Grand rounds.

>> So it's my privilege to introduce Amy kine, a geriatrician for clinical effectiveness here at UW. I'm fortunate to work with her at the health innovation program. Her research focuses on patient safety during transition between healthcare settings particularly for older populations. She went to school at UW and went to the central office at Department of Veteran affairs where she completed a Truman scholar fellowship and went to Boston and did residency at Mass General.

She did a fellowship in older women's health research at VA as well as PhD in human -- in the population health sciences department. Currently an assistant Professor in the Department of Medicine Division of Geriatrics, director of Madison VA coordinated transitional program and -- of the memory assessment clinic.

She has funding through the NIA, a -- award as well as a -- from the foundation aging research and Department of Veterans affairs. Amy's really a very smart and thoughtful colleague and we're fortunate because she started to work with more people within the Department of Surgery to address issues related to surgical readmissions as most people know is becoming an important issue.

Today she will talk about the work she's been doing in medicine as well as some of her interventions at the V.A. Thanks, Amy.

>> What a lovely introduction. Thank you so much for inviting me to come here to talk to you today. Hopefully we can have a nice discussion. I've never been at surgery grand rounds before so I prefer having questions throughout the talk. I don't know if that's the format that you all usually like doing. But otherwise if you feel more comfortable you can hold your questions to the end. It's up to you. I can do either.

So let's go ahead and get started. I'd like to tell you a little bit about rehospitalizations. But in starting so I'd like to start with a case because I think cases are helpful. Each of you probably have your own experience with rehospitalizations and with particular cases that are close to you.

The two cases that I'll share with you the names have been changed but facts are real. We had a 89-year-old gentleman hospitalized for a rare reaction to a antibiotic. The antibiotic had been stopped, his reaction
stopped. Unfortunately he was rehospitalized within seven days and the allergic reaction had occurred. Again this is a very rare allergic reaction.

Everybody in the emergency room wondered what happened. When he was there in the ER he reported taking both antibiotics because when he went home, he opened up his medicine chest and saw this antibiotic sitting there and he knew his doctor told him to be sure to take all of your antibiotic to complete all of your antibiotic therapy.

He was confused, trying to be a good patient but ended up with recurrence of his disease and a rehospitalization.

Obviously this is something that could have been prevented. How about another story, Mrs. B.

An 80-year-old nursing home patient hospitalized for pneumonia and placed on a special diet and discharged back to the nursing home. The hospital discharge communication did not include anything about the dysphagia diet but included information about antibiotics, hyponatremia on day two of the hospitalization but didn't go into detail about the dysphagia therapy.

The nurses at the nursing home got this information. Weren't sure what to do. They knew she was on a regular diet so put her back on the diet originally discharged with from the nursing home. She was rehospitalized five days later with reaspiration pneumonia.

These are two cases in which rehospitalization could have been prevented. Each of you have surgical cases that would fall into this category as well. 30 days rehospitalizations are gaining increasing levels of attention on a national scale. They affect one in five hospitalized medical care patients. That's an outstanding number. 20% of the patients you see paid for by Medicare will return perhaps not to your hospital but some hospital within 30 days. They account for over 17.4 billion in Medicare spending annually. This is from 2003 so the number is probably quite a bit higher.

Rehospitalizations have become a major target in healthcare reform. The patient and protection and affordable care act passed in 2010 has a small three-page act within it called Medicare rehospitalization reduction act. As you know healthcare reform was over 2,000 pages so this is a very small page number within the act. However it has had major impact on
hospitals throughout the nation.

This rehospitalization act calls for the centers for Medicare and Medicaid services to start public reporting upon rehospitalization rates. That reporting has already begun. You can look at those reports for University of Wisconsin and compare it to other hospitals on a website called hospitalrepair.gov. The healthcare reform has attached these public reporting rates to payment penalties which will begin in October of 2012 but it will probably be more around 2013, for the first conditions of congestive heart failure, myocardial infection and pneumonia.

In 2015 they are proposed to add COPD, CABG and vascular procedure. This is becoming an issue for surgeons everywhere. And surgeons are grappling with this. They have come out with a readmission marker. No matter what a patient is admitted for your hospital could potentially be dinged if this measure goes into effect. Probably would be after 2015.

Along with this pretty significant stick of the payment penalty, the rehospitalization reduction act also has funding for different demonstration programs. As you know, the affordable care act does encourage bundling of payments and accountable care organizations. So there are other incentives to decrease hospitalizations as well.

One way or the other, even no matter what line of medicine you practice, or surgery, or anything else, you're going to start hearing quite a bit more about rehospitalizations.

So when we look at rehospitalization rates by region on this particular map of the United States, the darkest green zones are those that have the highest rates of 30 day rehospitalization. And this is all cause rehospitalization. So not just those disease that I told you about before, but anything.

The first thing you probably note is Wisconsin is doing well compared to the rest of the nation. We're at a rate of about 17%. The lowest rate is 13% in Idaho but it goes up to a high of 23% in the District of Columbia. Diagnosis with the highest rehospitalization are heart failure, psychosis, pneumonia and COPD. These are some of the diagnoses being targeted by Medicare and Medicaid services for the financial penalty.

For surgical patients the list is different. Surgical patients, are cardiac
stent patients, knee and hip surgery, vascular surgery which is an incredibly broad category, and major bowel patients.

