



PIPC

Partnership to Improve Patient Care



Targeted Literature Review on
**Patient-Centered
Cost Outcomes**

Introduction

In September 2020, the Board of Governors for the Patient-Centered Outcomes Research Institute (PCORI) approved the proposed Principles for the Consideration of the Full Range of Outcomes Data for public comment.¹ The goal of these principles is to outline PCORI's compliance with its reauthorization legislation, which states that, in addition to clinical outcomes, research should also endeavor to capture patient-important outcomes that assess the economic burden of treatments and services. While PCORI remains prohibited from conducting cost-effectiveness analyses or other analyses that assess the value of a life in relation to an individual's disability (eg, dollars per quality-adjusted life-year), the additional focus on cost outcomes that matter to patients moves towards addressing a gap in value assessment.²

While clinical effectiveness is still the priority, cost outcomes from the patient perspective are a reality that sometimes gets left behind. Patients struggle with affordability, travels costs associated with treatment, caregiver resources, etc. It is important to understand the existing evidence about which economic burden outcomes matter most to patients, as well as where PCORI may need to conduct additional research to fill in gaps. PCORI will need to better understand the landscape to ensure that research going forward captures accurate and actionable information about the economic burden of treatments from the patient perspective and how this information may be used to drive patient decision making when combined with the results of PCORI's comparative-clinical effectiveness research.

Xcenda conducted a targeted literature review in September 2020 to better understand how patient-important cost outcomes were considered in studies. Key findings include:

- Patient preferences of economic burden outcomes are understudied in the literature
- Economic burden outcomes are often excluded from preference studies, and when they are reported, they are often assessed using a single catchall "cost" outcome
- More patient preference research is necessary to consider the full range of outcomes important to patients, including those that take affordability and economic impact into consideration
- Patients may prioritize economic burden outcomes differently based on a variety of factors, and their economic outcome preferences may factor into their treatment decisions
- Although treatment effectiveness and safety are major drivers behind treatment selection, economic burden also plays a major role in the decision-making process

Further research by PCORI may help to fill some of these evidence gaps and facilitate more informed healthcare treatment decision making.



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Patient preferences of cost burden and economic impact outcomes are understudied

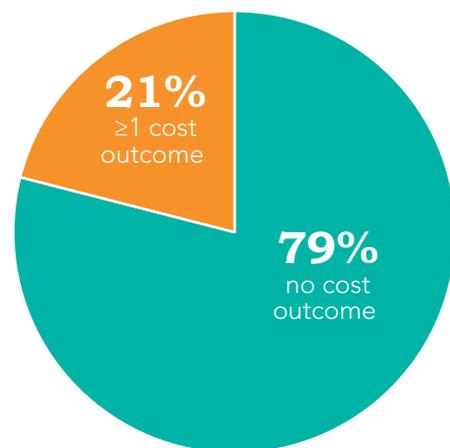
While patients should be the center of healthcare decisions, often their preferences—particularly as they relate to cost—are sidelined. Incorporating these preferences into the healthcare decision-making process may improve both treatment adherence and clinical outcomes.³ A variety of outcomes, including clinical effectiveness, safety, cost, and economic impact, may factor into treatment selection, and studies on patient preferences have become critical in determining the relative importance of those outcomes.⁴

Xcenda conducted a targeted literature review to describe which economic outcomes, including both direct (eg, medical out-of-pocket [OOP] costs, travel costs, and caregiving costs) and indirect (eg, absenteeism and disability) costs, are most important to patients when they are making healthcare decisions. A search conducted in Embase from January 1, 2010 through August 27, 2020 (date of search execution) identified 32 systematic literature reviews (SLRs) that reported patient preferences regarding at least 1 economic outcome.

The identified SLRs included more than 250 primary studies of patient preferences conducted in the United States (US). The majority of these primary studies, approximately 79%, did not report patient preferences related to any cost outcomes. In addition, none of the SLRs or included primary studies reported exclusively on cost outcomes. The most commonly identified non-cost outcomes in SLRs were treatment effectiveness (31/32, 97%), safety (30/32, 94%), and treatment administration (eg, frequency and route of administration; 27/32, 84%). Other non-cost outcomes included cultural expectations, location, and family preference.

