had gone into ventricular fibrillation and knew it could happen again." – Deric*
>
> *"I had my cardiac arrest at age 13. Before that I was doing intense, competitive soccer and swimming, running, hanging out with friends, not really worrying about my physical health in any regard. But after this, I can't really play sports. I tried cross country, but it was too intense, so I quit." – Amanda*

- Sudden Cardiac Death

Although the current rate of sudden cardiac death is low (0.5%), many HCM patients grew up hearing stories of family members who died suddenly or had "big hearts" that caused fatigue or "low energy" resulting in job loss, failed relationships, or inability to attend school. The advent of genetic testing has enabled patients who are asymptomatic to be identified earlier and monitored; however, the threat of the unknown and the legacy of the link between sudden death and HCM lingers in every patient.

> *"My family's history of HCM started when I was six months old. My mother went for her post-delivery doctor's appointment and came out to the car, picked me up, told my father she was fine and then dropped dead. Since then, we have lost two nephews, and four of my five brothers have HCM. Three of them died. The biggest burden is sudden cardiac death. How do you live a normal life knowing that a huge percentage of your relatives aren't here because they just died suddenly?" – Tim*
>
> *"In the 1960s, my first cousin died from an enlarged heart at 12, and we lost two uncles at age 50 from sudden cardiac death. In the 1970s, my brother died of sudden cardiac death at 37. Since 2010, we've lost three nieces unexpectedly, two in their sleep at age 43 and 52, and another at age 45 only days after her gallbladder surgery." – Kelly*
>
> *"My son died from a sudden cardiac arrest…these events shatter families. His twin brother is just devastated. It's going to be hard on him the rest of his life knowing his brother is not there with him." – Gretchen*

- Emotional Distress and Depression

The discomfort of feeling poorly coupled with the emotional toll of living with HCM puts patients at risk of chronic anxiety, depression, and other mental health problems.

> *"I have a heavy heart (pardon the pun) regarding our children's future and the potentially bumpy life they may face. While genetics are just a part of who we are, there is a lingering guilt that I am technically responsible for passing on this mutation to them." – Brad*
>
> *"It's a delicate balance of medication, controlled exercise, and the worse and most difficult part, just managing stress. There is no winning when equipped with an HCM heart" – Rush*

"I avoided going to concerts or sporting events just because I didn't think I could handle going up the stairs or standing for a long period of time. Eventually, I was diagnosed with anxiety and depression." – Tracy

"And my biggest fear for him [her son] was that he is a boy of color and what if he got tased with HCM? That would be horrific. And with the Black Lives Matter and people protesting, all my children wanted to go out and protest. And so, I was like, you already have asthma, the heart condition and worries about COVID. Not that you want to think like that but as a parent I had to." – Nikora

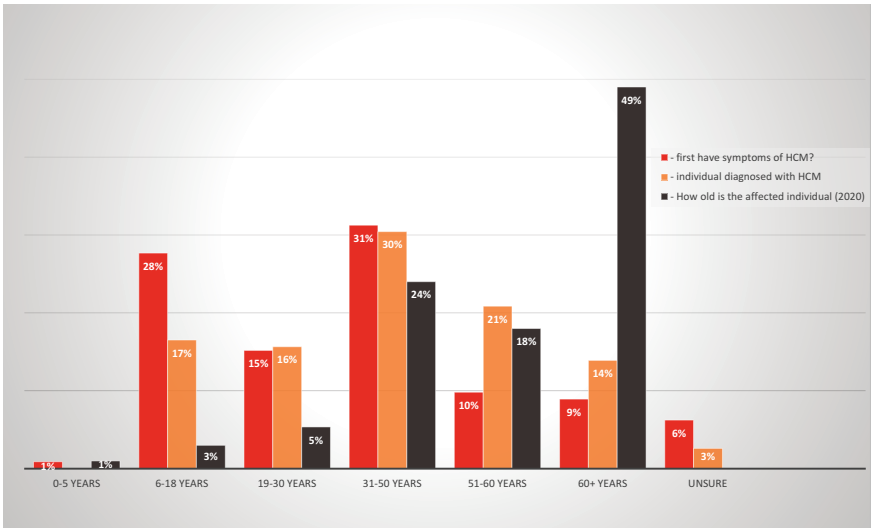
Overall impact of HCM on daily living

Both in the prerecorded videos and live discussion, patients and their caregivers described the burden these symptoms and others have on their daily life (Appendix C, #4 and #5), including:

– The fear of a lifetime of uncertainty

HCM patients are universally troubled by the potentially inexplicable symptoms from the least worrisome to the most severe and unmanageable. Patients spoke eloquently about their frustrations and disappointments at not being able to hold a job, tend to their children, or complete simple tasks such as bathing, cooking, and dressing. Along with the uncertainty is the angst of not knowing whether the immediate change in function is short-lived or a serious digression that will require additional testing, medications, and treatments.

Age of First Symptoms, Age of Diagnosis, Current Age



"I never know what my day will hold! Activities just shopping can completely do me in. I used to be such an active person. Now I am so limited. My husband and I used to dirt bike and motorcycle together and I can no longer join him. I can feel fine and then just like a flash I can have a horrible day." – Lisa

"It's like living with one foot on the gas and one foot on the brake. You can feel normal one day and be flat on your back the next. Just when you think the condition is stable it can knock you to your feet and you're in the hospital for days." – Gwen

"The most frustrating part is that every day is different. Sometimes I have to stop and catch my breath after one flight of stairs I could run up the day before or hike five miles around a local lake one day and be exhausted just walking 500 feet the next." – Cole

– The frustration of being misdiagnosed or misunderstood

Many HCM patients first had symptoms when little was known about the condition and spent years with inappropriate medications, incomplete diagnoses, and worries about their physical capabilities. Even today, patients are mostly treated according to their symptoms – asthma, panic attacks, sleep disorders, vasovagal syncope, migraines, thyroid disorders, etc. – instead of looking for an underlying cause. The lack of medical knowledge about the condition is a very real concern of patients, especially those needing emergency care. Some patients find themselves having to educate the emergency room staff to avoid confusion, unnecessary testing, and potentially dangerous drug interactions. In addition, many feel they are "misunderstood" because they "don't look like a patient" or "can be fine one day and not the next."

"Because I look normal, it's hard for others to understand what I'm going through. It's hard for them to understand why I can be so busy and active one day and not the next. Even for my wife, who has lived with this for the last decade. And it doesn't help that I generally hide how I'm feeling because I don't like talking about it." – Kent

"I was improperly diagnosed and treated with beta blockers, calcium channel blockers, and with digoxin for over 30 years! Like many, I was diagnosed with mitral valve prolapse. But the big mistake I made, was that all my doctors and specialists thought my heart issue was caused by chemotherapy and radiation as a child in the 60's and 70s. I was finally properly diagnosed at the age of 50." – Kathy

