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Bundling Payment Initiatives for Total Hip and Knee Arthroplasties: Perspectives of Health Care Professionals

Abstract

Background: A broad qualitative research study explored the perceptions of rehabilitation health care professionals and administrative leadership on coordination of care for rehabilitation patients who received hip or knee arthroplasties under the bundling initiative.

Method: Data was collected through the conduction of a focus group, email communication, and individual phone interviews. Researchers analyzed data collected from five administrative personnel and eight rehabilitation health care professionals who work in a facility that participates in a bundling initiative payment model.

Results: Four major themes were identified: importance of care coordination, increased efficiency and effectiveness, establishing protocols, and challenges of bundling payment.

Conclusion: These findings indicate the significance of interprofessional collaboration and communication, establishment of patient autonomy, and adherence to rehabilitation protocols with hip or knee arthroplasties.

Comments

The authors report no potential conflicts of interest.

Keywords

arthroplasty, replacement, rehabilitation, Medicare

Cover Page Footnote

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Bundling payment initiatives, or efforts to coordinate care across multiple systems and decrease health care costs through managing a lump sum payment, have been used in the United States health care system since 2005 and prior with small projects (Gage & Albaroudi, 2015; Miller et al., 2011). However, it was not until 2010, when the Patient Protection and Affordable Care Act (ACA) was introduced, that major health care reform in relation to bundling efforts occurred (Miller et al., 2011). To reduce episode-of-care costs, the ACA launched a bundling pilot in 2011 called the Bundled Payments for Care Improvement (BPCI) (Froimson et al., 2013). This initiative encompassed a single payment for both hospitalization and postacute services that covered more than 40 surgical procedures, including hip and knee arthroplasties (Miller et al., 2011). Considered to be a value-based payment model, or a model with payment based on patient outcomes, the BPCI bundled an episode of care. This episode of care provided a fixed reimbursement amount and management of care throughout the continuum of care until 90 days postdischarge to help prevent hospital readmissions and lower costs (Bozic et al., 2014). With a fixed reimbursement amount, there was an incentive for management of costs through successful coordination of care among physicians, health care professionals, and hospital administration (Bozic et al., 2014).

In 2016, the Centers for Medicare and Medicaid Services (CMS) mandated the participation of hundreds of hospitals in the Comprehensive Care for Joint Replacement bundling initiative for Medicare Beneficiaries receiving Part A and B payments in certain geographic locations (CMS, n.d.; Navathe et al., 2018). Like the BPCI, combined payment for hospitalization and postdischarge care for 90 days following surgery was used for Medicare patients with total hip and knee joint replacements included in these initiatives. The general results of implementing the Comprehensive Care for Joint Replacement bundling initiative were positive for reducing costs and improving quality of care for all total joint arthroplasties (TJA; McLawhorn & Buller, 2017).

Bundling payments, with adequate quality monitoring, can effectively increase the coordination of care with Medicare beneficiaries who receive TJA. According to Porter (2010), “value” in health care is defined as quality/cost, and overall quality must not be decreased with cost control strategies. With the alignment of incentives for all providers involved in the episode of care, health care professionals must work together closely to deliver effective quality care across all health care settings (CMS, 2018). Prior to the bundling initiative, the duration of a patient’s surgical episode, including preoperative, intraoperative, and postoperative for a TJA has been several weeks; currently, it only lasts a few days (Parcells et al., 2016). The fixed reimbursement for TJA has shown to reduce costs, eliminate unnecessary services, and maintain or improve quality of care (McLawhorn & Buller, 2017). Health care professionals must collaborate to maximize preoperative optimization by identifying risk factors for readmission, which is a primary cost driver because of unrelated medical reasons, infections, and dislocations (McLawhorn & Buller, 2017). According to previous studies, the greatest opportunity to lower overall episode-of-care costs is in the postacute arena, including home health and skilled nursing facilities, where costs vary significantly. Furthermore, an extended hospital length of stay with discharge to home may result in lower costs than a shorter hospital length of stay with postacute skilled facility discharge (McLawhorn & Buller, 2017).

