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VALUE & OUTCOMES SPOTLIGHT

A magazine for the global HEOR community.

FINDING THE BEST AND THE BRIGHTEST: GETTING A LEG UP ON THE RACE FOR TALENT

ISPOR
Improving healthcare decisions

VALUE & OUTCOMES
SPOTLIGHT

NOVEMBER/DECEMBER 2021
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The mission of *Value & Outcomes Spotlight* is to foster dialogue within the global health economics and outcomes research (HEOR) community by reviewing the impact of HEOR methodologies on health policy and healthcare delivery to ultimately improve decision making for health globally.

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FROM THE EDITOR

As the field of health economics and outcomes research (HEOR) rapidly grows on a global scale, the demand for HEOR professionals is also surging. In addition, the dearth of HEOR talent has been further exacerbated by the pandemic and will continue to be persistent as HEOR expertise expands with increased leveraging of new technologies (such as "big data" and artificial intelligence) in informing healthcare decisions. As exigency for these skills grows, we need to ensure that HEOR talent is being developed and appropriate training is provided now and in the future to meet these rising demands.

ISPOR's mission is to promote HEOR excellence to improve decision making for health globally. As part of this mission, ISPOR has established an HEOR Competencies Framework™ for HEOR professionals. This valuable tool includes 41 competencies organized into 13 topic domains and serves as a guide to develop talent that meets the demands of the overarching HEOR field as well as provide relevance to industry requirements and academic program capabilities. Many academic HEOR programs currently use this framework in reviewing and planning their curriculum to ensure that students are appropriately trained and equipped with the necessary skills to be successful in their careers.

The ISPOR Competencies Framework™ is also relevant and an important component in HEOR industry-sponsored postdoctoral (usually PharmD) fellowships–these postgraduate opportunities have become increasingly popular among new professionals with the number of industry fellowships in the United States having risen from 442 in 2017 to 628 in 2021. These fellowships generally include a didactic component in an academic setting (eg, offering a combined master's degree) and provide opportunities to gain hands-on experience through accelerated HEOR-applied training as well as exposure to the biopharmaceutical industry.

As societal expectations change, companies are increasingly moving toward a purpose-driven mission rather than a solely profit-driven one as the modern workforce trends toward working for companies that share their values and have a motivating culture. These individuals want to be employees of companies that are ethical, transparent, principled, and care about the planet and sustainability, invest in their employees and the corporate culture, provide flexible work arrangements, and invest in collaboration tools and digital communication. As a result, companies will need to reconsider their hiring and retention strategies. The inability of a company to retain an employee will cost that company approximately 6 to 9 months of salary to replace that employee, irrespective of the cost of lost productivity. By having strategies in place to attract the best and brightest candidates, identify and develop internal talent, and develop a clear succession plan for key positions, these companies will not only excel but will be winners in the race for HEOR talent.

As always, I welcome input from our readers.
Please feel free to email me at zeba.m.khan@hotmail.com.

Zeba M. Khan, RPh, PhD
Editor-in-Chief, *Value & Outcomes Spotlight*

ISPOR SPEAKS

Registering Study Protocols: Helping Real-World Evidence Come of Age

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Researchers often ask why they should consider preregistering their real-world data (RWD) study protocols. Prespecifying analytic plans and publicly registering protocols before analyzing data are part of ISPOR-ISPE's good study conduct recommendations for studies that evaluate hypotheses about treatment effects through secondary analysis of observational data.[1,2] Documenting the initial plans in a protocol, and subsequent amendments to the plan, can help assure readers that the study results were not selected or manipulated. Of course, the validity of study findings will still depend on the relevance and reliability of the data and methods. Nevertheless, having a clearly specified protocol registered will increase the reproducibility of RWD study findings as well as the ability of end users to evaluate the rigor of study methods.[3] If real-world evidence (RWE) is to be seriously considered for healthcare decision making as a useful complement to randomized controlled trial data, it must become "adult" in the sense of satisfying the same requirements for registration, sharing of study protocols, and results.

Table: Real-World Evidence Registry elements.

1. Title
2. Description
3. Contributors
4. Category
5. Affiliation
6. License
7. Subjects
8. Tags (optional)
9. Research question
10. Funding source
11. Data source(s)
12. Study period
13. Study design
14. Study population
15. Cohort entry (index) date
16. Specific inclusion criteria
17. Specific exclusion criteria
18. Intervention
19. Comparator
20. Outcomes
21. Patient characteristics to be used in the analysis
22. Patient subgroups
23. Follow-up definition
24. Data handling attestation at time of registration
25. Data handling description/ clarification (optional)

ISPOR recently launched a registry for RWE study protocols, in collaboration with ISPE, Duke-Margolis Center for Health Policy, and the National Pharmaceutical Council. The registry is a key feature of our RWE Transparency Initiative, which published its deliberations and plans last year.[4] As part of this initiative's objective to grow a culture of transparency around RWE, we saw a need for an easy-to-use protocol registry for studies using RWD to evaluate treatment effects. We partnered with the Center for Open Science to develop the RWE Registry and use their online platform, called Open Science Forum. We initiated the registry in 2020, sought feedback from several early users, and made some modifications. We feel it is now ready for broader use and protocol registrations have begun.

A common question is how the RWE Registry compares to other registries. Researchers have a number of registry options, but the two best known for our field are probably clinicaltrials.gov and the European Union's Post-Authorization Study registry (EU-PAS). Clinicaltrials.gov is intended for registering clinical trials but has been used for registration of noninterventional studies as well. However, it requires the user to answer many questions that aren't normally relevant for the typical RWD study. EU-PAS is also a well-established study registry that is particularly important for postauthorization observational studies (usually safety oriented) needed for European regulatory purposes. Some studies are required to be registered on clinicaltrials.gov or EU-PAS. When that is the case, researchers should certainly use the required registry.

However, for the many researchers who don't already have a mandate or workflow for study registration (eg, researchers in health technology assessment, health economics and outcomes research, payer organizations, and other data scientists), the RWE Registry is a simplified platform that is specifically designed for studies using data that have already been collected for other purposes, like claims or electronic health record data. The registration process has been streamlined to minimize administrative and irrelevant questions. There are 25 questions to answer regarding your research plan and your study team followed by the required upload of a more detailed protocol (see **Table**). More detailed instructions, with examples for each item, are available here. Instructional videos are available on

ISPOR's Real World Evidence Registry webpage. In addition, the registration is automatically linked to a "project" wiki space that allows registrants to store and share code, appendices, and other supporting materials for the project, all of which come with a citable DOI that is linked to the investigator's ORCID ID.

