

Care Management Platform's Ability to Impact Experience, Outcome, and Cost of Care

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February 2022

Care management (also called health information technology (HIT) or patient engagement platforms (PEP)) is an emerging tool in medicine aimed at improving peri-operative patient management. Historically, orthopedic surgeons have engaged their patients during office consultations, through phone calls, and in post-operative clinic visits. The primary benefit drivers for the patient with care management are self-guided education, a sense of connection to care teams, and shared decision making, to improve both patient satisfaction and outcomes.

Additionally, with the growing migration of orthopedic procedures to the outpatient setting, patients are spending less time with their clinicians and more time at home. In fact, according to a recent report from the Advisory Board, the outpatient orthopedics and spine market is projected to grow by 26% over five years, compared to -8% growth for the inpatient market. This is driven primarily by outpatient joint replacement, making up 86% of the growth¹.

Health care providers (HCPs) play a critical role in the adoption and acceptance of care management; and thus, it is important that HCPs themselves are informed on the benefits of these tools.

Zimmer Biomet created mymobility, a care management platform, to assist health care teams as they guide and support their patients through a connected surgical experience. mymobility delivers continuous data and patient-reported feedback to facilitate care, outcomes and satisfaction about patients' surgical preparation and recovery.

The British Bone and Joint Journal recently published data from the completed mymobility randomized control trial within the mymobility study. The published article details how the mymobility Digital Care Management Platform demonstrated non-inferiority of clinically significant outcomes to traditional care models, while utilizing significantly fewer post-operative physical therapy and fewer emergency department visits².

As the medical device industry and healthcare professionals continue to evolve surgical tools and techniques to treat patients, particularly those with

orthopedic needs, resources such as mymobility could be a viable option for both the patient experience and outcomes.

Challenge

Research has demonstrated that shared decision making can result in increased post-operative patient satisfaction³. An emerging field of innovation called digital care management, provides patients with tools to enhance their control of their post-operative routines and care. A recent survey of Orthopedic Consumers by the Advisory Board found that respondents indicated that support throughout their surgical experience was critical in their provider choice⁴.

Patients need encouragement and engagement from the HCP to begin their journey with a care management tool. A key finding in a comprehensive and enlightening literature review by Roberts, et. al. is:

"Supporting patients in the use of HIT, including familiarisation, training and ongoing support is critical to patients' acceptance, engagement and use of this technology. Patients acknowledge that both HCPs and HIT have unique but complementary roles, and both are important for enabling participation in care⁵."

The authors go on to describe that nearly all studies evaluated in their review included a component of health care provider engagement with the patient on the technology platform, thereby underscoring what would likely be deemed intuitive: patients are more likely to have a positive experience with the technology when it is introduced by the HCP as a tool for perioperative management.

Thus, it becomes critical (and is the aim of this paper) for medical device companies to enhance the awareness of purposefully designed digital resources amongst the surgical communities and equip them with research, data and information to support patient conversations.

Background

Introduction to digital care management platforms

Digital health tools can be defined as a broad scope of tools that engage patients for clinical purposes; collect, organize, interpret and use clinical data; and manage outcomes and other measures of care quality. These digital solutions often include telemedicine and telehealth, mobile health (mHealth), wearables (e.g., Apple Watch), remote monitoring, apps, and others⁶.

The common factor of these tools is that they only work if the patient is engaged with the platform. Research has shown that patient engagement is highest when they receive meaningful and clear information that guides health and/or recovery⁷. The care management platform designed by Zimmer Biomet, mymobility, guides patients through their episode of care with procedure-specific education, virtual exercises, and engagement.

Goals of digital care management platforms

As with any new medical technology, the methods for assessing or proving the value of the technology must be developed alongside solution itself. While satisfaction may be a challenging endpoint to define and measure, there is a growing body of evidence to demonstrate achievement of hard endpoints.

An article from Campbell, et. al. provides a succinct overview of beneficial elements reported in literature of patient engagement platforms in orthopedic surgery. According to multiple peer-reviewed articles curated in this paper, patient engagement platforms may help⁷:

- Reduce hospital length of stay*
- Reduce post-operative emergency room visits
- Reduce hospital readmissions and clinic visits
- Reduce utilization of therapy and home care services
- Increase patient satisfaction*
- Reducing opioid use*
- Decreasing volume of patient-generated calls to the office*

**mymobility has not been clinically evaluated for these statements.*

Additionally, both the American Medical Association (AMA) and the Food and Drug Administration (FDA) have recognized value in digital care, generally, reporting key drivers as efficiency, quality, patient access, personalization, and/or reduced cost^{9,10}.

