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## Living with Heart Failure: The OT Role Recorded September 12th, 2019

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- [Fawn] Today's course is Living with HF, The OT Role. Our presenter today is Camille Tovera-Magsombol. She is an OT clinical specialist at NYU Langone Health Rusk Rehabilitation inpatient unit. She has led quality improvement projects that aim to improve service delivery to patients with chronic diseases such as COPD, diabetes, and low vision. She advocates for increasing the familiarity, competency, and confidence of OTs in the field of cardiopulmonary rehabilitation. As part of this advocacy, she has presented on these topics both within the medical center and at the American Occupational Therapy Association annual conference. Welcome back Camille, we're so happy to have you.

- [Camille] Hi, thank you for having me again. Thank you, everybody, for taking the time out to listen to this webinar today. Hopefully, by the end of this webinar, everybody would be confident and will be able to take down some tips that they could use in their clinics the next day. So today, with heart failure, we're going to tackle heart failure in three different ways. So first, we're going to discuss the heart, the normal physiology and pathophysiology of heart failure. Then we're going to discuss a way to assess or look at our heart failure patients to guide our treatment, as well as to set goals with them and highlight the importance of goal setting in the context of lifestyle modification and self-management. Lastly, I'm going to try to discuss self-management for heart failure and how we, as occupational therapists, really contribute a lot in this aspect. All right. So this will be our learning outcomes, as we've discussed earlier.

All right, so the heart. So just a quick review. We all know that our heart has four chambers. We have a left and a right side of our heart. The upper chamber will be our atria. And the lower chamber will be our ventricles. The septum separates the heart, separates the left side from the right side of the heart. And of course, we have valves. So think about the valves as doors that allow the heart to fill with blood that will be brought out to the rest of the body. And here is just a little schematic of how... Hold on, where's my green clicker? There we go. So here's a little schematic of how the blood

goes throughout the rest of our body. So we just have to see here that our lungs and our heart are really interrelated. And if there is something wrong with the lungs, it can affect the heart. And if there's something wrong with the heart, it can eventually involve the lungs. Here is a Sankey diagram of just how blood is distributed to the different parts of our body, and just to also make us realize that some of, our body really distributes blood to where it's needed the most. So if you're exercising, it can shift how much blood is given through your kidneys or your GI into your skeletal muscles. And if you're doing a little bit more exercise, also trying to send more blood here in your heart muscle.

So what is heart failure? Heart failure is our inability, or an inability of the heart to meet your body's metabolic needs. So your heart cannot fill the chambers with enough blood. Your heart cannot pump blood to the body effectively. It is also very important for us to realize that not all heart failure can be congestive. So there's also an issue sometimes where the heart gets so stiff that it cannot relax enough to receive the blood. Therefore, you don't have enough blood to send out to the rest of the body. So we should also think about heart failure as a clinical syndrome versus a diagnosis. It's a certain number of, a clinical picture of what the patients would look like that lets the clinicians decide that it is heart failure. So this is just a depiction of what heart failure would look like after remodeling. If you'll see here, the left ventricle is small and really efficient in pumping out that blood. And over time, because of heart failure, it's gonna adapt by making the heart muscles bigger and, therefore, inefficient in performing or meeting its function.

All right, we all know that heart failure is prevalent and costs a lot. What are the signs and symptoms? So dyspnea and fatigue are the most common sign or presentation of heart failure. Fatigue, weakness, and lethargy because of heart failure-induced skeletal muscle abnormality. You will also see your patients having exertional chest pain or activity intolerance. So all heart failure patients will report at least dependence in one

ADL or activity. They could also present with right hypochondrial pain. So this may just be secondary to right-sided heart failure. So 25 to 80% of our patients will have cognitive impairments. And there's been a lot of studies about how heart failure, having heart failure will lead to cognitive impairment. So it could be acute and fluctuating, such as delirium, especially if your patient's having decompensated heart failure. Or it could be chronic. So they can have subjective cognitive decline or a mild cognitive impairment, which is the most common. They could also have a mild neurocognitive disorder or a dementia. Language is also affected. And with language, you would see that over time it would really decline. Attention, executive function, and psychomotor speed are also affected. But there's also evidence that visuospatial skills and memory are able to recover if heart failure is well-controlled.

