ScienceDirect

Contents lists available at sciencedirect.com
Journal homepage: www.elsevier.com/locate/jval

VALUE HEALTH. 2020; 23(3):287–288

ISPOR Report: Editorial

A Step Closer to Better Research Prioritization? The ISPOR Value of Information Task Force Reports

Rachael L. Fleurence, MSc, PhD,* Joe V. Selby, MD, MPH

Apodeixis Strategies, Bethesda, MD, USA

The notion that large amounts of healthcare funds may be wasted in research has perhaps not attracted the attention that it warrants.[1] The concept of opportunity cost, highlighting that once funds are spent in one area, they are no longer available for other investments, is fairly intuitive. Yet the development and widespread adoption of explicit quantitative methods to prioritize research decisions has been slow. Although a number of quantitative approaches have been developed, these methods are not used routinely by research funders.

The science of research prioritization has made strides in the past 20 years, moving away from unstructured expert discussions toward the development of quantitative methods to assess the value of research and the inclusion of a wider range of stakeholders in the process, including, importantly, patients and clinicians. Several approaches to using more explicit criteria for research prioritization have been proposed and explored. Frequently cited criteria include burden of disease, current variation in clinical practice, and likelihood of uptake of the new treatment in practice. These criteria have been included in deliberations by expert panels and incorporated into formal value of information (VOI) models.[2] VOI methods are the subject of 2 important reports issued by the ISPOR Task Force.[2,3]

Setting priorities for research is a complex endeavor spanning multiple levels of decision making, from societal decisions to allocate resources between healthcare and other sectors, to choices to be made between healthcare delivery and healthcare research, right down to selections of specific individual research projects. For example, at the Patient-Centered Outcomes Research Institute (PCORI), a US health research funding agency, one of its first activities was to determine the overall research priorities. A public survey of national priorities was conducted in 2012, resulting in 5 priorities that were then carefully described in funding announcements. The selection of specific studies was conducted through a process of merit review, using PCORI's review criteria that required the proposed studies to be patient centered, engage with the populations that were being studied, be methodologically rigorous, and have a high probability of affecting clinical practice on the basis of a high disease burden and current practice variation.[4] Innovations to the merit review process at PCORI included adding patients, caregivers, and other stakeholders to the peer-review process. The review process was otherwise traditional in its reliance on the subjective application by individual experts of merit review criteria.[5]

To be responsive to high-priority questions that may be more efficiently identified through other channels, PCORI also established multistakeholder advisory panels to help identify critical research questions. To date, 32 of these research questions have been developed into topic-specific funding announcements, and 92 research studies have been funded on high-impact topics.[6] Although robust merit review criteria include important aspects for prioritization such as scientific validity, impact of the research, and inclusion of the patient, they do not formally quantify the level of uncertainty associated with the research questions nor formally capture the research dollars that should be invested as a result.

In this issue of *Value in Health*, the multistakeholder ISPOR Task Force publishes 2 foundational reports on VOI methods.[2,3] VOI analysis provides a quantitative framework for determining the extent to which new evidence might improve expected benefits by reducing the level of uncertainty in the current evidence base. The results can be compared with the cost of conducting the research to determine whether this research is worthwhile**.** The 2 ISPOR Task Force reports will likely serve as important reference documents.

The first report of the Task Force is intended for an audience of decision makers tasked with allocating resources to research. The report provides an introduction to the basic elements of VOI and defines key concepts and terminology. It outlines the role of VOI in supporting different types of research decisions. The report also provides several important recommendations and identifies emerging good practices. The second report of the Task Force is aimed at a technical audience who implements VOI analyses. The report provides guidance on selecting the most appropriate methods for computing different VOI approaches and on how to use VOI methods where there is no cost-effectiveness model. Finally, the report also provides a set of recommendations on how best to report VOI measures and results.

Setting priorities for research has important societal implications, and using improved methods to optimize the use of scarce research funds seems wise. It should be noted that current

Conflict of interest: Rachael L. Fleurence served as the program director for Research Infrastructure at the Patient-Centered Outcomes Research Institute (PCORI) from 2012 to 2017. Joe V. Selby served as the executive director of PCORI from 2011 to 2019.

* Address correspondence to: Rachael L. Fleurence, MSc, PhD, Apodeixis Strategies, 4938 Hampden Ln., #128, Bethesda, MD 20814. Email: rachael@apostrat.com.