There is limited research with a specific focus on the coordination of care among health care professionals for total hip and knee arthroplasties in the bundling initiative. Generally research addressed impact of an episode-of-care approach on costs, length of stay, discharge settings, patient complications, and a clinical pathway approach. The decrease in cost of receiving a TJA was found to be

a direct result of minimizing patient stay and increasing the amount of patient discharges to skilled nursing facilities (Doran & Zabinski, 2015). Analysis of episode-of-care payments for Medicare beneficiaries who underwent a primary or revision TJA produced widely varied results based on comorbidities, complications, type of procedure, discharge setting, and readmission rates (Bozic et al., 2014). In addition, one study addressed the implications of using evidence-based clinical pathways and risk measures for a bundling payment initiative. Results of that study concluded that a value-based payment system decreased the cost, length of stay, and expedited the discharge from acute to postacute facilities (Bolz & Iorio, 2016).

Although previous studies addressed how the bundling payment initiative impacts cost of care, readmission rates, and length of stay, there is a paucity of research examining the quality and coordination of care perceived by health care professionals. Concerns have been raised regarding the quality of care provided under the bundling initiative because of the hospitals' exposure to the risk of incurring large financial losses from unplanned readmissions (Cassidy, 2015). The aging of the U.S. population combined with the rapidly escalating prevalence of obesity is causing a higher demand for hip and knee replacements, increasing the necessity of this research (Mallinson et al., 2011). This study is timely given the lack of research regarding the coordination of care for TJA in a current value-based system. A need was determined based on the large number of patients receiving TJA per year as hip and knee arthroplasties are among the most common orthopaedic procedures performed in the US (Kremers et al., 2015; Siracuse et al., 2017; Yoshihara & Yoneoka, 2014). The purpose of this qualitative study was to assess the perceptions of health care professionals and hospital administrators who work in a bundling initiative on patients' coordination of care through their surgical length of stay as well as postacute care.

Method

Design

The researchers used a broad qualitative approach to analyze data from health care professionals and administrators employed in a Midwest area hospital system using a focus group, phone interviews, and email communication. A broad qualitative design allowed for the raw data to be condensed into similar concepts and linked to the research questions (Thomas, 2006). The Creighton University Institutional Review Board approved this study, and all informants provided informed consent.

Informants

The researchers used convenience sampling to recruit rehabilitation health care professionals and hospital administrators who were involved in the bundling initiative from a Midwest hospital system that serviced a small city and the surrounding rural areas. In addition, administrators in skilled nursing facilities receiving patients following hospital stays were included in the recruitment process. Rehabilitation health care professionals considered for the study included registered nurses, occupational therapists, and physical therapists. All rehabilitation health care professionals were considered for this study if they had at least 6 months experience working with TJA patients in the hospital system during part of the voluntary bundled payment initiative. Administrators included a charge nurse, rehabilitation manager, lead occupational therapists and physical therapists, and overall facility administrator or appropriate personnel in quality review. Administrators held a position that included responsibilities for overseeing the overall facility, heading the implementation of the bundling initiative program, managing a rehabilitation unit that had patients in the bundling initiative, or managing nursing or rehabilitation care. These administrators were not directly involved in patient care and did not have a caseload.

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Administrators were expected to have prior knowledge of readmission rates, quality metrics, and patient feedback to be considered for participation in this study.

Questionnaires

Because of the qualitative nature of this study, the questionnaires developed by the researchers, based on a literature review and the research objectives, included open-ended and semi-structured questions. In addition, an expert panel of four researchers in the field of occupational and physical therapy, skilled in qualitative research and questionnaire design, reviewed the questionnaire prior to administration to ensure neutrality and face validity of questions (Patton, 2015). Multiple forms of data collection, focus groups, and individual phone interviews were used to provide a range of data and increase the number of potential informants. Questionnaires were emailed to focus group informants 1 week prior to participation in any study activity to allow for preparation and increase the quality of discussion. Phone interview informants were emailed questionnaires once they scheduled a time that accommodated their schedule over a 2 month period. The questions used for the administrator's focus group contained three overarching questions and subsequent probing questions that were used if further depth or clarification of an answer was required. The individual phone interview questions provided to health care professionals incorporated four overarching questions along with subsequent probing questions that were asked as necessary to facilitate the flow of the interview. The appendix includes a listing of questions asked.

