Jeanine: It is now my pleasure to turn today's program over to Steve Dentel with the American Heart Association. The floor is yours.

Steve: Thank you so much, Jeanine. Good afternoon and welcome to the American Heart Association and American Stroke Association's guidelines national webinar. On today's session, Dr. Mariell Jessup and Dr. Larry Allen will discuss there are two pieces recently published in Circulation which spotlighted the significant medication burden put on patients when recommend treatment guidelines are followed.

Dr. Jessup and Dr. Allen will lead our panel discussion today by the nation's leading heart failure clinicians to discuss the barriers and potential solutions to aching optimal heart failure patient care according to the recommended guidelines. At this time, I'd like to introduce our presenters for today.

Our first speaker, Dr. Mariell Jessup, is a professor of medicine at the University of Pennsylvania's Perelman School of Medicine and a member of the committee to revise ACC and AHA guidelines for the management of heart failure, editorial board member of Circulation and was past president the American Heart Association for the 2013-2014 term.

Dr. Larry Allen is an assistant professor of medicine at the University of Colorado School of Medicine. He splits his time between clinical duties as director of advanced heart failure at the University of Colorado in research activities with the Colorado Cardiovascular Outcomes Research Consortium.

Our panel members include Dr. Clyde Yancy. Dr Yancy is the chief of cardiology at Northwestern University Feinberg School of Medicine. He's the associate director of the Bloom Cardiovascular Institute at Northwestern Memorial Hospital and Northwestern University Feinberg School of Medicine, and he is the [inaudible 00:02:17] of diversity and inclusion.

Our second panel member is Dr. Gregg Fonarow. Dr. Fonarow is the Eliot Corday Professor of Cardiovascular Medicine and Science at UCLA. He's the director of the Ahmason-UCLA Cardiomyopathy Center, co-director of UCLA's preventative cardiology program and clinical co-chief of cardiology UCLA's division of cardiology.

Our third panel member is Dr. Adam DeVore who's a cardiology fellow at Duke University Medical Center and at Duke Clinical Research Institute in Durham, North Carolina. Dr. DeVore was an award recipient of the young investigators grant offered to the American Heart Association.

Our final panelist today is Dr. Karen Joynt who is a cardiologist at Brigham and Women's Hospital, assistant professor in medicine at Harvard Medical School and instructor in health policy and management at the Harvard School of Public Health. She is currently on leave from Harvard for 2014-2016 serving senior advisor for the United Stated Department of Health and Human Services.

Again, please remember you can participate in our conversation today by submitting questions through the question and answer button on your screen and also through our Twitter chat hosted by Circulation by following #treatingHF. Thank you to our presenters for leading this important discussion. It's my pleasure to turn our presentation over to Dr. Larry Allen. Take it away, Dr. Allen.

Dr. Allen: Thanks for the nice introduction, Steve. Today, I wanted to jus start off thanking the American Heart Association specifically to Get With The Guidelines program for all the incredible work that they've done. We were able to leverage the Get With The Guidelines program to actually look at what's going on the ground in hospitals in terms of starting patients on medications after they've been in the hospital with a diagnosis of heart failure.

I want to thank Dr. Harland Krumholtz for his vision around this as well as Dr. Fonarow for his incredible leadership and really making sure this data gets used in the way that helps us all do a better job at taking care of heart failure patients. Then, finally, I think as you'll see Dr. Jessup had some really nice commentary about how we should think about the data I'm going to show you.

I'm actually going to keep my comments relatively short because we have a terrific panel today, and I would encourage you all you start submitting questions and answers as we go through. I'll make sure that those questions and answers go to this distinguished panel. Without further ado, let me start out with just a little bit of background.

The first thing I think to say is that we in heart failure, taking care of patients with reduced ejection fractions have really been blessed over the last two decades with a series of studies that have shown both medications and devices can be incredibly helpful for our patients. This is a figure pulled out of the 2013 AHA guidelines that really shows that when you look at beta-blockers, ACE inhibitors, hydralazine, Isordil, CRT, Ivabradine, eplerenone or sacubitril, that the number needed to treat to really prevent death in these patients is actually not that many. We have an abundance of riches in terms of what we can do when we see patients with heart failure and reduced ejection fraction.

