SAMUEL: Hi, good morning, and welcome to Grand Rounds on this soggy Thursday. I'm really thrilled to have Dr. Albert Siu with us today. And you'll understand what I mean when I say thrilled. I was having coffee with my wife this morning on our way, both of us, to get to the train, and I said, Cara, Al Siu's giving grand rounds. She said, wow. Al has been a really important person in my life for a long, long time, and we all need to have giants in our midst as we move through our careers. And Al is certainly one of those for me.

He is the emeritus chair of the Brookfield Department of Geriatrics as well as being professor of geriatrics and palliative medicine and medicine, as well as population health science all at the Icahn School of Medicine at Mount Sinai. He is furthermore the director of Geriatric Research Education and Clinical Care at the VA hospital here in the Bronx, excuse me. And then finally is the director of the Institute for Care Innovations at Home. And a lot of what he's going to be talking today is related to that work.

Dr. Siu received his undergraduate degree in biochemistry at UC Berkeley and then his medical degree at Yale and then completed his training, including a fellowship at UCLA, as well as a master's in public health at UCLA and really has had a wonderful, wonderful from here. A lot of his focus, as you'll hear about, has been on the intersection of geriatrics and palliative care.

And how do we get ready for becoming older? How do 30-year-olds, 40-year-olds, 50-year-olds think about their health in the context of one day being 80, as we'll all aspire to be? And he's done wonderful work both for the New York State Department of Health, UCLA early in his career, and, of course, it Icahn School of Medicine at Mount Sinai.

One more word about Al. I think it's important for all of us to be thinking always about the type of leaders that we want to be. And Al was one of my early bosses right out of my training. And he was the first person who I observed doing some things that have become very important to me. The one was that Al would always take a moment for consideration. For any problem, Al was the person I first saw say

rather than being impulsive and drawing conclusions, let's collect the data.

Let's talk to stakeholders. Let's draw some hypotheses, and then let's go forward with what we think is most likely. And it's been enormously valuable to me to carry that with me throughout my career. Another one was Al was really one of the first people to say to me as a junior faculty, Samuel, what do you want to do with the rest of your life? What do you enjoy doing here at Mount Sinai? Where do you hope to be someday?

And things like practical things, like Samuel, have a goal of publishing one paper or a year. So I'm enormously grateful for all the great inspiration Al has been to me throughout my career. And also, I think we all have a debt of gratitude to Dr. Siu for all the wonderful work he's done in the care of the elderly. And welcome.

[APPLAUSE]

This doesn't seem to be [INAUDIBLE]. Excuse me. Hello.

SAMUEL: Start here, and I'll-- And Sean will run back and get [INAUDIBLE].

ALBERT SIU: Here we go. Here we go. Thank you, Samuel. Thank you for that introduction. It's very gratifying to me to see you here as chair and to see the wonderful work that you've done here and to hear the feedback from your faculty and residents in terms of the work that you've done here and at St. Luke's. I guess St. Luke's is also with us electronically.

So as Samuel indicated, what I want to do today is to talk to you about the work that we've been doing with hospital at home, why we're doing it, what we've accomplished over the last couple of years in doing it, and where we see ourselves going with hospital at home in the next couple of years here in the Mount Sinai Health System and nationally.

What I want to do is actually after you look at my disclosures is take you through and tell you about a case. And the case starts in a busy emergency department. And it's actually one of the patients in that particular day [INAUDIBLE]. So Stanley, our patient today, is a 96-year-old man that we saw about three years ago in the hospital at home program. He presented to the Mount Sinai emergency department

you know with a couple of days of lethargy, not doing well, decreased appetite.

His baseline function was being able to at least engage in conversation with family and play cards with his family at 96. Samuel had a history of congestive heart failure and heart disease as well as chronic kidney disease, for which he had declined being considered for dialysis. At presentation in the emergency department, he had a blood pressure of 90, a creatinine of six, and a sodium of 150. And this was his chest X-ray, which [INAUDIBLE] So Samuel, would you admit him?

SAMUEL: Yes.

ALBERT SIU: And indeed, that would be the answer just about anywhere in this country and in any community, whether you're talking about Kaiser, whether you're talking about Manhattan, whether you're talking about Montana. This patient would get admitted. However, Samuel had also been in the hospital not that long ago. He had a previous hospitalization about a year ago for heart failure, during which he developed delirium, de-conditioning, and a pressure sore and wound up spending three weeks in some acute facility before going home, and it was not a good experience.