– The strain on relationships

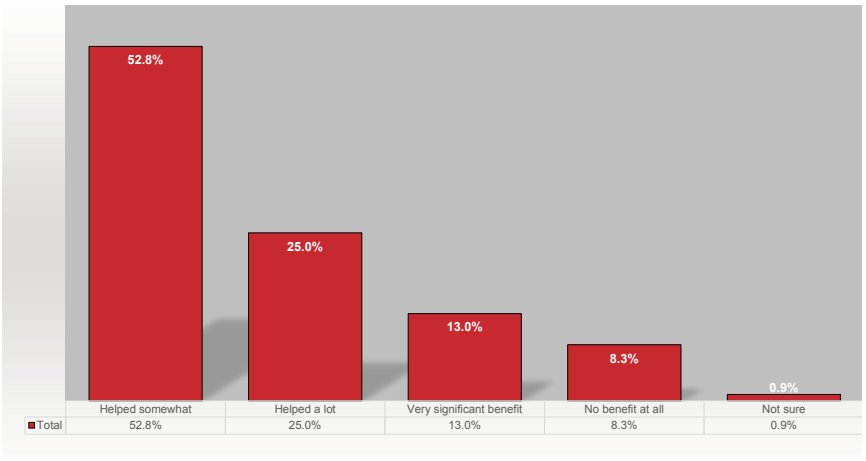
Several patients commented on the strain HCM brings to their relationships whether it be marital, parental, employment, or social. Stories of divorce, anxiety, separation, and periods of isolation were common. Knowing there is no cure for the disease, patients, especially those diagnosed at a young age, face a lifetime of not knowing if it will be a "good day or a bad day."

> *"When diagnosed I had a few concerns, the two main ones being, 'Can I continue Scouts?' and 'What will my friends think?' 'Will I lose them?' I mean, who wants to hang out with someone who is broken?" – Cole*
>
> *"I have a long family history of cardiac issues. My father died 40 years ago at 34 years old with an "enlarged heart." I am the only one in my family who is treated at a COE [center of excellence] and has had genetic testing. I am gene positive. Even though I am the 'trail blazer' in my family, my experiences and genetic testing fall on deaf ears with my family. I am frustrated and sad that I have info that could potentially provide better quality of life for family members and may prolong and save their lives...and they choose to not know." – Sherri*
>
> *"My husband asked for a divorce after my second open heart surgery. I left the state and raised my three teenagers as a single mom...I learned how to manage...and would sleep most days while they were at school, carving out small parts of my days...to participate in my kids' lives." – Lynda*

TOPIC 2: PATIENT PERSPECTIVE ON TREATMENTS FOR HYPERTROPHIC CARDIOMYOPATHY

The second main discussion topic focused on experiences with therapies currently used to treat HCM and suggestions for future therapies. To date, no disease-specific drug exists that was developed specifically for the treatment of HCM. As such, treatment plans rely heavily upon a practitioner's knowledge of how drugs and devices developed for other purposes will perform in a patient with HCM. The discussion was framed broadly to encourage patients to speak candidly about how they manage their condition beyond medical treatments (e.g., diet, weight management).

In general, how much have these treatments and lifestyle choices helped improve your quality of life?



The topic was introduced by five prerecorded patient stories (Appendix B). Panelists included a young Baltimore lawyer, wife, and mother of two whose condition was detected on a routine checkup; a 46 year old pastor from North Dakota who remains mildly symptomatic but worries about future obstacles facing his three children (of six) who have tested positive for the gene; an outdoorsy-Alaskan woman unaware of her condition until, at 34, symptoms began during her second pregnancy; a 53 year old film producer from Los Angeles who was diagnosed in 1990 following his father's diagnosis; and a Virginia wife and mother who was diagnosed not long after her brother died from dilated cardiomyopathy.

A live, moderated panel of additional patients and caregivers followed to share their perspectives of current and future treatments for HCM. The polling questions (Appendix C, #6 and #7) provided perspectives on current and future treatments as did written comments received during the event and input from callers. The discussion included experiences with prescription drugs, alternative therapies, mental health treatments, surgeries, implantable devices, minimally invasive procedures, wearables, transplantation, and durable medical equipment used at home and on travel. Patients were encouraged to comment on the everyday ways in which they adjust to HCM symptoms and how doing so, impacts their lives.

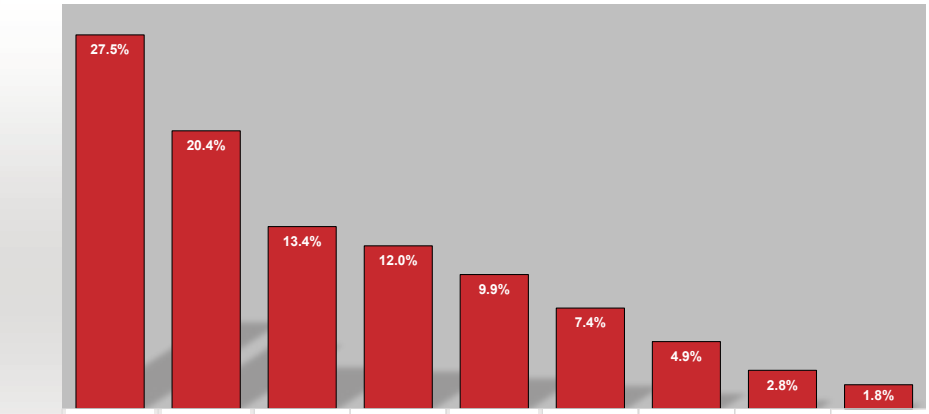
Perspectives on current treatments

Treatments for HCM patients vary considerably not only because of the variability of how the condition presents, but also due to the lack of specialized practitioners familiar with the condition. Many patients spoke to the difficulties in finding the right "combination" of treatment options. Patients varied on whether treatments and lifestyle changes had had any impact on them, if at all. Slightly over half (53%) indicated they had "helped somewhat" and another 37% indicated they had "helped a lot" or had a "significant benefit. (Appendix C, #8)

– Medical Management

Medical management was mentioned by all patients as either their only form of treatment, or in combination with portable monitoring and/or surgery. Common medications include beta blockers, blood thinners, diuretics, calcium channels blockers, and anti-arrhythmic drugs. The two most frequently mentioned challenges with these are 1) side effects that create a "ripple effect" of additional health challenges or annoyances; and 2) the lengthy amount of time on medication for those diagnosed early in life.

What therapies have you recently (the past 5 years) used? Select ALL that apply.



"We need better anti-arrhythmic medications that are not toxic, especially since people are living with HCM for many, many years. I have had to accept the awful side effects of beta blockers and calcium channel blockers (now 10 years), but I cannot fathom the thought of living on antiarrhythmic meds for the rest of my life." – Sarah

"[Because of diuretics] I have to be mindful of how much I go to the bathroom. Probably twelve hours a day I'm in and out of the bathroom which is difficult because I've got two kids and they are both very active." – Michael

"My entire life I thought the dizziness, shortness of breath, fatigue, etc. were normal. It's constant manipulation of meds and tests and procedures, only to end up with no true answers. I'm on a plethora of meds just to keep me going day to day." – Kathy

– Implantable Cardioverter Defibrillator (ICD)

An ICD is an implantable medical device used to detect and correct malignant tachyarrhythmia (e.g., ventricular fibrillation) and protect against sudden cardiac death. It is used in approximately 20% of all HCM patients. When needed, it automatically delivers a series of pacing pulses or an electrical shock to the heart through wires called leads, correcting the heart's rhythm. This is called defibrillation. For many it is a "safety net" or "freedom from worry"; however, inappropriate shocks are frightening and may require lead extractions. Even appropriate ICD shocks can be emotionally unsettling for patients.

