

**SUSAN BUTLER:** So as I was saying, this morning Dr. [INAUDIBLE] talked about the complexities of the advanced heart failure therapies. And so this afternoon, what I would like to do is focus more on some good educational pieces of working with these patients and some of the interventions that we do trying to help them achieve a healthier lifestyle, as well.

So I always like to start with objectives. So we're going to talk a little bit about heart failure. You heard about it this morning. We're going to talk about some phases of heart failure, the heart failure stages, and the functional class. And then we're just, really, going to spend most of the time on self care and education for these folks, so that we can get them headed in the right direction.

So heart failure, as you've heard, is a complex clinical syndrome that results from any structural or functional cardiac disorder that impairs the ability of the ventricle to fill or eject with blood. And you'll hear it referred to as right heart failure, left heart failure, systolic heart failure, and diastolic heart failure.

When patients come in with heart failure, their cardinal manifestation that will bring them to the emergency department or to their primary care office is dyspnea. They get profoundly short of breath. It becomes very frightening to them. And along with that, they may also have noticed that they started to have weight gain and, specifically, extremity weight gain because the abdominal weight gain may not be quite as apparent to them. And I'll talk some about symptoms that goes along with the abdominal edema.

But the extremity edema becomes very uncomfortable for them. Their swelling of their legs makes it difficult for them to walk. And they feel very unsteady on their feet and, in some cases, we'll see these patients arrive in the emergency department with legs that are already starting to weep from the excess fluid. For these patients, it impairs their functional capacity and their quality of life but not necessarily simultaneously.

So congestive heart failure-- this morning you've heard a lot of people refer to it as congestive heart failure, sometimes as heart failure. And the issue is that because not all patients have volume overload at the time of the initial or subsequent evaluation, the term heart failure is actually preferred over the older term, congestive heart failure.

Unfortunately, I think it's a very hard habit to break. Even the education materials that we use at the medical center to provide to patients says congestive heart failure. So as we revise that, I think we'll probably go with the term heart failure. And this was recommended in *Circulation Journal* in 2005. So it's almost 10 years old.

The caveat, I have to say, is volume overload. You'll probably see this as an admission diagnosis for a lot of patients that come in-- volume overload or fluid overload. Well, with end-stage renal patients, it's very common for them to be admitted with fluid or volume overload. The caveat, though, is those patients, if they've gained more than 5 pounds between their two dialysis sessions, say Monday to Wednesday, that is indicative that they are in heart failure and not necessarily a problem of their dialysis.

You heard Dr. [INAUDIBLE] talk about the critical nature of the heart failure problem. Unfortunately, it is a progressive disease. It really does not have a cure, although you can have interventions that may enhance a quality of life and provide that patient with the opportunity to live a while longer. She mentioned, I think, 6.6 million individuals. I've seen statistics, 5.8 million. When you get in that high a number, it's really not going to make a big difference.

But it affects us because it cost us 6.5 million hospital days per year. And over a million people are admitted with this diagnosis of heart failure. And you've heard us, several different individuals, talk about managing these patients once they're discharged from the hospital.

The primary heart failure, especially in the Medicare population, is a very problematic force. And even with all these advances in treatment that you've heard about, heart failure does continue to increase steadily. 50% of those patients typically die within five years of their diagnosis and 25% within that first year.

We generally think about heart failure being a disease of the older generation, a geriatric problem. However, what we are seeing-- and those of you in the clinical setting are probably seeing this even more-- is that we're seeing younger people who are coming in with a diagnosis of heart failure. And whether this is due to the co-morbidities that they have-- and we're going to talk about some of those co-morbid factors in a little bit-- or whether it's due to some of the lifestyle choices they make, it is a very difficult and sad situation to see these patients come in with very low EFs and, perhaps, not even be able to rectify it for them.

As far as heart failure, it's the most common DRG, and it costs the most to diagnose and treat. And when you start thinking about things like MRs and cath lab procedures and the medications that are required and then, the various stress tests that are done-- and then, in some cases, the patients may end up with some type of operative procedural, a procedural like an ICD-- you can see how it ends up costing \$38 billion per year.

