

## AUDIT

Molly O'Brien<sup>1</sup>, Angela DeVanne<sup>1</sup>, Chandler Caufield<sup>2</sup>, David Vaglia<sup>2</sup>

1. goShadow, Pittsburgh, PA, USA
2. UPMC Innovation Center, Pittsburgh, PA, USA

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**Corresponding Author:**

Angela DeVanne  
Pittsburgh, PA  
USA  
[angela@goshadow.org](mailto:angela@goshadow.org)

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**SUMMARY**

- Adding more funding or staff does not always improve patient experience or practice performance in modern, siloed healthcare systems
- Shadowing provides a fresh perspective on the patient experience beyond direct employee interaction
- goShadow enables a shadower to provide accurate, quantitative feedback on a care experience
- goShadow's automated reports allow for easy data aggregation and digestion

**Key Words**

Shadowing; co-design; process improvement; patient experience; time study

## ABSTRACT

Shadowing a patient through a care experience can provide perspectives not usually seen in care delivery systems or discrete experiences. Critics of shadowing often point to the time involved to effectively shadow and create reports as a reason not to use the practice. goShadow is a smartphone and web-based app tool that simplifies the collection and aggregation of shadowing data. goShadow provides users with the ability to concurrently time multiple events, tasks, people, and places, record notes with time stamps, and export automated and easily digestible reports.

## BACKGROUND

As healthcare systems evolve, the voice of the patient (and family) is often lost in the pursuit of growth and expansion. Process inefficiencies and gaps in patient care are continually identified; verifying and addressing those issues can be burdensome and time consuming. Providers are siloed in their piece of each experience: they interact with patients in very specific situations without seeing the full episode of care. Despite the U.S.-based Institute of Medicine identifying patient-centredness as one of the six essential components to delivering high-quality care, there is little consensus on how to conceptualize, interpret, or administer patient-centered care.<sup>1</sup> Clinicians, patients, and families need a structured and organised method to capture qualitative and quantitative factors, as well as the more subtle feelings and impressions that comprise the care experience from the patient's point of view.<sup>2</sup>

The lack of understanding of the entire patient experience, from beginning to end, can have an enormous impact on the quality of care that the patient receives and on the quality of experience that is reported by the patient anecdotally through surveys and patient-reported outcomes. Shadowing, or the real-time observation of patients and families through a care experience, is one way to bridge these gaps. Yanes et al assert that observations of patient experiences are informative and cost effective, and so they are an important tool for healthcare improvement.<sup>2</sup> Patient and family observations, along with traditional assessment methods, contribute to a comprehensive understanding of complex care systems. Using the shadowing methodology to map the current state of care from the patient's perspective is critical to identifying inefficiencies that might not be obvious to care providers and administrators. Using current state mapping coupled with time studies and opportunity reports, hospitals, healthcare organisations, and medical practices

can identify areas for improvement and truly co-design ideal care experiences with patients, families, and all stakeholders.

While experiential patient shadowing is the ideal method for identifying and initiating change in any practice or organisation, limitations to this observational method exist. Trained observers must fluidly capture and record notes and data in complex care experiences.<sup>2</sup> goShadow is the tool used to tackle those inherent complexities in shadowing. It enables shadowers to quickly and easily capture qualitative and quantitative data, information, and impressions gleaned from any experience. Notes are time stamped, and multiple timers for people, places, and tasks can run simultaneously. goShadow automatically aggregates the objective and subjective shadowing data and generates multiple reports, which include process maps, time studies, accolades, and opportunity reports.

One of the easiest and most commonly overlooked ways to improve care design and the patient experience is to understand it from the patient perspective. goShadow can be used to quickly and easily shadow multipart experiences. By aligning all stakeholders around a single data set, areas of opportunity can be identified, and small tests of change can be run to accelerate results and instill a culture of improvement.

## METHOD

To highlight the value of shadowing and goShadow, two short examples of shadowing projects and lessons learned are provided below. For each project, an audit was conducted in an outpatient clinic in advance of a process improvement project. All parties involved, from the patient and family to staff and clinicians were advised that a shadower would accompany the patient through his/her experience and take notes on the experience. Using goShadow, the shadower would log data points like timers and time stamps, as well as notes, including impressions on the administrative processes and patient insights. The timers and notes were collected in real time, to capture the impact of clinical transitions, processes, and the overall breadth of the patient experience.