1098-3015/$36.00 - see front matter Copyright © 2020, ISPOR–The Professional Society for Health Economics and Outcomes Research. Published by Elsevier Inc.
https://doi.org/10.1016/j.jval.2020.01.003

applications of VOI methods are best suited to individual research studies in which specific research questions have already been identified, although these do not need to be in the same disease area. VOI methods have not been applied at higher levels of resource allocation between healthcare and nonhealthcare funds or between healthcare delivery and healthcare research funds. Other methods may need to be applied at these levels of decision making.

Several obstacles for the widespread adoption of VOI should be noted. The first is related to workforce training because the number of decision makers and analysts trained in these complex methods is still relatively small. The ISPOR Task Force reports are a major step in bringing together recommendations that will support future workforce training. A second challenge is that VOI methods are both complex and potentially time consuming. The timing of when decisions are needed to fund research and how to plan for the use of VOI results is likely to continue to be a challenge, with agencies defaulting to what they know how to do in order to get timely decisions. At PCORI, we commissioned a VOI analysis of the ADAPTABLE trial, comparing 2 different dosages of aspirin. Although the decision to fund the trial has already been made, the purpose was to pilot the use of VOI for large studies within PCORI. The pilot proved helpful in confirming the high level of uncertainty with respect to the research question and the likely appropriateness of the funds spent on the trial.[7] Nevertheless, a systematic and regular implementation of VOI analyses coinciding with several funding cycles per year would require significant resources, expertise, and planning and does not seem likely in the near future. Narrowing the use of VOI analyses to prioritizing targeted funding announcements might be more realistic to begin with.

Although the science of research prioritization is becoming more mature, we would be remiss in not raising the question of whether disruptive changes may be on the horizon. Over the past decade, the rapidly changing data environment now holds significant amounts of digitized healthcare data and an increasing capacity to deploy artificial intelligence and machine learning methods to explore problems such as research prioritization in new ways. It seems likely that the uses of such techniques to systematically quantify levels of uncertainty in current evidence to support research prioritization may be explored in the future.[8]

In conclusion, we commend the Task Force for this ambitious effort to provide guidance and recommendations to decision makers and analysts on the VOI methods. These reports will serve the scientific and research funding community well and are an important contribution to the science of research prioritization. Optimal use of scarce research money is critical, so that evidence generated can be responsive to patient and clinician needs and decision making.

Acknowledgments

The authors have no other financial relationships to disclose.

REFERENCES

1. Chalmers I, Bracken MB, Djulbegovic B, et al. How to increase value and reduce waste when research priorities are set. *Lancet*. 2014;383(9912):156–165.
2. Fenwick E, Stotten L, Knies S, et al. Value of information analysis for research decisions: an introduction report 1 of the ISPOR Value of Information Analysis Task Force. *Value Health*. 2020;23(2):139–150.
3. Rothery C, Strong M, Koffiberg H, et al. Value of information analytical methods emerging good practices: report 2 of the ISPOR VOI Task Force. *Value Health*. 2020;23(3):277–286.
4. Fleurence R, Selby JV, Odom-Walker K, et al. How the patient-centered outcomes research institute is engaging patients and others in shaping its research agenda. *Health Aff*. 2013;32(2):393–400. https://doi.org/10.1377/hlthaff.2012.1176.
5. Fleurence RL, Forsythe LP, Lauer M, et al. Engaging patients and stakeholders in research proposal review: the Patient-Centered Outcomes Research Institute. *Ann Intern Med*. 2014;161(2):122–130. https://doi.org/10.7326/M13-2412.
6. Patient Centered Outcomes Research Institute. Targeted funding announcements. https://www.pcori.org/sites/default/files/PCORI-Targeted-Funding-Announcements.pdf. Published 2018. Accessed December 14, 2019.
7. Basu A, Meltzer D. Decision criterion and value of information analysis: optimal aspirin dosage for secondary prevention of cardiovascular events. *Med Decis Making*. 2018;38(4):427–438. https://doi.org/10.1177/0272989X17746988.
8. Krumholz HM. Big data and new knowledge in medicine: the thinking, training, and tools needed for a learning health system. *Health Aff (Millwood)*. 2014;33(7):1163–1170. https://doi.org/10.1377/hlthaff.2014.0053.