Procedures

The research team received a list of health care professionals and administrators from the participating hospital's research coordinator. After the potential informants read the information letter about the study, 13 health care professionals consented to participate in the study. Data collection started with a focus group of four health care administrators, which lasted approximately 1 hour. The researchers selected to complete a focus group with the administrators, as their schedule was more flexible and it allowed for dialogue among the members. The focus group was digitally recorded and transcribed by the research team. One SNF administrator agreed to participate and withdrew following review of the questionnaire, stating they did not have enough information to contribute to the objectives of the study. After completion of the focus group, individual phone interviews occurred with the rehabilitation health care providers (i.e., nurses, physical therapists, occupational therapists). Eight rehabilitation health care providers completed an individual interview that lasted approximately 15 min. These interviews were done individually to promote honest responses without supervisors present. The researchers digitally recorded and transcribed verbatim each interview.

Data Analysis

Braun and Clarke's (2006) thematic analysis procedures guided the coding process. Thematic analysis identifies, analyzes, and reports patterns in the transcribed data in six sequential phases (Braun & Clarke, 2006). The six phases include: familiarization of data, generation of initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the manuscript (Braun & Clarke, 2006). To become immersed in the data, the researchers individually transcribed the interviews and focus group and then read and re-read the transcripts and responses to the email questionnaires. Second, the researchers highlighted important phrases and wrote initial codes in the margins of the transcribed interviews and responses to the email questionnaires. In the third phase, five researchers individually searched for and generated four to eight broad, potential themes. The fourth phase involved researcher collaboration to review codes and themes using a visual thematic map and narrowing it down

to four final themes. In the fifth phase, the researchers named the final themes and provided a description and supporting quotes for each theme. In the last phase, the research team wrote up the findings of the study.

To establish trustworthiness, the researchers completed member checking by emailing the initial themes and supporting quotes to the informants for confirmation of themes. Researcher triangulation was used to reduce single-researcher bias. Peer debriefing occurred with two experienced qualitative researchers through regularly scheduled meetings where mentorship was provided regarding theme formation to ensure accuracy. In addition, method triangulation occurred by collecting data through three various methods, including a focus group, email communication, and individual phone interviews. The research team practiced reflexivity through acknowledgment of their active role in the study and completion of electronic journaling and writing subjective notes in the transcription margins to ensure that the findings are from the perspective of the informants rather than the researchers. In addition, the researchers kept an audit trail through the preservation of all documents, emails, and meeting notes exchanged between research members and with any information pertaining to this study. Researchers also provided a thick description of the research process to ensure trustworthiness (Curtin & Fossey, 2007).

Results

The informants in this study included five hospital administrators and eight rehabilitation health care professionals (see Table 1). All thirteen informants were employed at a hospital in the Midwest that used the voluntary bundling payment initiative. All eight rehabilitation health care professionals took part in the focus group also participated in individual phone interviews.

Table 1
Informant Demographics

Job Title	Degree	Focus Group	Phone Interview
Rehabilitation Supervisor or Director (n = 3)	Physical Therapy (n = 2); Occupational Therapy (n = 1)	X	
Nurse Navigator (n = 1)	Registered Nurse	X	
Hospital Administrator (n = 1)	Hospital Administration	X	
Registered Nurse (n = 3)	Registered Nurse		X
Occupational Therapist (n = 2)	Occupational Therapy		X
Physical Therapist (n = 3)	Physical Therapy		X

Four themes emerged from the data, including (a) the importance of care coordination, (b) increased efficiency and effectiveness, (c) the establishment of protocols, and (d) the challenges of bundling.

Importance of Care Coordination

The informants reported improvement of interprofessional communication as a positive outcome of the voluntary implementation of the bundling initiative. The hospital administrators reported that implementation of collaborative practice decreased readmission rates for patients receiving hip and knee arthroplasties. One informant discussed the importance of working as a team, “I think our outcomes are pretty good in terms of readmission because we work together as a team and we have that communication piece as well.” When commenting on the best way to reduce readmission rates for these

patients, a health care professional highlighted the need for teamwork. One health care professional stated,

> It is a very big team effort up here. I mean PT [physical therapy], OT [occupational therapy], nursing, and the aides, it's a whole team effort. And they're home the next day. Very rarely do we have someone stay until second post-op [postoperative] day.