He did not want to come into the hospital. His primary care physician did not want him to be hospitalized, if we could avoid it. Nobody really wanted him to come into the hospital, because we knew and you know what will happen to him when he comes into the hospital. But we had no choice. We saw him in the hospital at home team, actually, and we [INAUDIBLE] into the program initially, because he was too sick. He was, after all, borderline hypotensive and he had really bad renal function.

So this is the typical episode of acute illness in the United States for an older person. Most of these episodes start in a busy emergency department, just as it did with Stanley. If you're 80 years old and come into an emergency department in the United States, you have a 50% chance of being admitted. That's a typical course of what happens to an 80-year-old who comes into the emergency department in the United States.

If you're admitted, you spend a couple of days in a bed, often with the side rails up, tethered to the bed usually by IVs, catheters, and other things, receiving care from strangers, being woken up in the middle of the night and having your sleep disrupted and having unfamiliar food. And in about 40% of cases in the Medicare

population, you wind up having a post acute episode of some type.

In 20% of cases, it's a sub-acute transfer to a nursing home, as Samuel did in the past. In another 20% of cases, it's going home in a traditional Medicare home care episode. So 40% of episodes in the Medicare population end up with some form of post acute services with that varying little bit by region of the country. Ours is actually a little higher in terms of the number of patients that receive some form of post acute care services.

And this is from the *Annals* almost 20 years ago. This is not great for patients like Samuel, because you start out with the usual physiologic processes of usual aging. Decreasing muscle strength. This is not very bright. But decreased muscle strength, vasomotor instability, decreased bone density to begin with, decreased ventilation. It's usual aging. And then you compound that with the hazards of bed rest and hospitalization. In terms of immobilization, more often than not, sometimes with high beds and rails, decreased plasma volume. Samuel came in [INAUDIBLE]. Samuel, Stanley came in [INAUDIBLE].

SAMUEL: It could have been me, Al.

[LAUGHTER]

ALBERT SIU: And all of these predispose through a series of complications that you have all seen in our patients, ranging from de-conditioning to falls and fractures, delirium, aspirations, pressure sores, and hospital acquired infections. This is you the typical course-- not the typical course, but not an unusual course for older people once we hospitalize them in the United States and elsewhere in the developed world.

Now, there have been efforts, including within the Mount Sinai Health System. St. Luke's has actually taken the lead on this, and your Chief Nursing Officer, Maria [INAUDIBLE], has taken the lead in terms of trying to create more age friendly hospitals and trying to develop interventions to mobilize patients earlier to avoid certain medications, to screen for delirium, to try to intervene to prevent delirium and prevent some of these hospital acquired complications.

But the other approach that we've taken is, can we avoid the hospitalization

completely for some of these patients? Can we instead provide them with hospital level services at home? [INAUDIBLE] sequence of events in the United States and replace it with this?

So that here we have it starting in the emergency department often, although in some cases we've taken patients directly from primary care practices or from home. Providing their care with services at home. This is one of our patients receiving IV. And I think this was IV antibiotics at home. And this was actually one of our attendings doing a home visit and doing some of these things at home. And instead replacing the post acute episode with some form of transition services that we might provide at home.

And indeed, these were the steps that we took to actually operationalize this within our program so that in the emergency department, we would try to look for eligibility and review of the home situation. Did they have a condition that we felt we could manage at home? We started out with the bread and butter medical admissions. Community acquired pneumonia, heart failure, UTIs, COPD, et cetera. And tried to identify those patients with those conditions who actually were needing to be admitted but were not so sick that we could actually take care of at home.

We reviewed the home situation. First of all, did they have a home? If they had a home, was there IV drug use going on at home, which was an exclusionary criteria for us. Were there other circumstances that made the home situation unsafe? They had a phone, for example, that we could use. We organized services, and we transported the patient home from the emergency department without admitting them. We provided the acute care at home generally for three to five days. Daily MD and nursing visits, as would occur in the hospital.

More recently, we've actually switched to having some of these visits occur by telehealth. Not the first visit, not the last visit, but the ones in between. Some of them have occurred by telehealth. We've provided IV medications. We're able to do oxygen at home, X-rays at home, lab tests at home. We provide 24/7 support and availability to the patients. And we discharge them within three to five days [INAUDIBLE] just as we would if they were in the hospital, but we don't have to transfer them home. So you probably shave a day off of the hospital stay just doing that.