So that's one good thing about helping our patients control their heart failure. You could actually help them to promote improved cognitive skills. Low heart literacy is associated with heart failure, too. And it's also associated with a higher all-cause mortality. So it's important for us to also screen and look into our patient's health literacy. Depression and anxiety is also documented with heart failure. And as much as 21.5% of patients with heart failure exhibit depressive symptoms. And 13% will have, well, 13% will have anxiety disorders. And 30% will test positive for a clinically significant level of anxiety. So they're actually recommending, when we see patients with heart failure, to use the PHQ-2, and then if they screen positive using the PHQ-2, using the PHQ-9 to further explore their anxiety and depression. So risk factors, so again, as we talked about earlier, heart failure doesn't just happen by itself. It's usually triggered by a heart disease, smoking sedentary lifestyle, obesity, heart failure, and other heart insults such as a heart attack. There are different ways that clinicians classify patients with heart failure. So one of them is by using the New York Heart Association Functional Classification. In this one, they're looking into a person's ability to tolerate physical activity, their ability to rest, or what happens to them when they're doing just ordinary activities such as walking, sitting, going to eat. So they classify

them according to mild, moderate, and severe. And then they also, the American Heart Association, classifies them in different stages. So Stage A would be just having risk factors for heart failure. But there's not yet any heart disease or symptoms. So one of the risk factors is hypertension. So we all know that with hypertension, with chronic hypertension, it can lead to structural damages in the heart. So you're classifying this person as being in Stage A, and then ongoing, as the heart disease process evolves, and also as the person have symptoms or display symptoms. Heart failure could also be compensated or decompensated.

We should note that a decompensated heart failure is a medical emergency and should be treated right away. Compensated heart failure is medically stable. And this is where you will see that the heart has really adapted. You'll see ventricular enlargement and the activation of your sympathetic nerves in the renin-angiotensin-aldosterone system. Heart failure could also be left-sided or right-sided. So with the right-sided heart failure, the heart cannot pump blood to the lungs for oxygenation. And for left-sided heart failure, it cannot pump blood to the rest of the body. So with right-sided heart failure, if you can imagine, the right side of the heart, looking a few slides back, receives blood from the body. So now the blood flows back to the venous system, and that's why you'll see peripheral edema. And this is also where you'll notice some orthopnea or difficulty breathing when laying down flat. With a left-side heart failure, the blood flows back to the lungs. So now you'll see more pulmonary edema. And then you will also notice that, since the blood flows back and the whole system is inefficient, you will see that they will also be breathing a little bit faster.

Now, for heart failure with reduced ejection fraction, or when classifying heart failure based on ejection fraction, they're really just looking mostly with the left ventricle. Because they're looking at how much blood the heart is able to pump out to the rest of body. So they have what they call a reduced ejection fraction and with a preserved ejection fraction. So previously, this was called, the one with reduced ejection fraction

used to be called systolic heart failure. And the one with preserved ejection fraction is diastolic heart failure. With reduced ejection fraction, your left ventricle is only able to eject less than or equal to 40% of the blood that it receives. With the preserved ejection fraction, it kind of like normal. The normal ejection fraction is between 50 to 70%. And in between, you are maybe wondering, well, there's still 41 to 49%. They consider that a borderline reduced ejection fraction.

So how do our healthcare practitioners usually manage? So the goals of treatment is to improve prognosis and reduce mortality, as well as relieve symptoms and reduce morbidity. If the patient is in the hospital, and those of us that are working in the hospital system, readmission is a big word currently. But they also wanted to reduce the length of stay and readmission. They wanna prevent organ system damage and manage comorbidities that lead to poor prognosis. So as therapists, you can immediately see, as OTs, you can immediately see how we can contribute in helping our healthcare practitioner meet all these goals. So going back to the AHA classification, the stages of heart failure, you would see that they've also recommended how to manage each stage of the heart failure. And you will see here, at Stage A, they're recommending just risk factors reduction and patient and family education.

So looking, remembering a few slides back, Stage A is those patients that doesn't really have structural defects in their heart but have risk factors for heart failure. So you would want to educate them to reduce their risks, as well as their families, so that they will understand that really reducing their risk could help prevent them developing heart failure. It is also good to note that we are really very important in this stage of game, 'cause a lot of these will be very abstract, like low sodium, increasing physical activity. Sometimes our patients would just tend to wonder how they're going to adapt or modify their lifestyle to fit their current routine. You will also see here, from Stages B, C, D, all the italicized one, I've just added in. Because risk factor reduction will really be

helpful in all stages of the heart disease, as well as self-management education. So in Stage B, there will be structural defects, although not a lot of symptoms. But you'll still want them to, in certain way, manage their disease so they don't progress to C and D. All right, so when you have heart failure patients, you will also see that they take a lot of medication cocktails. And medication management is a huge part of a heart failure patient's disease management. So I've compiled a list of commonly prescribed medications for patients with heart failure. And this list is also accessible from the American Heart Association website, [heart.org](http://heart.org).