Because cost outcomes may be measured in a variety of ways, a second literature search was conducted to identify primary studies that reported on the relative importance of multiple-cost outcomes. **However, this search only identified 3 primary preference studies on multiple-cost outcomes conducted in the US, indicating that further research to capture the full range of cost outcomes is needed.**

Primary studies of patient preferences in SLRs



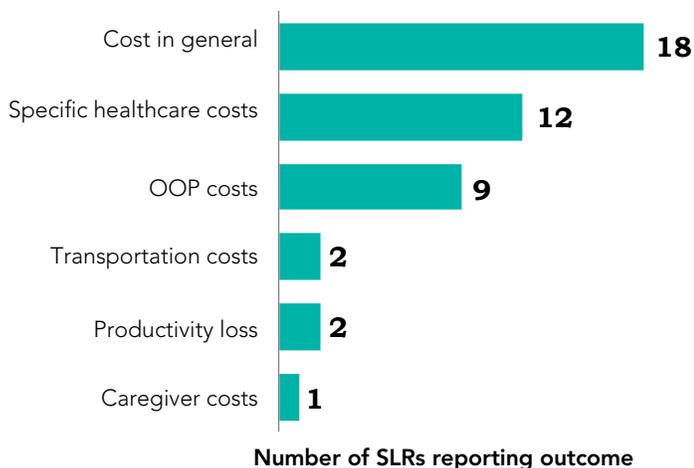
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Costs are generally reported as a single catchall outcome

In general, the literature lacked specificity about how cost outcomes were defined. **More than half of the identified SLRs reported on the importance of "cost" to patients without specifying what costs were included.** Almost one-third of SLRs reported on OOP costs, but more than half of the studies that reported OOP costs did not describe what specifically contributed to OOP costs. SLRs that defined OOP costs included the OOP cost of treatment and the OOP cost of follow-up care. Other cost outcomes included transportation costs, productivity loss, and caregiver costs.

A total of 51 primary studies reported patient preferences regarding at least 1 cost outcome. **Nearly all of these (94%) reported on a single cost outcome, and 40% of those single-cost outcomes were "cost" in general, without specification of what costs were included.** In contrast, most studies reported on multiple clinical outcomes (eg, multiple potential treatment side effects/complications).



THE IMPORTANCE OF ECONOMIC OUTCOMES TO PATIENTS NEEDS FURTHER RESEARCH

A targeted literature review in September 2020 identified 3 studies exploring multiple-cost outcomes, such as OOP costs, insurance coverage, and transportation cost. These studies all focused on identifying which outcomes patients might consider, rather than on ranking the importance of these outcomes. For example, patients may consider both OOP costs and the cost of missing work but prioritize one or the other if treatments have competing characteristics. The relative importance of different economic outcomes is crucial to helping guide the collection of outcomes in comparative-effectiveness research, as well as helping payers to prioritize outcomes. Additional research is necessary to establish how patients prioritize different cost outcomes so that appropriate data can be collected and these preferences can be incorporated into the decision-making process.

Despite the lack of information on relative importance, these studies provided other valuable information on cost outcomes that are meaningful to patients. One study on patient preferences related to selecting a pharmacy noted that both OOP costs and a contract with the patients' insurance company were both driving factors in pharmacy selection.⁵ A second study on automated insulin delivery systems in patients with type 1 diabetes found that 61.3% of patients believed the cost of supplies was a barrier to use of the device, while 57.4% of patients believed the cost of the device itself was a barrier to its use.⁶ Finally, a qualitative study described the importance of transportation challenges, inability to work, and other economic challenges to patients with rheumatoid arthritis.⁷ While it was disappointing to only see 3 studies that looked at multiple-cost outcomes, they demonstrated the broader need to include economic outcomes that matter to patients. Each of the studies captured different economic outcomes and illustrated that there are a variety of lenses that can be applied and that will ultimately help patients and providers home in on what matters to them.

