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“We’re Almost Guests in Their Clinical Care”: Inpatient Provider Attitudes Toward Chronic Disease Management

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Abstract

BACKGROUND—Many hospitalized patients have at least one chronic disease that is not optimally controlled. The purpose of this study was to explore inpatient provider attitudes about chronic disease management and, in particular, barriers and facilitators of chronic disease management in the hospital.

METHODS—We conducted a qualitative study of semi-structured interviews of 31 inpatient providers from an academic medical center. We interviewed attending physicians, resident physicians, physician assistants, and nurse practitioners from various specialties about attitudes, experiences with, and barriers and facilitators towards chronic disease management in the hospital. Qualitative data were analyzed using constant comparative analysis.

RESULTS—Providers perceived that hospitalizations offer an opportunity to improve chronic disease management, as patients are evaluated by a new care team and observed in a controlled environment. Providers perceived clinical benefits to in-hospital chronic care, including improvements in readmission and length of stay (LOS), but expressed concerns for risks related to adverse events (AEs) and distraction from the acute problem. Barriers included provider lack of comfort with managing chronic diseases, poor communication between inpatient and outpatient providers, and hospital-system focus on patient discharge. A strong relationship with the outpatient provider and involvement of specialists were facilitators of inpatient chronic disease management.

CONCLUSIONS—Providers perceived benefits to in-hospital chronic disease management for both processes of care and clinical outcomes. Efforts to increase inpatient chronic disease management will need to overcome barriers in multiple domains.

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Millions of individuals with chronic diseases are hospitalized annually in the United States. More than 90% of hospitalized adults have at least 1 chronic disease,¹ and almost half of Medicare beneficiaries in the hospital have 4 or more chronic conditions.² While many patients are admitted for worsening of a single chronic disease, patients are hospitalized more commonly for other causes. For instance, although acute heart failure is among the most frequent causes of hospitalizations among older adults, three-fourths of hospitalizations of patients with heart failure are for reasons other than acute heart failure.³

When a patient with a chronic disease is hospitalized, the inpatient provider must consider whether to actively or passively manage the chronic disease. Studies have suggested that intervening in chronic diseases during hospitalizations can lead to long-term improvement in treatment;⁴⁻⁶ for instance, stroke patients who were started on antihypertensive therapy at discharge were more likely to have their blood pressure controlled in the next year.⁵ However, some authors have argued that aggressive hypertension management by inpatient providers may result in patient harm.⁷ One case-based survey suggested that hospitalists were mixed in their interest in participating in chronic disease management in the hospital.⁸ This study found that providers were less likely to participate in chronic disease management if it was unrelated to the reason for hospitalization.⁸ However, to our knowledge, no studies have broadly evaluated inpatient provider attitudes, motivating factors, or barriers to participation in chronic disease management.

The purpose of this study was to understand provider attitudes towards chronic disease management for patients who are hospitalized for other causes. We were particularly interested in perceptions of barriers and facilitators to delivery of inpatient chronic disease management. Ultimately, such findings can inform future interventions to improve inpatient care of chronic disease.

METHODS

In this qualitative study, we conducted in-depth interviews with providers to understand attitudes, barriers, and facilitators towards inpatient management of chronic disease; this study was part of a larger study to implement an electronic health record-based clinical decision-support system intervention to improve quality of care for hospitalized patients with heart failure.

We included providers who care for and can write medication orders for hospitalized adult patients at New York University (NYU) Langone Medical Center, an urban academic medical center. As patients with chronic conditions are commonly hospitalized for many reasons, we sought to interview providers from a range of clinical services without consideration of factors, such as frequency of caring for patients with heart failure. We used a purposive sampling framework: we invited participants to ensure a range of services, including medicine, surgery, and neurology, and provider types, including attending physicians, resident physicians, nurse practitioners, and physician assistants. Potential participants, therefore, included all providers for adult hospitalized patients.

We identified potential participants through study team members, referrals from department heads and prior interviewees, and e-mails to department list serves. We did not formally track declinations to being interviewed, although we estimate them as fewer than 20% of providers directly approached. While we focused on inpatient providers at New York University Langone Medical Center, many of the attending physicians and residents spend a portion of their time at the Manhattan Veterans Affairs Hospital and Bellevue Hospital, a safety-net city hospital; providers could have outpatient responsibilities as well.

All participants provided verbal consent to participate. The study was approved by the New York University Institutional Review Board, which granted a waiver of documentation of consent. Participants received a \$25 gift card following the interview.