"They recommended an ICD because of my family history and recent evidence of sustained rhythm issues. I've been hospitalized for a blood clot and had five ICDs. I still walk a tightrope daily, but my Sparky gives me a safety net." – Kelly

"I had a couple of incidents of ventricular tachycardia that were scary and resulted in shocks from my ICD. After this, I began experiencing symptoms akin to PTSD and sought therapy because I thought every single day, I might be shocked." – Ashley

"I had an infection of my ICD system that led to emergency surgery and a prolonged hospital stay and my ICD leads have fractured multiple times, each incident requiring risky lead extraction surgery to remove and replace the faulty lead." – Scott

– Septal Reduction Therapy by Alcohol Ablation

Reduction by alcohol ablation is a minimally invasive procedure available to certain patients as an alternative to surgical myectomy. The procedure alleviates symptoms of obstructive HCM by producing a limited infarction of the upper interventricular septum, resulting in a decrease in left ventricular outflow tract gradient.

- Septal Reduction Therapy by Surgical Reduction

Surgical reduction is the surgical removal or remodeling of the enlarged, thickened muscle in the left ventricular wall. The procedure requires open heart surgery and rehabilitation.

> *"Myectomies are very good and can limit a lot of symptoms but they don't take care of everything. You still have an abnormal heart muscle." – Ellen*
>
> *"My center of excellence helped me get my life back [post- myectomy]. I'm able to walk over 10,000 steps per day and am feeling great." – Franklin*
>
> *"Even with the challenges that I faced healing [post-myectomy], the surgery was successful, and the change was incredible. I really feel like myself again. I just wish there was a nonsurgical way to treat this because open heart surgery is so hard." – Tracy*

Numerous patients spoke about lifestyle changes they have made to accommodate for HCM symptoms as well as those attributed to the side effects of drugs. These included changing to a "whole food plant-based diet," "pulling back on 60-hour work weeks," "going on disability," "avoiding stairs," "keeping a blood pressure log," and "taking frequent naps." When polled, besides lifestyle changes (21%), patients indicated they "sought care at an HCM recognized Center of Excellence program" (19%); made "dietary changes, hydration, and weight management," (18%); and relied upon "self-education or peer support" (17%).

Perspectives on Future Treatments

When patients think about future treatments, they have a broad vision of how pharmaceuticals, medical devices, invasive treatments, and preemptive genetic modulation can eliminate symptoms and make living with HCM easier. The four main symptoms patients most want a drug or treatment in the future to eliminate or improve are 1) shortness of breath (22%); arrhythmias and palpitations (15%); advanced heart failure (14%); and exercise intolerance (14%). A summary of specific recommendations is below. (Appendix C, #11)

– Development of pharmaceuticals specifically for HCM

A common theme was the lack of HCM-specific medications available to patients for modification of the disease resulting in having to rely upon a wide variety of treatment courses based primarily on symptoms. Patients face medications with side effects that, themselves, cause adverse conditions. HCM-specific pharmaceuticals targeted to the underlying disease pathology and a more wholistic approach to care are needed.

> *"We need HCM drugs, not blood pressure drugs." – Andrea*
>
> *"The current treatments just aren't enough. As patients, we've become accustomed to the thought of only ever being able to get treatment for symptoms . . . but we're tired of that. We want more than just symptom relief." – Wendy*
>
> *"We really need better medications with side effects that are at least tolerable and medications that are not cumulatively toxic. People diagnosed with HCM can lead relatively normal lives for over 50 years so it is not acceptable to rely on medications that will poison us quickly." – Sarah*

– Improvements in genetic testing and modifications

Due to the inheritability of HCM, patients are acutely aware of the value of genetic counseling and genetic testing. Patients and caregivers, also clinicians and researchers themselves, commented on the need for genetic research and modifications to eliminate or reduce the likelihood of developing HCM symptoms.

> *"I live with people with HCM and it has impacted our family. I would like to see novel therapies that can stop the expression of genes responsible for the disease onset and progression. We know this is a hereditary disease, essentially genetics drive this condition. And there is a lot that can be done from the genetic standpoint to prevent the expression of genes." – Isaac*

– Improvements in medical devices, including access to data

Despite the common use of ICDs and their importance to detecting and correcting arrhythmias, patients wish for improvements in the technology to make them less likely to deliver inappropriate shocks. Similarly, patients want device portability and the ability to interface with their practitioners in real time including access to data.

"We need to develop a painless ICD. Many people who have an inappropriate shock from an ICD get PTSD and other side effects." – Olga

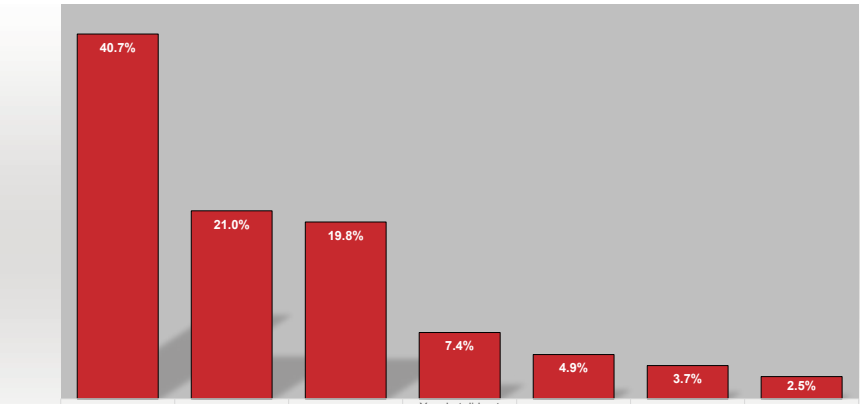
"Looking to the future, my hope is that technological innovations will continue, and leads will become more durable, devices will get smaller, batteries will have a longer life or can be recharged and communication between the patient's device and their physicians will be more mobile and accessible." – Scott

"I have an SICD and am frustrated by my lack of access to the data it generates. I have remote monitoring with weekly submissions, but I have no way of viewing that information. I want to be able to compare my symptoms to the data without scheduling a doctor's appointment, especially since my symptoms may not be new or otherwise necessitate an appointment. I would also like to see rechargeability without surgery for a new device." – Andrea

– Further research, including endpoints for mental health

Polling from participants, showed that most had never been in a clinical trial or informed of one (Appendix C, #9 and #10). Only 20% had ever enrolled; another 20% had tried to enroll but were excluded. The main reasons for deciding whether to participate were 1) knowing how the treatment might improve their health; and 2) concern of common side effects. Other reasons were site proximity, reputation of the principal investigator, and availability of safety data.

Have you participated or wanted to participate in a clinical trial with an experimental treatment for HCM?