When you look though at why patients are readmitted, why those particular patients come back to the hospital, the medical reasons are very similar to those reasons for the first hospitalization. So heart failure, pneumonia, psychosis, COPD is a mirror of why the patients were in the first time.

As you probably know patients with congestive heart failure tend to be readmitted for that but when we look at major reasons that surgical patients are readmitted, those reasons also tend to mirror the medical list so it's heart failure pneumonia, GI problems and septicemia.

So wonderful work done by some of your colleagues including Matt Meld, Dave Greenblatt has been trying to dive into this and trying to find out how many of these surgical readmissions are truly preventible. Are these a reflection of a complication if detected early the course of the readmission could be -- and patient left out of the hospital. But that research is in early stages and much more has to be done yet. The vast that has been done are in congestive heart failure.

Those of you looking for research projects, this is a wide open field in the surgical realm. So patients rehospitalized tend to not have had other rehospitalizations. They tend to be sick. There's lots of comorbidities, including dialysis, they're older and tend to have some sociodemographic factors which make them at higher risk.

If they're on Medicare for disability reasons, if they have mental illness or some reason they can't work and qualified for Medicare in that way they're more apt to be rehospitalized, African-American race are more apt to be rehospitalized. This points to some of the social support issues that perhaps happen after someone is discharged from the hospital.

When we looked at this, and looked over the course of a year we can say that patients who are rehospitalized multiple times in 30 days have higher cost of care over the course of the year and have poor survival over the course of the year.

Not to get into the graphs in detail these are patients that cost more, they tend to be very sick. Over the course of a year they tend to die off much
more quickly. So it's a population that needs more intensive management.

So after that brief introduction I'd like to hopefully convince you of some three major points in my discussion today. The first is that health system fragmentation truly does contribute to rehospitalizations. We'll talk about health system fragmentation a little, what it is, and why it can be such a problem.

Next I hope to convince you that effective communication lies at the core of any safe transition, especially for patients who are discharged to nursing homes. All of you discharge patients to nursing homes all the time. We'll talk about what happens during those discharges and why patients can be at pretty high risk when they move into a nursing home setting.

Finally for patients going home interventions have been shown to decrease hospitalization. We'll talk about what's going on at the University of Wisconsin in the affiliated veterans hospital and data that has arisen from institutions outside ours.

Health system fragmentation, so this is of course just a very crude drawing but I think it gets the point across. Currently in our health system, and I think all of you know this but let's talk about it in a little bit here. In our health system, our institutions tend to be free-standing, in that we have hospitals who have their own staff, they have their own healthcare formularies, their own electronic medical records, and those items are rarely connected anywhere else. We are fortunate to be in a University setting in which our health system talks to the primary care doctors in many cases. But in most cases, that is not the case.

The primary care docs tend to have their own system, sometimes it's paper, sometimes electronic but rarely do they talk back and forth. The nursing homes almost never have electronic medical records. Patients in the hospital typically have their own patient teams, cared for by one particular physician or team of physicians and those physicians rarely, in this day and age, follow that patient to the nursing home or follow that patient to their primary care provider up north. It is unusual for anyone but the patient and caregiver to link these systems and because of that we have a setting in which health fragmentation is really quite common in this day and age.

This is very different from the way medicine was practiced 50 years ago.
As you all probably know, this was an era in which the primary care physician or primary care clinician would follow the patient. Medicine tended to be a local business, there wasn't as much referral that happened. So Dr. Jones would follow his or her patient from the nursing home into the outpatient clinic, into the hospital, and that physician would provide the continuity.

With advent of specialists and hospitals we've lost that continuity piece. But unfortunately a lot of our other tools have not moved forward to account for that.

So I talked about this organization of the health system into silos. Like silos on a farm they're not connected very well. There's lack of communication between these settings when it's objectively measured. Patients move frequently between care settings. We're not in an era where patients stay in hospital for three weeks. They're in for a day and out and spend rest of the time rehabbing in a facility or in their home. Because they move back and forth quite a bit there are many more transitions and much more intrasettings that need to be accounted for.

Each of you could speak to this but I know when I came through my training program very little education in transitional care, when one patient moves from one setting to the next how to effectively manage their care. And that's something that has gained increased emphasis in recent years but certainly most of us in practice haven't had much training in it.

So in this setting of health system fragmentation, it's interesting how often patients are rehospitalized elsewhere. So they may originate someplace and end up being ultimately rehospitalized in another hospital. About 25% of all patients who are rehospitalized end up someplace else from where they started.

The information exchange between these hospitals tends to be incredibly poor. I'm sure you've had experience of wading through 50 pages of information gotten from some hospital at 2 AM trying to figure out what happened to this patient and obviously that's probably not the most effective way to communicate.

So there's a risk. Adequate thing to do is replicate service, just get that CAT scan again, once they arrive, rather than try to get the films or get the information from the other help. This could lead to delayed therapies
and higher cost but -- there was no known impact on payments or mortality so we decided to look at this issue in a little more detail. At this point, I collaborated with Matt Mel, a former colleague of yours.

We wanted to examine system fragmentation. In this particular paper our objective was to determine how rehospitalization to a different hospital affected mortality and payments over the course of 30 days in a Medicare population.