We used a semi-structured interview guide (Appendix) to elicit in-depth accounts of provider attitudes, experiences with, and barriers and facilitators towards chronic disease management in the hospital. The interview began by asking about chronic disease in general and then asked more specific questions about heart failure; we included responses to both groups of questions in the current study. The interview also included questions related to the clinical decision-support system being developed as part of the larger implementation study, although we do not report on these results in the current study. The semi-structured interview guide was informed by the consolidated framework for advancing implementation science (CFIR), which offers an overarching typology for delineating factors that influence guideline implementation;⁹ we also used CFIR constructs in theme development. We conducted in-depth interviews with providers.

A priori, we estimated 25 interviews would be sufficient to include the purposive sample and achieve data saturation,¹⁰ which was reached after 31 interviews. Interviews were held in person or by telephone, at the convenience of the subject. All interviews were transcribed by a professional service. Transcriptions were reviewed against recordings with any mistakes corrected. Prior to each interview, we conducted a brief demographic survey.

Qualitative data were analyzed using a constant comparative analytic technique.¹¹ The investigative team met after reviewing the first 10 interviews and discussed emergent themes from these early transcripts, which led to the initial code list. Two investigators coded the transcripts. Reliability was evaluated by independent coding of a 20% subset of interviews. Differences were reviewed and discussed until consensus was reached. Final intercoder reliability was determined to be greater than 95%.¹² All investigators reviewed and refined the code list during the analysis phase. Codes were clustered into themes based on CFIR constructs.⁹ Analyses were performed using Atlas.ti v 7 (ATLAS.ti Scientific Software Development GmbH, Berlin, Germany).

RESULTS

We conducted interviews with 31 providers. Of these, 12 were on the medicine service, 12 were on the surgery or a surgical subspecialty service, and 7 were on other services; 11 were attending physicians, 12 were resident physicians, 5 were NPs, and 3 were PAs. Only 2 providers—an attending in medicine and a resident in surgery—had a specialty focus that

was cardiac-related. Median time in current position was 4 years (Table 1). Seventeen of the interviews were in-person, and 14 were conducted by telephone. The mean interview time was 20 minutes and ranged from 11 to 41 minutes.

We identified 5 main themes with 29 supporting codes (Table 2) describing provider attitudes towards the management of chronic disease for hospitalized patients. These themes, with related CFIR constructs, were: 1) perceived impact on patient outcomes (CFIR construct: intervention characteristics, relative advantage); 2) hospital structural characteristics (inner setting, structural characteristics); 3) provider knowledge and self-efficacy (characteristic of individual, knowledge and beliefs about the intervention and self-efficacy); 4) hospital priorities (inner setting, implementation climate, relative priority); and 5) continuity and communication (inner setting: networks and communications). For most themes, subjects described both positive and negative aspects of chronic disease management, as well as related facilitators and barriers to delivery of chronic disease care for hospitalized patients. Illustrative quotes for each theme are shown in Table 3.

Perceived Impact on Patient Outcomes

Perceived impact on patient outcomes was mixed. Most providers believed the management of chronic diseases could lead to improvement in important patient outcomes, including decreased LOS, prevention of hospital complication, and decreased readmissions. Surgical providers focused particularly on the benefits of preventing surgical complications and noted that they were more likely to manage chronic conditions – primarily through use of specialist consultation – when they perceived a benefit to prevention of surgical outcomes or a fear that surgery may worsen a stable chronic condition:

“Most of the surgery I do is pretty stressful on the body and is very likely to induce acute on chronic exacerbations of heart failure. For someone with Class II or higher heart failure, I’m definitely gonna have cardiology on board or at least internal medicine on board right from the beginning.”

However, some providers acknowledged that there were potential risks to such management, including “prolonging hospital stays for nonemergent indications” and treatment with therapies that had previously led to an “adverse reaction that wasn’t clearly documented.” Providers were also concerned that treating chronic conditions may take focus away from acute conditions, which could lead to worse patient-centered outcomes. One attending in medicine described it:

“If you do potentially focus on those chronic issues, and there’s already a lot of other stuff going on with the patient, you might not be prioritizing the patient’s active issues appropriately. The patient’s saying, ‘I’m in pain. I’m in pain. I’m in pain,’ and you’re saying, ‘Thank you very much. Look, your heart failure, you didn’t get your beta-blocker.’ There could be a disconnect between patient’s goals, expectations, and your goals and expectations.”