Unfortunately, because Medicare looks at it so closely, this was one of the top three conditions that Medicare penalized right out of the gate. And many, many institutions, Wake included, has done multiple things, trying to decrease the readmission rate with these patients. And I call it "throwing the kitchen sink at them" because we have tried so many different things, as far as initiatives, for these patients.

You heard Dr. Watkins talk about some of the things that they're doing with their care transitions program. That has been amazing, and they've had very positive results with that care transition program, where they're doing the home visits, and they have extra people laying their eyes on these patients.

But you heard him say about the frustrations that the patients have, as well, because, in our experiences, we've had patients, when we offered them home health services, they refuse. And so then we have conversations among our team, well, why are they refusing those services because it's so valuable? And we decided that, in some cases, patients just do not want us coming into their home because, perhaps, their lifestyle, perhaps they're hoarders.

There are any number of reasons. And some folks are just very private people. But we're making that effort to try reduce readmissions, so we want to do anything that we can possibly do for those patients.

This is just a slide that shows you the prevalence of heart failure by sex and age. In our 20s and 30s-- typically, not a huge problem, although this is where you may see the cardiomyopathies that result from some pregnancies. When we're getting into our 40s and 50s, it's starting to creep up a little bit. But it's still more males than females. Same thing in our 60s and 70s.

But you'll see that the trend reverses by the time we're in our 80s. Now, is that trend reversing, and it's more females, because the females are living longer? But by that point, these elderly females are frail, and they're elderly, and it makes it even more challenging for them because anyone who's followed the research knows that women tend to seek medical care later in the trajectory of their illness before they get diagnosed.

So lots of causes, as far as heart failure-- coronary artery disease being the top one and hypertension. Hypertension, of course, is not well-treated in some cases, and so this ongoing, poorly controlled hypertension creates heart failure. Some patients don't take their medication once they've been diagnosed with hypertension. So it just creates this vicious cycle.

I'm not going to read this entire list for you, but you'll see that Dr. [INAUDIBLE] this afternoon is talking about the valvular procedures. Valvular disease is certainly one of the issues that causes heart failure-- the "itis"-es, myocarditis, pericarditis, COPD.

Dr. [INAUDIBLE] talked about drug therapy and the chemotherapies causing heart failure. And then, there's even people who come in, who have had some sort of vague virus. And suddenly, they are quite acutely ill. And you can look back, and the viral illness may have been the thing that precipitated the heart failure.

And of course, we see a lot of patients, unfortunately, who have an alcoholic cardiomyopathy. And that's very difficult because when those patients are admitted, you may, in fact, be dealing with their heart issue as well as their own morbidities. And then you throw in the challenge of managing their withdrawal symptoms.

So there are five phases of heart failure in a pretty significant disease trajectory. The first phase is you notice the symptoms are starting, but you don't necessarily have such profound symptoms that it's affecting your real quality of life. However, at that phase, a new diagnosis for a patient who has been totally unsuspecting that they may be that ill is quite shocking for them.

And they have an opportunity to make lifestyle changes. And many times, especially women, like to negotiate those lifestyle changes. They don't want to, necessarily, go on medication right out of the gate. They want to try to lose a little weight or control their blood pressure better or change their dietary intake or stop smoking. So there are a lot of things that people will try to do right off the bat.

Then, the phase 2 is where you're starting to really trying to support these people through their illness, reinforcing the education that they've gotten regarding their condition.

Phase 3-- they're starting to become more unstable. This is where you may see patients coming back and forth to the emergency department, really trying to get better symptom control because their dyspnea is worse. They're having paroxysmal nocturnal dyspnea. They can't breathe at night. They're noticing the edema in their extremities. And they just are very comfortable.

Phase 4-- certainly, they have had such a significant decline in function. They're not really responding well to the treatment that's being recommended for them. And at this point, in many cases, we will start asking those patients about what are their goals of care, and how do they want to-- you hate to use the this word, but how do they want to end their life.

Do they want to end it comfortably, doing things that they enjoy as long as possible? Is asking them to stay on a 1,500 cc fluid restriction too much of a challenge at that phase in their life? And they prefer to say, you know, I want to be able to eat and drink what I want. And I don't want to have to follow such strict regimen. So palliative care is a conversation that should occur by phase 4.