So we have -- at health innovation program, we have some very large data sets we can use that come from Medicare patients and one is a data set that includes a 5% random sample of all of the patients that are on Medicare from 2003 to about 2008. And this particular data set was used for this analysis.

With these data sets you get large numbers, which is helpful. 74,000 patients were looked at. When we looked at the data we saw one in four patients are rehospitalized elsewhere so there is this fragmented system. Patients are moving throughout the health system.

But interestingly enough when you compare patients who are rehospitalized, the same hospital, patients who are rehospitalized to different hospitals as compared to those rehospitalized to the same hospital, those who went to different had 30 day higher total adjustments. We adjusted for comorbidity, disease severity, hospital factors, but even after the adjustment it was highly significant in that the median additional payment for these patients was over 1300 dollars. Payments tend to be very skewed so at the end we're talking additional 40, 50,000 per patient. But they were costly. So patients cost more.

Again this buys into the theory that patients potentially are getting repeated tests and studies. This is something that we know. But there were no differences in that 30 die mortality. Even though we paid a lot more, at least on a national 40,000 foot view scale there wasn't any difference in how they survived over the course of 30 days. Perhaps there may have been differences in morbidity but this paper did not examine those.

When we looked at predictors for why patients went elsewhere they're interesting. We thought going into this analysis that it was the sicker patients that would end up at a different hospital. Interestingly enough
that wasn't the case. So the dominant factors, first one's not surprising, if someone came from a low volume index hospital, so index is the first hospital that they were at in this chain of one hospitalization and then a rehospitalization. If that first hospital was low volume, they ended up being elsewhere for the second hospitalization.

Now these are not transfers. These are patients who are in, discharged home or nursing home, wherever they went, and ended up someplace else. What could explain this? Perhaps some of the confidence that a low volume hospital has, perhaps their resources to care for complex patients, perhaps they got a call in the emergency room saying this really complicated patient is coming back; no, we can't handle her, let's send her to UW, something like that. So that's understandable.

The second most prominent feature -- most strongly predictive factor for patients going elsewhere is if they started out at a for-profit hospital. If that first hospital was for-profit for whatever reason, patients ended up elsewhere. This one's a little harder to explain isn't it.

For-profit hospitals aren't as common within our region of the country but they're quite common in the south. So were these patients dissatisfied with their care in that first hospital and then chose to go elsewhere, or was it a hospital-influenced decision. Was that hospital deciding they didn't want the patient back. This research cannot answer that question but it does raise some specters of business perhaps trumping medicine.

If the hospital had a major medical school affiliation patients were more apt to end up elsewhere in the second hospitalization. That's not a surprise to any of you. Patients come to medical school hospital for complex procedures that are not available at home and if they're hospitalized they tend to be hospitalized for pneumonia, things that can be managed in their local hospitals, but something to consider.

The only patient factor that came to the forefront in the predictive factors was if the patient had a disability. It wasn't if they had comorbidities or very severe disease. It was if the patient was disabled on Medicare. These are patients who have mental illness, they're patients who are developmentally disabled, patients who can't work because of a back injury and have gotten disability through the court system. So they're a vulnerable population, especially the psychiatrically ill.
Communication becomes paramount. If you have a patient that has a one in four chance of being rehospitalized and of those rehospitalizations they have a one in four chance to go elsewhere you have to be able to communicate between healthcare settings. That has not been a focus of a lot of the training programs within the United States.

So nursing home transitions in particular require effective communication. And why is that. Nursing home patients can't advocate for themselves but half have dementia. If you have dementia the chance you are going to remember your complicated medicine regimen or plans for follow-up at point of hospital discharge is probably pretty low especially if your dementia is so severe you require nursing care. You often have no family or caregiver that accompanies you during transition. You sometimes do and that's probably -- for your loved ones that's probably the most effective way to keep someone safe during transition is to have a loved one with them, accompany them to the next setting of care, but that is rare.

Finally the patient really becomes completely reliant upon the system to get it right. These are patients that are relying on you to fully communicate that plan of care. How do we communicate the plan of care in this day and age? Right now it's the hospital discharge summary or hospital face sheets.

So it is really rare for a physician to ring up another physician and tell them, you know, I have Mrs. Jones, she's going to your nursing home, you're the medical director there, you're the primary physician there, this is what I need you to do. I think many of you in surgery do this better than we do at medicine, perhaps. But the studies out there suggest this happens only 3% of the time for anybody, not just for nursing home patients, but only 3% have communication of physician-to-physician. Nurses do a better job of this but the pass-off is not always accurate and sometimes incomplete.

Discharge summary is the posthospital communication tool. The plan of summary can dictate a patient's care for up to 30 days. Medicare guidelines do not require a physician or nurse practitioner to see a nursing home patient after being admitted to the nursing home until 30 days have passed. Most of the time they'll get seen sooner but according to guidelines, 30 days.
So the discharge summary is very typical that the nurse at the nursing home will take your discharge summary and copy those orders verbatim. Whatever you put on diet, that's what the patient gets, whatever you put on activity that's what the patient gets. Their admission orders from the nursing home come right from your discharge summary.

Medications, diet, activity, these things have to be there and if they're not, it's not like they're not going to feed the patient so that nurse has to try to figure out well what was Mrs. Jones eating, could she get up and walk, what was happening there.