These obviously because of the good efficacy data behind these therapies appropriately a lot of work has been done to try and make sure that patients receive these therapies when they're diagnosed and are living with heart failure and reduced ejection fraction. You can see this is the most recent list of mandatory process measures as well as additional outpatient measures that relate to the therapies I just covered.

The one thing to think about, though, is that each of these therapies has created an add-on or stepped approach to our patients in a couple of ways. The first is that as every time we study a new therapy in a randomized trial it's added on to existing therapies that have been shown to be helpful. We started out with diuretics and digoxin. We added ACE inhibitors. We added beta-blockers, then we added mineralcorticoid receptor antagonists and electrical therapies. Pretty soon we have a relatively complex regimen that for African-American patients now also includes hydralazine and Isordil.

On top of that, as our patients tend to get sicker we continue to think about additional therapeutic options for them. This can create a relatively complicated treatment regimen both for patients as well as the clinicians here trying to take care of them.

We also know that even though there are these good therapies out there one of the major issues in the overall care of heart failure patients is trying to make sure that the therapies that they are prescribed are adhered to so that they derive benefit. We know from a series of studies that adherence in patients with heart failure is suboptimal for a variety of reasons that have to do some with patient factors, but some with socioeconomic factors and even external factors. One of the predictors of poor medication adherence is the complexity of treatment that patients have.

We're left with a little bit of conundrum. We have a lot of good therapies that we try to add on to patients who have heart failure with reduced ejection fraction, but we're left with a relatively complex regimen that we have to navigate with our patients to try and make sure that they have the best health outcomes possible.

Within this entire context, Dr. Krumholtz's really pushed me to think about when patients come into the hospital and they are being treated, what is really the burden of new medications that patients would have to start during the hospitalization in order to meet process performance measures at the time of discharge so that they were essentially on good therapy? Before we did the study, we had an idea of it but didn't have a good quantitation of exactly what that burden looked like for most patients in the United States.

Fortunately, the Get With The Guidelines collects this kind of data from over 600 hospitals now across the United States and has very good data capture on what medications patients have when they come into the hospital as well as what medications they leave with going out the door, then importantly, detailed data collection around ejection fraction and other indications for certain therapies as well as contraindications that were apparent during the hospitalization. Using Get With The Guidelines we used the medication indications, contraindications, and then prescribing information at admission and discharge for the cohort from 2008-2013 to get a sense of how many medications would patients need to start from the time of admission to the time of discharge in order to meet these basic quality measures.

There are actually actually a lot of measures that are out there that patients could meet, but the ones that we felt were the basic or that formed the base of therapy were really these five: ACE inhibitor for patients with reduced ejection fraction, beta-blockers for HFrEF, aldosterone antagonists for JR rEF, hydralazine/isosorbide dinitrate for HFrEF in patients with African-American race, and the anticoagulants irrespective of EF in patients with heart failure and atrial fibrillation.

Here's what we saw. We started out with 158,000 patients over that time period. You can see that the age for these patients was what we expect. The median was around 75 years, almost half of them were female, about 19% were African-American, a good portion of the majority were Medicare insured, 43% of them had moderately to severely reduced ejection fraction either by quantitative EF or qualitative measure. Then if you look at these patients as, we see, most of them do have relatively generous blood pressure coming into the door. They stay in hospital for an average of about four days during which time we can adjust and start therapies.

When we drill down on this patient population, what we found is that 61,000 patients were really not eligible for any heart failure medications. These would be patients who neither had a reduced ejection fraction nor had atrial fibrillation, so they didn’t meet any of the five medication measures that were listed. Right off the bat, all five measures, just under half of them didn’t qualify for any of those.

We then found that at the time that patients were admitted that they came into the hospital 23,000 of these patients were actually receiving all the medications that were indicated. What we found is that 52,000 patients during the course of their hospitalization assessing what they came in on and ideally what they should go out on even accounting for contraindications that 52,000 patients should've starting one to two medications, and another 21,000 patients should've started three to five medications by the time that they were discharged from the hospital.