Patient treatment choices may differ depending on the outcomes that are important to them

As might be expected, most SLRs on patient preferences for outcomes reported that safety and effectiveness were the top priority for patients. When cost outcomes were included, they were ranked as important, but not more important than clinical outcomes. More studies are required to understand the economic impact on a patient's life and the contribution of cost factors when making healthcare choices because, while patients want to know that a drug will be safe and effective, cost is a significant barrier for many.

Of the 9 SLRs that reported the relative importance of cost compared with other outcomes, **7 found that although cost was important to patients, it was generally ranked as less important than potential benefits and harms.**⁸⁻¹⁴ One SLR on anxiety/depressive disorders included 2 US studies that reported on the relative importance of cost but did not include either effectiveness or safety outcomes. Instead, cost was compared with process factors, such as setting or treatment modality, and found to be among the top priorities for patients.¹⁵ Only 1 SLR reported that cost was sometimes placed above effectiveness and/or safety, although results were mixed.¹⁶

When selecting a treatment option, patient choices may differ depending on the outcomes that are important to them. In 1 study, 533 patients with type 1 diabetes were asked about how personal preferences contributed to their decision making regarding the use of continuous glucose monitoring (CGM) devices.¹⁷ Patients choosing not to use CGM devices cited the product being "too expensive" (55.3%) and lack of insurance coverage for the device (39.5%) as being the factors that drove their choice. Among patients who discontinued use of CGM devices, the most common reason for discontinuation was related to device accuracy, but lack of insurance coverage and the device being too expensive were considerations for many patients (52% and 45% of patients, respectively). Among patients who continued use of CGM devices, clinical outcomes such as glycemic control and lower HbA1c were among the most important driving factors; costs were not frequently rated as important. This ranking of importance may have been from experiencing less economic impact due to higher income category and/or insurance coverage compared with the group who reported not using the CGM device due to economic reasons. More patient preference research is necessary to consider the full range of outcomes important to patients, including those that take affordability and economic impact into consideration.



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55.3%
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39.5%
of patients cite lack
of insurance coverage
for the device

While effectiveness may often be a major driving factor behind treatment selection, costs do play a significant role. In a study of 158 patients with facial melanomas, patients were asked to assess the importance of attributes when selecting surgical treatments.¹⁸ Outcomes related to cost or a patient's time commitment were often described as very important, such as OOP costs (39.5%), time spent at the doctor's office (16.5%), and travel time to the office (15.8%). Although costs were highly important to patients, clinical effectiveness was the more critical factor, and nearly all patients described probability of local recurrence as very important (94.3%) or somewhat important (5.1%). The findings were similar when patients were asked to select theoretical treatment options with varying attributes, and each attribute was ranked in terms of importance based on patients' responses. OOP costs were identified as the second most important attribute, while travel time and time spent at the doctor's office were ranked fifth and sixth most important; the probability of local recurrence was the most important factor in determining patients' treatment selection.

The combination of clinical effectiveness and cost burden driving treatment selection is a reliable indicator that studies are needed to understand the full range of outcomes important to patients—and which outcomes are the most important to patients.

Cost outcomes may have both immediate and long-term economic consequences, and patients may prioritize them differently. Patients in an outpatient dermatology clinic were surveyed regarding how time spent and expenses affected their choice of dermatology care provider.¹⁹ Patients with additional OOP costs (defined in this study as deductibles/copays, childcare costs, and travel expenses) and increased travel time were significantly less likely to express a preference for their current care provider. In contrast, there was no significant relationship between lost wages from time taken off work and preference for their current care provider, even though lost wages represented a much larger amount of money than OOP costs.

In this study, patients prioritized immediate cost outcomes over long-term cost outcomes, emphasizing the importance of assessing both.

Understanding the relative importance of immediate and long-term cost outcomes will help key stakeholders make healthcare decisions on a population level.