The goals of pharmacologic therapy is to improve the symptoms, slow or reverse deterioration of myocardial function, and reduce mortality. So they've looked into why a lot of the heart failure patients don't really take their medications. And it's because a part of them doesn't feel like it's taking an effect. So getting ourselves familiar with the medications and their action and what it's supposed to do and why physicians recommend them will be important in also educating our patients. The other thing, too, is that with ACE inhibitors, you will see that it's immediately beneficial, meaning your patients would almost immediately feel that they can breathe better, they could do more. But if they're prescribed with beta blockers, it's not immediately beneficial. It actually takes effect probably around 30 to 60 days after they started taking it. So it is also helpful for you to just review that with your patients and say that, "You should just keep taking it," and the effect will be long-term versus short-term. So for heart failure with preserved ejection fraction, and this is usually, your left ventricle here will be stiff and unable to receive blood that's required for your body, they don't have a lot of management. Mostly, what they're recommending is just management of the associated conditions such as hypertension and lung disease.

So your patient, you would find that sometimes their quality of life isn't as great. But there's really nothing that the medical community is thinking of managing it rather than helping them manage this associated disease and hoping that they don't progress

further. So one of the things that they also recommend when managing heart failure patients, especially with patients with reduced ejection fraction, is prescribing minimally invasive devices such as a pacemaker or an automatic implantable cardioverter defibrillator, or AICD. If they progress further, they will be prescribed a mechanical circulatory support. And some of us may be familiar with this, the VADs and the total artificial heart.

So medical therapy, cardiac resynchronization therapy, and AICDs really can help improve survival of many with heart failure and reduce ejection fraction. But you will have this group that will benefit from the mechanical support, circulatory support devices. There are generally four indications to get these, either as a bridge to transplant, where they're just waiting for a heart, or a bridge to a decision, if they will qualify for a heart transplant. Bridge to recovery, there are studies that have seen the heart be able to adapt and survive after being provided with an assistive device. Or a bridge to destination, meaning when the device fails, then the patient will pass. So currently, we are in the third generation of VADs, which uses centrifugal pumps, and they have longer durability. They're smaller and more compact. And their system is optimized to minimize thrombus formation and hemolysis. Durability is anticipated to be between five to 10 years, but they're really not yet so sure. Because they've just recently released this, and they're trying to see how long VAD patients will survive. So there are experts that, for patients with preserved ejection fraction, they prefer total artificial heart rather than the VAD. But the technology is also relatively new, and experience is limited. So I guess the judge is still out there which one is better.

Now, heart transplant, heart transplant is really the gold standard in treating patients with end-stage heart failure. So the outcomes are good. They see 75% of patients after three years live without limitations or have minimal to no symptoms. At five years, 45% of people with heart failure that are still within that working age can go back to work at least part time. They've also tried to measure their exercise capacity, and it's almost

equal to healthy individuals after they've participated in an exercise program. However, the biggest drawback with heart transplantation is rejection and immunosuppression. So this is still a big concern. So now there are these proponents trying to compare VADs with heart failure. And the jury's still out. There are contraindications for heart transplant. And I've listed them for you. So lifestyle modification is one of the recommendations of physicians for patients with heart failure. So lifestyle modification including smoking cessation, alcohol abstinence, restricting sodium intake, weight management, and daily weight monitoring.

All right, so OT assessment. When we're treating heart failure patients, or even cardiac patients in general, we have to realize that a cardiac event affects individuals not only physically but emotionally as well. It impacts how one go back to do their roles, their work, and even their confidence in their ability to do them. They're scared that, because they're short of breath or they experience something, that they are going to die, and that's why they limit themselves from doing the activities that they've done before. So they've done some studies and tried to characterize how patients with cardiac diseases engage in their ADLs. And they've seen significant functional limitations, whether it's self-limited or because of the symptoms that experience. They've also tried to look into how often their daily activities get affected because of symptoms of heart failure. And in this articles, they noticed that, or they gave each person and survey asked them, "What are the activities of daily living that are limited "because of your heart failure symptoms?" And 45% of them, almost half of them, said that climbing stairs was an issue, and the next one would be walking. Then you'll see housekeeping, dressing, toileting, eating.

So it's just good for us to note about all these things, but also interesting to note that taking medications, even though it's the last item there, is problematic for 14.4 of your patients. So we really have to make sure that they understand and can take their medications well, because it's one of the main things that clinicians would want their

patients to do in order to effectively manage their heart failure, at least medically. So what are the different predictors for ADL difficulties? Older patients, female, when they have diabetes, because they have an extra comorbidity that you have to manage when they have cardiovascular disease, of course dementia, anemia, morbid obesity, and if they're unmarried. So I have a question here about a handout or website that I can recommend for patient education related to risk factors. And you're right, heart.org has a lot of patient education materials that you can print out. And I use heart.org a lot. They have a Heart Failure tab there that you can download patient education materials that you can give to patients.