To summarize, the key value drivers can be outlined in the following categories:

1. Positively influence patient outcomes
2. Positively influence patient experience
3. Reduce overall cost of care
4. Positively influence HCP experience

Solution

The mymobility introduction

Zimmer Biomet, a leader in the orthopedic industry, is known for its commitment to alleviating pain and improving the quality of life for patients around the world through its products and solutions. To further that mission, Zimmer Biomet built ZBEdge™, a suite of integrated digital and robotic technologies, purposefully engineered to deliver data-powered clinical insights, shared seamless across the patient journey. mymobility is the care management platform within ZBEdge Connected Intelligence Suite, that uses the patient's smartphone (iOS or Android™) to deliver support and guidance through a connected experience. mymobility delivers continuous data and patient-reported feedback to facilitate care, and monitor patient outcomes and satisfaction during the patients' surgical preparation and recovery.

The mymobility platform goals

The mymobility platform seeks to provide patient engagement, operational efficiencies, and objective data that leads to clinical insights. The mymobility platform does this by engaging patients through contextual education based on where the patient is in their episode of care, communication via asynchronous messaging and virtual video visits, and motivational features built into the platform such as completing tasks to close activity rings and data trends. Clinicians can manage their patients by exception, and with all the benefits of digital care management and telemedicine through one platform, surgeons and their care teams can focus on the patients who need attention the most. The mymobility platform collects and connects over 20 metrics that help surgeons and care teams generate clinical insights with the intention of improving outcomes. Additionally, data integration and aggregation occur automatically via the platform without the need for extra time or resources.

The mymobility engagement and clinical results

A digital care management system is only useful if patients engage with the system. Through the recent clinical study and data collected by the platform, mymobility is seeing improvements in the patient experience and engagement.

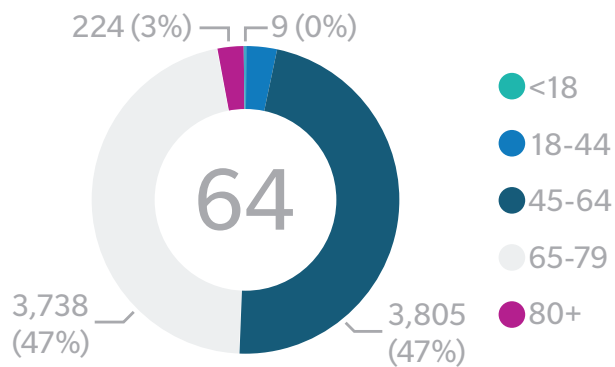
With regard to experience, 80% of patients surveyed in the study (interim data) reported that their total or partial knee replacement was a better or much better experience than previous medical surgical experiences. 63% reported a reduction in pre-operative anxiety relative to prior surgeries¹¹. Collectively, from both the study and commercial use, mymobility has over 2 million patient logins and almost 10 thousand activated patients. Of these active patients, 57% are female and 43% are male. Below you can see the breakdown of age by active patient (Graph 1).

An active patient is defined as, a patient that has downloaded the application from their smartphone and using the information provided to them, logged into the application, created a password and set up their account.

In the mymobility treatment cohort, patients in the study are showing higher levels of adherence rates to to complete their assigned Patient Reported Outcome Measure (PROMs) Surveys than the control group (Tables 1 and 2). Patients receive their surveys either on paper during their in office visits (pre-operative, 1-month and 3-month), or in email format (6-month and 12-month windows).

This demonstrates the strength of mymobility as a tool to deliver PROMs in a way that makes it convenient and easy for patients to complete. PROMs are becoming more and more important not only to demonstrate outcomes, but also for reimbursement. Clinicians should consider how they are currently collecting PROMs in order to get the highest rate of adherence.

Average Age per Active Patient



GRAPH 1

TABLE 1

Compliance with HOOS Jr Score					
Arm	Pre-operative	1 Month	3 Month	6 Month	1 Year
mymobility	167/173 (96.5%)	164/173 (94.8%)	142/172 (82.6%)	124/171 (72.5%)	97/168 (57.7%)
Control	180/204 (88.2%)	144/203 (70.9%)	129/202 (63.9%)	88/202 (43.6%)	83/199 (41.7%)

TABLE 2

Compliance with KOOS Jr Score					
Arm	Pre-operative	1 Month	3 Month	6 Month	1 Year
mymobility	205/211 (97.2%)	181/211 (85.8%)	161/210 (76.7%)	139/209 (66.5%)	124/210 (59.0%)
Control	213/245 (86.9%)	152/244 (62.3%)	144/244 (59.0%)	120/244 (49.2%)	101/238 (42.4%)

Finally, while patient adherence, engagement and satisfaction are important, it is also important that care management platforms achieve outcomes which are non-inferior to the standard of care. Table 3 demonstrates these outcomes and highlights additional data collection opportunities via other products within the ZBEdge Connected Intelligence Suite.