### **Example 1: Proper Clinical Resource Utilisation**

Patients were systematically shadowed using goShadow during pre- and post-operative appointments. Shadowing was done to confirm the administrative assumption that, in order to increase and improve patient throughput, the clinic needed an additional physician assistant (PA) or associate on staff. Patients were shadowed from the registration desk through their assessment, testing, and checkout.

### **Example 2: Communication and Co-Designing a Patient Education Pathway**

At the point when a patient schedules surgery, s/he is given a packet of information that is meant to be a comprehensive guide through the Total Joint Replacement experience. These materials contain descriptions of what testing and appointments will occur, when and where, as well as information about before and after care, exercises, and pain management. The purpose of this guide is to decrease anxiety leading up to the day of surgery and increase patient adoption of clinical protocols to prevent postoperative complications and patient dissatisfaction.

Patient-reported outcomes are a major driver of reimbursement in the US healthcare system. Patients are surveyed at various points before and after surgery to gather their self-reported outcomes and gain insights into their experience throughout a months' long total joint replacement experience. This anecdotal information can positively or negatively affect the reimbursement rates of both hospitals and providers.<sup>3</sup>

Since patient education is a specific section noted in orthopedic patient-reported outcomes, the use and validity of the patient education materials is essential to success. As such, the scope of this audit required that patients be shadowed as they received the patient education materials and as they reviewed them with the clinician.

## RESULTS

### Example 1 Results

It was observed that, during their visits, patients interacted with a PA multiple times. In addition to performing the necessary exam, shadowers observed PAs spending several minutes walking patients from exam rooms to x-ray and distant labs to receive additional testing. Over the course of the office visits, a PA would spend an average of 10 minutes doing ancillary, non-clinical tasks, such as patient transport.

Using multiple concurrent timers, the shadower was able to track the total appointment time, the total time the PA was with the patient, what amount of that time was in the room vs. charting, and the total time the PA spent accompanying the patient but doing non-clinical work (Figures 1a and 1b). Once all stakeholders were able to view the time studies and process maps generated by goShadow, it became clear that PA time was being spent on non-value-added tasks that could be completed by non-clinical staff.

Using shadowing data, the practice staff and administrators opted to test using an x-ray technician to transport and accompany the patient to testing. This small change freed PA time to see additional patients, obviated the need for additional clinical staff, yielded cost savings, and enabled more appropriate allocation of staff resources.

### Example 2 Results

Patients were shadowed through the “education” portion of their appointment in order to determine if the materials were successful in educating patients pre-operatively and to gauge the impact of staff messaging to the patients prior to surgery. Due to the financial risk of negative patient-reported outcomes on the hospital and providers, administration was considering hiring a full-time clinical navigator to ensure patients understood and followed pre-surgical directions.

Through shadowing, patients reported that they were overwhelmed with the volume and presentation of pre-surgical education materials. Office and hospital staff had never collectively looked at the quantity or stepwise presentation of the education materials through the patient’s eyes. After reading patient remarks collected using goShadow, they understood how a patient could leave the office confused and anxious due to the clinical language and the enormous amount of information.

goShadow was used to record the patients’ reactions to the education program and materials, as well as to time how long it took patients to review the information. Shadowers employed motivational interviewing techniques to glean impressions from patients and their family members, as well as the staff members who conduct the education sessions. Using the integrated photo feature in goShadow, shadowers were able to include pictures of the education pieces that were most frequently identified as confusing. The pictures showed the pages of densely filled information in small font size, and verbal information and advice would differ depending on which clinician was meeting with the patient. Shadowers categorised their notes and photos to show which were found to be most informative and which were perceived as intimidating and unhelpful.