Thus, overall care coordination involved actively sharing information among the health care team from the hospital to the postacute system to meet patient needs and provide effective health care services.

Both hospital administrators and rehabilitation health care professionals expressed the importance of establishing a contact person for patient assistance and postoperative follow up. In the participating hospital, this contact person was a nurse navigator who worked directly with each patient across the entire continuum of care. One hospital administrator made the following statement:

> We've found with the bundling that one of the biggest things to create success is that coordination of care. Our bundle would not be successful without our nurse navigators because they are the touch point for that patient from the minute they decided they're going to have that surgery. It's the same person, it's these guys calling them, it's these guys doing the class, it's these guys who touch base with them in the hospital, it's these guys who are following up and making those calls. We have found in all of our bundling projects that if the patients have that person to cling to, that person to make that phone call to, that's what has made them successful.

Increased Efficiency and Effectiveness

All hospital administrators expressed the importance of incorporating evidence-based practice and tracking outcomes to ensure patients receiving total hip and knee arthroplasties received quality care and a successful recovery. Every patient in the bundling initiative followed a standard treatment protocol. The hospital administrators and rehabilitation health care professionals reported that they reduced patients' average length of stay in the studied hospital bundling program from 3 days to 1.6 days. One informant explained the decreased length of stay by stating,

> We treat them (patients receiving total hip and knee arthroplasties) a lot faster and all the patients are treated the same regardless . . . when we first started, the patients would stay, you know, 3 or 4 days after surgery, but now most of them will go home the next day.

When asked about the importance of measuring the effectiveness of treatment with their approach and outcomes with the bundling patient initiative the research participants mentioned successful completion of quality metrics. They considered evidence for each stage of patient care from the hospital to postacute systems to enable successful discharge to home. One focus group informant stated,

> The goal of the advance program is to show the progressiveness, the evidence base, that you are pushing the envelope, that you are pushing the box and you're doing the research and you're doing something different than everyone else, that is the whole point.

Establishing Protocols

Hospital administrators and rehabilitation health care professionals expressed how setting early expectations and encouraging patient responsibility is vital to creating more positive and successful patient outcomes. The hospital administrators described preoperative and postoperative activities that were instated to promote patient responsibility and autonomy. One hospital administrator explained this process:

> That starts the day that they get the surgery referral, then the nurse navigators are involved and they start with that patient, they come in about a month before and do a 3-hr class. Setting our expectations then is what you need to prepare for at home. These are exercises you need to do preoperatively, and our plan is to send you home post-op day one. Just setting all those expectations right then a month in advance. Saying this is the way it is going to be, that helps a lot of our patients focus on that as well.

From a different perspective, rehabilitation health care professionals also identified preoperative and postoperative activities and steps that are taken throughout the continuum of care to improve patient outcomes. One informant stated that, with "bundled payment plans, the ideal thing is for the patient to go home instead of spending more of that bundled payment on another admission to a skilled nursing facility." Health care professionals provide preoperative and postoperative exercises and educate the patient on the importance of these exercises. In addition, the rehabilitation health care professionals will help the patient identify medical limitations, family or caregiver support, and environmental barriers that may affect a successful recovery. A rehabilitation health care professional articulated,

> We are pushing them to take more of an active role and completing their own rehabilitation so if the patient becomes more accountable for it, for their outcomes, it motivates them a little bit more to do, to be more of an active participant in therapy. Patients are taking more responsibility for their rehab . . . and they tend to come in knowing more and have more of a plan.

Challenges of Bundling

Rehabilitation health care professionals and hospital administrators identified challenges that were faced with implementation of the bundling initiative. The primary concern for hospital administrators was the strict perioperative criteria for patients based on specific medical parameters, including normal levels for hemoglobin and glycated hemoglobin (HbA1c). Thus, laboratory results or vitals that are outside normal limits would cause the cancellation of the surgery until the patient's levels are in a range that is deemed healthy and safe during a hip or knee arthroplasty. A focus group informant stated,

> We do end up having to cancel a lot of surgeries ahead of time and then they have to be run back through the process because of low hemoglobin or high $HbA1_C$. People would just have surgery before and now it's being stopped.