All right, so OT assessment, so typically, your bread and butter for any cardiac patients would be their vitals, blood pressure, heart rate, their RPE, their oxygen saturation, and then any vital response they have for activity, either pre, during, or post, or if they have orthostatic hypotension. So you'd not only want to take this for yourself, but you'll also wanna take this for your patient. Again, you would want to desensitize them from feeling that whenever they try to do something hard, or when they're having a hard time breathing, that they are inflicting more damage to their heart. So you would wanna use this opportunity to provide them feedback. This is where we started. This is where we are right now. And also telling them, because of heart failure, it is normal for you to experience shortness of breath. It will be normal for you to get tired and get fatigued easily, and this is why. And you can talk about how, physiologically, that happens.

All right. Norms, so I have just provided you with norms, and also just a review of how to take a blood pressure and the ideal way to do this, a description of orthostatic hypotension, and then just for us to also know before we go see them, go see patients, just knowing about the norms that is expected for them. So although they are cardiac patients, and although a bulk of your examination would be their vitals, you would also wanna look at them as a whole person. So look at their upper extremity, any cognition, perception, sensation issues that you might see that could affect their

self-management, any vision or hearing problems, trunk mobility, balance, skin integrity. Are they prone to developing these pressure ulcers, especially since their circulation is compromised? So you would want to look through the list, of how will these affect their self-care management. You also would want to ask them about the quality of their ADLs before, and how is it different from the quality of their ability to perform their ADLs now. Identify what are their barriers. Is it mostly fatigue? Is it mostly shortness of breath? Are they doubting themselves? Are they anxious? And then trying to see with their health management and maintenance, their perception and understanding of the problem, are they ready to learn? Are they willing to change? What is their literacy and health literacy?

Then you create an occupational profile about their lifestyle, what they value, what their interests are. So you could help, you can use this and help, and you can use this in your treatment. So here are some outcome measures that us OTs can use. And then there's this article about ADL instruments that they tried to compare the Barthel, the Klein-Bell, the Kansas City Cardiomyopathy Questionnaire, the more recent performance measure of ADL 8, daily activity questionnaire in heart failure, and PULSES Profile. So they're just saying that, although the Kansas, the KCCQ had a good internal consistency and is more sensitive to changes in clinical status in patients, especially with preserved heart failure, there's still a lot of things that needs to get done. I guess it's also because heart failure is very complex and heterogeneous in presentation, that probably not one of these can capture everything. But the KCCQ is the one with the best internal consistency. Here they've also tried to assess available quality of life assessments.

So I've put the websites where you can access these articles. And in the second one, they've tried to compare the Left Ventricular Dysfunction Questionnaire, Minnesota Living with Heart Failure Questionnaire, and the Specific Activity Questionnaire. And they've seen that the MLFQ is the one that's most responsive to improvements in the

six-minute walk test. What it just means is that, since six-minute walk test has been studied and seen that, with improvements in six-minute walk test, your patients generally tend to improve. So it reflects that improvement as well. However, between KCCQ and the Minnesota Living with Heart Failure Questionnaire, the KCCQ is something that you can download and use for free, and the MLFQ is something that you have to pay for.

Now, the bulk of our intervention will be with self-management and your patient's ability to really take care of themselves so that they don't progress further and further along with their heart failure. And this is where the self-management assessment comes from. So currently, there two versions of the Self-Care of Heart Failure Index, SCHFI. There's the version six, or 6.2 actually, and there's this version 7.2. They allow clinicians to download this for research purposes, and also for use for patients. So they also have different self-care questionnaires over there. But in this Self-Care Heart Failure Index, they ask four broad areas. So they have different versions. They have an English version. They have a Korean version, hold on, and an Arabic version, I think.

So there are four areas. So the first section will ask the patient's ability to help themselves about trying not to get sick, eating a low-salt diet, any system to help them remember their medications. And then the next section will ask about their ability to monitor their symptoms. The third part will ask them what their responses are if ever their symptoms indicate that their condition is getting worse. Will they take a medicine, call their doctor, ask their family? And then the last section will assess their confidence in their ability to manage their condition. So it's composed of 39 questions, and it's a self-report. So you can have your patients complete this. And it will give us a little bit of glimpse of which areas to target in terms of the self-management.