And then in the post acute setting, we provide services for about 30 days, which is usually post acute transition services. If they need a traditional Medicare home care episode, we provide that. We tried to provide linkages to their primary care physicians. If they have specialty visits that need to occur, we try to facilitate that. We try to be available to the patients. If their heart failure exacerbates again, we have actually restarted another hospital home episode instead of readmitting them.

Now, this is not new. Bruce Leff and his colleagues did this at Hopkins, and this was published in the *Annals* in 2005. So there's been experience in the United States doing this. This was a, I believe, five center study involving VAs and non VAs in five centers across the country where they showed that hospital at home was feasible, that it was efficacious, that patients actually chose hospital at home if they were given the choice, that we're able to provide higher quality care. We could reduce complications, that patients were more satisfied. There was less caregiver stress and delivers a lower cost of care. So this was published in 2005.

But hospital at home is not widely available in the United States. There's a handful of programs, largely in the VA, and a couple of places in this country, but it's not largely available. And there's several reasons for that. One of them is that there's no payment mechanism to do this. Some of this stuff is not rocket science. You just can't get paid to do this, number two. And number two is that although this may not seem like rocket science medically, it's really hard to do operationally.

So think about this. We want to get Stanley out of that bed and home. We have to be able to identify the patient who would otherwise be admitted. We don't want to do hospitable at home for someone that the ED would otherwise have sent home. We would just be further complicating the care unnecessarily and driving up cost. We have to identify those who could be safely managed at home, some of our own safety criteria and checklists that I mentioned. We have to make sure that they have participating insurance. And I'll talk to you about the insurance plans that we currently carry.

And we also have to make sure that they live in a service geography that we can provide services through. Currently in our program, we're doing the entire island of Manhattan and a few adjacent zip codes in the Bronx and in Brooklyn. Our plans are

to expand beyond that. But that's currently the service area that we're doing for hospital at home.

And in our country, one of the difficulties is that we live in a multi-payer system. Just because you can figure out how to get paid by one payer doesn't mean that that will necessarily be the case with other payers. We have spent a lot of time trying to crack this nut. In Australia where they have basically one payer, in certain provinces in Australia, they've just been able to do this with their one payer, and they were able to reduce [INAUDIBLE] somewhere around the order of 5% admissions and do them at home instead. [INAUDIBLE]

And then there's getting the hospital services delivered to home. Oxygen has been the bane of our existence. I have said that you can get pizza delivered, Chinese food delivered, Thai food delivered in Manhattan at midnight on most nights, but you cannot get an oxygen tank delivered after 6:00 PM. And to this day, we have not figured out a way of getting this done on Sunday.

So we had to do all of these work-arounds around getting oxygen delivered. We have figured out most of the things. We can get the nurses there now. We figured out how to do the lab studies, the X-rays at home. We've figured out how to do the meds at home and things like that. But it takes time. It's not easy in our system. And to get everybody paid [INAUDIBLE].

But the greatest difficulty, actually, is what I called the receptor site mismatch. We are talking about hospital at home, if you will, a round object that lives in a world where everything has four sides. We know how to do home care, we know how to do hospital, and we know how to do outpatient services in this country and have rules and regulations, practices and procedures, and even medical records to accommodate each of these types of services. But we don't have that for hospital at home.

There are regulations governing home care, hospital, and outpatient, but they don't cover hospital at home. And in New York state, we operate as a hospital. But a hospital cannot send an RN to the home on the hospital license. That is part of New York state law. And we have to work around that set of regulations. There are a number of other regulations in terms of what kind of medics can do, et cetera, that

we have to work around.

There is no payment mechanism. We can get paid for putting them in the hospital. We can get paid for doing things in home care. We can get paid for doing things in outpatient. But we can't get paid for doing things in a hospital at home. So we've had to work with insurance companies to try to figure that one out as well as with the Medicare program nationally.

What EHR are you using? You're now on Epic. There is an Epic hospital buildout. There is an epic buildout for outpatient care. But there's nothing in Epic for a hospital at home. We thought that we were closest to being an acute hospital episode, but Epic our Epic team, could not easily figure out how to reconfigure Epic in order to do a hospital at home episode where they would not have transport showing up to take somebody to X-ray or to have pharmacy trying to-- inpatient pharmacy trying to deliver something [INAUDIBLE].