If we look at the actual five drug classes, you can see that about 32% of patients were eligible for ACE/ARB, 40% for beta-blocker, 30% for aldosterone antagonist, as expected a much smaller number for hydralazine/Isordil, and then 31% for warfarin.

Of those patients who were eligible for those drugs, for ACE and beta-blocker, about half these patients were on the drug prior to admission, and not all of these patients would have not been on the drug because of an omission of therapy. Some of these patients have new diagnosis heart failure, and thus would not have had the opportunity or the indication prior to admission.

I think really the take home message is really capture here that just over half of patients did not need to have their five medication regimen changed from admission to discharge. Pretty impressively, nearly half of patients did need to start a new medication, and nearly a quarter of patients needed to start more than one medication. This was obviously more prevalent in patients with low ejection fraction for whom four out of the five medications were indicated for.

The other comment I would say is that remember we're really looking a very small portion. I guess we could the tip of the iceberg here. We are looking at only heart failure medications as indicated by process measures, but remember these are patients with an average age of 75 years who on average have about 4.5 comorbidities including coronary disease, diabetes, COPD, and other medical problems that also have their own medical therapies and own process measures around.

Again, we say a quarter of patients needed to start two or more medications that's an underestimate of what needs to happen for the total care of that patient during the hospitalization. Obviously, because we were looking at a heart failure registry we can't comment on how much more burden there was outside of the heart failure regimen.

The only thing we found is that actually even though a lot of patients did need to start medicines, the providers in the hospital did a relatively good job of prescribing these medicines, particularly for ACE inhibitor and beta-blocker to a far less extent for aldosterone antagonist and hydralazine/Isordil, and then somewhere in between for those patients with warfarin. We're doing quite well with a couple of these medications. Then we were able in the paper to look at predictors of whether patients would get these medications or not. Somewhere not surprisingly, younger patients with low ejection fraction actually were more likely to receive these medicines I think in part because of they receive a lot of attention while in the hospital.

The implications, I'll let Dr. Jessup into more, but these results illustrate how layering evidence -based guideline recommendations can cumulatively lead to a high number of newly recommended medications during a hospitalization. We're going to talk as a panel about however we handle that, but I would say to start the discussion that we should create systems and measures that allow initiation of medications over time and that may offer advantages, but we need to be aware that if we don't start them during admission they may never get started if we're not careful and don't have good systems in transition and in the ambulatory setting. It will also require improved outpatient quality improvement registries which really to this point have not been well developed.

With that, I'll finish with this cartoon which is the Pez method to improve adherence. These are pill dispensers made by the Pez folks. This one if your heart medications, and this is one is for migraines. I do think our patients are often very confused after they come in with especially a new diagnosis of heart failure and leave with a handful of bottles.

I will now turn it over to Dr. Jessup who again wrote a very thoughtful commentary about the implications of the study findings that I just presented. Dr. Jessup.

Dr. Jessup: Thank you so much, Larry. Thanks for a great presentation and framing this in the greater context. I do have to give credit to our advanced heart failure fellow, Will Grandin, who wrote this paper with us. We had a great time talking about the implications of your work, Larry.

For those of us who have reflected on the huge gains that have been made around a quality program such as Get With The Guidelines heart failure it was a big step to have to then begin to say maybe have too much of a good thing right now. I would rather step back and say that ultimately as we think about the implications of your research and where we move forward I think it's probably in a continuum of first we realized that people weren't getting good care in the hospital and we worked on that, and there were performance measures and programs like Get With The Guidelines heart failure.

Then we began to realize that no matter what we were doing in the hospital they were a lot of people that were coming back in and being readmitted, and so we then started to focus on the efforts around transition. I think we're all now at the point in heart failure in saying that although the hospitalization piece is a very important piece that ultimately the action has to be in the outpatient arena which is where we want to be. How do we reconcile the data from impact HF that if patients don't get put on drugs at the time of the hospital with the data the Larry showed us that there're a lot of things that have to be done in the hospital. If we really added all these drugs at once within the 3.4 days that most patients are in the hospital not only will patients not get on the drugs, they'll get labeled as having not tolerated the drugs.