All right, so goal setting, I just wanna take time out and emphasize the importance of goal setting. So usually, when we tell them, "All right, what would you want to do "in

occupational therapy? "What would your goals be?" their most common goals would be something along the lines where they want themselves to be. So it may not be as realistic as we would want it to be. They will say, "Get fitter," "No pain," "Better mindset," or, "Go back to work."

However, when they've looked into patients with heart failure and risk factors for cardiac disease versus actual goals, hold on one second. Oh, there we go. So there were 30 patients that identified themselves as smokers. But only seven of these 30 patients indicated smoking cessation as either their short-term goal, short-term goal or their long-term goal. There were 42 patients that met the criteria for obesity, and only nine indicated weight loss as a goal. Also, for stress, 44 participants identified stress as part of their cardiac risk factors, and only one identified stress reduction as their goal. But at least most people know that they should be physically active after a cardiac disease. So there were 38 participants that indicated they were physically inactive, and 86 patients indicated increasing physical activity as a goal. Also in this study, 62% of patients have high cholesterol. 60% have high blood pressure. And 37% of the participants had diabetes. But none of these patients identified that lowering their cholesterol or blood pressure or managing their diabetes better as their goal.

So it is very important for us to know the risk factors as well as some of the lifestyle modifications that they're recommending and guide them with setting their goals with their heart failure. So it's not just physical activity and exercise, but also, really, a lifestyle modification and being able to sustain these changes that will help them over time. So I have also compiled some of the recommendations for the self-management when they have different minimally invasive devices such as pacemakers, the leadless pacemakers, as well as the AICD. So with mechanical circulatory support, there are short-term ones and there are long-term ones. And in here, I've just shown pictures of the two devices. The top part would be the HeartMate. And this bottom part is the HeartWare. The reason why I chose to show how they attach the cords of the

computer to the batteries is because I want us to just realize how difficult it will be for our patients that are older with their vision and their dexterity affected. So I've also put in some tips with performing home care for patients with ventricular assist device, as well as recommended training for the patient and the caregiver. You will also see that, here, it's really cognitively demanding and challenging for VAD patients, because they would have to remember the alarms. There's something that they have to do every day. And then even I, as a clinician, don't really remember all what the yellow diamonds alarm indicates. So I'd have to have a cheat sheet with me. Can you think about how our patients would deal with that?

There are also warnings and precautions that they would have to remember, and also things to remember to bring outside so they will always be prepared in case of an emergency. So that's why it's always important for them to have a co-learner for this one. And it's because it's going to be hard for them to really adapt and apply all this information in the short amount of time that is spent in the hospital. So I've provided both for the HeartWare and the HeartMate. So some considerations for rehabilitation when you're working with patients with VADs is that MAP and RPE are important to get, as well as their subjective reports and symptoms. And the reason why this is important is you would wanna match what their MAPs are to what they're feeling. So they would have more of a assessment. You're teaching them to self-monitor. So they will be able to match, oh, I'm not feeling this way, and when I look, my MAP is really not that high. Or you should also educate them with their safety with their drivelines, their equipment, use of the CHG baths. In our institution, we really don't shower them initially. But some institutions do allow VAD patients to shower right away.

So self-management, what is self-management? It's their ability to apply all these recommendations and lifestyle changes for themselves. And it is divided into three broad categories. So the first one would be self-care maintenance, meaning these are activities that help them maintain their health and prevent their heart failure from

becoming worse. So that's their medications, their diet, their fluid intake, and, of course, the amount of physical activity that they participate in. So here we go with medication management, and then emphasizing that medication management is more than just taking a pill, how it involves prescription, being able to get their prescription, their adherence to their medication regimen, and then also modifying their routine if there are some changes, being aware of side effects, and being able to communicate the side effects to their physicians, as well as routine management.

If they are going on a trip, what are they supposed to do so that they're able to still adhere to their medication routine? Of course, you would want them to be able to read and understand medication labels, and if they're able to do that, training them here or finding applicable technology to help them adhere to their medication regimen. Are they aware of their medication's expiration date, and any adaptations that they need to incorporate in their medication management routine? So diet and fluid intake, are they able to understand the relationship between excess dietary sodium and their edema? So sometimes they don't really put those two together, that if they ate a food with high sodium, then they would see an increased swelling with their ankles, and also how this relates to more impaired cardiac function over time. Also, we have to see if they're able to even read the nutrition label found in foods. Do they know how to locate information. And if they do know how to locate information, are they able to put that together with their recommendation? What does, really, low sodium mean? And also, identification of sodium sources in a typical diet and how to reduce them.

