



Making Patients and Doctors Happier — The Potential of Patient-Reported Outcomes

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Measuring relevant outcomes in a timely manner is a priority in a health care system increasingly focused on the delivery of high-value care. Most quality measures focus

on care processes or downstream outcomes such as survival; until recently, there has been less emphasis on quantitative measurements of functional outcomes, symptoms, and quality of life. Measuring patient-reported outcomes (PROs) with standardized questionnaires is one way of getting this information. PRO collection has proliferated in oncology, where it has been linked to improved symptom management, enhanced quality of life, and longer survival.¹ Given these bene-

fits, payers have started to encourage providers to incorporate PRO collection into routine care. For example, the Medicare Comprehensive Care for Joint Replacement model includes financial incentives for hospitals to collect and submit PRO data for patients undergoing elective hip or knee replacement.

Several institutions have incorporated PRO collection into daily practice and have seen promising results. Dartmouth–Hitchcock Medical Center (DHMC) started

collecting PROs for clinical and research purposes in 1998. In 2009, patients at the DHMC Spine Center were surveyed, and one third of them said that incorporation of PROs led to positive changes in their visits.² DHMC patients can also use a calculator based on historical PRO data to project outcomes of surgical versus nonsurgical interventions for patients similar to them. The University of Rochester Orthopedic Surgery Department introduced a core set of PROs in 2015. Data from the more than 1.1 million PRO assessments completed thus far are now used to engage patients in shared decision making regarding therapy options, and PROs have been introduced

throughout 30 of the university's departments and divisions.³

From our experience at Partners HealthCare, a large multi-hospital system in Boston, two of us have found that using PROs may increase physician satisfaction in addition to enhancing patient care. Partners introduced PROs systemwide in 2012 and has since collected more than 1.2 million PRO scores in 75 clinics across 21 specialties, including urology, orthopedics, psychiatry, and primary care. PRO

nonphysician providers on how PROs may affect both providers and patients.

Initially, much of the feedback we received focused on concerns and challenges. Respondents noted that when collection of PROs was first implemented, it took extra time and represented an added step in busy workflows. Other challenges included difficulties with wireless networks, user-interface and question design, and issues with the way results were displayed for providers.

As comfort with PROs has grown, feedback has increasingly underscored that clinicians find collecting PROs to be beneficial rather than burdensome. Evidence from experienced users suggests PRO collection may even enhance physician satisfaction and prevent burnout.

collection occurs both in the clinic on iPads and at home on patients' preferred devices.

With more than 1500 physicians using PROs, Partners has established formal feedback mechanisms to supplement feedback garnered by program staff during clinic visits. Partners convenes meetings with clinical leaders, content experts, and technical experts to discuss use of PROs. We also dedicate segments of specialty-specific clinical collaboration committee meetings to gathering formal feedback on PRO collection and use. We used this feedback to guide 25 qualitative interviews with physicians and