Hospital Structural Characteristics

For many providers, the hospital setting provides a unique opportunity for care of patients with chronic disease. First, a hospitalization is a time for a patient’s management to be

reviewed by a new care team. The hospital team reviews the management plan for patients at admission, which is a time to reevaluate whether patients are on evidence-based therapies: “It’s helpful to have a new set of eyes on somebody, like fresh information.” According to providers, this reevaluation can overcome instances of therapeutic inertia by the outpatient physician. Second, the hospital has many resources, including readily available specialist services and diagnostic tests, which can allow a patient-centered approach that coordinates care in 1 place, as a surgery NP described: “I think the advantage for the patient is that they wind up stopping in for 1 thing but we wind up taking care of a few without requiring the need for him or her to go to all these different specialists on the outside. They’re mostly elderly and not able to get around.” Third, the high availability of services and frequent monitoring allows rapid titration of evidence-based medicines, as discussed by a medicine resident: “It’s easier and faster to titrate medication – they’re in a monitored setting; you can ensure compliance.”

Patients may also differ from their usual state while hospitalized, creating both risks and benefits. The hospital setting can provide an opportunity to educate patients on their chronic disease(s) because they are motivated: “They’re in an office visit and their sugars are out of whack or something, they may take it a little bit more seriously if they were just in the hospital even though it was on an unrelated issue. I think it probably just changes their perspective on their disease.” However, in the hospital, patients are in an unusual environment with a restricted diet and forced medication compliance. Furthermore, the acute condition can lead to changes in their chronic disease, as described by 1 medicine attending: “their sugar is high because they’re acutely ill.” Providers expressed concern that changing medications in this setting may lead to AEs when patients return to their usual environment.

Provider Knowledge and Self-Efficacy

Insufficient knowledge of treatments for chronic conditions was cited as a barrier to some providers’ ability to actively manage chronic disease for hospitalized patients. Some providers described management of conditions outside their area as less satisfying than their primary focus. For example, an orthopedic surgeon explained: “...it’s very simple. You see your bone is broken, you fix it, that’s it...it’s intellectually satisfying...managing chronic diseases is less like that.” Reliance on consultants was 1 approach to deal with knowledge gaps in areas outside a provider’s expertise.

For a number of providers, management of stable chronic disease is the responsibility of the outpatient provider. Providers expressed concern that inpatient management was a reach into the domain of the primary care provider (PCP) and might take “away from the primary focus” of the hospitalization. Nonetheless, some providers noted an “ethical responsibility to manage [a] patient correctly,” and some providers believed that engaging in chronic disease management in the hospital would present an opportunity to expand their own expertise.

A few providers were worried about legal risk related to chronic disease management: “we don’t typically deal too much with managing some of these other medical issues for medical and legal reasons.” Providers again suggested that consults can help overcome this concern for risk, as discussed by 1 surgical attending: “We’re all not wanting to be sued, and we want to do the right thing. It costs me nothing to have a cardiologist on board, so like - why not.”

Hospital Priorities

Providers explained that the hospital has strong interests in early discharge and minimizing LOS. These priorities are based on goals of improving patient outcomes, increasing bed availability and hospital volume, and reducing costs. Providers perceive these hospital priorities as potential barriers to chronic disease management, which can increase LOS and costs through additional testing and treatment. As a medicine resident described: “The DBN philosophy, ‘discharge before noon’ philosophy, which is part of the hospital efficiency to get people in and out of the hospital as quickly as [is] safe, or maybe faster. And I think that there’s a culture where you’re encouraged to only focus on the acute issue and tend to defer everything else.”

Continuity and Communication

According to many providers, care continuity between the outpatient setting and the hospital played a major role in management of chronic disease. One barrier to starting a new evidence-based medication was lack of knowledge of patient history. As noted, providers expressed concern that a patient may not be on a given therapy because of an adverse reaction that was not documented in the hospital chart. This is particularly true because, as discussed by a surgery resident, patients with “PCPs outside the system [in which providers] don’t have access to the electronic medical record.” To overcome this barrier, providers attempt to communicate with the outpatient provider to confirm a lack of contraindications to therapies prior to any changes; notably, communication is easier if the inpatient provider has a relationship with the outpatient PCP.

Some providers were more likely to start chronic disease therapies if the patient had no prior outpatient care, because the provider was reassured that there was no rationale for missing therapies. One neurology attending noted that if a patient had newly documented “hypertension even if they were in for something else, I might start them on an antihypertensive, but then arrange for a close follow-up with a new PCP.”