So physical activity, just the knowledge, it's not enough that they know about their physical activity prescription in terms of exercise intensity, duration, frequency, although it's important. So a lot of our patients would just think physical activity refers to exercise. And they would exercise and then stay sedentary the rest of the day. So we also have to tell them that, you know, it also involves us moving around doing our day-to-day tasks. We would also help, should help them increase their confidence in

their ability to participate in their daily tasks. So remember, we're going to ask them, "What were the activities that you did before "that is difficult to do now?" And then explore why is it difficult, and if they're avoiding the activity versus they are really unable to do the activity. So show them biofeedback. Show your vitals. Have them practice using the RPE scale or the dyspnea scale in their daily activities. So they'll be able to also assess if, really, they're having more difficulties with doing their daily tasks, which triggers a response of either calling their doctors or going to the doctor's office. You should also teach them to keep a log of activities to show improvement, to give them that necessary motivation to keep going, and to also relate that the more they do, the more physically active they are, the better that they could do these activities. But you should also stress that it's important to balance rest and work.

So energy conservation techniques becomes really important when you're working with heart failure patients. So we have the four Ps of planning, prioritizing, positioning, and pacing. So it's really best to do your energy conservation technique lecture with a planned activity. So let's say, if you're planning to do a cooking activity, you will then prompt the patient to plan. So what are you going to plan for this activity? Plan this activity to make sure that you can complete the activity. Or even ask them, are you able to complete this activity? And if not, what steps would you prioritize today so that tomorrow we can complete this cooking task? And then ask them to think about the positions that they should use during the task, if they need to use any equipment to make it easier. And then observe how they pace themselves, and give them feedback. Daily weights, lower edema checks, and symptom recognition are all part of self-care monitoring. So they have maintenance to take care of their health, but they also need to monitor themselves. So you would wanna make sure that they know the importance of doing these three things, too, and also what the numbers mean, so emphasizing that two- to three-pound weight gain needs immediate action.

Are they able to read the numbers in their weighing scale, even? Are they big? Emphasizing that they should do this at the same time every day, and ideally in the morning, and then having a log book so that they could see their trends. Lower extremity edema checks, also emphasizing that it needs to be done daily. And then, how much edema did they have? And just seeing if it's getting smaller or less. Also, symptom recognition, are they able to tolerate their daily activities? Is it getting better? Is it getting worse? Is their breathing getting better or worse? Or is their lightheadedness or dizziness getting worse? So of course, if any of these were getting worse, you would want them to immediately reach out to their doctors. But there are different barriers to timely care. So sometimes they're unsure which doctor to contact. Because if you have heart failure, it's not unusual for you to have multiple healthcare practitioners. So also help them problem-solve and identify, who should they contact? If they live in rural areas, they may have few options besides the emergency department.

They may also need to wait weeks before they can get an appointment with their doctors. Or they may be unable to physically get to their doctor's office. Some of them will be concerned about the cost. So it's not enough that we discuss how they should manage or respond to symptoms getting worse, but also explore, what are their hesitations for getting timely care? Sometimes, also, they're performed infrequently and inadequately. So again, similar to energy conservation techniques, we should see how they perform this daily self-care. Ask them to go on a scale. Ask them to measure their edema. Ask them to rate their activity and tolerance. So fewer than 50% actually report weighing themselves daily. And of those who weigh themselves, few of them consider fluid weight gain to be significant or a relevant problem. So it's really putting those things together. So sometimes symptoms are also not recognized. So they have a lack or inconsistent symptom monitoring. So they don't really get a gauge of what their usual status is like. Some of them lack the ability to interpret the significance of symptoms. So again, not only teaching them what to do, but pairing them and helping

them problem-solve. Some of them believe that the symptoms are not that severe. Some of them actually believe that the symptoms are caused by their medications as side effects, so hence, identifying that, really, we should discuss not only their medications but also potential side effects. And the last part is the management itself, where they need to respond to the symptom and they seek treatment.

So here we have an action plan. So I've gotten this action plan from a government website. But the heart.org also have created their own action plan. So we can print this off, but just remember to print them off with colors, because it's based off of a traffic light system, where the green zone is all clear, and you're good to go, and what you just need to do is just manage your heart failure as usual. The yellow zone is your caution zone. So it identifies what will make you think, all right, well, let's pause. What is happening? So weight gain, cough, swelling, any increases with shortness of breath, increasing the pillows needed, and anything unusual that bothers you. So you would also want them to fill this out with their healthcare physician. Because they may say, aside from calling their physician, they may instruct them to either take a specific medication just in case they are not able to get in touch with each other, so what they can do in the meantime.