Phase 5 is that end of the road, so to speak-- again, having those conversations about goals of care and really, at that point, having Hospice discussions if it's appropriate.

There are heart failure categories. The American Heart and ACC heart failure stages really focus on disease progression and assist with determining treatment, while the New York Heart Association functional class focuses on symptoms and the limitations that the patient has experienced. New York Heart Association classification is only used once a patient has been officially diagnosed with heart failure.

And these patients can actually move back and forth between the functional classes as their symptoms change, as they get, perhaps, new medications or different therapies or better dietary control or whatever seems to be driving their symptoms. So you've got a slide in here-- and I hope you can see it OK. I broke it down. One side is the American Heart Association/ACC heart failure stages and the description. And on the other side is the New York Heart Association functional class.

And it's a little complicated to try to remember if you don't use it on a daily basis. So I always look through the patient's chart to see what the physician has documented that they think it is. But A, on the AHA/ACC is they've started having heart failure risk factors. Perhaps they smoke. Perhaps they are overweight. Perhaps they have some blood pressure that's poorly controlled. But at that point, there is not really a New York Heart Association classification that's comparable.

By the time they've reached phase B, then they're still not necessarily having symptoms, but we know that there is heart disease. Perhaps they've had a cath for some random chest pain. There is any number of presentations. But by the time they get to C in the heart failure stages, you can see that, in the functional class and symptoms, these patients have started getting sicker.

The class 2 is the mild symptoms. They're have been slight limitations in their physical activity. They're comfortable if they're sitting down, but if they're doing anything that we consider ordinary physical activity-- say, for instance, washing dishes, unloading groceries from the car-- that results in fatigue and dyspnea and may, in fact, cause them to have some palpitations.

And then, class 3, of course, is moderate. And so they're getting more and more limited in their physical abilities. Again, they're still comfortable at rest. But really, any activity that is more so than just getting up and moving around is going to cause them more severe symptoms.

And by the time they have reached phase D in the stages, they really have reached the advanced heart failure stage. And they're really not able to carry out any physical activities without major discomfort. And they'll have symptoms of cardiac insufficiency at rest. They're short of breath. They may be requiring more oxygen at home. And so it's a very difficult time for those patients.

So heart failure treatment is really focused on correcting the pathology. Now, that's not always possible, depending on where they are in that trajectory. But you certainly want to improve their cardiac efficiency and decrease the workload on the heart as much as possible.

And then, we like to focus our efforts on providing the right care to the right patient at the right time and the right setting. And in some cases, that may be they have to be in the hospital. And others, it may be that they can be in the home setting with services coming into the home. And some, it may be that we have to start making that conversation available about Hospice services. And in fact, the Hospice in place is one initiative that occurs in the hospital.

And one of our challenges that we'd really like to correct is our ability to work with the skilled nursing facilities because the patients that go to skilled nursing facilities, and many of them do, and many more of them probably should, but they don't really want to give up that, what they believe is their independence.

But skilled nursing facilities-- do they have the dietary restrictions that the heart failure patients need? Do they restrict the fluids that the patients drink over the course of the day?

And of course, then you have to consider that the families are coming in, we hope, to visit these patients, and are they bringing bags from Biscuitville with those wonderful biscuits in it, but they're high in sodium. And so there's issues like that. And what we hear, in many cases, is, well, I got sent to whatever facility, and they don't weigh me there. And of course, weighing is such an important key in keeping these patients out of the hospital.

Collaborative management-- the team that manages these patients is large. It's nurses, it's physicians, it's advanced practice professionals, it's pharmacists, it's physical therapists, it's respiratory therapists. Who have I forgotten? There are just numerous individuals who are all so key to keeping these patients out of the hospital.

And ultimately, what we're really trying to achieve is-- keep them at home as long as possible. Keep them out of the hospital. Decrease their ED visits. And many times, we are challenged by patients. And among our team, we'll say, it's almost like these patients feel like they're coming to the hotel. They have three square meals a day. They have cable TV. And it's comfortable. And so many different reasons.

And that's sort of tongue-in-cheek about it, but there are some patients who truly do seem to do better while they're in the hospital, and as soon as they go home to their own devices, then they're bouncing right back. And so it becomes very frustrating for those of us who are working very diligently to keep those patients out of the hospital.