"It's not the unwillingness to participate but there has to be... sharing of information with the patient. These are not lifestyle drugs we are volunteering for, if you will. There lies a big responsibility of the manufacturers to involve the patient and their care in follow up." – Billur

"Continued access to experimental medications is a huge benefit to participating in clinical trials. When you are lucky enough to find meds that work for your symptoms, it is awful to have to give them up and go back to living with HCM." – Gretchen

"More sites and simpler protocols would be helpful for patients." – Eric

"As so much of our life with HCM is spent on drugs, is there a way to add endpoints in clinical trials around quality of life (not just overall health improvements) (i.e. appearance - like weight gain and hair loss), and also adding endpoints for emotional and mental wellbeing while on drug (i.e. fatigue, depression)?" – Domenick

– **Better recognition and acceptance of the need for mental health treatment**

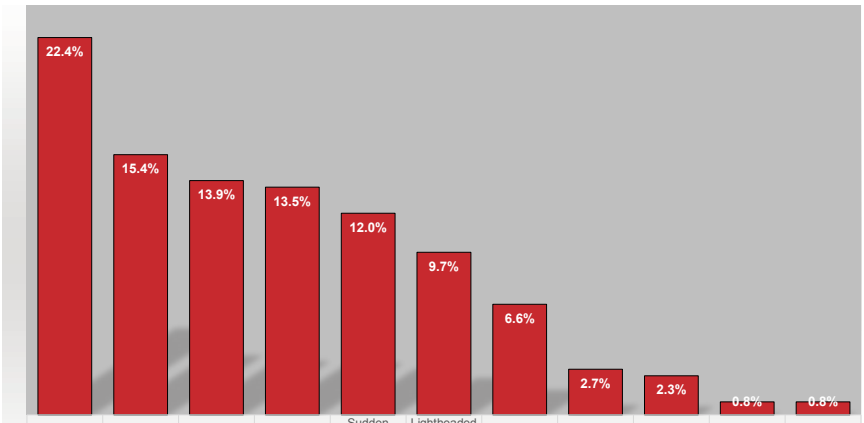
Many patients spoke to the emotional and psychological toll the disease has taken on their life. Their experiences had an impact on their immediate family, friends, and extended family leading to concerns about "letting them down" or feeling "afraid for what they will endure." More peer support, professional counseling, and mental health endpoints in trials were recommended.

> *"During my early diagnosis, I didn't feel my emotional wellbeing was taken into consideration during any of my treatments. I now find doctors are concerned more about patient's quality of life physically and emotionally than in past years." – Paige*
>
> *"There's a lifelong burden we're dealing with...there's an emotional toll we're taking because it's not going to help us to worry and have stress. Anything we can do to alleviate that is a positive thing." – Marc*

Overall perspectives of current and future treatments for HCM

The most frequent comment from patients regarding available treatments was the limitations of having to rely upon drugs and devices not originally designed, tested, or studied with the goal of treating HCM. The unique structural progression of the disease and conductivity challenges means drugs and devices may perform differently than originally intended. Coupled with the lengthy time patients may live with HCM, patients face a lifetime of different treatment paths to simply feel better and minimize the risk of sudden cardiac arrest. Drugs that address the underlying pathology associated with HCM are needed. Similarly, the prevalence of HCM and the long-term nature of the disease necessitates the need for improved technologies that are mobile and easily accessible for review in real time.

Considering your current health status, which symptoms would you MOST want a drug or treatment in the future to eliminate or improve? Select TOP3.



	Shortness of breath	Arrhythmias/ palpitations	Exercise intolerance	Advanced Heart Failure	Sudden cardiac arrest	Lightheaded ness/dizzine ss/fainting	Chest pain or pressure	Fluid retention	Weight loss or gain	Other	Heart murmur
otal	22.4%	15.4%	13.9%	13.5%	12.0%	9.7%	6.6%	2.7%	2.3%	0.8%	0.8%

Patients rely upon the recommendations and opinions of other patients, especially in explaining drug interactions, device upkeep, and locating experienced practitioners at Centers of Excellence. Advancements in treatment options should include recognizing the emotional and psychological toll of the disease and include counseling and peer-support resources to support patients and their families.

CONCLUSION

HCM is the most common form of heart disease of genetic origin and affects approximately 1:500 individuals of all ages, races, and overall health conditions. While the condition is manageable for many patients, the variability of symptoms and severity of the disease are profound ranging from minimal medications to multiple surgical interventions and constant medical monitoring. Of particular concern, is the management of patients at high risk for sudden cardiac arrest who decide to forego treatment because their symptoms are minimal or not taken seriously.

The underlying emotional toll for HCM patients can be intense and cripple family relationships and a sense of wellbeing. More needs to be done to address these concerns. Looking ahead, HCM patients also want disease-specific drugs that target the underlying pathology of HCM and more durable and long-lasting devices that provide accessible patient data. HCM patients want research with strong evidence of effectiveness to include endpoints designed to equally assess a patient's functional capacity and quality of life.

For more information go to: **www.4hcm.org**

APPENDIX A - Agenda

HYPERTROPHIC CARDIOMYOPATHY EXTERNALLY-LED PATIENT-FOCUSED DRUG DEVELOPMENT MEETING AGENDA

June 26, 2020

10:00-10:05	Welcome to the Program	Lisa Salberg CEO HCMA	Founder & CEO, HCMA
10:05-10:10	FDA Opening Remarks	Preston Dunnmon, MD	Sr. Medial Officer, Div. of Cardiovascular and Renal Products CDER, FDA
10:10-10:25	HCM Clinical Overview	Martin Maron, MD	Director, Hypertrophic Cardiomyopathy Center, Tufts Medical Center
10:25-10:35	Discussion Format Overview	James Valentine	Attorney Hyman, Phelps & McNamara
10:35-10:40	Demographic Polling	James Valentine	
10:40-11:05	Panel 1 – BURDEN OF DISEASE		
		Lynda Neuhausen	HCM Patient
		Rush Roberts	HCM Patient
		Priscilla Williams	HCM Patient
		Cole Mitchell	HCM Patient
		Deric Wormley	HCM Patient
11:05-12:15	Discussion: Living with HCM: Symptoms and Disease Impacts	James Valentine Lisa Salberg	HCM Patients Conversation Starters Phone callers Online written comments
12:15-12:45	Break		
12:45-1:10	Panel 2 – TREATMENT OPTIONS		
		Kent Sperry	HCM Patient
		Kelly Sidebottom	HCM Patient
		Tracy Argandona	HCM Patient
		Ashley Fisher	HCM Patient
		Scott Popjes	HCM Patient
1:10-2:15	DISCUSSION: Perspective on Current and Future Treatments	James Valentine Lisa Salberg	HCM Patients Patient Starters Phone callers Online written comments
2:15-2:20	Meeting Summary & Key Takeaways	Larry Bauer, RN, MA	Sr. Regulatory Drug Expert, Hyman, Phelps & McNamara
2:20-2:30	Next Steps & Closing Remarks	Lisa Salberg	Founder & CEO, HCMA

APPENDIX B – Patient Presenters

Panel I: BURDEN OF DISEASE

Patient Stories by

- Lynda Neuhausen
- Rush Roberts
- Priscilla Williams
- Cole Mitchell
- Deric Wormley