Conclusions

Treatment benefits and harms are major factors driving patients' choices. However, the complex relationship between economic impacts/cost outcomes, benefits, and harms needs to be studied further to establish how patient preferences contribute to treatment decisions and treatment adherence. Treatment decisions are difficult for patients to make. **Patients are likely to overstate their willingness to pay for various treatment attributes, underestimating the role that economic impact and cost outcomes will play in their decision.**^{20,21} Stated preference studies, in which patients are asked to rate the importance of hypothetical treatment characteristics, often identified cost as less important than benefits and/or harms. However, revealed preference studies, in which patients are observed as they make actual treatment decisions, showed that cost often factors heavily into the choices that patients actually make when confronted with the decision.^{5,6,17,19} Because different methods of eliciting patient preferences may influence the results, it is important to promote transparent and proactive engagement with stakeholders to both prioritize and collect patient-important outcomes.

More research is needed to identify a full range of outcomes important to patients, including economic impacts. Primary studies looking at multiple-cost outcomes are both necessary and lacking in the literature. **There is a wide variety of ways to assess patient burden and identify economic impacts important to patients, including validated questionnaires (eg, Work Productivity and Activity Impairment Questionnaire, Caregiver Reaction Assessment Instrument), semi-structured interviews, or other cost-specific patient-important outcome measures to capture cost component data on time spent receiving care and treatment, missed work, formal and informal caregiver costs, transportation costs, childcare costs, short- and long-term disability, early retirement, and lost employment opportunities.**^{22,23} These outcomes were not reported clearly or consistently in the literature, and clear guidance for their identification and collection are necessary moving forward.

Because the literature focuses on a single catchall cost outcome, the importance of individual economic outcomes (eg, OOP costs vs missed work) is currently not well established but may vary by patient demographics (eg, elderly patients without young children will not rate childcare costs as an important consideration). The importance of cost outcomes may also depend on patient economic characteristics, such as employment, income, socioeconomic status, education, and age, but there is little or no available evidence that evaluates the relationship of how patients' economic characteristics may factor into patient preference regarding cost burden.

Almost all of the SLRs reported on chronic conditions. More than one-third of the identified SLRs were focused on oncology, and the rest were largely clustered within a few commonly studied clinical areas (ie, arthritis, diabetes, and neuropsychiatric conditions), leaving many health conditions unstudied. Different disease areas and/or types of interventions (eg, life-saving treatment vs optional device to monitor blood pressure) may result in different cost outcome preferences, but this cannot be determined without additional data, since many disease areas have little or no available evidence. **In studies of non-cost outcomes, patient preferences have been shown to vary based on disease severity and may even evolve over the course of their disease.**²⁴⁻³⁰ Because preferences have the potential to evolve, clinicians may want to periodically revisit potential treatment options to ensure that patients' growing understanding of experience with their condition is reflected in their treatment choices.

Although patients may want different levels of information from clinicians to facilitate shared decision making, clear and effective communication is crucial.³ In order to provide necessary and valuable information to patients, clinicians require transparent, high-quality research on all treatment outcomes, including economic outcomes.

Effectively involving patients in decision making surrounding treatment may improve clinical outcomes through 2 pathways. First, incorporating patient preferences and providing patients with their desired level of information may lead to improved adherence to effective treatments, thereby improving health outcomes. In addition, for some clinical outcomes, incorporating patient preferences may in itself have a therapeutic effect by strengthening patient autonomy and improving patient satisfaction with care.³

PCORI has developed principles to provide high-level guidance for the collection of outcome data in PCORI-funded research. The targeted literature review reported here demonstrates both the importance and complexity of using patient preferences to drive research. The cost of treatments and services will depend on a variety of factors (eg, insurance coverage) and may have economic impacts that extend beyond the initial cost of treatment (eg, travel costs, missed work, caregiver costs). The type and importance of these economic outcomes is likely to differ across populations, emphasizing the importance of engaging patients directly in research.

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