Over the course of the morning, you've probably heard a lot about the co-morbid factors these patients have. And while we're really working to try and improve the outcomes for these patients, whether it's quality of life, whether is getting them to the appropriate facility to manage their care for the long term, whether it's getting palliative care or Hospice in place-- we really, ultimately, just want to improve the outcomes for the time that this patient has left.

Unfortunately, the co-morbid factors can actually be the catalyst. And we talked about the hypertension, for instance, being the factor that caused heart failure. So of course, coronary artery disease is the most common cause. I already spoke about hypertension with blood pressure readings greater than 140 over 90 or higher. And that imposes a two to three times higher risk of developing heart failure.

Atrial fibrillation, dyslipidemia, COPD-- sleep disordered breathing, whether it's just simply snoring or whether it's the patient that has severe obstructive sleep apnea but doesn't like the use their CPAP or their BiPAP at home because it makes too much noise or is uncomfortable to them. Obesity-- diabetes is a very real problem with these patients and, because it is a strong independent risk factor for them, and we know that diabetes in itself worsens just overall likelihood of developing cardiac disease.

Chronic kidney disease-- you heard me talk about the end stage renal patients. So many of these patients do come into the hospital. They have chronic kidney disease. They, perhaps, are on dialysis, maybe they haven't gotten to that phase yet. But they can be very precarious to manage.

And then arthritis-- you wouldn't think about arthritis, but it is in the top 10 list of co-morbid factors. And unfortunately, NSAIDs are really contraindicated in these patients because of the adverse effect on their renal function, and they already have the chronic kidney disease. And it also causes fluid and sodium retention, which so many of the patients don't realize, and, in some cases, actually counteracts effects of their ACEI or ARBs.

Anemias are very common in heart failure patients. Gout can be very difficult because, again, these patients can't take the NSAIDs, and some of the medications that we use to treat gout in the home setting are extremely expensive. And unfortunately, a large number of these patients are uninsured and just don't have those kind of resources.

And it goes without saying that patients are going to be depressed. They're going to be anxious. And it's going to get worse as they get sicker and sicker. And then, of course, many of the patients come in, and they have changes in their mental status. And we're wondering why they're confused. And then you find out, well, that's actually their baseline. And is it because it's a dysfunction of their low cardiac output that they've had ongoing for quite a period of time?

I made an extra handout, and it should be in your folder, because I did not think that this one would print up very well on your slide set. And so I'm just going to really walk you through it quickly because it's the algorithm for when a patient arrives in the emergency department or in the primary care physician office.

And they may be in extremis at that point. They've come in. They're short of breath. And so the first thing that's going to happen is they're going to try to get a subjective and an objective history from those patients, really evaluate what kind of symptoms the patient is having, checking their vital signs right off the bat because many of the patients will either be at one extreme or the other-- very hypertensive or hypotensive.

They'll be doing a variety of lab work, looking at their metabolic profile and their BNP as well as chest x-ray, EKG, and perhaps even other diagnostics that will be done right out of the gate before they determine whether the patient actually needs to be admitted. Now, we are challenged these days by inpatient versus outpatient status. And so many patients come in, and they put them in observation status for just a short period of time until they determine if they actually meet the inpatient criteria. And so that's one challenge.

But you'll see that in your handout you've got two different algorithms that you can follow. You can either-- the patient is admitted to the hospital. At that time, they may go to a telemetry unit. And it says step down unit, but in our case, that would actually be one of our 7 Reynolds or 7 Ardmore, both cardiology floors.

And on the other side of the algorithm is the critical care unit, generally going to be the coronary care unit. And those nurses are very experienced taking care of these patients with heart failure. And you'll see that they have life-threatening arrhythmias, they need hemodynamic monitoring with a Swan, they may be intubated. So they are acutely ill patients when they're admitted to the CCU.

And it's not uncommon to get a patient into the CCU, get them stabilized, move them out to the floor, and then things deteriorate. And then they end up back in the CCU. So it is a very dynamic process. And then, once they get stabilized, they'll get moved back out to the floor again.