So that we actually had to recreate and do a separate buildout of Epic and spend $100,000 for the coding to create a new Epic module for hospital at home, which doesn't work. Because it treats it as an outpatient episode. And what you have are disconnected outpatient episodes in Epic that can't be connected into a hospital episode that we're used to seeing. It doesn't work. So we're actually spending more money trying to reconfigure Epic. So one of the major issues is that there is this mismatch. But we've done it.

What we had to do to get hospital at home launched was that we basically had to recreate the infrastructure of a hospital. We had to create hospital functions. How do we do pharmacy checks? How do we do supply management? How do we do reporting by disciplines and oversight of the nurses or the social workers, et cetera? We have to develop clinical practice protocols for medication administration, for labs, et cetera. How do we track quality?

We had to create call center protocols so the call center would know how to deal with a call that comes in to one of our attendings, for example. And we had to create mechanisms by which we could cover that individual if they happen to be in the shower. These are, after all, acutely ill patients that we would typically [INAUDIBLE], for example.

We had to adapt Epic communication and sign out. We had to get services into the home. One of the banes of my existence was getting staff credentialed across our various campuses, because we were all different campuses. We also have an issue, because all of our nurses are in different unions and our staff are in different unions depending upon what campus they're on.

We had to deal with trying to figure out vendor contracts with labs, with visiting nurse service and compliance. The visiting nurse service has different compliance rules related to drug testing, for example. How do we reconcile some of those issues? And we had to bring some services in house to increase intake hours.

So that, for example, very early on in this experience, we were told, I was told, that we could only admit a patient between 9:00 AM and 2:00 PM in order to get all the services delivered to them at home. Because if I try to initiate a new admission after 2:00 PM, we might not be able to get the services actually delivered.

So we had to bring some services in house rather than use outside vendors, because our outside vendors could not get them those services if we admitted somebody after 2:00 PM. [INAUDIBLE] officers in this room will know that you don't get [INAUDIBLE] admissions between 9:00 AM and 2:00 PM.

And this is what we did over three or four years. We were doing this under a CMS grant and shows you how we continuously adapted the program and put in new things over that period of time. So, for example, we put in introduce community paramedicine visits in the second quarter or so. We started launched telehealth visits here in the fourth quarter of doing this project, for example.

And we published this last summer in *JAMA,* which were our results. And I'll try to walk you through this busy slide. But basically, we showed that our length of stay in the acute period was about three days relative to five and a half in control. My guess to you is that at least one or a fraction of one of those days is because we didn't have to arrange them to go home. Once we thought that the patient was ready to go home, we could discharge them.

In the 30 days after that acute period, our 30 day readmission rate was reduced from about 16% to about 9% in this population. Our control group, by the way, were patients with exactly the same conditions, screened exactly the same way, who

happened to be admitted into one of our beds, either at St. Luke's, West, or one of our other hospitals. So these were very comparable patients who looked just like our patients, and we would have taken [INAUDIBLE] otherwise.

Our emergency department visits were cut from about 12% to 6%. Our transfers to skilled nursing facility were cut dramatically from about 10% to less than 2%. And our certified home health agency referral, however, was actually a little greater. It went from 50% to 58%. We use home health more as a substitute.

And this slide shows you the patient experience. This is our version of the same survey that our patients are administered. They're admitted to the hospital [INAUDIBLE]. This is our version. We dropped certain items, like how clean was your hospital room. That seems irrelevant. Our patients rated communication with nurses better than in the controls. They rated communications from docs better than in the controls. Communications about medicines, better than the controls.

Now, pain management, however, we didn't do as well. And what I suspect is happening here is that when you are in the hospital, somebody comes by every shift and asks you about your pain and your rating of your pain. And if you have pain, they will give you something for it, whether you would have done that at home or not. And I suspect that that is some of the dynamic here in terms of what's happening with pain management.

And then discharge information. Everybody did about the same. My guess is that people didn't really understand the question, because there was no transfer to home. And the top box, hospital rating, in terms of would you recommend this hospital was also improved in this as well.

If you had to look at cost, we were also able to show that for the initial inpatient hospital stay that we could save about 10%. If you considered the services that are in the DRG and those services that are outside the DRG, like a physician billing. And then in the 30 day period, of course, we reduced the readmission inpatient facility, because we reduced that in half.

We reduced skilled nursing facility. Our home health actually increased. We used a little bit more hospice, et cetera. But the bottom line was that we saved about 20%

to 25% on the 30 day total spend to Medicare. You would think that we would be able to sell this to the Medicare program, but we're still talking to them. This has been a two year process of talking to CMS about this. And part of this is that there's been a change in administration.