The registration process asks that you attest to the stage of the study at the time of registration (item 24 in the **Table**). Possible responses range from "no data handling at this point" to "statistical comparisons completed", so registration prior to analysis is not required, only preferable. Some data handling is common prior to finalizing a protocol to check on sample sizes, algorithms, etc. Hence the stage labeled "Conducted preliminary analyses, including descriptive statistics and observation of data distributions–but no analyses of association between treatment and outcome" would be considered a preregistration because the protocol was registered before inferential analyses were conducted.

Once one has completed the registration items and submitted it, an ISPOR staff "moderator" reviews it, confidentially, for completeness. If satisfactory, the moderator will approve it and the protocol is officially registered and posted. If not satisfactory for some reason, the moderator will send it back to the registrant with any questions or concerns.

In developing the RWE Registry, we understood that some research needs to remain confidential until publication. For that reason, the RWE Registry has an option to keep the date stamped study registration hidden from public view for some period of time (ie, an embargo feature) before making them public. While the registration is hidden from public view, links to date stamped study materials can be shared privately with peer reviewers, assessors, or other decision-making bodies.

There are other good reasons for using this Registry. In addition to enhancing the transparency of study processes that underpin study findings, many journals are now starting to look for and recognize manuscripts that are reporting on preregistered protocols. ISPOR's own journal, *Value in Health*, has promised priority review for RWE manuscripts based on preregistered protocols. Also, as registration becomes more common, this Registry will provide a place for researchers to search for RWE studies based on their protocol characteristics. This aspect makes registration useful no matter what the stage of data analysis is.

The RWE Registry facilitates transparency and credibility by documenting the study protocol and its stage of registration relative to data analysis and by providing a forum to share study materials, code, and appendices over the life cycle of the study. Registering a study protocol improves study transparency, is part of good study conduct in general, and will help RWE achieve its needed role in healthcare decision making.

References

1. Cleary M. Unlocking the promise of real-world evidence. *Value & Outcomes Spotlight*. Sep/Oct 2020;6(5):13-16.

2. Berger ML, Sox H, Willke RJ, et al. Recommendations for good procedural practices for real-world data studies of treatment effectiveness and/or comparative effectiveness designed to inform healthcare decisions: Report of the joint ISPOR-ISPE Special Task Force on Real World Evidence in Health Care Decision Making. *Value Health*. 2017;20(8):1003-1008.

3. Wang S, Schneeweiss S, Berger M, et al. Reporting to improve reproducibility and facilitate validity assessment for healthcare database studies V1.0. *Pharmacoepidemiol Drug Saf*. 2017;26 (9):1018-1032.

4. Orsini L, Berger M, Crown W, et al. Improving transparency to build trust in real-world secondary data studies for hypothesis testing—why, what, and how: recommendations and a road map from the Real-World Evidence Transparency Initiative. *Value Health*. 23(9):1128-1136.

BEYOND COST-EFFECTIVENESS: DEFINING AND MAPPING OUT INNOVATION AT NICE

Signal IN BRIEF

- NICE intends to be at the forefront of anticipating and rapidly evaluating new and existing technologies to provide independent, world-leading assessments of value for the UK's National Health Service and improved access for patients.
- NICE's new, ambitious 5-year strategy will build on its trusted reputation for rigor and independence, while at the same time keeping ahead of the challenges of a rapidly changing world.
- NICE plans to speed up the existing evaluation pathway for new medicines by proactively identifying innovative and cost-effective health technologies, and by working closely with the UK's Medicines and Healthcare products Regulatory Agency and other partners in the UK's healthcare ecosystem to ensure rapid access to pioneering new treatments post European Union exit via the Innovative Licensing and Access Pathway.
- NICE plans to develop leading capabilities and standards for routinely using real-world data to inform all aspects of its work; drive the future research agenda and funding priorities through new collaborations with academia, government, and industry; and remain at the forefront of anticipating and rapidly evaluating digital health technologies.

Health technology assessment (HTA) is facing one of the biggest turning points in its history. COVID-19 stressed healthcare systems almost to the breaking point while creating a demand for quick assessment for new therapies and treatment protocols. Scientific advances in such areas as gene therapy have created new drugs and artificial intelligence has sped up the process of drug development.

As the tidal wave of potential new therapies from development pipelines threatens to crash down, HTA organizations face major challenges. These bodies, short on resources, will have to figure out the best ways to evaluate these new technologies for the benefit of all stakeholders. They are caught in the age-old paradox of "fast and good, but not cheap," "fast and cheap, but not good," and "cheap and good, but not fast." While speed is called for, HTA agencies must at the same time balance patient need to access new technologies with ensuring the independence and scientific and methodological rigor of the HTA process.

The UK's National Institute for Health and Care Excellence (NICE), realizing these challenges, has created a 5-year strategy for 2021 to 2026. As one of the most-experienced and recognized HTA bodies in the world, the agency has prided itself on being rooted in innovation and its strategy has 4 pillars that reflect that legacy. The agency wants to: (1) provide rapid, robust technology evaluation; (2) create dynamic, living guideline recommendations; (3) make sure guidelines are effectively adopted and used by NICE's strategic partners; and (4) drive progress in data, research, and science.

The new strategy is intended to help the life sciences industry seeking market access for their technologies, provide guideline recommendations for healthcare providers and commissioners that incorporate up-to-date evidence and data, and give patients improved access to healthcare technologies as well as new ways of engaging and using patient and public opinion to inform the evidence base for guidance development.

Additionally, international partners will see greater collaboration and sharing of NICE's expertise and knowledge through NICE International, a not-for-profit advisory service aimed at health organizations, ministries, and government agencies.

Jens Grueger, Director and Partner, Boston Consulting Group, readily concedes that NICE is more known for being a hawk when it comes to

drug and medical pricing than for innovative techniques in considering how therapies are approved and priced. But from its very beginning, the organization has been an innovator.

"NICE has been the agency that has given the payers teeth, but in a way that was hard for others to criticize it because they had a very strong methodological foundation," he says. "And they published their methods guidelines, they were extremely transparent. That was very different from what we had seen before. Nobody had pledged so much transparency about their initial assessments, how they were then holding public meetings to look at these things. NICE was always punching above its weight in terms of the methodological foundation, the transparency, and the visibility of what they were doing."

Another way in which NICE has been an innovator is its openness in engaging with healthcare companies, particularly through its Scientific Advice Team. The team is a fee-based advisory service for pharmaceutical, medical device, and other healthcare technology developers. When the team was launched in 2007, Grueger says patient groups and academia expressed fear that NICE would develop biases. But that wasn't the case. "Sir Andrew Dillon's, the founding and first chief executive of NICE, response was, 'The only way to deal with bias is to have all the biases sat around the table,'" Grueger says.