There are accreditation groups which set standards for discharge but they were set in the 80's so they were designed for that era in which a physician followed their patients between one setting to the another. The only thing that's audited is the attending physician's signature which I'm sure the attendings in the room have had this experience, the hospital comes down and says where are those signed summaries but did they say you didn't put the diet in your discharge summary. You hear your haven't signed your 30 summaries.

The discharge summaries are typically quite poor in quality, overall, nationwide and slow to arrive at the next setting of care. In a study from Canada only 12% of patients had discharge summaries available at primary care visit at the time of the primary care follow at the time the patient was seen.

In some of our work we've looked at hip fracture and stroke patient in discharge summary to find what items are included in that plan of care. The items to the -- not sure if there's a laser point. The items to the left on this graph are items that experts recommend be included within discharge summaries. We have things like discharge medication list, where the patient goes, their disposition, their instructions for follow-up, their diet, activity instructions, their therapy orders, code status, pending studies. And all -- these should be in all patient discharge summaries, up to 100 percent of the time, right? As you can see many of these ideas are omitted quite a bit. We do well for stroke, but follow-up are included less often.

When you come down to things like diet, activity, these are stroke patients and hip fracture patients, they need diet orders, they need activity orders, only a little half of the time are they included.
Finally items like code status and pending studies are rarely included. We know from some of the other work that we've done that 40% of these patients have pending studies at the time of discharge. They're typically bacteria cultures waiting for final results and it's possible clinicians made decisions on preliminary results of course but they're not necessarily being documented.

This is not a problem just for the local hospitals that we studied within this particular analysis. Similar numbers have come out of places like Harvard, some of the most preeminent hospitals have similar problems with documentation.

But when we take this information and we focus on one thing, medical follow-up. We link that information into some of our outcomes, Medicare for -- we end up with some interesting data.

So I'm not sure how many of you are familiar with what an odds ratio is. An odds ratio of one means that your group of interest is exactly the same as your baseline group, as your comparison group. In this case we wanted to look at discharge summaries which omitted recommendations for follow-up, a designation of clinician for follow-up. How were those different from discharge summaries that included follow-up information. These were different for discharge patients with hip fracture and stroke.

So the chance the patients were seen by another provider, a bill provider, after hospital discharge within the first 30 days were much lower if that discharge summary did not tell the nursing home that the patient needed to be seen in 30 days. Not a shocker. If -- nursing homes don't think for themselves. They can only -- I mean the nurses do think for themselves, they're wonderful, but they are -- so I have to be a little careful with that. They are obligated to follow orders that physicians are providing, and because of that, if that order is not in the discharge summary, that patient has a much lower chance of being seen within the first 30 days.

If we take it the next step, what about rehospitalization, emergency room visits, death. Just if that follow-up was not in the discharge summary, just designation for follow-up was not in the -- the patient had much higher odds of being rehospitalized within the first 30 days. So this is a simple thing, that potentially could be done and might change some of the pathways of these patients. So think about --
This is not around -- controlled trial, this is a retrospective trial but these are pretty interesting. When we look at predictors -- you have discharge summaries that include everything and some that include nothing. What are those factors, those work processes, those provider characteristics that suggest that there are certain methods that help one to create a better discharge summary. Well, the first, when we look at timing, so if a discharge summary is completed over 24 hours after discharge, lower numbers are worse here, so discharge summary quality in that plan of care tends to suffer.

So if you create that discharge summary over 24 hours after your patient's already left the hospital that information about the patient is not at the forefront of your mind and it's probably more likely that you have other things on your mind, caring for other patients, and as a result it seems to be that discharge summary quality is poorer.

Also, when we look at discharge summaries that were created by interns, they tend to be of lower quality than those created by faculty, staff or residents. So, again, not surprising here. Interns, in many programs, are the ones to actually write the discharge summaries, but they often don't have clinical experience or understanding for what happens in the next setting of care and may not perhaps understand the importance of complete documentation.

Within the cohort we look at the hip fracture and stroke patients, didn't see difference between medicine and surgery docs but neurologists in this particular cohort were having challenges with their documentation but that is probably a cohort effect and we have -- this data has been very powerful to motivate some change with some of the neurologists that were studied in this example.

Next step was to ask end users of this summary, we wanted to talk to nursing home nurses so we know what physicians think of what should be included in the discharge summaries but we wanted to talk to nursing home nurses to find how do you transition care.

We collaborated with some of the very expert nurses, from the school of nursing to pull together focus groups of skilled nursing facilities. They said we have never seen a perfect transition of care. There is always something we have to do, there's always information that's missing. More
often than not, it is a lot of information. They tell us stories of getting reams of paper that -- I don't know if any of you have seen the epic outputs but we're talking this much paper and these poor nurses are like trying to find out when the last opioid pill was given or when that Foley was last changed. It's a challenge for them.

They say the hospital documentation is virtually always inadequate, inaccurate or incomplete. They also say we're difficult to contact for clarification. So I don't know if any of you have tried to page someone at a different hospital, trying to find out with a transfer patient, getting Dr. Jones or Dr. Smith. But if a nursing home tries to do that, they don't have the status that you have of a doctor communication, and secondly, they tend to be calling after off hours because at the hospital here, I can't speak to surgery as much but on the medicine units we tend to discharge patients late in the day. There's push to get patients out earlier but nursing home patients tend to arrive later in the afternoon and by the time the questions arise it may be after hours.