TABLE 3

Metric	mymobility	Value Driver
Readmissions	2.5% for mymobility patients compared to 6.7% with traditional care ¹²	Positively influence patient outcomes/ Reduce overall cost of care
Emergency Department (ED) visits	2.5% for mymobility patients compared to 8.2% with traditional care ¹²	Positively influence patient outcomes/ Reduce overall cost of care
90-day range of motion	Non-inferior to standard of care ¹²	Positively influence patient outcomes/ Reduce overall cost of care
Outcomes	Non-inferior to standard of care ¹²	Positively influence patient outcomes
Connectivity to other devices	ROSA® Robotics, OrthoIntel Orthopedic Intelligence Platform	Positively influence healthcare professional experience
Dynamic, customizable reporting via OrthoIntel Orthopedic Intelligence Platform	OrthoIntel Orthopedic Intelligence Platform	Impacts healthcare professional experience by providing integrated data

Conclusion

It is of critical importance that the surgical community is duly informed on the proven benefits of digital care management platforms in order to proliferate adoption of these tools amongst patients. Just as the medical community consumes clinical data on techniques and device technology, the community of mobility providers must also stay abreast of the evidence for emerging technology trends that promote patient self-management post-operatively. There is a growing body of evidence from government bodies and providers of medical device technology to both define and demonstrate the value of such platforms in a peri-operative setting. mymobility has demonstrated value criteria recognized by the industry. As orthopedic care advances into the next era of patient management, it will become increasingly important that patients and healthcare professionals bring their smartphone along.

References

1. Advisory Board. (2020). 2021 Orthopedics & Spine Market Trends. <https://www.advisory.com/en/topics/orthopedics/2017/05/orthopedic-and-spine-market-trends>
2. Crawford, D. A., Duweliuss, P. J., Sneller, M. A., Morris, M. J., Hurst, J. M., Berend, K. R., & Lombardi, A. V. (2021). 2021 Mark Coventry Award: Use of a smartphone-based care platform after primary partial and total knee arthroplasty: a prospective randomized controlled trial. *The Bone & Joint Journal*, 103-B(6 Supple A), 3 -12. <https://doi.org/10.1302/0301-620x.103b6.bjj-2020-2352.r1>
3. Jaensson, M., Dahlberg, K., & Nilsson, U. (2019). Factors influencing day surgery patients' quality of postoperative recovery and satisfaction with recovery: a narrative review. *Perioperative Medicine*, 8(1). <https://doi.org/10.1186/s13741-019-0115-1>
4. Advisory Board. (2020). 2021 Orthopedics & Spine Market Trends. <https://www.advisory.com/en/topics/orthopedics/2017/05/orthopedic-and-spine-market-trends>
5. Roberts, S., Chaboyer, W., Gonzalez, R., & Marshall, A. (2017). Using technology to engage hospitalised patients in their care: a realist review. *BMC Health Services Research*, 17(1). <https://doi.org/10.1186/s12913-017-2314-0>
6. American Medical Association. (2016). Digital Health Study Physicians' motivations and requirements for adopting digital clinical tools. <https://www.ama-assn.org/sites/ama-assn.org/files/corp/media-browser/specialty%20group/washington/ama-digital-health-report923.pdf>
7. Kavandi, H., & Jaana, M. (2020). Factors that affect health information technology adoption by seniors: A systematic review. *Health & Social Care in the Community*, 28(6), 1827–1842. <https://doi.org/10.1111/hsc.13011>
8. Campbell, K., Louie, P., Levine, B., & Gililand, J. (2020). Using Patient Engagement Platforms in the Postoperative Management of Patients. *Current Reviews in Musculoskeletal Medicine*, 13(4), 479–484. <https://doi.org/10.1007/s12178-020-09638-8>
9. American Medical Association. (2016). Digital Health Study Physicians' motivations and requirements for adopting digital clinical tools. <https://www.ama-assn.org/sites/ama-assn.org/files/corp/media-browser/specialty%20group/washington/ama-digital-health-report923.pdf>
10. Center for Devices and Radiological Health. (2020, September 22). What is Digital Health? U.S. Food and Drug Administration. <https://www.fda.gov/medical-devices/digital-health-center-excellence/what-digital-health>
11. Data from the completed randomized control trial within the mymobility clinical study.
12. Crawford, D. A., Duweliuss, P. J., Sneller, M. A., Morris, M. J., Hurst, J. M., Berend, K. R., & Lombardi, A. V. (2021). 2021 Mark Coventry Award: Use of a smartphone-based care platform after primary partial and total knee arthroplasty: a prospective randomized controlled trial. *The Bone & Joint Journal*, 103-B(6 Supple A), 3 -12. <https://doi.org/10.1302/0301-620x.103b6.bjj-2020-2352.r1>

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