And you'll see that they'll, at that point, hopefully have made a full determination of their code status. Ideally, they will have determined that upon arrival if the patient is able to provide that information to them. In some cases, the patient has already been identified as a DNR. But it's not uncommon for us to see many frail elderly patients that the families are just not prepared to make that decision. And so it's only until the patient's been in the hospital for several days, sometimes even weeks, before they're able to come to grips with the fact that their loved one is not going to survive this.

Once a patient is stabilized and is able to be discharged, there are still two different routes they can go. They can go back to their primary care physician. We really feel that's very important to have the primary care provider involved in that patient's care. And ideally, with our electronic medical record, they're getting more feedback on that patient's hospitalization, if they're in our system, in fact, that they can see exactly what's transpired during the hospitalization.

They know what tests have been done. They know what the patient looked like on paper when they were discharged and what kind of medications they went home on. And so it really gives them much more information that's valuable for them to work with while they make their determination of one, have we, in the medical center, managed that patient appropriately.

And by the time they see their primary care physician, have things changed in that patient's condition that maybe they sent them home on too much medication, and now their blood pressure is really too low, and they're having episodes where they feel like they're going to syncopize when they stand up because their blood pressure is too low? So having the primary care physician very involved, or the advanced practice professional involved in that patient's care, is very important to us.

The other thing that you'll see here is a heart failure clinic. Now, we use heart failure clinic sort of interchangeably with our hospital to home clinic. Two afternoons a week, I work in what we call our hospital to home clinic where we see these high-risk heart failure patients who have been discharged, usually within the previous seven days.

And the purpose of that visit is to draw lab work, whether to recheck them for anemias, to check for kidney function at that point, check sodium and potassium, do a medication reconciliation, and use the opportunity to determine if the patients are actually taking the medications as they were prescribed because not all these patients get their medications filled. They may go home with their prescriptions, the prescriptions may have been sent electronically to a pharmacy, and the patient never picks them up.

So ideally, by seeing them within that seven days after admission, we can get a better feel for how they're doing. And it's pretty amazing that, in that seven days, sometimes it's even less, the number of pounds they could have gained. Again, not necessarily because they are overdoing it on their fluid intake, or they're not restricting their sodium, but maybe we just didn't get it right with their medicines.

And certainly, the long term, then, we're going to have outpatient follow up. As far as a hospital to home clinic, we like to be able to keep those patients out of the hospital 30 days, and, in some cases, especially with medication titration, we will see those patients week after week.

And as long as they're coming, hopefully, we can keep them out of the hospital. And we're going to talk a little bit about some of the challenges of getting them to the hospital.

And then last but not least, you've got home health agencies involved, telemanagement, the services that Dr. Watkins talked about. Cardiac rehabilitation is another one of the things that we really find are very helpful with these patients because, again, there are other eyes on that patient consistently. And they can also see those changes that occur because, in health care, we like to watch trends and follow those patients.

So that little cartoon says, "The good news is, you have the heart of a teenager. The bad news is, most teenagers these days have the heart of an old man." And that's pretty much true, sadly enough, in many cases. So as far as right out of the gate, we're going to hopefully have those patients on the appropriate medications, diuretics, and ACEI or an ARB, if they don't tolerate it, getting them stabilized, start having conversations about whether they need a device, whether they need specific-- a pacemaker.

What kind of electrophysiology studies do they need? And if that's not appropriate at that time, do we need to send them home with a life vest? And life vests are a wonderful device as a bridge until they can have their EP procedure. But, again, that also affects a patient's quality of life. And for our unfunded patients, it's very expensive, \$3,000 a month. So you really have to do some financial wheeling and dealing to get that.

Self care and education and reinforcement of compliance-- every opportunity that you get to reinforce the base education that these patients have gotten, either during their hospitalization or during their primary care physician visit, is so important because what we've discovered, and this is an unfortunate commentary, but when patients are in the hospital, especially those who have been readmitted multiple times, we think that they know how to speak the language by then because they've heard the information so many times that when you ask them, well, do you recall what your fluid restriction is-- well, it's two liters.

Well, do you recall when you're supposed to call the doctor? Well, I'm supposed to call the doctor when it's three pounds in 24 hours or five pounds in a week. Well, do you? And no, they don't necessarily do that. But these patients do have-- they've heard it over and over again. So they, in some cases, do you know what to say.