So they're trying to contact coverage, they're trying to contact nurses, but they've already left, the hospital groups have left. It makes it difficult for nurses to plan for the patient's arrival and forces staff to take time from patient care. Nursing ratios can be as high at 20-1 in the evening. You can imagine getting off hours admission and going through paperwork to find out what you need to find out. It can be hard if you're needed elsewhere.

Because of that, this can lead to care delays, medication errors, rehospitalization and this perpetuating negative -- of nursing homes. When they don't get the medication they need they don't blame the hospital but the nursing homes.

A story I want to share with you from these nurses they were telling us about a post hip fracture patient and this was a patient who had come into the nursing home but there were no orders for activity. Of course you all know with hip fracture patients sometimes you're walking them, sometimes not, depending on the type of surgery they received.

They tried to clarify for over a week. The discharging physician left on vacation -- didn't know the case and was unwilling to give them opinion. Their local orthopedist was unwilling to give them an opinion and they had to leave the patient in bed for a week. It's astounding and it wasn't in the
patient's best interest. Perhaps it was. I never found out, but you can imagine that these nurses are always erring on the side of caution and some important consequences can result if communication is poor.

So to try to take a very small baby step, to try to improve this problem here at UW, we have, along with partners from neurology -- remember I showed you data from neurology, we have implemented and launched something called multi-disciplinary automated discharge summary. So this particular discharge summary uses epic -- platform that's here in the hospital. And it automatically pulls in information from the allied health provider notes.

Instead of the resident dictating information into a phone that a transcriptionist types back, we have the -- pathologists have a brief area of standardized discharge information that they can put in the flow sheet which is automatically pulled into the discharge summary document. The same is done for therapy orders, and there is a template that forces neurology residents to include certain items like cardiovascular risk factors, things of that nature.

Additionally there's a -- we try to keep this to a limited page number, so two to three pages. The prototype launched in 2011 on the UW stroke unit under the direction of Dr. Justin Sattin, serves as the final inpatient note. The discharge summary has become the final inpatient note and because of that it gets done before the patient leaves the hospital. The neuroresidencely they love it, the neuroresidents. I'm not sure -- --

So we have a grant to evaluate this to see if it improves patient outcomes or improves documentation. That will be one of our next steps. The hope is that something like this will eventually roll out to all places in the hospital. But obviously it would have to be tailored to each provider type's needs.

General surgical patient is not the same as a stroke patient. So hopefully if you get asked to be involved in some of these committees or get involved in discharge documentation of some sort please step up and be included.

So now let's talk about patients going home. And this brings me to the last portion of my talk today. So when patients go home, they also encounter quite a few barriers. They're typically not prepared for the next
setting. We empower -- we do not empower patients in the hospital. When a patient comes to the hospital we bring them their medications, we help them to the toilet, we make all their meals for them, granted they're not always the greatest but we bring them to them, we clean up after them, we bathe them. Suddenly on the day of discharge we expect the patients to go home and do this for themselves. And many are unprepared for this and sometimes medical teams don't realize how unprepared they are.

Additionally there tends to be a lack of patient education. But it's not for a lack of trying, mind you. So on the day of discharge, patients typically receive anywhere from two to six hours of education, from a whole parade of people. So you have pharmacy going through, I think nursing does the same, a whole laundry list of things, primary team goes through and talks to them.

But as we all know -- you're in medical school and you cram for a test on one day, do you think you remembered that information two weeks later? Probably not. Principles of adult learning tells us a patients can only remember three things at a time and those things need to be reenforced again and again.

Right now our current model is to throw everything at these patients on day of discharge and launch them away and never talk to them again. Because of that, patients, when you talk to them, they have no clue why they were in the hospital. They don't know how to take their meds.

So our model of patient education is a little skewed. Additionally, sometimes patients are very reluctant to communicate why they actually are back in the hospital. So for that patient who just had the surgery and they end up back for heart failure they might not tell you that they can't afford their medicines or their antibiotics or they're having troubles at home and can't get to their follow-up appointments so we need to ferret those out.

This brings me to the last point that educational based transitional care services do tend to decrease hospitalizations in those going home. So what is transitional care exactly. Well, according to Eric Coleman from the University of Colorado, it is a set of actions designed to ensure the coordination and continuity of healthcare as patients move or transfer between different locations, or different levels of care in the same location.
So you can have the same issues of care transitions between an ICU and a floor, as you can have between a floor and a nursing home. Additionally there's been some research suggesting just shift changes can have really big impacts on patient safety. So with the advent of work hours that I'm sure you have experienced just as we have, you have frequent changes. We have lots of night floats on medicine. I'm not sure how you handle the work hours here but there's a different physician in charge of that patient nearly every 12 hours. Because of that every handoff is a point of vulnerability.

Transitional health services fragment for patients going home. Typically there's a healthcare staff usually a nurse that meets the patient in the hospital and then they go with the patient into the home, usually two or four days after discharge.

The home visits are geared teaching patients about medications, about when they should follow up with their providers, but what issues to look for, because of why they're in the hospital. So what are the main things I need to watch for if I was in the hospital for CHF. They've been shown to decrease hospitalizations by a third.