What we hope to say in our editorial is is that this may be a turning point for us, to all of us as clinicians, to say that we have to refocus our efforts and see hospitalizations as part of the entire continuum of the patient's journey. Maybe we can find a way to fulfill the performance measures since we're all still getting graded on that, they may be able to go home on a tiny dose of the beta-blocker with a an IOU that will get the patient, the caregivers, to understand that this is a placeholder for a drug that's going to slowly be up titrated on the outside. Maybe we have to rethink what that looks like. Maybe there're be empty pill bottles say remember to come to your appointment because we're going to we're going to start this drug that will go into this pill bottle.

I think we have to come up with novel ways of getting patients to understand that just because they've escaped the portals of the hospital does not mean that they're away from what has to be done in their care. I think will stop there and see what the other panelists think both about the implications of Larry and his coworkers work as well as is it heresy to say we have to rethink the focus of heart failure quality measures based on this data.

Dr. Allen: Thanks, Dr. Jessup. First off, I do want to encourage people who are on the webinar to submit questions and answers. I have a handful of good questions here that I'm going to get to. I'm also on the Twitter feed. If you'd like to post questions there I'll make sure to get to them. Before we get to the questions, I actually would like to give the panel an opportunity to make some initial thoughts. Gregg, would you actually potential start that off since you spent so much time not only on Get With The Guidelines but in developing a lot of these process performance measures, and then actually helping with the analysis that we did.

Dr. Fonarow: Sure. Delighted to. Really appropriate this opportunity, and I think Larry did a great job summarizing what is a terrific publication and Mariell provided a really thought provoking editorial. I think it is very timely to be thinking about why we've made certain games with regards to our hospitalized heart failure patients regarding improved use of guideline recommended therapies. We certainly see challenges in that transition of care and in the outpatient arena.

I think one of the important considerations is what do we know about the difference in patient adherence and early outcomes when the evidence-based therapies are started in the hospital versus delayed to be initiated on an outpatient basis. One of the things that is so surprising is that it adherence even if therapy is started and persistence is actually much higher when therapies are started in the hospital, but it seems to serve as a teachable moment. There is much higher persistence with each of the classes of medications when started in hospital when in the same type of patient and the same medication has been started on an outpatient basis.

In addition with these medications beyond their long-term benefits, we've also seen early benefits even within the first 30 days overdosed mortality and re-hospitalization with, for example, ACE inhibitor and ARBs a beta-blocker therapy in this population. Really put to challenge on us that trying to get these medications started, recognizing that they may not, particularly in the case of beta-blockers, be able to be adequately up titrated and recognizing these additional medications that even if the optimal time to start them is in the hospital we really need a more reliable transition of care so patients and their caregivers are well educated, that they understand the importance of adherence and persistent on with the medications, and that we do have a more reliable and robust outpatient care system to where medication use and guidelines conformity and performance measures are robustly tracked where there's feedback an improvements that would be achieved. I think this outlines the extent of that type of medications that patients need to be started and continue on and the opportunities for making outpatient quality of care for heart failure far more robust than it currently is now.

Dr. Allen: Great comment, Gregg. One of the things I thought about a lot as we were going through this is that I don't think that the message is that because a lot medicines have to be started at once that that necessarily assumes that we shouldn’t start them. I think it definitely makes us rethink, like you said, that the ways that we do it and the support we have after discharge, but just not starting the medicines we have some good evidence may suggest that they never get started at all unless we have a difficult way of thinking about it and a longitudinal approach. Thank you.

Dr. Yancy, I have a good question from somebody that I think comes off the last one which is we now have lots of people talking about starting sacubitril/Valsartan or the LCZ696 drug, which I guess in some sense replaces one of the medicines but certainly adds some complexity to medicine changes in titration, and then we also have for a subset of patients the new drug ivabradine. We did this analysis with the five medicines you saw. I'm curious what your thoughts are about how this exciting time of new medicines actually creates additional challenges.