Conversation Starters

- Gwen Mayes
- Gordon Fox
- Ashley Fisher
- Nikora Gromes

Panel II: CURRENT AND FUTURE TREATMENT OPTIONS

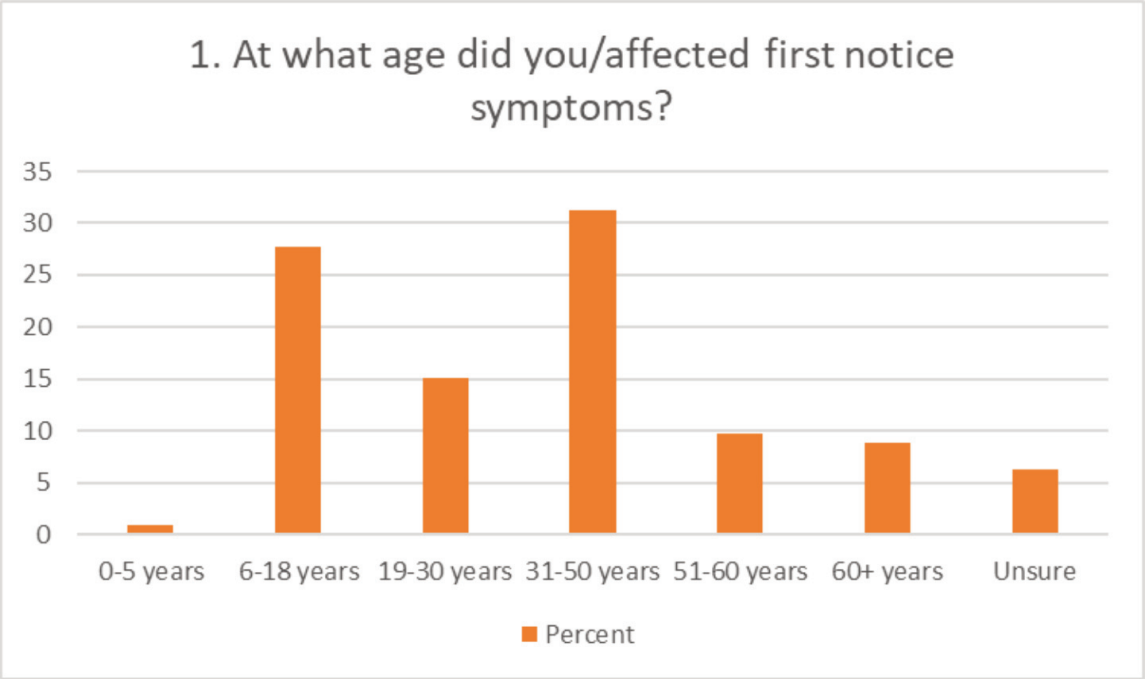
Patient Stories by

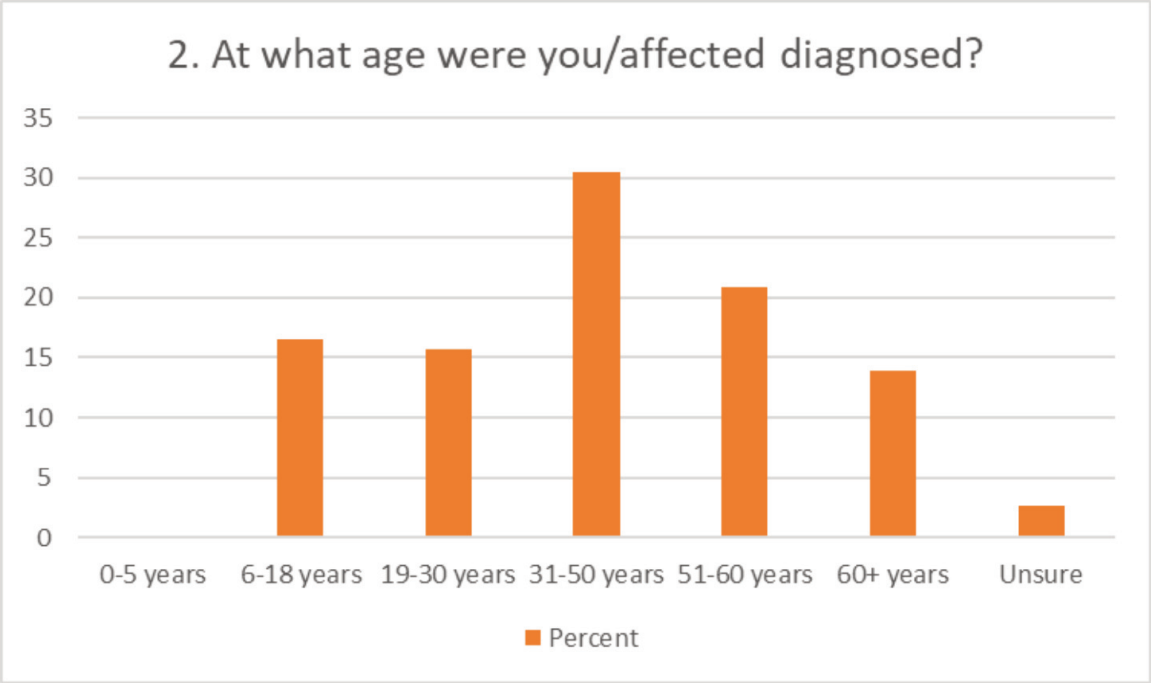
- Kent Sperry
- Kelly Sidebottom
- Tracy Argandona
- Ashley Fisher
- Scott Popjes