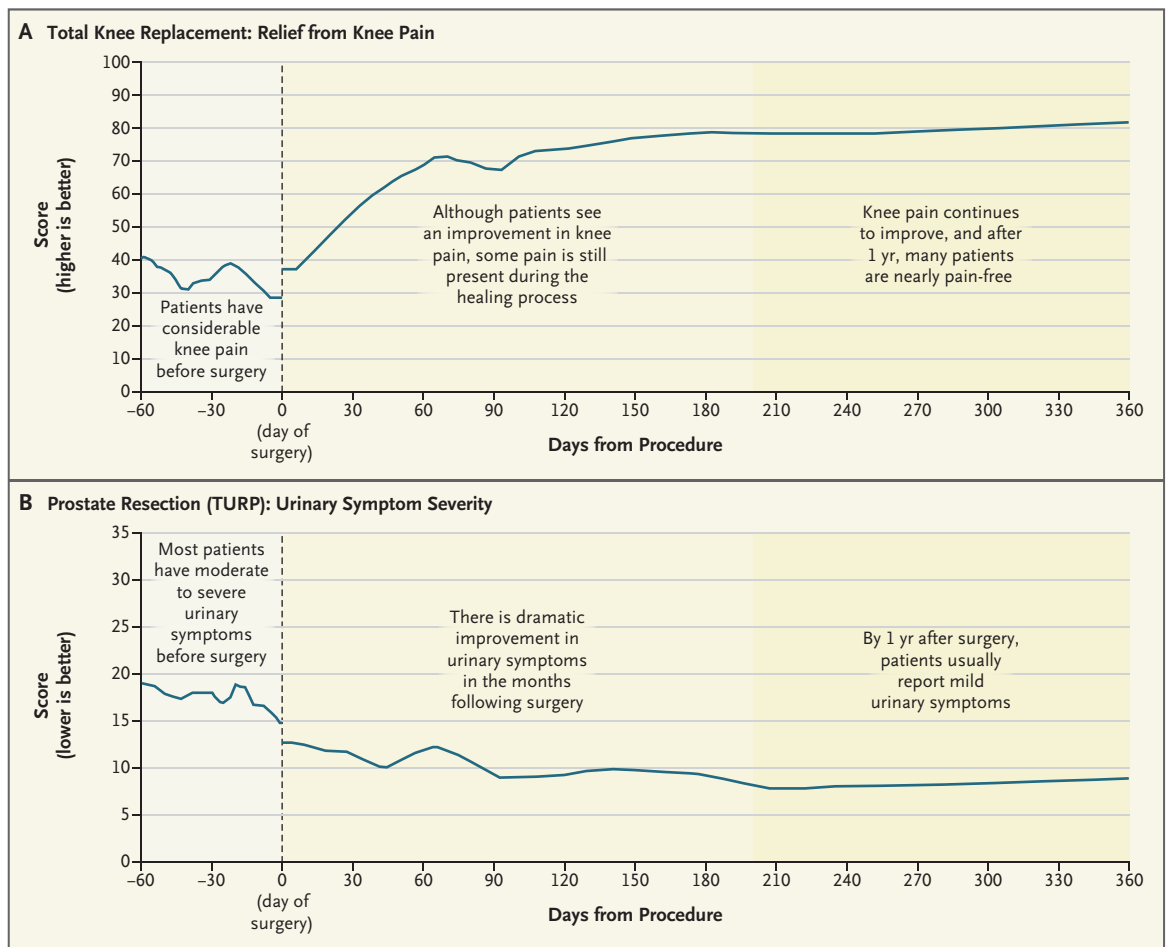
Yet as comfort with PROs has grown, feedback has increasingly underscored that clinicians find collecting PROs to be beneficial rather than burdensome. Evidence from experienced users suggests PRO collection is not only feasible and good for clinical care but also may enhance physician satisfaction and prevent burnout, for several reasons.

First, PROs can improve relationships between physicians and patients by allowing providers to better understand patients' symptoms. For example, collecting PROs gave spine surgeons a quantitative measure of the extent to which patients were strug-

gling to cope with their postsurgical pain. Surgeons could then take appropriate action, such as referring certain patients to a behavioral pain psychologist. PROs also gave providers a more data-driven understanding of post-procedure recovery profiles. The knowledge gained from these assessments often differed from physicians' long-held assumptions and helped them better ally with patients during the recovery process (see graphs).

PROs can also enhance shared decision making. For example, one physician described an elderly patient who insisted on having a radical prostatectomy "to be safe" after a biopsy revealed a low-grade lesion. When abstract discussions about incontinence and impotence proved unpersuasive, showing him real patient data on postprostatectomy incontinence and impotence scores over time catalyzed a conversation about risks and benefits that led to the patient's choosing active surveillance. Both the physician and the patient felt better about the process and outcome of their PRO-facilitated conversation.

Second, and most surprisingly, PROs can enhance workflow efficiency and save time when they're used regularly. One primary care physician noted that using electronic surveys that included a screening questionnaire, risk assessments, and a review of systems enabled her to "be a doctor again." Because patients had already answered screening questions electronically while in her clinic's waiting room, she was no longer forced to wade through verbal checklists during visits. Instead, she examined and communicated, focusing on the issues



Patient-Reported Outcomes for Shared Decision-Making.