Dr. Yancy: Sorry. Thanks for the opportunity to be a part of this and congratulations again on bringing forward very provocative work, and Mariell, great job on framing this up in a way that makes all of us rethink what we're doing.

I think the question really hit the right spot with that question because we've identified that what we already know well and understand well is challenging enough to do.

Now that we're introducing therapies that have to be administered in a certain context, what's the blood pressure, what's the heart rate, what are the concomitant other therapies, what's the additional dose of the beta-blocker, it hasn't been sufficient time off the ACE inhibitor before starting the new drug. We've just increased the complexity of what needs to happen in the outpatient setting by several orders of magnitude.

I think that our willingness to really rethink this altogether is going to determine how successful we are we to make [inaudible 00:28:53] changes and build on platforms that already exist it will be hopeless and confusing and complicated, and I think our patients will fail, and we won't really respect the integrity of the data that's driving these new changes and the excitement appears to have we all feel.

I think the question is spot on. We really have to pause for a moment, and I think rethink the entire process. Maybe it's an outpatient quality improvement program or maybe it's something that's more in keeping with how we live today, that is a smart phone application, something in the IT space that really helps prompt the right decision, the right behavior at the right time for the right reason, but what we're doing right now is just adding another layer of complexity that I think will be very, very difficult for the average person to accommodate.

Dr. Allen: Anyone else want to comment on that?

Dr. Jessup: This is Mariell. I think the question about how we're going to use the sacubritil/Valsarstan or Entresto because we try not to use brand names but can you avoid it when your alternatives are LCZ 96 or scubitril/Valsartan? At any rate, I think it just the complexities of adding potentially one or two new drugs, ivabradine, which comes with a whole set of descriptions that they have to be on optimal dose or the best dose of beta-blockers as they can and the heart rate still has to be over a certain amount versus understanding how to titrate up the sacubitril/Valsartan, those probably shouldn’t be done in the inpatient anyway.

Then, we get into a very interesting set of circumstances where, and this hasn't been studied at all, that we're going to tell patients this message of these are pills that we want you to get on in the hospital, but by the way, when you come to the outpatient we may switch you completely to a difficult class and considering adding yet another drug.

As Clyde said, if we don't begin to from the very minute we meet the patient talk about that this is an arc of care I don’t think we're going to be able to meet the challenges of new therapies as they come along.

Dr. Yancy: Larry, this is Clyde again. Let me frame this up based on just the everyday experience we all have in the clinic. What happens in your clinic? Do they bring a sheet of paper that has a list? Is it something that's printed from the EHR that has generic names and milligram strengths? It is a set of pictures? There's no consistency. I see every iteration of a reminder system or a tickler or some process and sometimes it's just a plain old brown paper bag even in 2015.

I think the evidence of brilliant, and it's just wonderful that we have these choices, but the implementation side if crude, rudimentary, and requires a lot more work.

Dr. Allen: I agree. I think we're going to see a lot more in the realm of implementation science to help patients, families, providers navigate. What I think is really exciting in terms of new therapies but that creates these challenges.

Adam, can I ask you to comment. Somebody had a question about really the role of palliative care in all of this since many of these patients are older and sometimes hospitalizations themselves are a marker for a progressive disease. Could you comment a little bit about how palliative care effects the way that we think about these measures and maybe some of your own experiences?

Dr. DeVore: Sure, that's great. Let me begin by just saying thanks. It's a really pleasure to be on the panel here, and I really appreciate the opportunity. I think if somebody who's at the beginning of his career like this thinking about some of the challenges that everyone's outlining it's really exciting and just gets you even more excited about a career in heart failure. I think there are a lot of opportunities here both for implementation science, and then just trying to really improve the way we deliver care for patients. It's a great time to be thinking about this paper and thinking about ways to improve things.