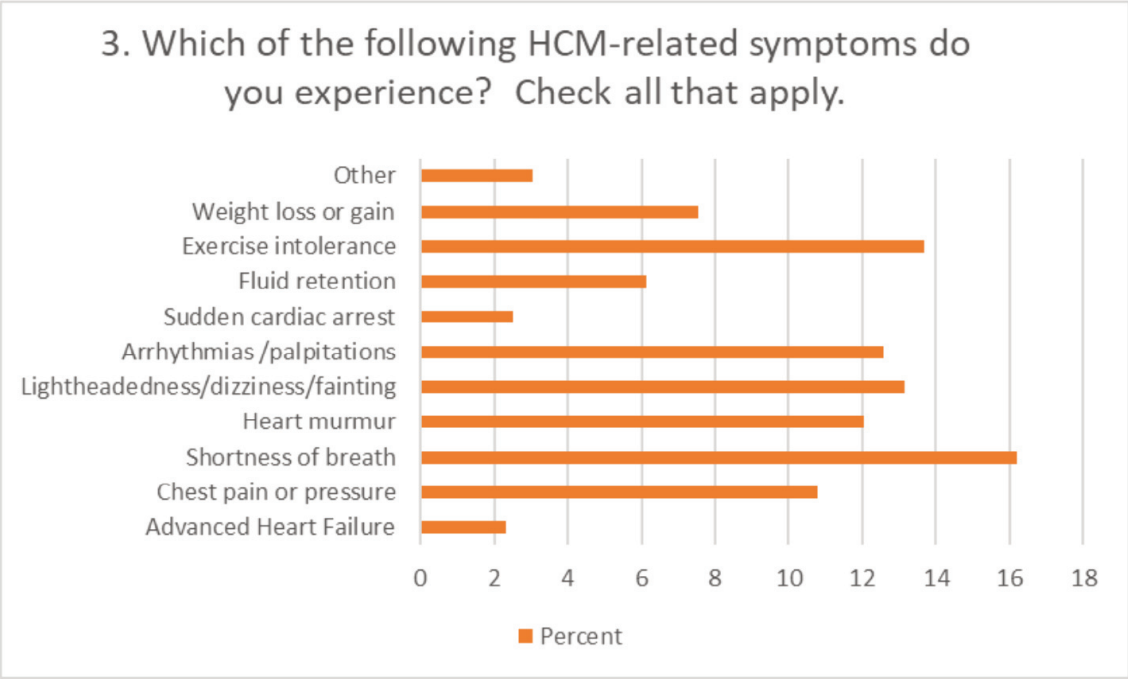
Conversation Starters

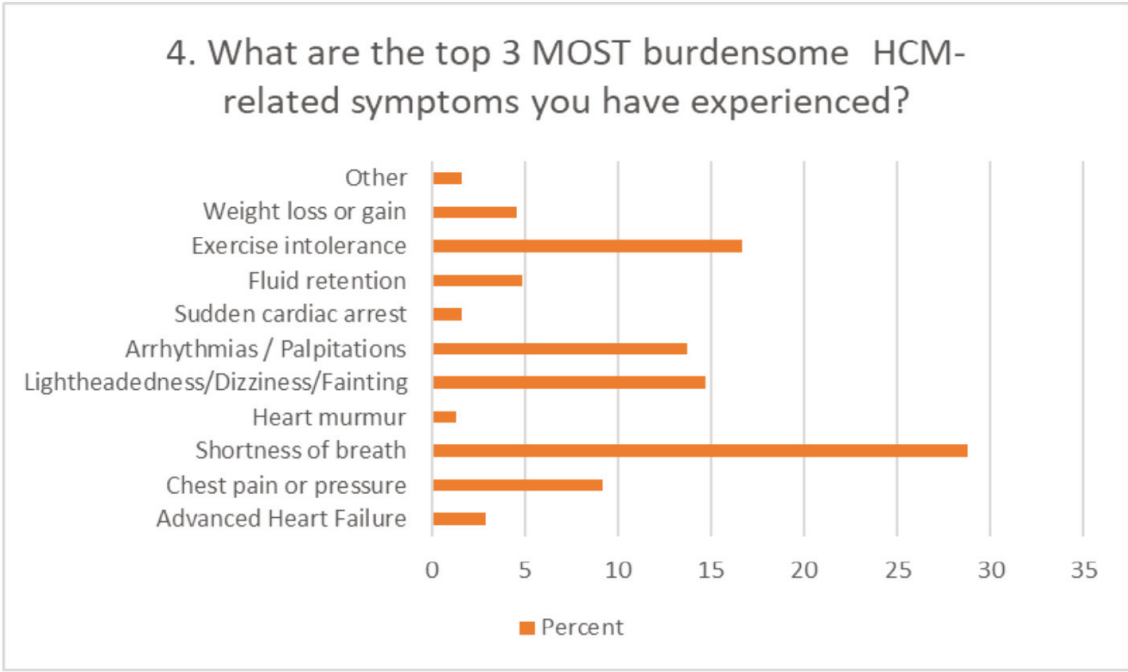
- Lynda Neuhausen
- Marc Block
- Billur Dowse
- Amit Kalia