Simple protocols by having someone go in the home, go through the meds, these simple items, have been very effective. This research, some transitional care programs are the impetus behind that hospitalization reduction act. So they are hot, hot, hot. They're not designed for nursing home patients because half have dementia so educational services are a bit challenging.

All of these particular items -- programs that were in the literature did get -- did exclude dementia patients and nursing home patients.

We looked at the available models and felt we had a need for transitional care services at V.A. but the models out there were not appropriate for the V.A. hospital. I don't know how many of you practice at the V.A. but it's not uncommon for us to have patients coming from four and a half hours away, from upper peninsula, or northern Illinois. You need to be within a certain distance radius and that didn't work for Madison V.A. All of those models excluded dementia patients. We have a high rate at the V.A. and we wanted to design a model that incorporated those vulnerable patients.
None of the models were designed for V.A. settings. V.A. is a different animal. Many of you have joint appointments. The patients are a little different, probably more vulnerable. Taking those into account was important.

So in that setting we designed the Madison V.A. coordinated transitional care program. We used the principles of telemedicine and nurse case management to design this. Our V.A. is very good at nurse case management and very good at telemedicine. We wanted to bring those two together in order to use this program. And base the program on one of those transitional care models that was validated and out there already, specifically the Coleman model.

But we needed a phone based program so we altered the protocols in Coleman's model to be phone based. We had an R. N. nurse manager specially trained and our goals were to educate and empower the veteran or veteran caregiver, in medication management, to ensure that they had follow-up and knew how to participate in follow-up, that they knew what the red flags were. In transitional care talk these are items the patient needs to watch for to tell them that their condition is worsening. They tend to be limited in number. Only three or four, do we have a patient watch for, because those principles of adult learning would suggest more than that would be fruitless.

And we want to make sure the veteran and caregiver know whom to contact when questions arise. You would be surprised if the patient has no clue, do I call primary care, inpatient doctor, the nurse, they don't know.

And in this study we enrolled eligible veterans hospitalized on the non-psych wards. We didn't want the mentally ill. We felt that was an important group but our focus was not geared towards them. We also just took patients discharged to the community so this is not a nursing home transition.

And they had to have one or more of the following. We actively included patients with cognitive impairment and looked for those most vulnerable for rehospitalization, those 65 and older, had lived alone because that puts them at increased risk for hospitalization or previous hospitalization within the past 12 months. We did accept patients referred from hospital teams or outpatient teams as being at-risk. The referring providers didn't need
to define that in any other way.

The first two items if the patient met those criteria it was an automatic consult. We didn't need a physician to write an order. You may have seen on 7B some of our nurses coming through for patient care that worked with your patients.

We identified these patients. Our transitional nurse manager would review electronic lists and participated in rounds on each of the targeted wards. She would get to know which patients were coming up for discharge, which would need her services, which were eligible but in addition she was able to give inpatient teams an understanding of what needed to happen in the outpatient world for that patient to be successful.

The inpatient nurses, some of the V.A. wards, tend to be very new. They tend to be recent hires out of nursing schools and may not have the experience of outpatient world as of yet. Our nurse case manager could tell them Mr. Smith could benefit from home health nursing. That's probably the most common recommendation. Or Mr. Smith has been in the hospital five times, we probably need to think about palliative care consult for this particular patient.

So she also visited the patients in the hospital. She would meet with them for a very brief inpatient visit mainly to introduce herself and set up a phone call. The contact she had was reenforced by a half page handout. She is talking to the patient and that handout talks about when the next phone call will be, what your red flags are, and whom to call if problems were to arise.

Very simple, not meant to supplement the other information that they have but designed to be put up on a refrigerator. Simple, bright, and clearly to the message. Also we used very simple language. We did not say call us with dysphagia. We said call us if you're having trouble.

So she called the patient within 48 to 72 hours of discharge and at that point most of the teaching happens. She reenforced management and medication discrepancies or red flags if found would prompt her to contact primary care provider or perhaps inpatient at the hospital or she had ability to -- to urgent care. Here she is on the phone.

The veteran was called weekly for about four weeks. But the process
would end if she decided, and the veteran decided they didn't need further calls. There are some patients you call they were on 30 meds and could rattle off each med, they knew what was going on. Or the veteran saw the primary care provider. Once they saw their PCP we let them go or four weeks passed.

All of our documentation was templated and all of the information was sent to the primary care provider and primary nurse manager or the relevant specialty provider. If a surgeon was involved in the care, Lori would send it to the surgeon.

So for medication counseling, this took up the bulk of the time on those phone calls. The veteran was asked to have all pill bottles in front of them during the initial call and was asked to tell me how you take your medicines. They were not asked a laundry list. This was a patient led medicine reconciliation and we found a lot more information than we otherwise would have. I'll show you that data in a moment. But not surprisingly these calls were long, about 30 minutes per call. So getting to some of our data, the last bit of the talk, hopefully leaving some time for questions. Over the first 18 months of the program we've served 500 veterans. That's a pretty big number for a transitional care program. It is purely because we're a phone based program. Most transitional carrier, you have travel time, to visit the patient in their home. We did not have that.