Following hospitalization, providers wanted assurance that any changes to chronic disease management would be followed up by an outpatient physician. Any changes are relayed to the outpatient provider and the “level of communication...with the outpatient provider who’s gonna inherit” these changes can influence how aggressively the inpatient provider manages chronic diseases. Providers may be reluctant to start therapy for patients if they are concerned about outpatient follow up: “they have diabetes and they should really technically be on an ACE [angiotensin converting enzyme]inhibitor and aspirin, but they’re not. I might send them out on the aspirin but I might either start ACE inhibitor and have them follow up with their PCP in 2 weeks if I’m confident that they’ll do it or if I’m really confident that they’ll not follow up, I will help them get the appointment and then the discharge instruction is to the PCP is ‘Please start this patient on ACE inhibitor if they show up.’”

DISCUSSION

Providers frequently perceive benefit to chronic disease management in the hospital, including improvements in clinical outcomes. Notably, providers see opportunities to

improve compliance with evidence-based care to overcome potential barriers to managing chronic disease in the outpatient setting, which can be limited by pressure for brief encounters,¹³ clinical inertia,¹⁴ difficulty with close monitoring of patients,¹⁵ and care fragmentation.¹⁶ Concurrently, inpatient providers are concerned about potential for patient harm related to chronic disease management, primarily related to AEs from medications. Similar to a case study about a patient with outpatient hypotension following aggressive inpatient hypertension management,⁷ providers fear that changing a patient's chronic disease management in a hospital setting may cause harm when the patient returns home.

Although some clinicians have argued against aggressive inhospital chronic disease management because of concerns for risk of AEs,⁷ our study and others⁸ have suggested that many clinicians perceive benefit. In some cases, such as smoking cessation counseling for all current smokers and prescribing an angiotensin-converting enzyme inhibitor for patients with systolic heart failure, the perceived importance is so great that chronic disease management has been used as a national quality metric for hospitals. While these hospital metrics may be justified for short-term benefits after hospitalization, studies have demonstrated only weak improvement in short-term postdischarge outcomes related to chronic disease management.¹⁷ The true benefit is likely from improved processes of care in the short term that lead to long-term improvement in outcomes.^{4,5,18} Thus, the advantage of starting a patient hospitalized for a stroke on blood pressure medication is the increased likelihood that the patient will continue the medication as an outpatient, which may reduce long-term mortality.

For hospital delivery systems that are concerned with such care process improvement through inhospital chronic disease management, we identified a number of barriers and facilitators to delivering this care. One significant barrier was poor transitions between the inpatient and the outpatient settings. When a patient transitions into the hospital, providers need to understand prior management choices. Facilitators to help inpatient providers understand prior management included either knowing the outpatient provider, or understanding that there was a lack of regular outpatient care; in both these cases, inpatient providers felt more comfortable managing chronic diseases because they had insight into the outpatient plan, or lack thereof. However, these facilitators may not be practical to incorporate in interventions to improve chronic disease care, which should consider overcoming these communication barriers. Use of shared electronic health records or standardized telephone calls with well-documented care plans obtained through health information exchanges may facilitate an inpatient provider to manage appropriately chronic disease. Similarly, discontinuity between the inpatient provider and the outpatient provider is a barrier that must be overcome to ease concerns that any chronic disease management changes do not result in harm in the postdischarge period. These findings again point to the need for improved documentation and communication between inpatient and outpatient providers. Of course, the transitional care period is one of high risk, and improving communication between providers has been an area of ongoing work.¹⁹

Lack of comfort among inpatient providers with managing chronic diseases is another important barrier, which appears to be largely overcome through the use of consultation services. Ready availability of specialists, common in academic medical centers, can

facilitate delivery of chronic disease management. Inpatient interventions designed to improve evidence-based care for a chronic disease may benefit from involvement or at least availability of specialists in the effort. Another major barrier relates to hospital priorities, which in our study were closely aligned with external factors such as payment models. As hospitalizations are typically paid based on the discharge diagnosis, hospitals have incentives to discharge quickly and not order extra diagnostic tests. As a result, there are disincentives for chronic disease management that may require additional testing or monitoring in the hospital. Conversely, as hospitals accept postdischarge financial risks through readmission penalties or postdischarge cost savings, hospitals may perceive that long-term benefits of chronic disease management may outweigh short-term costs.

The study findings should be interpreted in the context of its limitations. Findings of our study of providers from a single academic medical center may not be generalizable. Nearly half of our interviews were conducted by telephone, which limits our ability to capture nonverbal cues in communication. Providers may have had social desirability bias towards positive aspects of chronic disease management. We did not have the power to determine differences in response by provider characteristic because this was an exploratory qualitative study. Future studies with representative sampling, a larger sample size, and measures for constructs such as provider self-efficacy are needed to examine differences by specialty, provider type, and experience level.