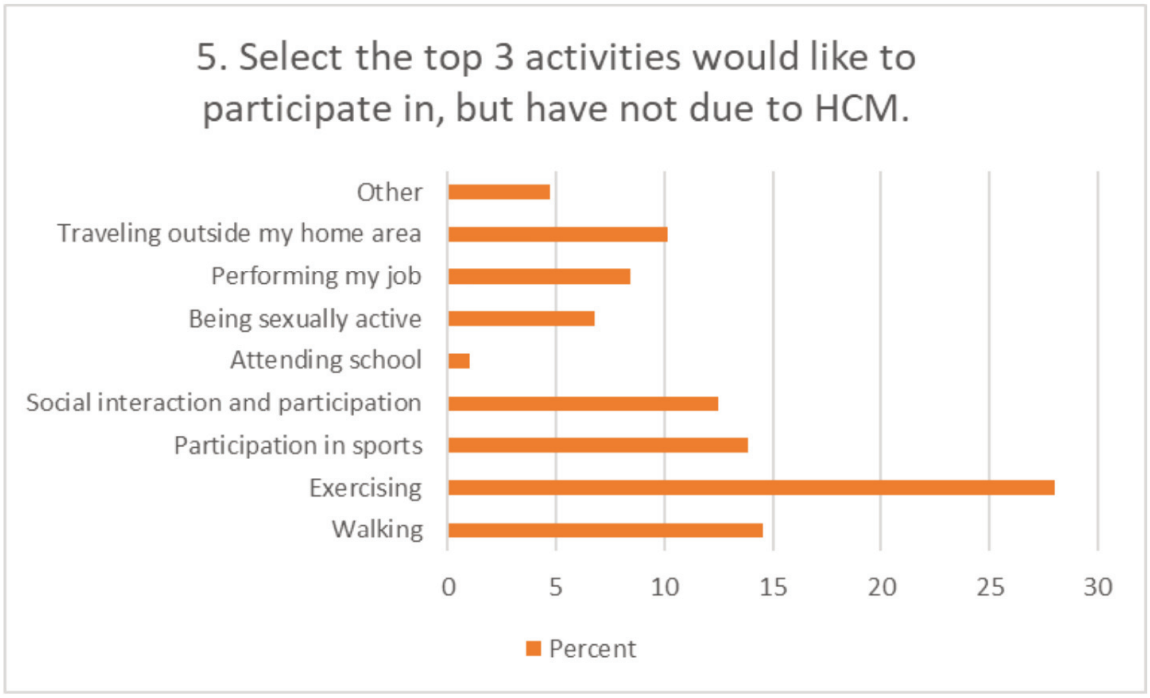
APPENDIX C – Polling Questions

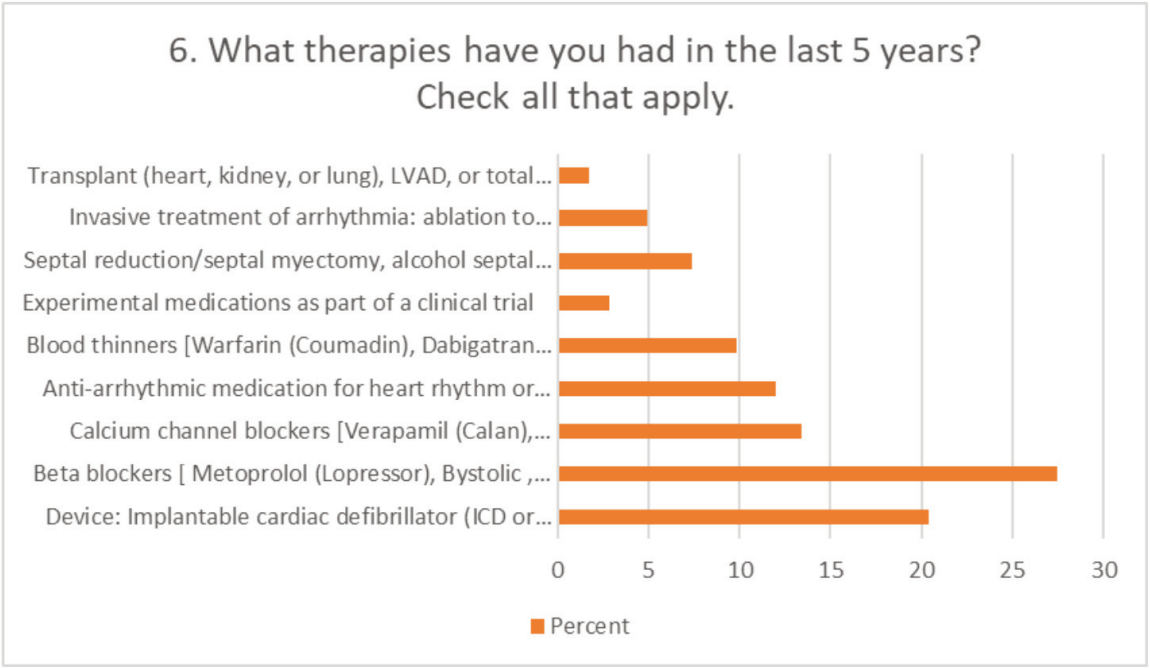


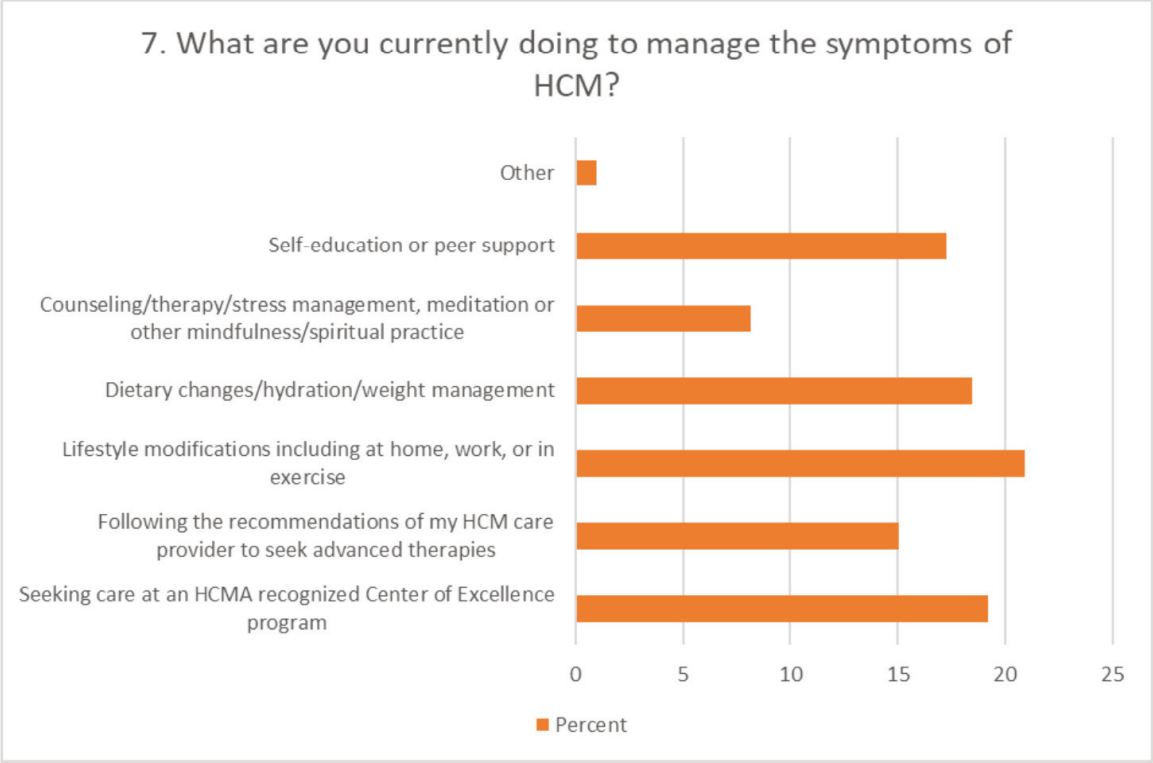


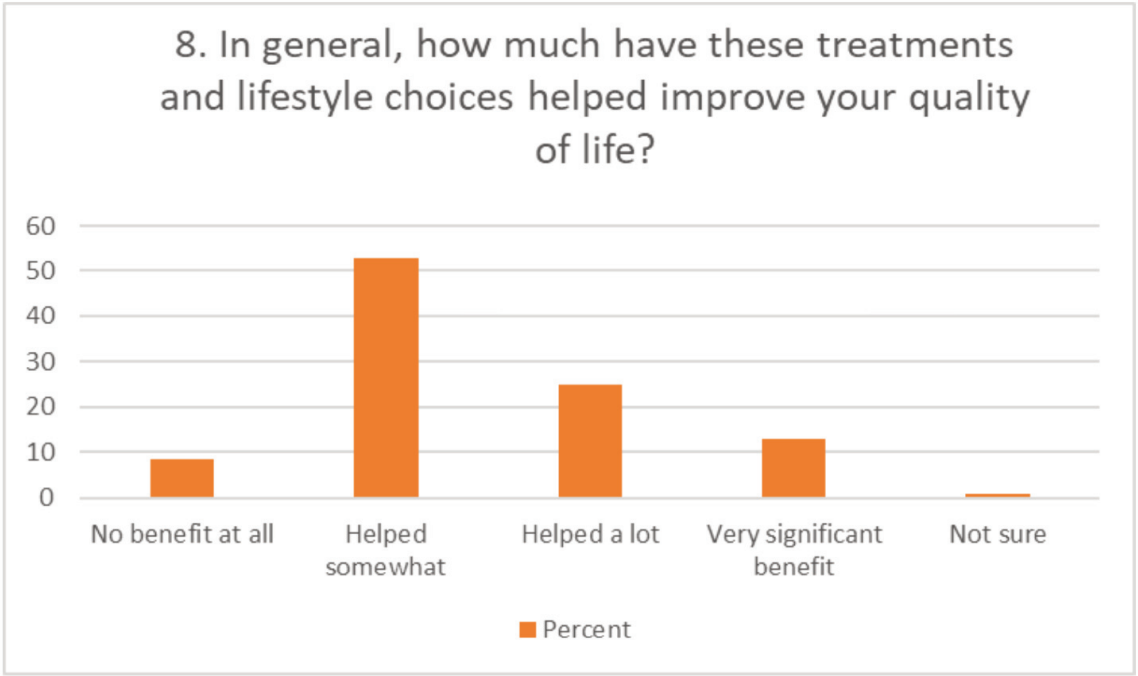

3. Which of the following HCM-related symptoms do you experience? Check all that apply.
Other
Weight loss or gain
Exercise intolerance
Fluid retention
Sudden cardiac arrest
Arrhythmias /palpitations
Lightheadedness/dizziness/fainting
Heart murmur
Shortness of breath
Chest pain or pressure
Advanced Heart Failure
0
2
4
6
8
10
12
14
16
18
Percent