We only had two veterans, which were approached and refused the program. All of the other 500 accepted. This is remarkable because home based programs have refusal rates of up to 86%. So patients just don't want people coming into their homes in many cases and this tends to be different in different parts of the country but that's our experience in the Midwest.

You have a patient and their wife or they may get worried about the status of the cleanliness of their home, the wonderful midwestern values in which they want to help everyone and their guests but can't do so when they're ill. So the phone based program had much better acceptance rates.

Finally we worked about 30% of the time with caregivers. We had a third of our patients having significant cognitive impairment but our nurse would activate those caregivers. If the patient's loved ones didn't realize what
cognitive problems the patient had, the caregivers were aware of the issues and could help them.

So when we look at some of the basic characteristics of those 500 veterans that we served not surprisingly they're mostly male and white. We selected those with previous hospitalization and who lived alone. But the education levels I thought were interesting.

Nearly a quarter of our patients had less than a high school education. And I don't know if it you realize this at the V.A. but the older patients that you care for, many of them left school to go into the military service. I know in the memory clinic we diagnose learning disorders and all sorts of dyslexia, ADHD within our memory clinic in these older veterans. So when you're talking to these veterans when they're leaving the hospital you may need to remember they may have varying levels of literacy and understanding for what you're talking about.

These patients were sick, lots of comorbidity. Peripheral vascular disease, about a third, again it's the V.A., there's a lot of vaslo -- there. Alcoholism, nearly 20%, again typical of V.A. patients, dementia again approaching 20%, cardiovascular disease was the most common.

These patients tended to have some difficulty caring for themselves. About 70% were able to do their own medications or reported they were able to do their own. So that leaves about 30% who couldn't. 40% had trouble walking within the first two weeks prior to hospitalization or needed help bathing. This is a very vulnerable group we're caring for.

This is pretty shocking. Especially when you realize the most common medicine that was taken inappropriately was Lasix. Why are patients most often readmitted? Congestive heart failure. These are huge. We have had patients, patients trying to be good, and go home, there was a patient taking all of his pills or thought he was, but needless to say he did not realize that he had three different bottles of lithium and he was taking all three. He thought they were different.

We had patients on multiple doses of this same drug again and again. We've had patients who stopped their antibiotic because they've forgotten what they were hospitalized for within two days of discharge. So these are things that Lori was directly able to intervene and potentially decrease hospitalizations.
When we actually look at rehospitalizations the first six months of our program was a baseline period. So it is the time in which we were establishing protocols, getting our nurse out there, getting buy in from leadership. So effectively our patients didn't receive the full protocol. But at that time, for eligible veterans we did collect their data and about a third were rehospitalized within 30 days. That number is much higher than the typical baseline. But over the course of the next six months we saw a drop of 11% reduction in hospitalizations and that was sustained for the subsequent six months.

As you can see in the April to September period, if there was a seasonality effect it's not seen again. Granted this is prepost data, it's not very rigorous. So increase the rigor I performed a multi- -- logistic analysis in which I tried to control near those factors which could be influencing rehospitalizations.

When we look at that baseline establishment period and use it as a comparison group to the intervention period and we control for age, gender, race, education, comorbidities, whether the patient lived alone, whether they had major functional issues we still found that our program was -- at least in this analysis was effective.

So it did decrease the risk of rehospitalization by about 40% -- the odds of rehospitalization excuse me. So when we translate that and do an estimation of cost savings affiliated with this program in the V.A. I can't say cost savings I have to say cost avoidance. If we save money in the V.A. it's spent elsewhere. This 11% decrease would respond to 277 saved days or prevented hospital days over the 12 month period. This leads to a direct cost avoidance of 655,000, using the average cost per day of hospitalization. After accounting for all of our programmatic costs which were minimal, we basically had the nurse salary we had a cost avoidance of -- per patient enrolled.

Some of the conclusions from that program, our findings do suggest that this program might decrease 30 day rehospitalizations leading to overall cost performance. It is low risk and may be a viable alternative in V.A. rural or other settings in which the home setting isn't practical or possible.

So it provides additional option. But there are some pretty serious limitations to the data I just showed you. I want you to keep that in mind.
This is a single site. Because we have effects in Madison doesn't mean we will have effects elsewhere. We had a 1.0 -- nurse. She was not available on weekends or holidays. Because of that some eligible patients may have slipped through our fingers.

I did do some adjusted analysis. We did do a prolonged assessment to maximize our rigor but it still has problems. A multi-state RTC would offer stronger data. And so not surprisingly, our next step is to try to get funding for RTC to look at program expansion. We currently have a proposal in front of the V.A. to ask for more nursing staff to expand the program to the full V.A. And to continue our data collection.

We're working with the institute for clinical and research -- to develop a web based platform in which our protocols can be disseminated and we currently have a paper in review.

So that was a lot of talking but so to wrap up now, some overall conclusions, I hope I have convinced you fragmentation contributes to rehospitalizations that our system is fundamentally flawed in many ways, major gaps between institutions and unless you have true respect for those gaps and the fact that your patients don't always thrive in the next setting you need to think of the discharge as much as the admission. Hopefully I've convinced you of that.

Effective communication truly lies at the core of every safe transition. Pay attention to discharge summaries and discharge orders especially if a patient is going to nursing homes. Education based transitional care services can decrease rehospitalizations. So you may start seeing nurses showing up on your wards, participating in multi-disciplinary discharge rounds, trying to keep your patient safe in the next setting of care.