And you might ask, well, what's the mechanism by which some of these things happened? And the mechanism really was that we had many fewer complications. By not putting somebody in a regular hospital bed, we had no pressure-- no incident pressure ulcers, new pressure ulcers. We had some falls, but probably lower than they would have if they had been hospitalized. And we had very few other complications.

I showed you earlier how over the three or four years that we did this we instituted various things along the way. And this shows you just that over that period of time that things remained fairly steady. Length of stay was about steady. Hospital ratings remained steady. Our readmission rate was steady. And our 30-day revisit rate to the ED was steady throughout that time, even though we made a lot of changes during the course of that time.

If you look at this real closely, it looks like our readmission rates may have crept up a little bit, and that's probably true. We got better at it and started taking things that were not necessarily low hanging fruit. We started very cautiously taking very low hanging fruit, and then we got over time, we were taking many cases, such as, we didn't know this, but we were taking care of diverticulitis at home, for example. Because as many of you know, medicine is very humbling. We think we know what we're taking care of when we admit them, but often we find out it's really something else.

And let me just shift gears a little bit about time spent at home. I know Dr. Smith was talking to me about this issue. This is regional variation in how many days are spent at home in the last six months of life in the United States. And there's a big marked difference of about 30% depending upon where you live in terms of whether you spend time at home.

And I would argue that in the last six months of life that most Americans would value spending that time at home instead of in the hospital or in ICU. I mean, you

think about notable individuals with the resources and where they died. The Reagans, both of them, the Bushes, Senator McCain, they died at home.

So that with a medical student, we did a project asking, well, what happens with those patients die in our program and who received hospital at home services within the last six months. Did they spent fewer days at home? And we actually got this published in the New England Journal of Medicine Catalyst about a year ago or so.

And indeed, if you were in our hospital, at home program, this first column, you had no days of fewer-- index hospital stay. Whereas if you were the control group, you actually had about 10 days in the hospital. And then these were the number of days receiving acute hospital at home services. 3.4 days in our program and none if you were in the control group, which makes sense.

And then these were the days spent receiving home hospice services as well as the number of days spent either in the inpatient hospital in the last six months, a skilled nursing facility, or an inpatient hospice. And what we found was that if you got hospital at home services at some point in the last six months of your life, you spent 20 more days at home.

So there were other things that we did. We started out just doing hospital at home. Substituting for the hospital stay for pneumonia, heart failure, et cetera. But docs came to us and said, well, can't you do hospital at home for patients like Stanley? And so over time, we actually built it out and created what we called palliative care unit at home for Stanley. Someone who is really too sick to take into regular hospital at home but for the goals of care. We created observation unit at home for patients who actually met criteria for observation services but we thought were very likely to turn over [INAUDIBLE].

We created something called the hospital averse at home. These are for patients that we thought, you need to be hospitalized, but the patient said, no. No way. And we said, well, we don't want to leave you stranded. So we're going to provide you some services to get you over this bump.

The patient that comes to mind immediately was a patient with an infected foot ulcer that we said, you really need to be hospitalized for this and get surgical

evaluation, among other things, and [INAUDIBLE]. But the patient was a caregiver for a spouse with dementia. So we tide them over with some antibiotics while our social worker tried to develop plans for the spouse.

We did what I called hospital at home at night. There are certain patients who get admitted at 10:00 PM at midnight [INAUDIBLE] for whom we cannot get services into the home at that hour. We hold them overnight and try to provide those services to them in the morning instead.

And then we've been playing around with things like ambulatory surgery post op at home as well as completing a hospital stay at home so that, for example, we probably will start a program right now with some of our oncology patients who come in and are observed for 14 days [INAUDIBLE] Mount Sinai Hospital for 14 days while their counts drift and will probably provide those services to them at home instead.

And then we also experimented with what we called rehab at home. These were for patients who were in the hospital but who were slated to go to a sub-acute facility and for whom we believe that we can provide those services at home. That is a small segment of those who are going to sub-acute care, because it's basically, the criteria and basically is, can you get to the bathroom.

And as you might guess, the types of diagnoses are different. For our regular hospital at home program in this column, most of the cases were, as I mentioned, UTI, pneumonia, cellulitis, dehydration, et cetera. But for rehab at home, most of those cases were really other medical issues. We took care of a lot of sepsis. Patients after an extended hospital stay with sepsis. Patients with surgical conditions who went to sub-acute care facilities. And the length of stay was, of course, longer. In hospital at home, it was 3.4 days. In rehab at home, it was closer to 14 days. We took care of them.