What we know though, is that communication handoff between the providers is so key with these patients so that everyone's singing from the same sheet of music, as far as these patients. And then, I'm a real proponent of cardiac and pulmonary rehab. I don't get any stipend from them, but I think that they have such a key role in helping these patients with developing better conditioning.

So many of them are deconditioned to the point that they can't hardly get out of their recliner, which they sleep in many times, and walk to the bathroom. So once we can get them stabilized, and it's appropriate for them to go to cardiac or pulmonary rehab-- anytime that's an option for them. And many of the cardiac pulmonary rehab programs do have some scholarship funds available for those patients who are unfunded.

So as far as pharmacological treatments, you've got two slides that list all the various medications that are used routinely on these patients. I'm not going to read all of this to you. And what I have done this morning-- I added a handout to your packets that you have. And it's heart failure medication recommendations. And then on the back side, it has four medications to avoid or use very cautiously.

So the first line of defense in these patients are diuretics, obviously, to reduce edema and reduce their heart failure symptoms. Then the ACEIs, the angiotensin-converting enzyme inhibitors, helps with neurohormonal modification, vasodilatation. And it also has a survival benefit, as does the ARBs. And the issue is, many of the patients who can't tolerate the ACEI, they'll try them on the ARBs as an alternative.

Hydralazine and nitrates are used to improve the symptoms, help their exercise capacity. It may be used as an add-on therapy to ACEIs or ARBs and beta blockers, specifically in the African-American population, for the survival benefit.

And then, of course, beta blockers again for the neurohormonal modification, helping improve their symptoms, and, again, another one that has some survival benefit. And with the beta blockers, it also has arrhythmia prevention and controls their ventricular rate because it's not uncommon to see these patients come in in atrial fib with RVR.

And so they're having all these horrific heart failure symptoms, they're having this arrhythmia that's very uncomfortable and disturbing to them, and then, again, you throw in the end-stage renal disease or the diabetes management, and their blood sugar is out the roof. So it becomes this balancing act of trying to manage all the co-morbid factors along with the medications that you have on.

So then you have the aldosterone antagonists that are used as adjunct for other drugs to increase the diuresis and the heart failure symptom control. Dig, it has a role, but it can lead to a small increase in cardiac output, improve heart failure symptoms, and, in some cases, decrease the rate of heart failure admissions.

Anticoagulants-- the handout I gave you addresses this in more detail, but because patients do have atrial fib, they are at higher risk. And so many of them are on Coumadin. And then, the inotropic agents, Dr. [INAUDIBLE] spoke about this morning.

And this is where it talks about the increased risk of thrombus formation due to the low cardiac output. And so the goal for these patients is trying to have an INR of 2 to 3. But those of you in the clinical setting know how difficult, sometimes, that can be, to get that INR to that precise level.

And then last, but not least, I already alluded to the fact that the ACC/AHA guidelines advise that non-steroidals really should not be used. And, in some cases, calcium channel blockers and some of the anti-arrhythmics may exacerbate heart failure symptoms.

I just put this little partial list of common medications. This was, I think, from 2008, so by now, there are probably many more medicines that are used routinely. And so, as far as medication management, I don't prescribe, so we leave that up to the physician or the advanced practice professional to make the determination which of these drugs that they use.

Unfortunately, I did not make a copy of this algorithm. And I'm not sure that you can see it really well, but when you go home, if you really want to see this algorithm in detail because it does follow how the medication algorithm should follow and would be in the best interests of the patient, you can make a larger copy.

But when they come into the hospital or come into the primary care physician or the cardiologist for the first time, the ACE inhibitor is going to be the first drug, probably, that is prescribed in collaboration with the diuretics. And then they'll start looking at adding the beta blocker. And then it's dependent on their symptoms, dependent on their EF.

Whether it's systolic dysfunction, diastolic dysfunction, it follows a precise algorithm. But not every physician may choose to use this. So many times, it's really the signs and symptoms that patients are dealing with, as far as the symptoms that they're having, their quality of life.

I can't say enough about the role of pharmacist in heart failure management. We are really fortunate on our team at the hospital in cardiology to have several pharmacists who are very well-versed in managing these medications. They are experts. Many of us in the clinical setting don't necessarily use these medications every day, but they do.

