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Adding Value to Total Joint Arthroplasty Care in an Academic Environment: The Utah Experience

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ABSTRACT

Background: Adding value in a university-based academic health care system provides unique challenges when compared to other health care delivery models. Herein, we describe our experience in adding value to joint arthroplasty care at the University of Utah, where the concept of value-based health care reform has become an embraced and driving force.

Methods: To improve the value, new resources were needed for care redesign, physician leadership, and engagement in alternative payment models. The changes that occurred at our institution are described. **Results:** Real-time data and knowledgeable personnel working behind the scenes, while physicians provide clinical care, help move clinical pathway redesigns. Engaged physicians are essential to the successful implementation of value creation and care pathway redesign that can lead to improvements in value. An investment of money and resources toward added infrastructure and personnel is often needed to realize large-scale improvements. Alignment of providers, payers, and hospital administration, including by means of gainsharing programs, can lead to improvements.

Conclusion: Although significant care pathway redesign efforts may realize substantial initial cost savings, savings may be asymptotic in nature, which calls into question the likely sustainability of programs that incentivize or penalize payments based on historical targets.

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As a tertiary and quaternary referral and academic medical center, covering a region of approximately 500,000 square miles and over 10 million lives in Intermountain West, our adult reconstruction service has endeavored to perform the highest quality of care for our patients in both the primary and revision settings. In addition to providing high-quality care, fiscal responsibility was important. Given the low cost of health care in our state and recognition as one of the top-quality centers in the nation, we felt we were achieving the value that our patients were seeking [1].

In 2011, however, the next evolution of value was beginning. The value equation, $Value = (Quality + Service)/Cost$, was not only the new buzzword, but the new norm. To make a meaningful

difference, a paradigm shift was thought to be needed—increase the quality of care while decreasing the cost. The landscape of health care was changing, and as such, new resources were needed for care redesign, physician leadership, and engagement in alternative payment models (APMs). At our institution, to improve value, a better understanding of our costs was needed. The university invested in the creation of a new internal real-time cost accounting tool named value-driven outcomes (VDOs) [2,3].

Value Transformation Part I—Methods and Results

The new VDO tool was used to analyze cost, quality, outcomes, and value in ways that had not been done in the past. The value engineering team, under the guidance of administration, performed some early analyses using the VDO tool which ultimately led to the creation of an opportunity scatter for various medical conditions. The team concluded that the condition of joint arthroplasty was an area of opportunity (Fig. 1). However, an educated and empowered front line of physicians in the trenches was needed to interpret the data appropriately, ultimately showing that using a Medicare

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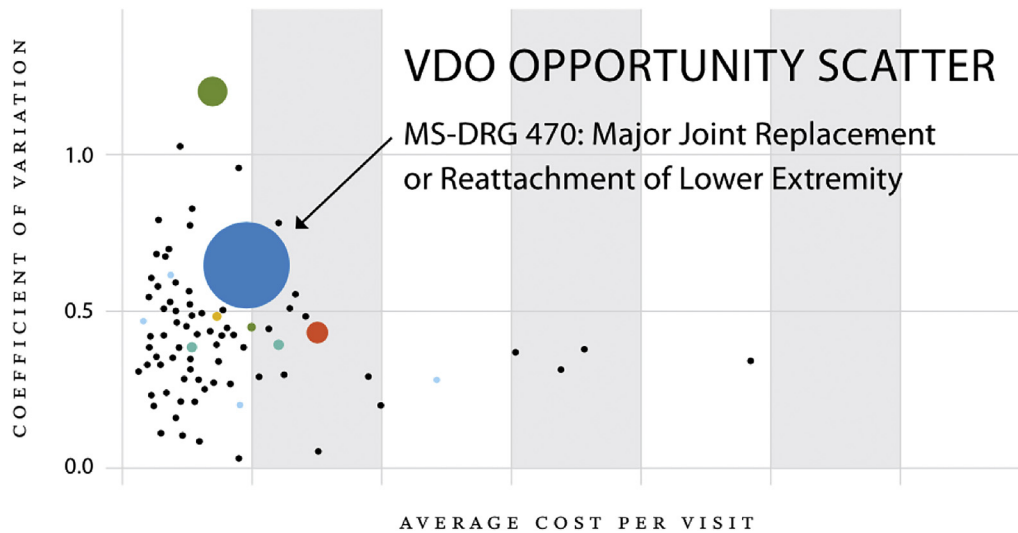


Fig. 1. This scatterplot demonstrates our administration's analysis of the Medicare Severity-Diagnosis Related Group. This analysis was performed to identify groups with the greatest variability in costs.