While fending off accusations of bias, the Scientific Advisory Team has engaged in innovation. In 2019, the team (in a pilot program with Novartis) provided its first piece of advice on the design of a patient preference study in chronic obstructive pulmonary disease. "We see this engagement during the project design phase as a positive step, helping to ensure the results serve the interests of the different stakeholders: industry, NICE, and the patient community," said Nigel Cook, Head of Decision Support and Insights, Global Patient Access, Novartis.

At the time Grueger was working for Novartis, so he saw firsthand how the pilot program worked. Until that point, the pharmaceutical industry was struggling with NICE's rejections of results from patient preference studies. "I think the industry was getting frustrated that whatever data were produced, whatever models were produced, NICE was always finding something wrong with fixed models," Grueger says. He believes that as a result of the pilot program other countries have learned that having this kind of scientific advice available to the industry is important.

NICE and the Definition of Innovation

Gillian Leng, NICE's Chief Executive, says defining innovation generally is difficult, because "the word innovation is used in all sorts of different ways. And there's a general way that people often describe innovation as shorthand for change and ongoing development and improvement."

But NICE has never been interested in that shorthand definition. Back in 2009, Professor Sir Ian Kennedy, in his "Appraising the Value of Innovation and Other Benefits: A Short Study for NICE," came up with a much more concrete description, Leng says. "The thing that matters to NICE about innovation is being able to demonstrate that that brings patient benefit," she states. "And that is still absolutely core and fundamental to what we do in our evaluations. Because you could have a hugely innovative new molecule that nobody ever has created, but there's no point in those innovations—unless they bring patient benefit."

According to Meindert Boysen, PharmD, MSc, Director, Centre for Health Technology Evaluation, NICE, innovation is about a new solution for something that has a high demand or an unmet need. "Just because something is new doesn't really matter," Boysen says. "It's relative to what we currently have."

KEY TAKE-AWAYS

FOR HEALTHCARE INNOVATORS AND VALUE CREATORS:

- NICE is not the oldest HTA body, but its transparency and methodological methods were something not seen before in the HTA world.
- NICE's Scientific Advice Team broke new ground in a pilot program with Novartis when it provided its first piece of advice for a patient preference study.
- For NICE, innovation does not matter unless it brings patient benefit.
- NICE is taking a lifecycle-management approach to HTA, using "living guidelines" to evaluate new technologies.
- NICE will continue to use QALY in its calculations but is investigating other HTA evaluation methods.

For NICE, employing innovation in the way it conducts its HTA evaluations is important. But Boysen believes that the organization, through its evidence-based approach, has shaped the value of innovation.

NICE and Future Innovation

As new therapies are generated with new technologies, particularly cancer therapies and digital therapies for mental health issues, NICE is faced with the prospect of making decisions about clinical and cost-effectiveness without a lot of data to consider. "We have to deal with an ever-greater uncertainty around new technology," Boysen says. "We don't really have the evidence, but people want the answer now. You have two options, either you say, 'Well, I'm not giving you the answer,' and you wait. But that's really not the one that people support. Or you can give an answer, but with a real clear management plan around it."

> "The thing that matters to NICE about innovation is being able to demonstrate that that brings patient benefit, and that is still absolutely core and fundamental to what we do in our evaluations."
>
> — Gillian Leng

As part of the organization's new 5-year strategy—embedding those technologies into living guidelines that can position technologies in the pathway of care—NICE will be setting up standing committees that cover topics such as mental health, cardiovascular disease, and cancer. "They can keep track of that more living environment and can see where things might now have a competitor, or whether they might now be less important in a pathway," Leng says.

For these living guidelines to work, NICE will have to collaborate—connecting regulators, commissioners, payers, patient groups, and pharmaceutical and medical device companies. "We are absolutely the type of organization that can bring a lot of people together around a plan for an early value assessment, with a contingent or managed access approach to introduction, that then leads into a living guideline when the product is linked into a pathway," Boysen says. "It's a life cycle approach for health technology management."

While NICE will continue to evolve its processes and be open to looking at other ways of evaluating new technologies, the quality-adjusted life year (QALY) is sticking around—at least for now. "We are investing ourselves in a research project called 'Beyond the QALY,' so we're open to doing that," Boysen says. "But we position ourselves in a relatively closed system in which we consider the kind of budget constraints of our healthcare system, combined with a specific environment of liaising with commissioners and regulators, which makes the tradeoffs that we have to make best express to the QALY because the QALY reflects a unitary measure that makes it relatively simple for us to make those tradeoffs."

At the time when NICE was established, the QALY was deemed the best way to give evaluators a level playing field in order to compare one thing to another. "It has stood us in good stead," Leng says. "It's not simply a technical calculation, it is important that we remember the other factors that committees look at, too. And I think it's really important that we do look for new ways, but that we do all of that cautiously because it stood us in good stead for 20-odd years. And it would be foolish to suddenly put that all to bed and start doing something else. It's very much going to be careful evolution."

HTA, Innovation, and ISPOR

Leng, Boysen, and Grueger spoke about NICE's strategy for future innovation in July, at ISPOR's third installment in the ***Signal*** series. ISPOR started the ***Signal*** program to bring a broader understanding of innovation (beyond product innovation), with the goal of putting these issues front and center for the health economics and outcomes research (HEOR)

community. Each episode in a series is a self-contained installment and not dependent on the previous episodes; however, all of them are connected by an intent to look at the concept of innovation and experience with it from different groups of healthcare stakeholders, building foresight into how these innovations might impact healthcare decision making in the next decade.

The first ***Signal*** program, "Next Gen Innovation: 'How To' From the US Department of Veterans Affairs," highlighted how the US Department of Veterans Affairs' ecosystem has emerged as a model for supporting the entire life cycle of innovation in a large and highly complex integrated health system. ISPOR's second ***Signal*** series event, "From Price Determining Value to Value Determining Price: It's About Strategy at a System Level," looked at how to bring systems-level thinking to healthcare and how the pharmaceutical industry, payers, and HEOR experts can work together in a new system for commercial strategy. ISPOR recently held its fourth ***Signal*** event, "Venture Capital Investment: Upstream Decision Making on Value in Healthcare," which examined how innovation in healthcare—from therapies to research on the best care protocols—is funded before concrete solutions come to the market, and how that paradigm can change.

> "We don't really have the evidence, but people want the answer now. You have two options, either you say, 'Well, I'm not giving you the answer,' and you wait. But that's really not the one that people support. Or you can give an answer, but with a real clear management plan around it."
>
> — Meindert Boysen, PharmD, MSc

The Next *Signal* Program

The next ***Signal*** episode, "The New Science of Cause and Effect: Causal Revolution Applied," is scheduled for January 25, 2022. The event features Judea Pearl, professor of computer science and director of the Cognitive Systems Laboratory, Samueli School of Engineering, UCLA, Los Angeles, CA, USA, a world-renowned computer scientist and philosopher. He is known for his world-leading work on artificial intelligence and the development of Bayesian networks, as well as his theory of causal and counterfactual inference. Dr Pearl will speak on how causal models interact with data and work in scientific applications today, spanning the subjects of selection bias, personalized treatment effect, fusion of data from several sources (observational and experimental studies), and causality in observational studies. The conversation with Dr Pearl will focus on the challenges and opportunities modern computing tools will offer to HEOR research. To register for ISPOR's next ***Signal*** episode, click here.