So in the remaining minutes, let me tell you what we've done. So our grants support from CMS ended in late 2017. So we spent most of 2018 asking, how do we turn a grant support program into a payer reimburse model? And it's not easy, and we've spent a lot of time trying to do that, and it has had a lot of help from all of our health system partners, including our partners at St. Luke's and at West. So that we

now have contracts with Healthfirst, with Emblem, Humana, and in February, we're starting out contract with United. And we expect contracts with Aetna and with Empire later this year.

And the program looks different when we've had to do this for our payers. When we were doing this under the grant with CMS, it did not matter to CMS that we were missing patients who needed to be admitted at 8:00 PM and it was too difficult. For United, it matters. They want to know why we're not able to provide services at 8:00 PM. And so we've had to rejigger our program to be able to do that in terms of being able to take on new patients as [INAUDIBLE]

A number of things have had to change, because we're now doing this under a payer reimburse model. The payers have added specific requirements. They want to make sure that we do at least two RN visits a day. Well, we did usually two RN visits a day. And sometimes depending upon clinical judgment, sometimes we didn't.

If there was a doc going into the home, et cetera, we're now doing two RN visits a day on every single patient, because the payers require that. In some cases, the payers are requiring us to get pre-authorization. That jams up the works even more in the emergency department. We're getting pre-authorization, for example. And it's required some work.

And the story that came to my mind, a few months ago, when I was at a conference listening to the story about Stonyfield Yogurt was how they went to scale. So Stonyfield Yogurt was started by two hippie farmers in Vermont who wanted to make organic yogurt raised on small-- made on small farms in Vermont available to market. And they started with one cow named Lulubelle, one distributor, and one truck with no refrigeration to get the yogurt to the store.

And so the question that was raised, this is actually, this is a Harvard Business Review, a case in terms of how do you turn this into a scalable operation? And in the Stonyfield Yogurt example, what they realized was that they needed cows, not just one. That they needed barns and equipment. They needed marketing. They needed a distribution channel. They needed feedback from their grocers and their customers. They needed financial investment and they needed vision and passion.

And when I thought about this, how does this translate to me? It occurred to me that

what I needed was not cows but insurers. And so we've been you know actively seeking contracts with insurers. It's not barns. We need to create a staffing model that can go and take on admissions 24/7.

We needed to create not only marketing but an efficient way to identify the patients who could qualify for hospital at home and to get them enrolled. We needed a distribution method to get those services to the home. We needed metrics by which we could judge if we were doing this safely. We needed financial investment, vision and passion, but we also needed new product offerings. And we've been working on new product offerings as well.

As I mentioned to you, we've been working hard on the insurers issue. We've been working on the staffing issue. And actually the cooperation from our hospital medicine colleagues to help us with admissions late at night that they would otherwise get if they were coming into the hospital. But that they will be able to turn it over to us in hospital at home. We've been working on trying to streamline the methods of identification and enrollment.

And I was telling Samuel that we actually will be hiring nurse admissions coordinators for Luke's as well as West as well as [INAUDIBLE] and Mount Sinai starting in late February to help with the non doctor work that's associated with dealing with insurance companies, getting pre-authorization, and all of this stuff. We've developed the metrics, and we have-- are experimenting with a number of new product offerings. For example, one of the major reasons why we have to exclude somebody from hospital at home is if they're listed for telemetry.

And we are working with cardiology in terms of trying to determine, well, which these patients actually need telemetry? And are there other ways-- are there selected patients for whom we can actually do telemetry at home, because you don't need rapid response. You just need to know whether somebody happens to have runs of an SVT or afib something like that. So we're hoping to be able to crack open the listing of telemetry patients.

So let me return to the story of Stanley. I mentioned that he came in with a blood pressure of 90, a sodium of 150, a creatinine of six, and bilateral pneumonias. What he needed was to be gently hydrated, given that he didn't have much in the way of

renal function, and that he needed IV antibiotics. We declined to take him, because he was hypotensive, basically, and we didn't feel that we could safely take him at home.

This was before we developed the palliative care unit. We held them in the ED overnight, gently hydrated him. He got his first dose of antibiotics and by the morning actually looked well enough that we felt we could safely take him home. And he was our first patient in palliative care unit [INAUDIBLE].