The palliative care question is a great one. If we think about all the things that are going on in heart failure, the length of stay is getting shorter, as you've highlighted here the pill burden is getting higher, and the patients are getting more complex that are in the hospital right now, so there are a bunch of different tensions. When we try to stop and pause and talk about trying to introduce palliative care or focus on symptoms it can be a real issue here.

Duke had had an opportunity to lead a clinical trial on this called PALHF, and we hope that the results will be out here in the next few months. What we've learned from that, I think, is one as we try to approach patients about the study that people are really receptive to it. I think one of the things for me watching a lot of different providers be engaged in the study is thinking about how to get people engaged or introduce it. Then just like with medications, we introduce the concept, and then we follow hit up in clinic.

The provider that we're using for the palliative care intervention, one, they get to meet the patient in the hospital, but two, they're seeing them in the early outpatient visit. They're seeing them in the same day access clinic. It's just like in the medical interventions that we're trying to use, we're trying to introduce, we're trying to set expectations, we're giving the patient a lot of opportunities to learn about it. I think there are a lot of parallels with some of the medical interventions we're talking about.

Dr. Allen: That's great. Anyone else on the panel?

Dr. Joynt: This is Karen Joynt. I'll just weigh in on a related topic which is I think we're talking about two types of burden here. As we move from describing the problems on the implementation science that you mentioned we probably are going to need to address those. The first is really sort of medical, probably pharmacy if you will, the complexity you guys were talking about of just literally adding up the drugs and making sure they don't interact and finding a way that one humanly take them all in a day.

The other one is some sort of patient burden measure. It's thinking about the fact that we have patients who have poor health literacy who may have mental health or substance abuse issue, who may have unstable housing, who may have so many other things going on in their lives and we can do all we want to start things in the hospital, but ensuring that there's a system in place to try to help people handle the burden of dealing with such a chronic disease, and the transition into a palliative approach when that's appropriate is really something that we need to do a better job of if expect that anyone's going to be able to manage this complexity as an individual and a patient as a person in the outpatient setting.

Dr. Allen: That's a great comment. I'm going to come back to you, Karen, in a little bit about policy. I have actually gotten three questions about cardiac rehab, and I'd like to actually pose to the panel how they think cardiac rehab potentially plays into this longitudinal care piece and how it relates to medicines, and also what people's experience has been now that cardiac rehab for heart failure has become a benefit.

Dr. Jessup: This is Mariell. I'd be happy to start. I heard a great comment, make every contact count. I think as we're talking about extending arc of care, cardiac rehab gives us many, many points of contact, and this why a system of care will be so important because we know the benefits of cardiac rehab for our patients with heart failure. It's also such a great opportunity to reinforce the kinds of information that the patient and their caregivers have received in the hospital. It's also a great opportunity to reinforce are you taking your medicines, are you having problems, what did they tell you about what dose you're ultimately going to take. It's probably my own bias that I can't prove to you is that part of the reason cardiac rehab is so great is is that it's reinforcing the need to maintain compliance with medication and other regimen besides the impact of exercise.

Dr. Fonarow: I agree completely. I would add there was a recent publication from Get With The Guidelines heart failure looking at how often patients hospitalized with heart failure are referred to cardiac rehab. It was really only about 10% of patients even those that had other reasons for referral such as coronary bypass grafting or prior MI. This is really a missed opportunity as heart failure action study showed their clinical benefits of supervised exercise and all the added benefits.

I think it is really important for a heart failure cardiologist to work in collaboration with the local cardiac rehab program so that patients are really getting the full advantage of that and taking it as an opportunity to learn more about medications and lifestyle modification and the importance of adherence beyond just the supervised exercises Mariell highlighted.

Dr. Yancy: Larry, I'll just say I have one other point. I agree completely with Mariell and Gregg and would suggest also that cardiac rehab give the patients another social network, a network that is very malleable, that understands, that is experienced, that provides support. I didn't always buy into that, but I think the more and more that I'm involved in this kind of process improvement the more realizing that the patients really do get strength from others. They rely on each other for education. The rely on each other for support. I think there are some intangibles in cardiac rehab that we can't exactly measure that are very valuable.