For more information and to register:

www.ispor.org/signal

HEOR NEWS

1 Exercise of Little Help to Those Who Sit at Home Working All Day (Asahi Shimbun)

A long-term study of 60,000 individuals by the Kyoto Prefectural University of Medicine found that the longer people sit working, the more deleterious the effects on their health and even regular exercise did not show much benefit. Read more.

2 Improving Children's Health "Inextricably Linked" to Growing Florida Economy (Florida Times-Union)

The CEO of Nemours Children's Health says to meet the goals of a joint project with the Florida Chamber of Commerce to help build a healthy future workforce, families must be lifted out of poverty. He advocates changing the "fee for service" model to a "pay for health" model of delivering children's healthcare. Read more.

3 Department of Health, Novartis Collaborate to Boost Abu Dhabi's Digital Healthcare Ecosystem (Mid East Updates)

The Abu Dhabi Department of Health and Novartis signed a memorandum of understanding in October to jointly create and implement a sustainable and future-proof healthcare system in the emirate. The alliance is aimed at data-driven health interventions and targeted healthcare solutions that will support the digital transformation in the emirate and beyond by focusing on disease areas of priority. Read More.

4 Pfizer Will Use a Warranty to Refund the Cost of a Lung Cancer Drug if It Doesn't Work (Pharmalot)

Pfizer says it will reimburse the entire cost of Xalkori (crizotinib) to any patient and health plan if the lung cancer drug fails to work within the first 3 months under a pilot warranty program running through the end of December. Read more.

5 Sustained Healthcare Systems Need Sustainable Pharma Business Models (pharmaphorum)

Richard Daniell, Executive Vice President and Head of Europe Commercial at Teva, says the Pharma Strategy for Europe is a good first step for sustaining supply chains and business models that will allow innovation to flourish, but the industry will still need to adjust its policies to the new economic and technological realities brought about by COVID-19. Read more.

6 Diabetes in Chinese Canadians Linked to Immigration Policies Favoring the Rich and Skilled (South China Morning Post)

Researchers in Ontario found immigrants from mainland China were at far greater risk of early onset diabetes than those from Hong Kong or Taiwan and the effect on public health demands urgent and targeted strategies. Read more.

7 Big Picture Thinking: Care Coordination Across the Continuum Reduces Readmissions (Becker's Hospital Review)

Reducing hospital readmissions remains a challenge because of the fragmented nature of the healthcare system, but experts say enhanced coordination of care with strategies such as engaging patients at the emergency department to see what drove them there and investment in proven methodologies, toolkits, and platforms can help. Read more.

8 For People With Sickle Cell Disease, Add Check-Ins to Checkups (STAT News)

A hematologist at Children's Hospital of Philadelphia (CHOP) reveals how wraparound care plans that address challenges in getting regular care have helped CHOP give patients with sickle cell disease the crucial transcranial Doppler ultrasounds for stroke risk screening they needed even during the COVID-19 pandemic. Read more.

9 Using NLP-Based Text Mining to Gather Patient Insights From Social Media at Roche (Linguamatics)

Roche turned to natural language processing-based text mining to review social media discussions among patients with Parkinson's disease in order to broaden its understanding of the conceptual disease model for Parkinson's disease. Read more.

10 WHO Unveils New Analytical Tools on the ESPEN Data Portal (World Health Organization)

The World Health Organization's Regional Office for Africa, through the Expanded Special Project for the Elimination of Neglected Tropical Diseases, is making available new analytical tools in the Neglected Tropical Diseases Data Portal allowing neglected tropical diseases programs and stakeholders to better track rollout and impact of interventions and make data-driven decisions on strategies. Read more.

FROM THE JOURNALS

How Much Is Hope Worth?

Section Editors: **Soraya Azmi, MBBS, MPH**, Beigene, USA; **Agnes Benedict, MSc, MA**, Evidera, Budapest, Hungary

Quantifying Value of Hope

Reed SD, Yang J, Gonzalez JM, Johnson FR

***Value Health*. 2021;24(10):1511-1519.**

doi.org/10.1016/j.jval.2021.04.1284

A discussion has been ongoing about the elements of value that could be considered in addition to the cost-effectiveness and budget impact of a novel therapy when determining how much value it represents.[1] Among several other possible value elements, the value of hope was discussed, defined as the patients' attitude to risk: some patients may value a treatment that provides a chance for long-term survival (contributing to a larger variability in outcomes), hoping that they will be the ones who can get to live longer, while other patients may prefer treatments with less variability around expected outcomes. Measurement of the value of hope is notoriously difficult, and the few studies[2-4] that attempted it previously did not fully separate the value of an increased life expectancy, as a result of an increased chance of survival beyond a certain number of years, from the value of optimism that the person assessing the value will be among the lucky ones. That might have lead to double-counting and an overestimate of the value of hope.

The authors of the current paper set out to estimate the monetary value of hope by evaluating cancer therapies that offered the hope of 5%, 10%, and 20% chances of 10-year survival while controlling for the expected overall survival, and taking into account the ability to pay and preference heterogeneity.

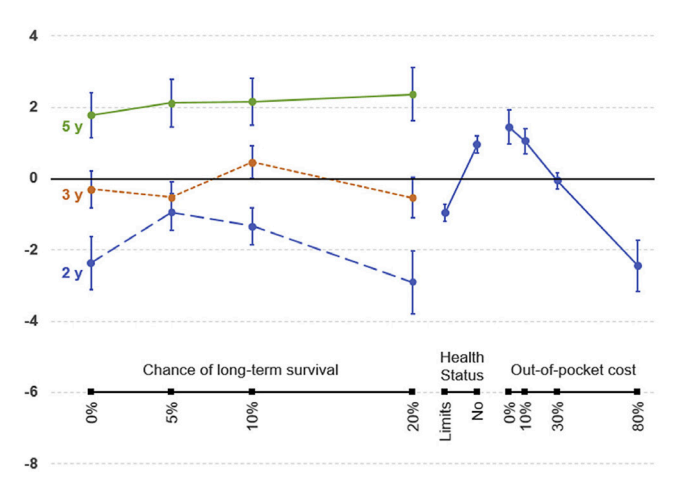
A discrete choice experiment (DCE) was designed with the hypothetical situation similar to the studies before: participants were asked to suppose that "they had recently been diagnosed with cancer that had begun to spread." They then had to consider their choices between the case when expected survival was constrained to 3 years, with a given chance of 10-year survival, or a case with certain 3-year survival outcome (ie, 10-year survival was zero); additional questions related to health status and out-of-pocket costs. The survey went through several rounds of refinements regarding the questions, response levels, and the way of presenting choices. Statistical analyses were designed to elicit the value of hope by obtaining the value that participants assign to uncertain survival outcomes and estimating the dollar value.