Now, the red zone is where you need to go to the hospital right away, so any unrelieved chest pain, wheezing, when they really can't tolerate laying down to sleep or if the family members have seen, or they, themselves, have noticed, that they are getting more confused. So they really to go to the physician right away. If they can't, then they to go to the hospital and the emergency department. So they all seem, all those self-care management behaviors seem to be easy to do. But inadequate patient education and skill development is apparent, and that seems to be a barrier for effective self-care management. Low health literacy is also one of the biggest barrier. And healthcare workers may not recognize this as much as we can, or may even underestimate. So that really shows that we need to have them perform all these

self-management skills right in front of us and assess any barriers that they may have. They may also be unable to follow through with a complex regimen. It's very complex, like weighing yourselves daily, taking your medications, identifying if your weight shows that your heart failure is getting worse. They may also be overwhelmed with information from multiple providers. They may also not take their medications because of perceived side effects and their costs.

So also, multiple chronic comorbidities such as diabetes may limit them from performing effective self-management. So barriers for healthcare professionals, again, the lack of knowledge and preparation to recognize the patients' needs, difficulty with providing appropriate education, because not all of patients will be accepting of what we tell them. A lot of our patients will even overestimate their ability or underestimate the complexity of the regimen that they will need. There's also a lack of reimbursement from third party payers, and then the need for coordination/communication with other multiple providers. So the Heart Failure Society of America provided the following guidelines for patient education. So it should occur at all points and very specific to an individual's literacy level and abilities.

Also, for our education to be effective, we have to use teach back. We have to ask them specific questions about the material. We should limit teaching points to three to four per session and actually make them more concrete. So again, like with my example earlier, use them in the context of an activity so that they will see immediately how they can apply information that you've provided them. So experiential learning, role playing, and if there's the capability of group learning, it will be nice to use that to facilitate learning. All right, so we have a few minutes here. So let's look at this case study with Mrs. KJ, who's a 73-year-old female with AFib on Eliquis, hypertrophic obstructive cardiomyopathy, diabetes type 2, 70% LAD, and ejection fraction of 25%. So she's that part of that heart failure with reduced ejection fraction. The MD told her, okay, just stay healthy. Use heart-healthy diet. And then the nurses educated them on

smaller portion size, eating more vegetable, limit unhealthy fats, and then really staying with a low-sodium diet. So as OTs, what do you think should we help them with? Or how can we help them with subscribing to the recommendations of both the doctor and the nurses? So for low-sodium diet, you would wanna define, first, what low sodium means. And that's foods with 140 milligrams or less. And also, this is important, when they're reading food labels, a lot of the times, they wouldn't look at the serving size of each can.

So let's say a can of soup has four serving sizes. And then they look at the sodium. And then the sodium says 120. And then they eat the whole can. They didn't realize that they have to multiply 120 by four. So there's also this math involved. So you would wanna see if the patients can really interpret the food labels, also emphasizing what food contains sodium, so aside from salt, MSG, baking soda, baking powder. Reading food labels, and then also helping them find alternate ways to flavor food. So this is a very big part. So they will say, "Well, I have to limit my salt, "but then I don't wanna eat anymore, "because my food doesn't taste like anything." So experimenting with them and giving them some resources, maybe you can use herbs, spices, and then perform a food preparation activity for them to not only assess how they're able to perform their cooking activity but also give them positive feedback that, even if they didn't use salt, their food can also taste as good. So fluid restriction, they would often say fluid restriction to, they'd say a liter of fluids. But our patients wouldn't really know if they've consumed one liter of fluids. So giving them a system, probably giving them four small bottles of water and saying, "Well, if you take all these four bottles, "then it's equal to one liter. "So just make sure that in one day, "you only consume this may bottles," so helping them try to make sense, and also making it more concrete for them.

All right. So I have a few questions here. Oh, also, in my handouts, you will see that at the end, there's information about cardiac rehab. And I put it there because I'm thinking that some of you may not be as familiar to cardiac rehab. So I just put in

information there. And as always, you can email me at my email. I'm sorry, Fawn, I think, I don't know if my email is at the end of the slides. All right.

- [Fawn] It should be, I did see it at the beginning. I'll tell you what, I'll let Caitlin try to find that, and I'll pull out some of the questions in the meantime. Is that okay?

- [Camille] Yeah, sure.

- [Fawn] Okay. Sarah is asking--

- Okay.

- [Fawn] Yeah, Sarah is asking, "Is there a subjective survey that can be administered "from the Activities of Daily Living "and Outcomes in Heart Failure study?" Is there a subjective survey?

- [Camille] So in terms of reporting a patient's symptoms, what subjective survey are you trying to look for? Also, the activities of daily living--

- Could you explain--

- [Camille] Sorry.