He did well over the three to five days that we took care of him at home. We engaged the family in goals of care discussion. Remember, he did not want dialysis. And they were not ready yet to elect hospice. But certainly he met hospice criteria. We followed him into the 30 day period, continued to engage him in goals of care discussion, and got called about two weeks later by the family, because he was tachypneic and had a loss of consciousness.

We saw him at home, at which we concluded that he probably re-aspirated. He was tachypneic with periods of apnea. And the family at that time elected hospice. So we opened a hospice case and followed along with hospice team, and Stanley died three days later.

So think about this. In the last 30 days of life, Stanley spent 0 days in the hospital. He spent 0 days in a nursing home. He spent all of his days at home receiving care on his terms. We engaged in goals of care discussion with Stanley and his family at a time of their choosing in their home where we were their guests as opposed to them being a guest in our offices. And I would argue with you that this is one of the reasons why we want to do [INAUDIBLE].

This is an institutional priority within the Mount Sinai health system to do hospital at home. And we have been spending a lot of time and a lot of effort to try to make this happen. And to try to make this happen not only here but nationally. So that contracts that we've been developing with payers, we're willing to work with other health systems and other hospitals to get this done. And we have spent time talking to our colleagues elsewhere, at UAB, and elsewhere [INAUDIBLE] helping them in terms of launching their hospital at home programs.

We have been talking to the folks in the Trump administration with Medicare to try to

figure out a way forward to enable hospital at home for traditional Medicare beneficiaries. I don't know how that will turn out. That is a harder sell. But we will do this with Medicare Advantage patients. Ironically, we cannot do this with traditional Medicare patients right now.

In traditional Medicare, our lawyers will not let us do it. They say that providing hospital at home services in traditional Medicare could put us at risk of [INAUDIBLE] and providing free services to patients as a way of getting them into our health system. So we're actually not legally able to even provide hospital services at home for patients with traditional Medicare because of legal compliance issues.

So this is where we are, and thank you for your attention. I think I may have gone a little bit over time. But I'll take your questions. Thank you.

[APPLAUSE]

SAMUEL: Typically, we'll have an early question from St. Luke's. There we go. Go ahead, Norma.

AUDIENCE: Thank you for being a champion. I think it's the right direction to go. But the concept is not new. When I was a resident at Bellevue in the ancient history, there was a physician by the name of Phil [INAUDIBLE] who part of my residency experience was doing home care. And residents made rounds in the community of these types of patients who were quite limited.

But again, because of the absence of a full team and the insurance system that we have in this country, which stinks, it was not ever made a bigger program and then would become a model for what you're doing now. I think it's fantastic. And I think it needs to be worked on. And if you need any help, I'll be happy to volunteer.

But the other is that in the St. Louis community, and it covers the [INAUDIBLE] there's actually a volunteering group of people LiLY, Lifeforce In Later Years. These are community dwellers who volunteer to take care of these geriatric patients in the home, help [INAUDIBLE] home, make sure they get their medications, make sure they fill their prescriptions, make sure they get their doctor visits. If they're hospitalized, they take care of their pets so there's no stress factor that contributes

to the patient's [INAUDIBLE] well-being.

So I think that's another alliance that we can make with community with people who are able to actually become partners in what you do. And I think that this is another way to-- and of course, these people are not paid. They're volunteers. So this is a wonderful way of showing efficiency, cost saving, and yet extending a quality of life for many of our elderly.

And the last thing is how we need to educate so many more people, as many people misunderstand what hospice and palliative care is. As a consequence, they think that this is being a giving up instead of a complementary expanding peaceful way to live at home without the stresses. So I can only applaud, laud, and think it's fabulous.

And the last thing that I've done is actually engage the family much more as well, besides just the caregiving, but understanding the process so that we can-- that they're my rapid-response team, the family, and that they can make connections. And I actually teach them the things that they can do so that there's no legal risk there either. But thank you so much.

ALBERT SIU: Thank you. I mean, I'm glad to have met you by video. As I said, this is not medically rocket science. We can do this. It's just a matter of the logistics of getting this done and getting a payment mechanism to get this done, because it will not happen otherwise.

AUDIENCE: So thank you very much. And obviously a critical aspect is locating insurers for this program. And I wonder if you've reached out to those insurers [INAUDIBLE] who engage in long term care insurance. Because clearly this program with the hospital at home will reduce the use of [INAUDIBLE] and SARs because the transition is directly from the hospital to home. So I wonder if those insurers have been approached.