After piloting among the general population, patients from the cancer support community with a history of cancer were invited to complete the online DCE survey in the summer of 2019. Overall, 200 participants, mostly White, 75% female, with average age of 43, and coming from a broad range of backgrounds in terms of education and income level, completed the survey. In the main statistical model, the estimated value of hope for a 5% chance of survival was on average about $6000 and $12,500 for a 10% chance. The average monetary value for a 20% chance of long-term survival, however, was negative, relative to the certain value of expected survival. (The preference weights, including the interaction of long-term survival and expected survival are shown in the Figure [**Figure 2** of the original paper].)

With a longish life expectancy of 5 years, when a 20% chance of 10-year survival corresponds to 80% of an average 3.8 years, participants' choices were consistent with expectations according to utility theory and risk neutrality. However, when the choice involved the scenario with a life expectancy of 2 years, where a 20% chance of 10-year survival implies an 80% chance of a 1-month survival, participants rarely opted for that.

Although the overall results have face value, the authors highlighted a rather large heterogeneity in patient preferences across attributes. A latent-class analysis, designed to identify groups with similar preferences, found 4 groups of participants differing in terms of their sensitivity to costs and preferences for therapies enabling greater long-

Figure 2. Preference weights representing interactions between chance of long-term survival and expected survival.



term survival for a few, with some starkly opposing views: a specific group exhibited increasingly negative preferences for higher chances of long-term survivorship.

The results of this study contribute very important insights into the value of hope. The authors found evidence that the value of hope could be an important element, but it cannot be considered independent of expected survival and there are some important differences in valuation across individuals. Limitations that DCE studies are subject to a relatively small sample size and some concerns about incentives to reveal true preferences hold; however, this very carefully designed and executed study has shown that there are no easy responses to how much hope is worth. Health policy decision makers should take note of the very diverse patterns of preferences and consider these carefully for resource allocation and reimbursement decisions.

References

1. Goring S, Garrison LP, Jansen JP, Briggs AH. Novel elements of the value flower: fake or truly novel? *Value & Outcomes Spotlight*. 2021:7(2):34-38.

2. Shafrin J, Schwartz TT, Okoro T, Romley JA. Patient versus physician valuation of durable survival gains: implications for value framework assessments. *Value Health*. 2017;20(2):217223.

3. Lakdawalla DN, Romley JA, Sanchez Y, Maclean JR, Penrod JR, Philipson T. How cancer patients value hope and the implications for cost-effectiveness assessments of high-cost cancer therapies. *Health Aff (Millwood)*. 2012;31(4):676-682.

4. Hauber B, Penrod JR, Gebben D, Musallam L. The value of hope: patients' and physicians' preferences for survival in advanced non-small cell lung cancer. *Patient Prefer Adherence*. 2020;14:2093-2104.

ISPOR NEWS

Challenges in Measuring and Valuing Children's Health-Related Quality of Life

Nancy Devlin, PhD, Centre for Health Policy, University of Melbourne, Australia; **Rosie Lovett, PhD**, National Institute for Health and Care Excellence, Manchester, UK; **Donna Rowen PhD**, School of Health and Related Research (ScHARR), University of Sheffield, UK

Children hold a special place in any society. They are among its most vulnerable members and children's health and well-being affects both their lifelong opportunities and the future for us all. One of the basic responsibilities of any society is to care for children in the best and most compassionate manner possible.[1]

But even where children are concerned, there are choices to be made about healthcare and opportunity costs of those choices. It is important to ensure that preventive and treatment options for children are both effective and cost-effective. Making good decisions requires evidence about both the costs and outcomes of technologies where children are the intended beneficiaries.

Are we measuring child and adult QALYs using the same scale?

Methods widely used to measure and value health-related quality of life (HRQoL) and generate quality-adjusted life years (QALYs) in adults are problematic when applied to children.[2] There are 3 key challenges.

First, the aspects of HRQoL that matter to children may be different than for adults, and there are challenges with asking very young and very sick children to self-report their health. Such issues can be overcome to some extent by the use of child- and adolescent-specific HRQoL measures (such as CHU9D and EQ-5D-Y), administered via self-report or parental proxy. There are ISPOR guidelines on the use of patient-reported outcomes (PROs) in children[3] although challenges remain, especially in measuring HRQoL in very young children.[4]

Second, summarizing these measures of HRQoL by converting to utilities (as needed for estimating QALYs) raises further issues: should these be based on the stated preferences of adult members of the general public? How do we ask them to imagine and value children's health states? Should we ask children for their preferences? Is it feasible and ethical to ask children to complete tasks involving trade-offs between life and death? Methods and issues relating to valuation of child HRQoL are summarized in Rowen et al.[5]

Third, how do we interpret the estimates of child QALYs that are produced? Are they measuring the same thing? Does a child QALY have the same value to society as an adult QALY, or should child QALY gains be given more weight by decision makers?

We wanted to explore the extent to which these issues are being encountered by health technology assessment (HTA) agencies in evidence submitted to them and their views about how to improve evidence and decision making concerning children.

The ISPOR and NICE International HTA Roundtable on Child HRQoL

An HTA Roundtable on these issues was held as a joint initiative of ISPOR and the National Institute for Health and Care Excellence (NICE) International in October 2020. Invitations were sent to agencies that had well-established HTA processes and were likely to have considered the issues outlined above. There were 22 attendees representing 11 HTA agencies: NICE (England); Scottish Medicines Consortium (Scotland); Canadian

Box 1. Key findings from the HTA Roundtable on child HRQoL

(a) None of the HTA agencies had explicit recommendations or methods guidance around how to measure and value children's HRQoL. One agency (NICE) was in the process of developing such guidance. Awareness of the issues regarding pediatric HRQoL—and the challenges for use of this evidence in HTA—is growing, but there is no consensus about the way forward. Agencies were concerned that, without clear guidance, companies could "game the system" by choosing the methods most favorable to their product.

(b) There was often a lack of data on children's HRQoL to inform HTA evaluations of pediatric technologies. Attendees were concerned about poor practice in this area, gaps in evidence, and the impact of this on decisions concerning children.

(c) There was uncertainty around which methods to use to calculate pediatric utilities. **None of the HTA agencies had a clear position on key aspects of valuation methods** such as whether they required utilities for pediatric HRQoL to be based on the stated preferences of adults, which valuation methods to use, and whether and how the preferences of children should be taken into account.