There is movement at the UW, a new geriatrics transitional program. At V.A. we see surgical patients. If you get involved don't be afraid to ask questions or work with the nurse.

I need to acknowledge all of the collaborators and mentors who are very many, and the multiple staff members who have made this presentation possible. I had joint appointment with UW and V.A. and partner faculty member with health and innovation program and funding from a number of sources. The data I showed you today was a result of all of these different sources of funding.
So certainly many thanks are to be had. So thank you again for inviting me and I would be -- hopefully I've left enough time to answer at least a few questions. So thanks.

>> [Applause.]

>> -- increase (Off Microphone.)

>> Right. So all of those markers, when they're designed in the study, are designed as yes/no variables. So you're absolutely right. The flip side of that would be if someone had decreased length of stay, they would be less apt to be readmitted. However, that being said, it doesn't mean you need to push patients out more quickly. There are evidence with advent of DRG's which was a new payment created in the 1990's to pay for care on an episode basis in the hospital. So if you're admitted for pneumonia you get a certain amount of money from the Government, no matter whether you're patient stays for 10 days or one day.

There is some suggestion that rehospitalizations have increased since advent of DRG's. Length of stay is tricky because it tends to show us not only practice pattern, so your decision to discharge but also tells us a little about the patients. Patients who need longer lengths of stay tend to be sicker. So I don't think just decreasing like the stay would necessarily change rehospitalizations. I think it's more complicated.

>> Thanks a lot for -- slide -- it's just great work. I know that there's -- UW hospital try to apply some of your model -- patients. One of the things I'm concerned -- understand -- in this idea of -- center, rather than having expert nurses -- associated with the -- familiar with the disease process -- which is a lot of -- sort of -- red flags. So when you think about these red flags there's got to be some validated models or some validated -- come from --

>> That is wide open. Yeah. It's absolutely great question. And the question was, what about the validation of these red flags. And it is wide open. There has been no true validation. It's all been clinical judgment thus far. I have to say as far as the transitional care efforts moving forward, there are many different types of them.

I don't know as much about the Department of Surgery, but within the
Department of Medicine, I've heard a little bit about this idea of the call center, but there are -- there is a transitional care program that launched that's more like the one I talked about, a combination phone call program, targeting CHF, pneumonia and -- because those are first to get dinged for payment penalties. The hospital teams are establishing a follow-up clinic that -- in which there's easy access for patients without primary care physicians. I can't speak to the call center.

In my personal judgment I think it's best if you have a clinician who knows the patient, knows their care, and has some background in whatever disease they're caring for, whatever type of patient. So ideally if you had a transitional care program in surgery you'd have an expert surgical nurse involved with their care and would perform these transitions.

I think there's more -- it's difficult. In the world of congestive heart failure there have been these phone banks for years, case management phone banks in which the nurse may not be on site, may have never seen the patient but go through these protocols and talk to the patients. Those have shown varying effectiveness, and I think the thing to remember about this program I just told you is that our nurse is on the phone but they're also meeting that patient, getting to know that patient and they're tightly integrating with the rest of the care team.

So she really forms a communication hub in many ways so if a problem comes up she knows how to navigate the system to get to the doctor that needs to hear about it right away so that care is quicker.

>> -- more and more potential -- you know the basic premise -- 30 day period -- very well, I know some people say well hospitals probably seven to 10 days really have an impact because there's so many -- beyond that that you don't have control over and it's sort of evidences by this transitional care team which is a brilliant idea. And if I understood it right they only help reduce things barely 10 percent. That means 90% it's still not working but when they come back are they coming back at day 28, 29 instead of day 7 or 8 which would indicate it's very successful. So maybe you could comment on whether we're focusing on a period of time.

>> Sure. Absolutely. So the question was what about the effectiveness of this program. It's clearly not helping everyone. We're still getting rehospitalizations but are we pushing these out further. Our absolute reduction was 11% but most people speak in relative reductions because
they're more profound. It was about 30% relative reduction. So that being said, we were similar to many other transitional care programs in our effectiveness.

But you've hit the nail on the head what about the rest of the 70% of patients. Are these rehospitalizations that are preventible, are they driven by socioeconomic factors, is there disease processes that you could no way intervene upon and these patients have to come back. That is still unclear from the literature and it desperately needs study.

As far as the 30 day guideline from Medicare I think that was somewhat arbitrary. There's this group called med PAC, the medicine care payment advisory commission that reports to Congress and they came out with this report back in 2006 which was the impetus for this 30 day thing. And they listed three different options, a seven day option, a 15 day option and a 30 day option and put data with each one.

A lot of the experts in the field glommed onto that 30 day option. It wasn't the marker already used in the transitional care program. It was 30 days. Sometimes these policy decisions are made a bit arbitrarily. So hopefully we are actually pushing out the rehospitalization dates a bit for the last part of your question.

If any of you have any other questions or are interested in transitional care let me know. I'd be happy to talk to you. Area of surgical transition is completely wide open. David Greenblatt who I see in the back is certainly doing some wonderful work in this area. Caprice is helping to facilitate this. So let us know if you're interested and thank you very much for your great questions and attendance.

>> [Applause.]