Health care professionals participating in interviews expressed concern about being expected to discharge patients early under the bundling initiative. Many informants believed that rushing patients home, especially older patients, is not beneficial for recovery. Most rehabilitation health care

professionals interviewed made statements similar to the following about the challenges of the rapid patient discharge postoperation,

> Under the bundled payment system, the goal is to discharge the patient as soon as the patient is appropriate and safe to do so. There's kind of been a push for therapy to address more things in less time. And less time, being fewer treatment sessions.
>
> I think sometimes we discharge too soon. Usually they'll come and get their hip or knee done, then they're discharged home. They get pain medication, but sometimes our older population should stay an extra day just because we do send them home versus a nursing home or a home care facility.

Concerning challenges with bundling, a hospital administrator proposed some advice for hospitals considering the bundling initiative:

> When things change, everyone has to be ready to change and you have to very quickly become mobile and adapt to those changes and that can be challenging. You've got different shifts of people, we have different departments, I mean you're talking nursing, you're talking rehab, you're talking diagnostics, you're talking a wide group of people all touching this patient, and you have to very quickly be mobile to changes and be willing to do those and be okay with that.

Discussion

The purpose of this study was to better understand how rehabilitation health care professionals and hospital administrators perceived the effects of the bundling initiative on coordination of care for patients who underwent hip or knee arthroplasties. The findings indicated that the informants in this study found the bundling initiative beneficial in increasing the coordination of care for patients receiving hip or knee arthroplasties. The informants reported experiencing an improvement of care coordination through better use of interdisciplinary communication along with improved treatment efficiency to keep readmission rates and patient length of stay levels low. The establishment of a contact person for the patients to reach out to at any time with questions or concerns also was found to be highly effective in reducing readmission rates.

The main goal of the bundling initiative is to maximize the number of patients discharged to home with no additional compensation for treatments that occur outside of an episode of care (Bosco et al., 2014). Treatments for surgical or medical complications, such as for a wound infection, that result in a hospital readmission or use of additional postacute services to address complications are considered to be occurring outside an episode of care (Kurtz et al., 2016). Health care providers are also encouraged to reduce the rate of readmissions to save overall costs, as hospitals are accountable to pay the entire cost of a hospital stay if a patient is readmitted up to 90 days after discharge (Kiridly et al., 2014), regardless of the cause (Bolz & Iorio, 2016). Reduction of readmission rates, coordination of care, and alignment of incentives among all rehabilitation health care professionals, physicians, and administrators of the hospital is essential and expected under the bundling initiative (Miller et al., 2011). The informants noted that challenges with implementation of this initiative arise when there is difficulty among the hospital employees with adapting to change and insufficient communication across departments. If hospitals were open and prepared to change to improve outcomes for patients, the perception of the initiative was primarily positive.

The informants in this study stressed the importance of patient education to stimulate self-directed care and the use of a nurse navigator as a first-line contact point for any questions or concerns the patient may have. Nurse navigators communicated with all members of the health care team and with patients about their care prior to and after surgery. A rehabilitation health care professional likened a nurse navigator's role to that of a social worker for orthopedic patients. Nurse navigators are responsible for making sure patients are ready and cleared for surgery, communicating changes in patient charts with nurses, preparing for discharge planning, setting up postdischarge appointments with outpatient therapy, and following up with patients for up to 1 year after discharge. Nurse navigators influence care coordination by encouraging interdisciplinary communication among all members of the health care team to ensure patients return home safely (Antonova et al., 2015).