(d) HTA bodies differ in how child and adult QALYs are interpreted and "weighed up" in decision making. Just over half of attendees indicated that their HTA agency treated QALY gains in adults and children equally, using the same cost-effectiveness threshold for each, while about a third said their HTA agency had no formal rules but was more likely to recommend treatments for children than adults (**Figure 2**).

HTA indicates health technology assessment; HRQol, health-related quality of life, NICE, National Institute for Health and Care Excellence, QALY, quality-adjusted life years

Agency for Drugs and Technologies in Health (Canada); The Dental and Pharmaceutical Benefits Agency (TLV) (Sweden); Ministry of Health (Singapore); Swedish Agency for Health Technology Assessment and Assessment of Social Services (Sweden); Instance Nationale de l'Evaluation & de l'Accréditation en Santé (Tunisia); Danish Medicines Council (Denmark); National Institute of Pharmacy and Nutrition (Hungary); Norwegian Medicines Agency; Technology Assessment at SickKids (TASK) (Canada); and the Agency for Health Technology Assessment and Tariff System (Poland).

The aim was to share experiences and views on measuring and valuing children's HRQoL for use in cost-effectiveness analyses and the use of these results in HTA decision making. Prior to the Roundtable, participants watched an introductory video, which can be accessed here, and answered a survey. The Roundtable was held online and entailed a structured discussion, facilitated by the authors.

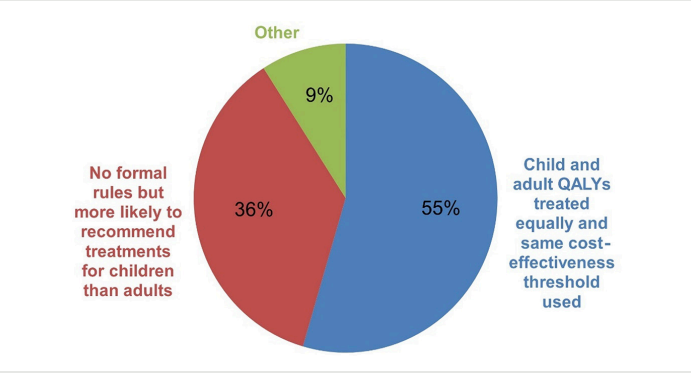
The principal findings from the HTA Roundtable are reported in **Box 1**.

Conclusions

Despite the availability of HRQoL instruments designed and validated for children, and the growing availability of utilities to accompany them, HTA Roundtable participants noted that very little good-quality HRQoL evidence is currently being submitted to support HTA of technologies for children. There are gaps in evidence, frequent use of measures and utilities intended for adults, and inconsistent practices. This reinforces the conclusions drawn from reviews of submissions on pediatric technologies made to NICE[6] and PBAC.[7] ***There is a considerable gap in evidence on children's HRQoL, and urgent action is required to address this.***

While HTA bodies are aware of the challenges in measuring and valuing HRQoL in children, no HTA body currently provides explicit methods guidance. Roundtable participants agreed that clearer methods guidance on child HRQoL and QALY estimation would provide clearer signals to industry about the need to collect evidence on pediatric HRQoL, as well as about what instruments and utilities to use.

Figure 2. Are children's QALY gains given extra weight over adults' QALY gains in HTA? Responses from attendees at the ISPOR/NICE International Roundtable on pediatric HRQoL.



HTA indicates health technology assessment; HRQoL, health-related quality of life, NICE, National Institute for Health and Care Excellence, QALY, quality-adjusted life years

Roundtable participants suggested that an effective way to make progress would be to develop consensus statements collaboratively by HTA bodies and academia. International consensus on those aspects of methods that can be common across borders could increase the use of pediatric HRQoL measures in clinical trials and improve the quality of evidence available for HTA. An ISPOR emerging good practices taskforce on pediatric utilities is planned for 2022 and should provide guidance on methods for valuing child HRQoL. Ultimately, however, some aspects of methods—such as whose preferences should be reflected in HRQoL utilities and whether child and adult QALYs should be treated equally in decision making—require value judgements that must be made by local HTA agencies.

Acknowledgment: ISPOR and NICE International are grateful to all those who participated in this HTA Roundtable. The views here are those of the authors and do not necessarily reflect the views of NICE.

References

1. Mandela N. (2003) Address by Nelson Mandela at opening of Walter Sisulu Paediatric Cardiac Centre for Africa, Johannesburg. Published November 7, 2003. Accessed 19th November 202. www.mandela.gov.za/mandela_speeches/2003/031107_cardiac.htm

2. Devlin N, Norman R, Ratcliffe J, et al for the QUality Of life in Kids: key evidence for decision makers in Australia (QUOKKA) Project Team. London Office of Health Economics. Do child QALYs = adult QALYs? Five reasons why they might not. Published February 4, 2020. Accessed 19th November 2021. www.ohe.org/news/do-child-qalysadult-qalys-five-reasons-why-they-might-not.

3. Matza S, Patrick D, Riley A, et al. Pediatric patient-reported outcome instruments for research to support medical product labeling: report of the ISPOR PRO Good Research Practices for the Assessment of Children and Adolescents Task Force. *Value Health*. 2013;16 (4):460-479. https://doi.org/10.1016/j.jval.2013.04.004

4. Lamb A, Murray A, Lovett R.The challenges of measuring and valuing quality of life in preschool children: A retrospective review of NICE appraisals. *Children.* 2021;8(9):765. https://doi.org/10.3390/children8090765

5. Rowen D, Rivero-Arias O, Devlin N. et al. Review of valuation methods of preference-based measures of health for economic evaluation in child and adolescent populations: where are we now and where are we going? *PharmacoEconomics*. 2020;38:325-340. https://doi.org/10.1007/s40273-019-00873-7

6. Hill H, Rowen D, Pennington R, Wong R, Wailoo A. A review of the methods used to generate utility values in NICE technology assessments for children and adolescents. *Value Health.* 2020;23(7):907-917. https://doi.org/10.1016/j.jval.2020.02.011

7. Bailey C, Dalziel K, Cronin P, Devlin N, Viney R for the QUality Of life in Kids: Key evidence for decision makers in Australia (QUOKKA) Project Team. How are child-specific utility instruments used in decision making in Australia? a review of Pharmaceutical Benefits Advisory Committee Public Summary Documents. *Pharmacoeconomics*. Published online November 5, 2021. https://doi.org/10.1007/s40273-021-01107-5

ISPOR AWARDS

What Does It Take to Be an Outstanding ISPOR Regional Chapter?