They know the precise dosages that should be ordered. They also know the interactions that tend to go hand-in-hand with putting two medications together. They're very helpful when it comes to getting these patients ready for discharge, going in and helping the patient, and in some cases, they actually delineate when they should take which medication, at what time, to make them have a better understanding.

Of course, we encourage all of these patients to use pillboxes for their medication management. But a lot of times, they'll say, well, I have my own system for managing them. I take them right out of the bottle, or I put them all in a basket, and I just pull out what I need to take when I need to take it.

That doesn't breed confidence in some cases, dependent on the patient's age, their cognition, their ability to read. So there are a lot of different reasons, but you can't force him to use things that may help them along the way because they have the right to control their own destiny.

But the pharmacist can reinforce that, and then, in some cases, they'll actually make post discharge follow up calls. And I was delighted to hear Dr. Watkins talk about getting pharmacists to come in and help in the transitional care program because they can be such a liaison between the patient and the health care provider, et cetera, involved in that patient's care.

Well, in the few minutes I have left, I want to just talk a little bit about lifestyle management. And this can be interesting. It can be challenging. It can be rewarding.

Smoking cessation is probably one of the hardest things to encourage these patients to do. And in many cases, you'll go in, you'll ask them about their smoking history, and they'll say, well, I've quit. I'm done. This is it. And you'd like to believe that's going to be the case, but research shows that most patients try five to seven times before they're able to quit smoking successfully.

But when they've had this coming to Jesus moment, and their destiny is in their hands, sometimes that's the driving force to get them to quit smoking. We do use the North Carolina quit line as a referral tool for them. And some patients do want to try things like some of the medications that are available, but you have to weigh the risk and benefits of that with their heart disease.

Drugs and alcohol are also another challenge because a lot of the patients, sadly enough-- and it's not just the young people coming in. We are seeing patients in their 60s and 70s who have positive drug screens when they come in. And alcohol continues to be a problem for many of these patients.

So trying to talk to them about changing their behaviors, in regards to these substances of abuse, can be very difficult. You have to tread very lightly. You have to try to do it in a very non-judgmental way. And sometimes I think, for health care and for myself, it's difficult to approach the patient, one, just to help them understand how detrimental it is to them, but on the other hand, trying to tell myself that, in many cases, this is a true addiction for these patients. It's no longer recreational for them. It is all about it being addictive.

Exercise-- well, it's difficult to make yourself get out there and exercise when you feel good. And so you can imagine that, if you're in a class two or three where walking the bathroom makes you short of breath, you're not going to be real interested in trying to get out there and exercise.

Healthy nutrition and avoiding salt-- those are really challenging things because, in these patients, a lot of them eat restaurant meals and fast food because it's cheap and convenient. And unfortunately, the restaurant industry has a monopoly on salt, sugar, and fat before it ever gets to the table. So trying to help them understand that a teaspoon a day is a teaspoon, and that if you eat for instance one of those box convenience meals at lunch, you're already looking at a third of your sodium for the day.

Fluid intake-- keep in mind, I said some of these patients are diabetics, and they feel like they're thirsty all the time. So telling someone that they can only have 1,200 ccs or 1,500 ccs and asking them to adhere to that could be very difficult. I try to be a little more judicious and say, well, two liters, and if your weight starts climbing, then you need to back off on your fluid and re-evaluate your diet.

Weight loss-- if indicated, certainly, weight loss is important on decreasing the demand on the heart. Stress management-- stress increases our blood pressure, increases our heart rate. It causes us to secrete more cortisol. So all of those are very detrimental to someone with heart failure.

Sleep hygiene-- these folks are sitting up at night on the side of the bed because they can't breathe. They're sleeping on two or three or more pillows at night. They're sleeping in a recliner. So their sleep hygiene is probably not going to be what it would be for those of us who try to sleep in our beds for six to eight hours a night.

And then trying to keep their blood pressure and cholesterol and blood glucose under control-- it's always amazing to me to find these diabetics who say, no, I don't check my blood sugar. And I'm thinking, that's pretty important. But you can't make them.