Shown are patient-reported outcomes data (obtained from <http://caredecisions.partners.org>) for two common types of surgery. Panel A shows the severity of knee pain before and after knee replacement; data are based on the pain subscore of the Knee Injury and Osteoarthritis Outcome Score, with higher scores indicating less severe pain. Panel B shows the severity of urinary symptoms before and after prostate resection; data are based on the International Prostate Symptom Score, with higher scores indicating more severe symptoms of urinary obstruction. TURP denotes transurethral resection of the prostate.

that most required her attention. She saved about 10 minutes on each annual physical — and for the first time in years, her practice ran on schedule. Several other physicians have shared similar stories with us.

Another physician said he now asks patients with urinary problems to complete the International Prostate Symptom Score screening tool electronically while

in the waiting room. Using an electronic survey has saved him the 5 minutes he previously needed to acquire the same information orally and pointed him to the specific symptoms (e.g., obstruction) most troubling each patient. As a result, he has been able to use limited visit time to explore symptom burden and treatment preferences in a deeper, more focused way.

Finally, PROs have facilitated conversations that might not otherwise have taken place by allowing sensitive issues to be raised in systematic ways. Radiation oncologists reported that PROs have enabled honest conversations related to sexual dysfunction, incontinence, and rectal bleeding in patients with prostate cancer. Before the implementation of PROs, these symptoms

weren't always explicitly discussed, or their importance was downplayed. PROs also helped a primary care physician identify domestic abuse in a longtime patient who hadn't felt comfortable addressing the issue in conversation but was willing to disclose it electronically. The physician recounted feeling that something was "off" with the patient for years, but routine visits didn't provide concrete evidence of abuse. Ultimately, it was the ease of reporting in an electronic questionnaire that allowed the patient and physician to address this critical issue.

Screening tools that include a systematic review of patient issues have also facilitated important conversations within established relationships. Physicians recalled one notable patient who had cancer and uncontrolled diabetes and was an emergency department "frequent flier." Despite the patient's having a top-notch group of providers, her chronic health issues were never adequately controlled. One day, a routine screening questionnaire

revealed that she was depressed — an issue none of her providers had discerned while managing her other health problems. She was referred for and received appro-

priate psychiatric treatment. Within months, her glycated hemoglobin level fell, she lost 40 pounds, and the frequency of her emergency department visits plummeted.

Thus, our interviews suggested that use of PROs can improve physician satisfaction, enhance physician–patient relationships, increase workflow efficiency, and enable crucial conversations. Increasing physician satisfaction is vital given that almost half of physicians have at least one symptom of burnout,⁴ and burnout is associated with medical errors, lower patient satisfaction, and reduced patient adherence to treatment plans.⁵

There are several hurdles to implementing PROs. In addition to the workflow issues described above, electronic collection of PROs requires purchase, configuration, and storage of collection devices (such as tablets) and staff comfort with these tools. Displays must be intuitive and easily accessible for clinicians, and organizations must be prepared to make substantial investments in technology and training. Further work is needed to characterize the range of normal patient responses for various conditions. Finally, the extent to which using PROs affects efficiency and workforce dynam-

ics in large organizations must be rigorously assessed.

Despite these challenges, we believe PROs have the potential to reengage patients and physicians in the care delivery process. Far from being only a strategy to appease payers or prove the value of certain technologies, PROs could help sustain the size and spirit of the physician workforce, providing a much-needed path to a stronger health care system.


Disclosure forms provided by the authors are available at NEJM.org.

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1. Basch E. Patient-reported outcomes — harnessing patients' voices to improve clinical care. *N Engl J Med* 2017;376:105-8.
2. Wu AW, Jensen RE, Salzberg C, Snyder C. Advances in the use of patient reported outcome measures in electronic health records: including case studies. Baltimore: Patient Centered Outcomes Research Institute, November 7, 2013 (<http://www.pcori.org/assets/2013/11/PCORI-PRO-Workshop-EHR-Landscape-Review-111913.pdf>).
3. Baumhauer JF. Patient-reported outcomes — are they living up to their potential? *N Engl J Med* 2017;377:6-9.
4. Shanafelt TD, Boone S, Tan L, et al. Burnout and satisfaction with work-life balance among US physicians relative to the general US population. *Arch Intern Med* 2012;172:1377-85.
5. Dyrbye LN, Shanafelt TD. Physician burnout: a potential threat to successful health care reform. *JAMA* 2011;305:2009-10.

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