An Interview With the ISPOR 2021 Outstanding Chapter Award Winners: Ukraine, Egypt, and Bulgaria Chapters

The ISPOR Outstanding Chapter Award program recognizes ISPOR regional chapters' outstanding contribution and leadership in advancing ISPOR's mission in global regions: Asia Pacific, Latin America, and Europe, Middle East, and Africa. The ISPOR Ukraine, Egypt and Bulgaria chapters have been recognized for their exemplary achievements in advancing health economics and outcomes research (HEOR) in their regions. This award is based on a thorough review of chapters' impact on HEOR and health policy in their regions through activities, including education, research and engagement, and contribution to ISPOR strategic initiatives, as described in their annual reports.

ISPOR Ukraine Chapter

Oresta Piniazhko, PhD
ISPOR Ukraine Chapter President

What lessons have you learned from being an ISPOR chapter president and what inspired you to perform this role?

Today, more than ever, we see how quickly information is shared, habits are changed, and industries are transformed. We need to nurture curiosity and agility at every stage of our careers. So to find work that inspires you, you must encourage others to accomplish big things together as a team with common values.

Meeting my scientific advisor, Olha Zaliska, PhD, DSci, Founder and Past President of ISPOR Ukraine Chapter, inspired me to develop my career and attend my first ISPOR Congress in Amsterdam in 2014. In 2015, I started my PhD studies in pharmacoeconomic analysis and health technology assessment (HTA).

What does this award mean to you and the chapter? What steps did you take to get here?

Daily pursuits with clear priorities have had a real impact on our lives and careers and that motivates us every day because our vision is to promote HEOR and HTA in the Ukraine to improve patients' access to medicines. Together with Olha Zaliska we have been working on the implementation of educational programs on pharmacoeconomics and HTA, organizing conferences at Danylo Halytsky Lviv National Medical University, and organizing international ISPOR Ukraine Chapter events. Since January 2019, I have been the director of the HTA Department at the State Expert Centre of Ministry of Health, Ukraine. My team has developed, through training, knowledge, and skills, the HTA process in Ukraine. This year in order to methodologically support the HTA procedure, the members of the HTA department developed and conducted 10 training seminars for the stakeholders on the new HTA guidelines.

What advice would you have for current chapter presidents? What characteristics make a chapter successful, and what are the strengths of your chapter?

That it's really all about the team and to build a solid network of people whose skill sets complement yours. You've got to be focused on something bigger than yourself in order to be a great leader.

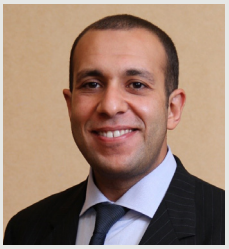
We need to create an environment where people want to come to engage with each other and deliver collectively for a common purpose. It is about setting clear expectations, being with people with common values, and a sense of achievement.

In my opinion, the unique multistakeholder engagement of our team and the education and research activities have provided a successful framework for ISPOR Ukraine Chapter growth. The chapter has demonstrated a significant number of education, research, and member engagement activities, and significant contributions to ISPOR publications/ activities in 2021.

As an HEOR professional working during this important time for the sector, how do you see the future of HEOR? How has your chapter contributed to improve HEOR in your country?

Since February 2019, as the director of the HTA Department, I have worked on the institutionalization of HTA processes to address healthcare system reform in the Ukraine, including stakeholder engagement and international cooperation and membership in new institutions such as the European Network for Health Technology Assessment, the International Network of Agencies for Health Technology Assessments, and Health Technology Assessment International.

Our main contribution was the approval of a decree that defines measures needed to establish an independent body for state HTA, HTA use for new medicines aimed for inclusion on the regulatory lists, approval of HTA guidelines, and the introduction of HTA for medical devices from January 1, 2022. Members of our chapter from Digital Health Outcomes are also developing an innovative solution to digitize health economics models and deliver them as powerful web-based tools for decision making.



ISPOR Egypt Chapter

Mahmoud Diaa Elmahdawy, PharmD
ISPOR Egypt Chapter President

What lessons have you learned from being an ISPOR chapter president and what inspired you to perform this role?

HTA is still in the growing phases in Egypt, and to have the opportunity to lead an ISPOR chapter where you can be part of the driving forces that help spread the science across the country/region is very rewarding and was a main inspiration for me. Being part of both Arabic and African networks gives us as ISPOR's Egypt chapter an opportunity to share our good practices with others and also learn from other chapters in the region.

What does this award mean to you and the chapter? What steps did you take to get here?

This award has been very motivating for me and for ISPOR's Egypt chapter. The past couple of years have been particularly challenging for all of us. We have faced difficulties in conducting some of our regular activities (eg, face-to-face meetings) due to restrictions with the pandemic. Despite this, the chapter has been committed to continue spreading awareness about HTA in Egypt and continued efforts on several fronts, including scientific activities and policy-related activities in addition to participating in relevant conferences/virtual meetings. This award gives us as a chapter the momentum and motivation to continue with our current efforts to advance for the future.

What advice would you have for current chapter presidents? What characteristics make a chapter successful, and what are the strengths of your chapter?

My advice to chapter presidents is to be determined and set a clear vision with well-defined goals. In addition, defining specific milestones along the journey keeps the teams motivated and encourages collaboration. Diversity of the chapter and representation from all relevant sectors including but not limited to academia, government, and industry adds to the chapter impact on the ground.

As an HEOR professional working during this important time for the sector, how do you see the future of HEOR? How has your chapter contributed to improve HEOR in your country?

Healthcare systems around the world face growing resource challenges. There are more resource constraints now with the pandemic than during any other time. HEOR can help guide us as to how we can best utilize our current resources and personally I would imagine that this would be of growing importance in the future as healthcare systems around the world seek to optimize their resource allocation and invest in overall health of the population as one of the country's greatest assets. ISPOR Egypt has been conducting sessions throughout the years to raise awareness about HTA in Egypt and conducting educational activities, moderating policy sessions between relevant stakeholders.

ISPOR Bulgaria Chapter

Iliya Nestorov Nikolov, MPharm
ISPOR Bulgaria Chapter President

What lessons have you learned from being an ISPOR chapter president and what inspired you to perform this role?

In November, ISPOR's Bulgaria Chapter turns 10 years old. This is a relatively short period, but during this time the chapter managed to gather a team of experts coming from different stakeholders in the pharmaceutical sector in Bulgaria (academia, pharmaceutical industry, regulatory institutions) who with strong motivation, tireless work, and desire developed different approaches and initiatives to implement the pharmacoeconomics and outcomes research knowledge at the local level in the best possible way and showing that all perspectives should be considered in the decision-making process.

I am honored to be part of this team and remain with the inner conviction that we need to continue the way we have traveled so far, constantly building on our knowledge and skills and passing it to all interested parties. Our chapter has a wonderful team of personalities and professionals with a clear vision and a specific plan.