And in fact, one of the women I saw this past week who needed to be on Coumadin, said, I'm not taking that rat poison. And that was the first time I'd heard it put like that. But she was adamant that it didn't matter if she was in atrial fib, she was not taking Coumadin.

And so some of the challenges that we, as educators and as clinicians, face for these patients is they don't have insight into their condition. They may have been in the hospital six times in the past year, but they're not either understanding how significant this is for them, or they are not willing to make those changes.

They don't have, necessarily, financial resources to purchase healthy foods. They may be in that food desert we keep hearing so much about. They can't even get a CPAP machine that they need or inhalers, diabetic monitoring strips. If they're in the hospital and we are aware that they need a blood pressure monitor or they need a scale or a pill box-- if we have those supplies available, and I do have a small grant that we can use to buy some of those things and provide to indigent patients-- we will do that. But some patients say, oh, I can get a scale. And then, when they come back to the hospital four weeks later, they never did that.

Transportation issues-- they have to rely on public transportation. They have to ask friends or family. They may not even have gas money to get back down here for their appointment. And we see that quite frequently. Or they don't want to have to be dependent on calling ahead to make arrangements for their travel. So they don't have transportation to go somewhere where it's safe to exercise or go to rehab.

Health literacy, of course, is a big problem. Do they have the reading skills? And I just learned this technique. You all probably already knew this. I had a physician say, well, you know how you determine if they're able to read-- because so many people are able to hide it-- is hand them a sheet of paper. Hand it to them upside down and ask them to read something off of it.

I thought that was brilliant. And I'll try it because what I had started doing was say, well, do you need your glasses to read, to try and get a better feel. But you don't want to demoralize anyone, too. So with this lack of health literacy, can they get their medicines prepared and put in a pill box? Can they read food labels? Do they understand the discharge instructions when we hand them this pack of papers to take home? And if they can't read or write, how are they going to keep up with their daily weights, blood sugars, blood pressures, et cetera?

And then, of course, we have lack of support system in some of these patients. Either they don't have caregivers at home, or they need them. They were just going to a SNF or going to an assisted living. And many of them just want to be independent. And they're not at the point that they can do that, but they fight it tooth and nail.

And then, of course, understanding mental health is a co-morbid factor. This is an example of our heart failure magnet that we send home with patients. It's called our heart healthy daily checklist. We set it up like the stop light so that they know whether they're in good shape, or if they're in the 911 red light category. So you can read that.

Red flag awareness-- weight gain or weight loss of more than three pounds in 24 hours, five pounds in a week. That's why we ask them to weigh every day. If they're coughing or having worsening shortness of breath are also red flags. Swelling in the abdomen, feet, and legs. Changes in their cognition-- they're sleepy, they're fatigued. They just don't feel good. They're weak, they're dizzy. They're having difficulty sleeping at night or having to sleep in a recliner.

They feel full if they eat just a few bites of food because of that abdominal edema, and they may, in fact, complain of some chest pains, start having some tachycardia, irregular pulse, changes in their blood pressures.

[SNEEZE FROM AUDIENCE]

Gracious. Bless you.

Emotional responses-- these patients have a very serious condition, and it does affect their sense of well-being. And no matter what we can do to prepare them for managing their care at home, it does affect their quality of life, and, in some cases, it affects their decision-making capability. I mentioned frail elderly women going home, living alone, saying that their family member is going to check on them every day, but that doesn't happen. But they are so determined to maintain their independence.

And some patients even are hesitant or resistant to get some of the medical equipment we recommend, like the rollators or a bedside commode. So they'll go through the phases of anger, anxiety, depression, fear-- sometimes simultaneously. But in some cases, as patients become more educated about their condition, and they know about treatment options that may be beneficial for them, they will even start to feel a little bit more hopeful that they can have some quality of life.

So just in closing, I want to just say we all know that it's, certainly, a devastating chronic disease. It doesn't have good morbidity and mortality statistics, when it's all said and done. But as more research is done-- they're developing new guidelines and new and improved medications, advanced therapies-- and we, as health care providers, are becoming much more experienced about providing resources to these patients and medical management, so they do have a much better opportunity to have a sense of good well-being.

So thank you very much. If there are any questions, I'll do my best to answer.