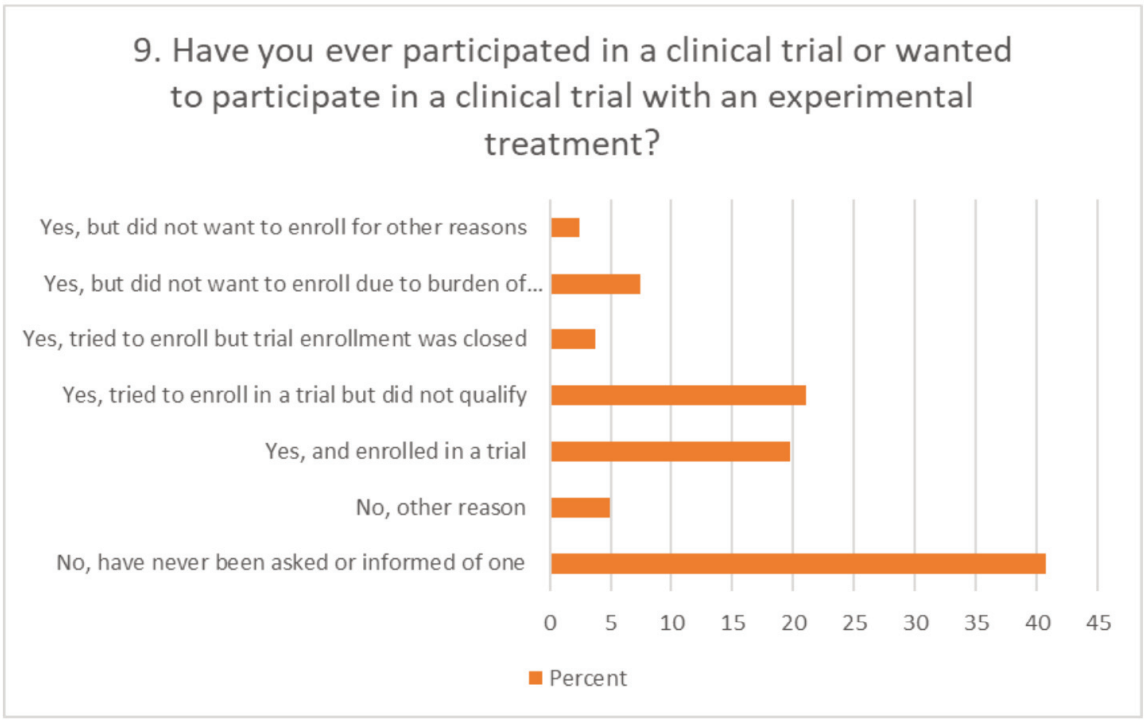

4. What are the top 3 MOST burdensome HCM-related symptoms you have experienced?
Other
Weight loss or gain
Exercise intolerance
Fluid retention
Sudden cardiac arrest
Arrhythmias / Palpitations
Lightheadedness/Dizziness/Fainting
Heart murmur
Shortness of breath
Chest pain or pressure
Advanced Heart Failure
0
5
10
15
20
25
30
35
Percent


5. Select the top 3 activities would like to participate in, but have not due to HCM.
Other
Traveling outside my home area
Performing my job
Being sexually active
Attending school
Social interaction and participation
Participation in sports
Exercising
Walking
0
5
10
15
20
25
30
Percent

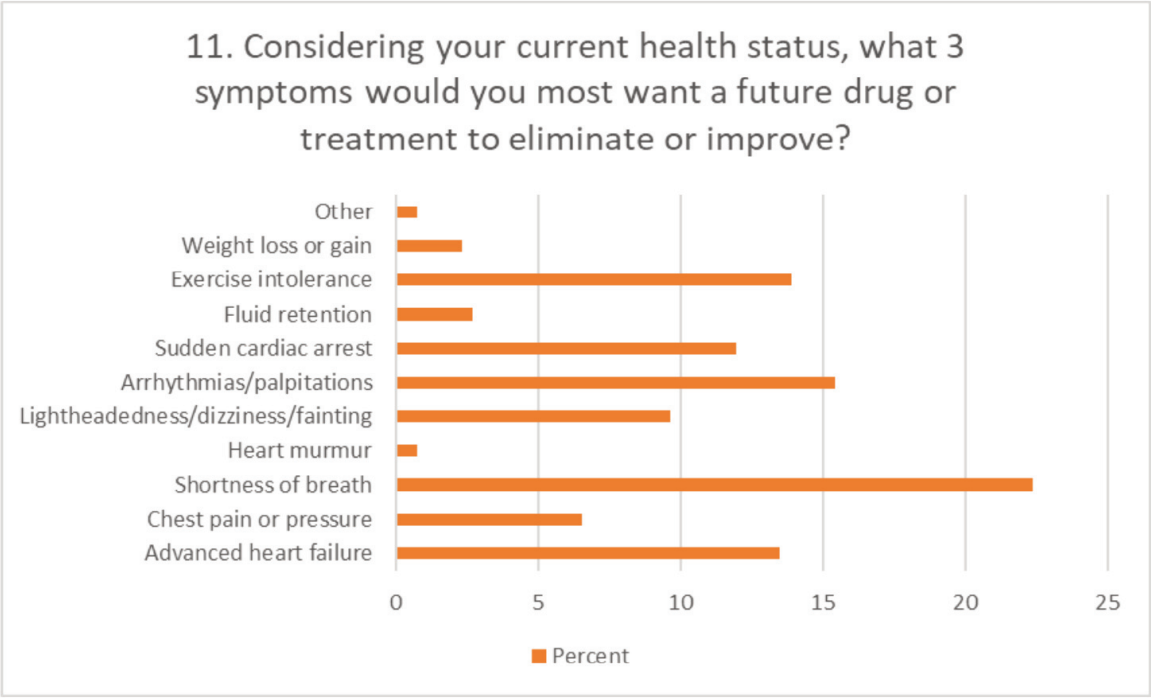

6. What therapies have you had in the last 5 years? Check all that apply.
Transplant (heart, kidney, or lung), LVAD, or total...
Invasive treatment of arrhythmia: ablation to...
Septal reduction/septal myectomy, alcohol septal...
Experimental medications as part of a clinical trial
Blood thinners [Warfarin (Coumadin), Dabigatran...
Anti-arrhythmic medication for heart rhythm or...
Calcium channel blockers [Verapamil (Calan),...
Beta blockers [Metoprolol (Lopressor), Bystolic ,...
Device: Implantable cardiac defibrillator (ICD or...
0
5
10
15
20
25
30
Percent


7. What are you currently doing to manage the symptoms of HCM?
Other
Self-education or peer support
Counseling/therapy/stress management, meditation or other mindfulness/spiritual practice
Dietary changes/hydration/weight management
Lifestyle modifications including at home, work, or in exercise
Following the recommendations of my HCM care provider to seek advanced therapies
Seeking care at an HCMA recognized Center of Excellence program
0
5
10
15
20
25
Percent


8. In general, how much have these treatments and lifestyle choices helped improve your quality of life?
60
50
40
30
20
10
0
No benefit at all
Helped somewhat
Helped a lot
Very significant benefit
Not sure
Percent


9. Have you ever participated in a clinical trial or wanted to participate in a clinical trial with an experimental treatment?
Yes, but did not want to enroll for other reasons
Yes, but did not want to enroll due to burden of...
Yes, tried to enroll but trial enrollment was closed
Yes, tried to enroll in a trial but did not qualify
Yes, and enrolled in a trial
No, other reason
No, have never been asked or informed of one
0 5 10 15 20 25 30 35 40 45
Percent


10. What factors would influence your decision to participate in a clinical trial?
Other
The cost and what expenses are paid
Concern over required hospitalization, doctor visits, etc
The way that treatments are administered (for...
Concern over risks of serious side effects (such as...
Concern over common side effects (such as loss of...
Availability of safety data prior to enrolling
Proximity of the study site/need to travel
Reputation of the study's principal investigator...
Promise to receive investigational drug at end of study
How the treatment might improve my health
0 5 10 15 20 25 30
Percent


11. Considering your current health status, what 3 symptoms would you most want a future drug or treatment to eliminate or improve?
Other
Weight loss or gain
Exercise intolerance
Fluid retention
Sudden cardiac arrest
Arrhythmias/palpitations
Lightheadedness/dizziness/fainting
Heart murmur
Shortness of breath
Chest pain or pressure
Advanced heart failure
0
5
10
15
20
25
Percent