In conclusion, inpatient providers believe that hospital chronic disease management has the potential to be beneficial for both process of care and clinical outcomes; providers also express concern about potential adverse consequences of managing chronic disease during acute hospitalizations. To maximize both quality of care and patient safety, overcoming communication barriers between inpatient and outpatient providers is needed. Both a supportive hospital environment and availability of specialty support can facilitate in-hospital chronic disease management. Interventions that incorporate these factors may be well-suited to improve chronic disease care and long-term outcomes.

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Table 1

Provider Characteristics

Characteristic	Total N = 31	N (%)
Clinical Service		
Medicine		12 (39)
Surgery		12 (39)
Neurology		4 (13)
Other		3 (9)
Clinical Role		
Attending		11 (35)
Resident		12 (39)
Physician Assistant		3 (10)
Nurse Practitioner		5 (16)
Experience (yr)		
0–5		18 (58)
6–10		6 (19)
11		7 (23)
Gender		
Male		17 (55)
Female		14 (45)
Ethnicity		
Hispanic or Latino		3 (10)
Not Hispanic or Latino		28 (90)
Race		
Caucasian		22 (71)
African American		2 (6)
Asian		5 (16)
Other		2 (6)

Table 2Themes and Supporting Codes²**Perceived impact on patient outcomes**Facilitators

Decrease length of stay

Reduce readmission

Prevent complications

Barriers

Patient goal alignment

Risk of adverse side effects due to contraindication

Increase length of stay

Takes focus off primary reason patient is hospitalized

Hospital structural characteristicsFacilitators

Hospital has many resources

Opportunity to re-evaluate care

Ability to coordinate care in one place

Expedite medication titration

Ability to monitor in-house

Patient is motivated

Controlled environment

Barriers

Adjusting chronic medications while patient is in non-chronic state

Provider knowledge and self-efficacyFacilitators

Ethical responsibility

Defer to specialist

Barriers

Inpatient provider is liable if something goes wrong

Not area of expertise

Not gratifying

Management of chronic disease is role of outpatient provider

Hospital prioritiesBarriers

Hospital efficiency

Cost

Continuity and communicationFacilitators

Influenced by knowing PCP

More likely to manage chronic disease if no PCP

Barriers

Require follow-up

Outpatient provider has to inherit decision

Lack of knowledge of outpatient plan

Difficult to manage if poor outpatient follow-up

^aCodes are categorized as those that are primarily positive attitudes towards or facilitators of inpatient chronic disease management and those that are primarily negative attitudes or barriers towards this care.

NOTE: Abbreviation: PCP, primary care provider.

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Table 3

Example of Quotations for Each Theme

Perceived impact on patient outcomes	An example is if a patient is on antihypertensive medications, it might not be what you would normally start as first-line therapy... [their outside physician] may have put other thought into it, or they maybe had some adverse reaction to some medication that wasn't clearly documented or they were in another hospital system...So I think that downside can be potentially worsening their care if their specific thoughts and reasons for why they came in on something that at first glance doesn't make as much sense. – Medicine Resident
Hospital structural characteristics	I think you can get more done, quicker than in an outpatient setting, because you pretty much have access to a bunch of different providers on any day and they can usually see the patient within 24 hours if we need them to and that is usually very beneficial in terms of kind of changing their medication. – Rehabilitation Resident
Provider knowledge and self-efficacy	It seems like it's stepping on other people's toes, where people generally have a primary care provider...like where we're almost guests in their clinical care. So it's not really our job in a way. And there's a lot more pressure to just focus on the acute issue – Medicine Resident
Hospital priorities	Prolonged hospitalization leads to more infection...So the quicker you get people out of the hospital, the less infection that they have, and the less, you know, deep vein thrombosis they have, and so on. So, if you're keeping them there, and that happens all the time, we are ready to send them out and the cardiologist comes in: Well, while they are here, why don't we get the echo. I was going to get the echo anyway. So they are staying another day...Not that it's inappropriate testing; it's just unnecessary in the hospital. And if you know anything about hospital economics...if the doctor does it as an outpatient, then they are making money for it. If they do it as an inpatient, they are losing money on it... it comes off the total amount that the hospital gets for the patient...So there's every motivation to do it as an outpatient. – Neurology Attending
Continuity and communication	I would be more likely to just call the PCP if I know who they are. Although, like I said, we would still call. We don't want to make any long-term changes that the PCP is going to have to clean up our mess – Neurology Nurse Practitioner

NOTE: Abbreviation: PCP, primary care provider.