ALBERT SIU: Right. We have not reached out to insurers of long term care insurance, because most of the services that we're actually substituting are really services that are covered under medical benefits, if you think about it. This is really a hospital benefit that we're covering for.

And the insurers, interestingly, when you talk to the chief medical officers of these plans, they all get it, and they all think that this is a good idea. The problem is that when you talk to the finance folks in insurance companies, they say, we have no idea how we would ever draw up a bill for this and how we would create a mechanism to be able to handle this. And that's where the barrier is. The docs get it.

AUDIENCE: Just for the trainees in the room, I'm just curious if you can comment on the typical profile of one of your physician attendings who take up this work.

ALBERT SIU: Right. The typical profile is somebody bascially [INAUDIBLE] traning. I guess that people been in practice for a while generally have other things on their plate and cannot take this on. But many of our attendings have generally been young attendings who have either chosen this instead of doing hospital medicine. And that is the case, actually, nationally as well. There is a program that is basically at the same stage of startup at the Brigham in Boston where that is also their experience.

AUDIENCE: So thank you for your talk. [INAUDIBLE] [INAUDIBLE] regional differences [INAUDIBLE]. One thing that's [INAUDIBLE]. So can you talk a little bit about the housing situation and was that something that you looked into [INAUDIBLE]? And also cultural differences. Is there some demographic profile of the patient that accepts this versus not and [INAUDIBLE] house itself consider this? Because that's what we should be looking into for our patients.

ALBERT SIU: Right. So this is a common question. When I presented on this, people say, well, of course, you can do this in New York, but you can't possibly do this in a more suburban community where there's traveling, et cetera. And I would argue that there are pluses and minuses. In a suburban community, if you were doing this hospital at home, you would throw everything into the trunk of your car. We don't do that. We actually have to carry it with us. So there are pluses and minuses and different ways of doing this.

About the patient safety issue, we do the safety screen in the ED. That probably excludes about somewhere between 1% to 2% of patients. And then, of course, we have to do an assessment once we get home. And indeed, we contract with an ambulance company that takes them home where they actually help set the patient up at home until our nurse gets there for the first visit within two hours.

And they're, both the ambulance company and the nurse, are doing their own home safety evaluation. Are there surprises? Occasionally, we will encounter surprises. Bedbugs, for example. And we have to have criteria for dealing with this. And we also have to have criteria for the sake of your own staff as well that we've developed. So all of these things are manageable.

You also asked about culture. We have very high acceptance rates for hospital at home. If there are cases where a patient says no, it tends to be in disadvantaged populations that are distrustful of the system. And that is where we have had our turn downs. And in some cases, it's for legitimate reasons, such as I just don't have the room at home for the medical equipment. I have too many other people at home to manage. And in some cases, we actually have heard I need the respite of coming into the hospital. Because otherwise, I'd be taking care of the kids at home. Thank you for your question.

AUDIENCE: Terrific talk. I'm interested in hearing about the role of telemedicine and your plans for going forward. And I was thinking about the demographic of the physicians [INAUDIBLE] generation that are more used to technology. Their colleagues are telecommuting at home for other jobs in other fields. And as a specialist, I'm thinking about, well, how could I help with this and pulling specialists in for home visits would be a little bit more challenging. But if we can use that technology to broaden and go beyond the [INAUDIBLE] that you mentioned. I'm interested to hear what your thoughts [INAUDIBLE] incorporate that kind of technology.

ALBERT SIU: Right. So we initially did home visits using the VSee platform, which is a HIPAA compliant version. Basically what you could do on your iPhone. But it's HIPAA compliant. And that we have since moved on to something that we call Vivify platform, V-I-V-I-F-Y, which is basically a pad that we leave in the patient's home for the duration of the 30 days. It costs us about $50 for the 30 days to rent it for them.

It allows us to teleconference with the patient. It allows us to do some remote vital signs to the extent that the patient can do them. To the extent that we want to, it has the capability of doing auscultation. There's a module that a patient can put on their chest that you could do that. We have not used that very often, because we actually have people who go into the home, and we don't feel that we need that. We can do weights via phone. And we've been talking about doing specialty visits by

telehealth, exactly for the reason that you've mentioned.

I think that the issue isn't so much what telehealth equipment is available. I think the capability is great in terms of what we can do. The question is really, how do we use it in a meaningful fashion and work with this? We could do the telemetry at home right now. The question is for whom we do this and what protocols we use to do actually the monitoring.

SAMUEL: Thank you so much. Thank you.

[APPLAUSE]