Dr. Allen: Relating to the regular followup that cardiac rehab offers, somebody just posted a question about how heart failure disease management clinics play a role here, particularly with new therapies coming down the line. I would ask coming off the last question which is if we need to have frequent good contacts with patients there's not going to be a one-size-fits-all, but what are some of the key components of those contexts? Is it home visits? Is it heart failure disease management? Is it cardiac rehab? Is it an integrated system where patients alter between those? Clearly, there's not an answer, but I'd be curious with this panel what they see the future looking like.

Dr. Fonarow: We know a number of programs have worked, but we've also known a lot of attempts and approaches that have sounded really good or have worked in single centers when attempting to replicate them really have not seemingly made an important impact on quality of care or outcomes. Heart failure specialty based disease management programs we've seen a number of studies demonstrating improved use and improved dosing of key evidence-based therapies and better clinical outcomes.

With some commercial disease management programs for heart failure, however, that really is not translated to success. We've seen with telemonitoring programs the idea of introducing whether central call centers or home digital scales and telemetry that at in large studies such as teleHF or the recently presented beta HF trial that that also did not translate to improve clinical outcomes.

We have seen, Clyde and I, co-chaired improved HF where an outpatient performance improvement program with clinical decision support and feedback around the key evidence-based therapies in cardiology practices and multispecialty practices was associated with improved use of guideline recommended therapies in a way that did improve clinical outcomes. I think there are a number things that we can sort through that will be particularly helpful as we try and integrate new therapies and optimize medications, but there are also a lot of things that have been tried that haven't worked.

Dr. Allen: What about something actually talked about integrated mobile healthcare or paramedics or other home based interventions. Anyone want to comment on their thoughts around how that might help the longitudinal care?

Dr. DeVore: I'll take that on, Larry because this is an area where I've ahead some sensitivities. I think we have to very thoughtful. We have insisted on a high degree of evidence before incorporating anything to the treatment algorithm, making certain that it provided a benefit to our patients, and we have not relied on empiric reasoning.

We get the sense that there can't be anything bad that harmful about using a fire department or using a community based provider or using someone that hasn't had the same training and skills as a traditional provider, but we should hold that to a test and make certain that whatever we're adding because the problem with heart failure is os ubiquitous that actually is relevant and actually makes a difference.

The earlier conversation about disease management programs, I think Gregg was spot on. We really have a difficult time replicating effective disease management programs from one place to the next. What I really mean by that is that not every disease management program is a disease management program. Even the best practices clearly demonstrate that nurse directed heart failure disease management programs have really terrific outcomes. That is a model that can't be replicated everywhere.

To give this more context, if it is correct that only 20% of patients with heart failure seek cardiologists, even fewer see heart failure specialists, and the other 80% see non-cardiologists, I have to believe that the number of patients with heart failure that truly effective well disease management programs touch is an even smaller number. I'm not certain that disease management schema that we're thinking about in academic medical centers is really the right disease management process to broadly deploy across the entire population. I'm not certain that that's feasible.

Dr. Allen: I'd like to actually switch gears a little bit and go to Dr. Joynt and broaden this out to the policy piece. Clearly, we are all in medicine because we want to help our patients and improve the lives that they lead, but we also do a lot of what we're paid to do. I think there has been a lot of interest in both heart failure and transitional care which includes the discussion today because of the outcomes measures around readmission and particularly the value-based purchasing penalties for higher than average readmission rates.

I would pose to Dr. Joynt to comment about the challenges of moving to value-based payment programs when we see that trying to create both process and outcomes measures that don't lead to other unintended consequences or problems is really challenging. Not to undermine that, but maybe, Karen, you could talk a little bit about your thoughts around it and how do we get to paying for value but not lead to a number of problems along the way.

Dr. Joynt: Sure. Thanks. I think the issue here is that the movement from the theory of a lot of the policy interventions moving toward our value-based purchasing and paying for quality rather than quantity to moving from theory to implementation does lead us into a hiccups.