After analysing patient feedback, the process maps, and time studies, the team tested the use of a dedicated surgical coordinator who would oversee all education-related and clinical aspects of the surgical pathway. To ensure internal communication with other providers, the surgical coordinator created and was responsible for a templated

communication form in each patient's electronic health record (EHR). Patients reported that they preferred having a single point of contact with questions and concerns and that their anxiety throughout the pathway, along with clinical complications, decreased.

Additionally, the practice created a patient advisory group, who worked with the staff to create more clear and concise patient education materials. The patients were able to use their own experience, supported by the shadowing notes, to communicate that the lengthy, highly technical materials should be replaced with pictures, more direct text, and helpful tips. Involving patients in the co-design of better materials helped future patients and increased the practice rating score. The patients felt more connected to the process and felt their suggestions and concerns were heard and used to improve the experience as a whole.

## DISCUSSION

Shadowing and goShadow are tools that can be applied to any experience to determine the current state and to identify and improve problem areas, both obvious and unknown. The two examples described here demonstrate how shadowing allows users to discover the current state of a process, giving all stakeholders a multidimensional view of the entire experience. By aligning all stakeholders around a common data set and process map, opportunities are identified, and the team is unified in its approach to change. Using the goShadow app, improvements and financial results can be further quantified by using business-minded strategies such as Time Driven Activity Based Costing (TDABC).<sup>4</sup> Shadowing is an important tool for seeing any experience through the end-user's eyes, a vantage point that can improve not only patient-reported and clinical outcomes, but which can also be used to ensure financial well-being in the ever-changing healthcare environment.<sup>5</sup>

goShadow was integral to discovering that PA time was being underutilised. Those findings allowed the practice to ensure that going forward, PA time, along with other highly trained and compensated staff, is allocated properly in order to perform the tasks that are at the top of their license.<sup>4,6</sup> To maximise staff efficiency and increase patient throughput, the clinic used goShadow reports to determine that PA time spent in the exam room was not the problem. Rather, it was the time that a PA time spent completing non-clinical activities. Patient throughput and experience was improved by making this change. Additionally, this change saved the practice the cost of an additional PA and improved staff's work satisfaction by ensuring appropriate resource allocation.

Shadowing also facilitated the process discovery and improvement of the patient education pathway. goShadow's comprehensive report included categorised notes detailing patient feedback alongside pictures of the materials. This data provided stakeholders with the evidence needed to empower the surgical coordinator to adopt patient suggestions and make the education process more adult-learning principled. By eliminating highly technical words and creating a visually pleasing set of materials, patient satisfaction and patient-reported clinical outcomes increased. Staff found professional vitality in co-creating and continuously improving the experience.

Through the engagement of a patient and family advisory group, the education pathway continued to improve. A patient-identified "post-surgical tips and tricks" handout proved to be highly beneficial to other patients going through surgery. This type of programmatic co-design allowed for the continuous creation of a more ideal experience and invested patients in improvement efforts.<sup>5</sup>

Shadowing ideology can be applied to any patient experience and can quickly provide invaluable information by illustrating how a process truly occurs. Anyone can shadow in any experience simply by objectively observing and

documenting qualitative and quantitative data. Stakeholders at all levels of care, from patients to clinicians to administrators, can play an active voice in improving care, joy at work, and the overall patient experience. goShadow can be used as a driver for improvement or as a tool to ensure that changes made have the desired outcome.

This system of improvement can also be used outside of health care. The principles of shadowing provide an important perspective regardless of the industry. On-the-ground documentation through the eyes of stakeholders or end users provides a unique 360-degree view of a process that can uncover inefficiencies that would be difficult to spot from other, limited vantage points. To enhance the shadowing process, goShadow assists in driving change through immediately available reports and data aggregation, which can be used to facilitate co-design with stakeholders on all levels.

## CONCLUSION

Health care is a complex system, with an ever-widening disconnect between clinical outcomes, patient experience, and true cost. The gaps and the silos inherent in healthcare delivery today combine to obscure a patient's pathway and often lead to unmet expectations, substandard care, and less-than-positive experiences for both staff and patients—all factors that put healthcare systems, physicians, and patients at risk in value-based delivery systems.<sup>7</sup>

Patient shadowing using goShadow is an effective way to bridge the divide between providers, patients, and the actual cost of care. In the examples discussed in this audit, goShadow aided in the rapid discovery of a process or care pathway and provided real-time data to stakeholders to make measurable improvements.<sup>8</sup> While the changes discussed in the audits were initially thought to be isolated improvement projects, goShadow reports supported the fact that they were transformative in improving overall patient experience, efficiency, and outcomes, as well as creating a lasting impact on organisational vitality.