- [Fawn] Yeah, let me just clarify for a moment. She said, "Could you explain a little bit more "about too high or too low of heart rate?" Maybe that helps you.

- Okay. Sure. So with heart rate, just try to see, so 60 to 100 is our normal heart rate. So when we start with a patient, you would always wanna know about their baseline heart rate. So some of the patients, some of the doctors want their patients to have a

low heart rate, because any faster would really put a lot of stress in their heart. And they gave them beta blockers, and that makes them kind of be in the lower side of the 60, maybe 55 to 60. And also, when they are on beta blockers, it will take them a longer time to really ramp up in terms of heart rate to adapt to any physical activity that they do. So you would just wanna know, what's the normal heart rate response to any activity? So you'd want to heart rate to increase with a physically demanding activity, and then after some time, be able to go back. So with our norm of 60 to 100, if they started on 70, you would want them to just increase by a max of 40 beats per minute in their heart rate. And anything more, you would be concerned. Or also, the heart rate increase should match with the intensity of the activity.

So let's say they started with a 60, and then you did a grooming activity sitting down with their arms supported, but then suddenly their heart rate goes to 120. So the activity doesn't match the heart rate response, so this is something that you would want to let the doctors know about. The other thing, too, is the converse of that, where you did an activity, and instead of the heart pumping harder, your heart rate increasing, it decreases. So again, you would wanna reach out to your physicians to let them know about this.

- [Fawn] I wanna also, she asked another part of that question. So I wanna get that answered. And she also wants to know the guidelines for blood pressure and heart rate of when to hold therapy services. I think you may have answered most of that, but I just wanted to make sure I read the last part there.

- [Camille] Sure. So for the blood pressure, again, you would always wanna ask your physicians what they're comfortable with, especially with heart failure patients. So are they giving them medications to decrease their blood pressure via decreasing their heart rate? Or are they comfortable keeping this patient into a higher blood pressure, because they're concerned about the blood circulation? So getting really in touch with

their physicians and trying to get parameters, so before I see a patient with heart failure, or a cardiac patient, I ask for parameters. What are blood pressure parameters that you're comfortable with? And what are the blood pressure parameters that you would want me to reach out to you? Again, I have provided the norms for the blood pressure.

So for systolic, it's kind of similar to your heart rate, where like 120 would be your base, so anything from 90 to probably around 140 would be comfortable, for me. And anything below 90, I would be concerned and will asking their physicians. Because again, you're concerned about the ability of the body to support circulation when you're doing an activity. And also, with the diastolic, the 80 to 100, or from 110. So again, with an activity, you're expecting the blood pressure to slightly bump up when you're performing an intense activity. And also, when you give them a resting time, you would expect them to go down in terms of blood pressure and be as close to their baseline as possible. If they're having a hard time doing that, again, this is a call to my physician and say, "I've started this activity. "They've reached 170, and they're still at 170 systolic, "even after I've provided them with five minutes' rest."

- [Fawn] Okay, great. Another question here is, "How do you manage orthostatic hypotension "as a factor affecting patients "performing daily self-care tasks?"

- [Camille] Okay, so first of all, we have to define if it's really orthostatic hypotension. So have them stand up for at least three minutes before you take their blood pressure again. And then also targeting, what is the reason why they have orthostatic hypotension? Is it because they're just not taking enough fluids, that's why they're orthostatic? Or is it really because of their impaired hemodynamic response to being upright? So we've explored different options. Is using a binder okay? Will giving them medications such midodrine help? And if they're unable to still help, teaching your

patients to do things in an alternative way. So sitting down, and then progressively increasing their body's ability to manage being upright.

- [Fawn] And then we have one last question for today. Brian says he's seen some recent research that says salt does not correlate with blood pressure as previously thought. Are there other app, excuse me, are the other heart factors that require the reduction of sodium intake?

- [Camille] So honestly, I haven't really seen this research. And I looked into the most current recommendations still for heart failure with using up to date. And they're still saying sodium restriction as part of their recommendations. So I haven't really seen them attributing different factors other than when there's salt, there's water. So they're just trying to limit the fluid overload that your heart has to deal with. All right, thank you, everybody, for all questions. And again--

- Okay, I see any more--

- [Camille] Yes. And again, you can reach me--

- Go ahead, sorry.

- [Camille] Sorry, you can reach me at my email if you have any more questions. And I'm also encouraging all of us to really be involved with our heart failure patients even before they typically come into our service and advocate for our role in this field.

- [Fawn] Appreciate it, Camille. I hope everyone has a great rest of the day and you join us again on continued and OccupationalTherapy.com. Thank you.

- Thanks.