Our risk adjustment models are probably inadequate. We probably inadequately understand differences between patient, so we all know that a heart failure patient is not a heart failure patient is not a heart failure patient, if you've seen one you've seen one, and particularly when we talk about our Medicare patients with the median age above 80 in this group. Those are the ones on which many of these policies rest.

I think the short answer is that many policies are not going away. The intent, I think, of moving more payment to quality is a good one. The question is how can we a clinical community contribute to that discussion in a way that makes the measures and the programs and the implementation more smooth. I think it's incumbent upon us to do a couple of things. One is to continue on the research side to be able to improve things like the models and the data. On the clinical side, to participate in programs that do help us generate data so that we can start to build better ways of risk stratification, better ways to understand complex things like drug interactions and when patients might not be included in quality measures.

Then finally, I think an increasing recognition in the policy arena also is that the more that we go to reward coordination of care through things like care coordination payments and other such payment models, the more likely we are to find ways to really meet patients where they are, and so to the degree that the clinical community can help lead a push towards some of those patient based interventions as opposed to only looking at hospitals and drugs I think we'll be better off not only for our patient but also in terms of involving the programs. I'd certainly look to the other panelists for input as well.

Dr. Jessup: This is Mariell. I'm not so clever as you, so I'm not sure that I intrinsically understand how these models are going to have to be studied. What I see in my day-to-day practice is we have such a disjointed healthcare payment system that it's very, very hard to develop any kind of strategy to work on a process whereby patients will be in the hospital, patients will be at home, patients will go to cardiac rehab, and patients will even be in some part of disease management program because sometimes you choose a therapy and it gets turned down by their insurance, some you choose a regimen and it gets switched to another drug, sometimes they end up at another hospital which isn't part of your health system so you lose control of them. I'm frustrated on a daily basis about the opportunities that we lose because we have such a chaotic healthcare system. That's my optimistic tone for today.

Dr. Allen: We are starting to get towards the end of the hour. I want to say a couple of things. One is that we still have over 200 attendees on the call, and there were almost 300. I think it shows how much interest there is out there in figuring this out and that's exciting. The second and last thing I want to say is that one of my favorite quotes is that until you spread your wings you'll have no idea how far you can walk.

A lot of people are frustrated at the challenges that are coming along, but if we keep our heads down and keep looking out for patients and keep trying to be proactive and thoughtful about how to move forward the solutions will come to us, and we will do better over time, and we've seen that over the last two decades with our patients. I'm very optimistic, and I think the challenges are going to be fun as Adam said before.

I'm going to close with those comments from me. If Dr. Yancy or Dr. Fonarow or Steve [inaudible 00:50:52] would like to close this out I'd be happy for them to do that. Thank you all.

Dr. Yancy: Larry, let me just quickly say that I want to take you said and extend it another dimension. I think the way that we get better is to go through the exercise we have taken this afternoon. We look at what we're actually doing in the already engaged facilities realizing that those that aren't engaged may have very difficult metrics, and we honestly discuss what our challenges are and where our shortcomings happen to be. That's the first step towards getting better.

Then we take this one as an opportunity. I'm very encouraged that understanding what our challenges are gives us a chance to be creative, to be innovative, to really carry forward with our promise to make life better for our patients with heart failure. I'm absolutely confident that we can deliver, but the first thing we have to do is to understand the space and today help this get a much better understanding of the space. With all the people that are engaged, I have to believe that we'll get there as. Great session. Great webinar. Real challenges, but amazing opportunity.

Steve: Any other comments?

Dr. Allen: Thanks for organizing this, Steve and the rest the HA staff. This is a great format.

Steve: We can't thank you guys enough. On behalf of the American Heart Association and the American Stroke Association I would like to thank our attendees and especially to all our presenters and to our panelists for your valuable time and participation on today's webinar and on our Twitter chat.

Please take a few minutes afterwards to complete our feedback survey after this call. It is very valuable and shapes our calls in the future. Again, thanks to all our speakers and panelists and thank you to all our participants and have a great day.

Speaker 1: Thank you to all of our participants for joining us today. This does conclude the program, and you may now disconnect. Everyone have a wonderful day.