## REFERENCES

1. Institute of Medicine. *Crossing the Quality Chasm: A New Health System for the 21st Century*. Washington, DC: National Academy Press; 2001.
2. Yanes AF, McElroy LM, Abecassis ZA, et al. Observation for assessment of clinician performance: a narrative review. *BMJ Qual Saf*. 2016;25:46-55.
3. Baumhauer, J, Dasilva, C, Mitten, D, et al. The Cost of Patient-Reported Outcomes in Medicine. [2018 January 25]. [Accessed 2018 02 05]. Available from: <https://catalyst.nejm.org/cost-pro-collection-patient-reported-outcomes/>
4. Kaplan RS, Anderson SR. Time-Driven Activity-Based Costing [November 2003]. [Accessed 2018 04 16]. Available from: <https://ssrn.com/abstract=485443>. or <http://dx.doi.org/10.2139/ssrn.485443>
5. DiGioia AM, Shapiro E. *The Patient Centered Value System Transforming Healthcare through Co-Design*. Milton: Taylor and Francis; 2017.
6. DiGioia AM, Greenhouse PK, Giarrusso ML, et al. Determining the True Cost to Deliver Total Hip and Knee Arthroplasty Over the Full Cycle of Care: Preparing for Bundling and Reference-Based Pricing. *The Journal of Arthroplasty*. 2016;31(1):1-6.
7. Verghese, A. How Tech Can Turn Doctors Into Clerical Workers. *The New York Times*. [2018 May 16]. [Accessed 2018 05 25]. Available from: <https://www.nytimes.com/interactive/2018/05/16/magazine/health-issue-what-we-lose-with-data-driven-medicine.html>
8. Liberati EG, What is the potential of patient shadowing as a patient-centred method? *BMJ Qual Saf*. Published Online First: 10 May 2016. doi: 10.1136/bmjqs-2016-005308

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**PEER REVIEW**

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**CONFLICTS OF INTEREST**

The authors declare that they have no competing interests.

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**ETHICS COMMITTEE APPROVAL**

None

Figure 1a: Registration to patient evaluation

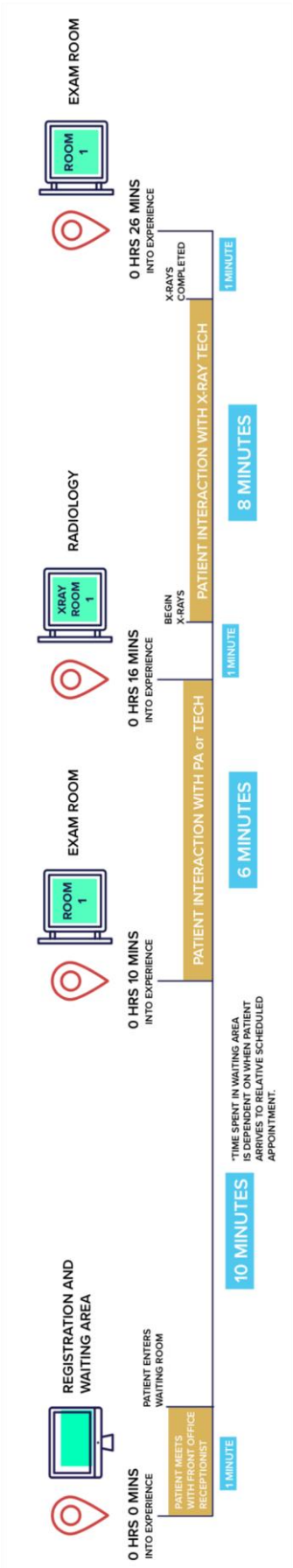


Figure 1b: Patient evaluation to patient exiting office