Severity - Diagnosis Related Group (DRG) filter was likely inappropriate and that, contrary to their early conclusion, there was actually little variation in cost and quality in joint arthroplasty [4]. Nonetheless, the group knew that there was room for improvement. To help drive change with engaged providers leading the way, a new physician leadership position was needed—the chief value officer [5–8]. The administration tasked the chief value officers with creating new care pathways, procedures, data, and other means of driving change towards improved quality and lowered costs.

As our adult reconstruction team evaluated our opportunities and made plans for improvement, we, as have others, recognized that additional resources were needed [5,9,10]. At that time, unfortunately, additional resources were to be earned, not provided. As such, we set out to develop pathway improvement projects that we felt could increase the value of the care we provided, with little investment in added resources. A multidisciplinary team was assembled, and early ambulation was identified as an important target to improve outcomes, decrease complications, and potentially reduce length of stays and inpatient costs [11,12]. The potential to add “value” could be realized by simply getting more patients out of bed, sooner. By changing physical therapy staffing hours to include a new shift, early evaluation and mobilization of patients improved from 64% to 85% on the day of surgery, and our data showed that early mobilization was associated with a greater cost savings [11]. We continued to implement other best practice care pathway changes which included contract renegotiations for implant pricing, eliminating the routine use of foley catheters, and continuous passive motion machines and increasing the use of regional/spinal anesthesia, among others.

During this phase of care pathway redesign, the restructuring of existing resources made changes to care design pathways possible. The VDO tool was used to track the impact of the changes, and a new dashboard was created. An important component of this dashboard was an internally derived quality metric composite termed the “perfect care index.” With this dashboard, the index of “perfect care” and costs could be easily viewed (Fig. 2). Improvements in the perfect care index (quality) and lower costs epitomized the goals of the creation of the VDO tool and the move to improve value. Success by the team was noticed by the hospital administration, the lay press [13] and peer-reviewed publications resulted [2,3,11].

Value Transformation Part II—Methods and Results

To make the next level changes, our team knew that investment of additional resources and financial support from the institution would be required. The addition of components for care navigation programs, previously described by Iorio et al [5], was needed. Prior success by our team on implementing care pathways based on best practices coupled with the existing literature during Part I was essential to gain buy in from hospital leadership. Based on the prior value improvement, the organization was ready for the next steps in the transition to value-based health care delivery and wished to become involved with APMs. A third-party convener was used to evaluate the top medical conditions and identify potential opportunities to consider for the voluntary participation in model 2 (90-day episode of care) of the Center for Medicare and Medicaid Services (CMS) Bundle Payments for Care Improvement (BPCI) initiative. Not surprisingly, given the results elsewhere in the country coupled with the engaged adult reconstruction group which had already demonstrated success in the previously mentioned initiatives, total hip arthroplasty and total knee arthroplasty were selected as our institution's first clinical conditions to enroll in the voluntary bundled-payment program. Our group showed that not only were we engaged and supportive of the projects but also had the expert knowledge required to succeed [5,9,10,14,15].

Thus, we set out to implement a number of additional multi-faceted changes to the care pathway, much of which has been well described in a previous publication [3]. An analysis of our internal data of historical costs of the episodes from our Medicare beneficiaries demonstrated that, in the 90-day episode of care, 50% or more of the total payments were being spent on postacute care (PAC) resources. Further, a later more rigorous multivariable regression analysis showed that patients discharged to PAC facilities were also the most likely to have the other highest cost occurrence during an episode—a readmission [3]. In light of this, decreased PAC utilization became the focus of our efforts of change.

To ensure quality and decrease the PAC utilization, a new pathway needed to be created. We required the addition of 3 additional full-time employees. A temporary position of a project administrator was created and helped in the creation of a new

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