Future Research

Because of the lack of research examining health care professionals' perceptions of the bundling initiative on patient coordination of care, this study provides a foundation for this topic. The results from this study may have important implications for all health care professionals, research, and future policy decisions. As the primary informants for this research were hospital based, it would be beneficial to further study the perceptions of more health care professionals working in skilled nursing facilities or home health agencies. The SNF administrator in this study stated that they did not have enough information to provide insight into the bundling payment initiative. This information can be used in future studies to promote a collaboration with SNFs in order to gain a more diverse understanding of this initiative. Patient satisfaction rates across the continuum of care can be looked at to assess if changes have occurred following the bundling initiative. Qualitative research considering the perceptions of patients with a bundling approach would also add a different dimension to research findings.

A major theme in the focus group was the perspective that the bundling initiative led to the establishment of effective protocols that were then applied to all patients regardless of payment method. However, there is a lack of evidence of the perceptions of health care professionals and administrators about the usage of protocol participating in bundling across the full continuum of care; therefore, this information cannot be generalized for all facilities. Future research could focus on protocol usage across the continuum of care.

Further studies are needed with a larger sample size in all practice settings and assessment of long-term outcomes to evaluate the most effective methods of coordinating care in an ever-changing health care system. Although this study has provided insight into the experiences of hospital employees following implementation of the bundling initiative, there are many areas of future research. This research can focus on comparing and measuring changes in length of stay and hospital readmission rates in fee for service and bundling models. Other research could consider quality indicators with patient responses across the continuum of their care. In addition, research tracking where patients in the bundling initiative are frequently discharged would provide an opportunity to learn about another aspect of this initiative.

Limitations

A limitation of this study was that information obtained regarding the bundling initiative was filtered through the views of the study informants. Furthermore, findings are limited because the informants were from one health care system in one geographic area. As is a limitation in most qualitative studies, the informants do not have equal ability to articulate their experiences and this can influence the accuracy of identified themes (Creswell & Cresswell, 2018) because of the possibility of

selective memory, telescoping, or unintentional exaggeration (Lavrakas, 2008). The researchers also facilitated interviews and focus groups, and the presence of the research team may have led to biased responses of the participants. Lastly, data analysis was interpreted by team members from the occupational therapy field and, therefore, may have been influenced by researcher bias. In order to decrease this bias, the six phases of thematic analysis were strictly followed throughout the data analysis process (Braun & Clarke, 2006).

Conclusion

This study provided rehabilitation health care professionals and administrative professionals in one voluntary bundling initiative for patients with hip and knee replacement with an opportunity to openly express their opinions about the initiative and its impact on coordination of care. The perceptions of the rehabilitation professionals, nurse navigators, and administrators demonstrated that the bundling initiative can be efficient in managing and coordinating the care of patients with hip and knee arthroplasties when interprofessional communication exists among providers. This study found that it is important to have standards in place to determine when a patient is medically appropriate to undergo surgery and be successful with postsurgery intervention.

Occupational therapists should remain aware of Medicare patient initiatives, similar to bundling with service delivery models, because of the impacts on coordination of care. With limited research on the implications of the bundling initiative in a hospital setting, the findings of this study have given important insights into the incentives of collaboration between health care professionals to reduce readmissions and maximize patient outcomes and reimbursement. Finally, although the trend is for bundling initiatives to be voluntary, deviations may occur because of the ever-changing political climate. Therefore, it remains important to study how health care policies influence patient care.

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Appendix

Questions Used for Health Professional Interviews and Administrator's Focus Group
(Additional probing questions were developed and asked when indicated.)

Health Professional Interviews	Administrator's Focus Group
How would you describe the rehabilitation process throughout an episode of care in your setting for patients who have received a hip or knee arthroplasty?	Describe the typical rehabilitation process for patients with hip and knee arthroplasties involved in the bundling initiative from the moment a patient arrives to your facility to the time they leave.
What differs or remains the same in how you address patients with hip or knee arthroplasties in a bundling initiative from the traditional way you have followed patients in your setting?	What outcomes do you feel are important for patients post a hip or knee arthroplasty in a bundling initiative from your facility and from the overall bundling initiative?
Describe any changes in discharge planning (or transition) for patients with hip or knee arthroplasties related to rehabilitation?	Since the bundling initiative has been implemented in your setting, how has it affected practice, interventions, and discharge settings?
Since the implementation of bundling initiatives, how has coordination of care impacted readmission rates in your setting?	