What does this award mean to you and the chapter? What steps did you take to get here?

For ISPOR's Bulgaria Chapter and for me personally, this award is an outstanding recognition of the efforts made by our team and especially for the excellent work done. With respect and deep gratitude to the whole team and the past President Professor Genka Petrova!

As a major factor in our achievements over the years, I take into account the professionalism in the work, as well as established good relations with representatives of various political and financial institutions, key health institutions, eg, the Ministry of Health, the National Health Insurance Fund, the Parliamentary Healthcare Committee, the Ministry of Finance, the Price and Reimbursement Council, as well as our very good contacts with the representatives of the whole pharmaceutical industry. This has allowed us to have a broader view of critical points in healthcare.

What advice would you have for current chapter presidents? What characteristics make a chapter successful, and what are the strengths of your chapter?

I am convinced that all my colleagues are doing everything they can to see from the perspective of the stakeholder. At the same time, I also know that there is not one solution that could fit everywhere. Therefore, I believe that we should constantly strive to improve our professionalism and teamwork. My personal belief is that academia must be the leading approach, with the general support of all members. Only the overall contribution expresses the whole picture. One for all, all for one.

As a HEOR professional working during this important time for the sector, how do you see the future of HEOR? How has your chapter contributed to improve HEOR in your country?

For me, HEOR is a dynamic, vibrant ecosystem that is constantly evolving. Therefore, we must not only keep up with this development, but also be at the heart of its improvement. On behalf of my colleagues from ISPOR's Bulgaria Chapter, I express my satisfaction that we have been and are at the heart of the validation of HEOR in Bulgaria since our inception. The foundations of the dialogue with the institutions in health were laid, and many trainings and workshops on current and important topics were organized and aimed not only at the health authorities but also at the patient organizations. Several leading European specialists were invited who shared extensive experience in the field of health economics. HEOR is becoming more common in healthcare. A lot more needs to be done locally and I sincerely hope that with common help and assistance we will make our intentions happen.

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Research	January 6	February 17

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Virtual ISPOR Conferences and Events

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Guest Speaker:

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FINDING THE BEST AND THE BRIGHTEST:
GETTING A LEG UP ON THE RACE FOR TALENT

Historically, the biopharmaceutical industry has successfully been able to attract top-level talent by offering job security and competitive compensations, but have the motivations of job seekers pivoted as a result of the COVID-19 pandemic and the changing demographic? Anirban Basu, PhD, MS, Derek Tang, PhD, MS, Kevin McGrath, and Krystal Huey, PharmD, MS, shared their thoughts on the current landscape of preparing, attracting, and retaining HEOR talent.

Introduction

Typing the acronym "HEOR" in any of the top job search engines will easily return dozens of pages of job posts in health economics and outcomes research (HEOR). From managers to consultants to statisticians, economists, and directors, the abundance of available jobs clearly indicates that the field is on the rise. As national governments and other payers across the globe gradually shift their focus to patient outcome measures and cost-effectiveness of products in the increasingly complex therapeutic world, demand for HEOR professionals in all stages of their careers has been skyrocketing.

Industry-Sponsored Fellowships Open Doors

In the beginning, the talent in the HEOR space was acquired from biostatistics and epidemiology roles and attracted anyone with a health services research background and intellectual curiosity about the newly emerging discipline, explains Kevin McGrath, Pharmaceutical Recruitment Specialist, Penfield Search Partners. However, as the field expanded, the career paths have shifted accordingly attracting individuals with a very particular skillset. Currently the most traditional path to an entry-level career in HEOR involves obtaining a Doctor of Pharmacy (PharmD) degree followed by an industry-sponsored post-doctoral fellowship, which often includes a didactic component in an academic setting or a PhD in HEOR, health services research, and pharmacy administration. Krystal Huey, PharmD, MS, a recent HEOR graduate now working at Alexion Pharmaceuticals, adds that this is likely because, "PharmD programs are very clinical. They introduce you to the drug development pipeline and help you to understand the healthcare system and how the pharmacists and the providers fit into that system."

Those are undoubtedly tremendously important skills to have in order to succeed in this space, but so are the technical capabilities focused on economics, outcomes research, and epidemiology. After all, these competencies are in the name of the discipline itself. Anirban Basu, PhD, MS the Stergachis Family Endowed Director of the CHOICE Institute and Professor of Health Economics, School of Pharmacy, University of Washington, Seattle, WA, points out that to become a good HEOR specialist, it is not enough to be able to do modeling and cost analysis. You need to have expertise in economics and epidemiological intuition, associated research methods, and their applications, which are mostly acquired through didactic training.

> "Critical thinking and the ability to ask the right question are probably the two most important skills you can have. But it's not like you learn them in school."
>
> – Krystal Huey, PharmD, MS

Since it would be nearly impossible for an academic program to cover every skill employers desire to see in the potential candidates, program directors often seek out informative resources. ISPOR has created a convenient HEOR competency framework, which is an extensive guide listing 41 competencies and their importance in the overall HEOR field as well as relevance in the day-to-day job.[1] This is an extremely useful tool when planning the curriculum of academic programs because it allows instructors to align industry requirements with the program capabilities. Basu adds that whenever their program undergoes a review, the ISPOR competency framework is always a part of the picture in curriculum review and development to ensure that the students are obtaining skills that are highly valued by the recruiters and managers.

Soft Skills Development Is Key

While being well versed in epidemiological methodologies undoubtedly is important, Derek Tang, PhD, MS, Senior Director, Bristol Myers Squibb, emphasizes that the skills that they are more often seeking out in the candidates revolve around communication, passion towards the field, ability to deal with ambiguity, and internal drive to succeed. "The combination of these qualities also reflects how eager you are to learn new skills, whether it involves health policy landscape, health technology assessment aspects, or any other HEOR methodologies." These are the type of skills that an academic program will not necessarily prepare you for. As Huey points out, "Critical thinking and the ability to ask the right question are probably the two most important skills you can have. But it's not like you learn them in school." She suggests that these are the types of skills that can be acquired by working or being continuously exposed to change and adaptation in a professional environment, thus putting students who do not pursue fellowships in disadvantaged positions.

> As national governments and other payers across the globe gradually shift their focus to patient outcome measures and cost-effectiveness of products in the increasingly complex therapeutic world, demand for HEOR professionals in all stages of their careers has been skyrocketing.

The issue around soft-skill development intensified once academic programs switched to online learning due to the COVID-19 pandemic. Most students lost their day-to-day interactions with their peers and academic advisors and missed out on networking and professional opportunities. That is, in fact, the main reason pointed out by Basu as to why their program is not considering online instruction as a long-term possibility. He points out, "There is so much more than just attending classes. There are conversations with faculty, seminars, and for our PhD students, their dissertation development. All these things are very important. Additionally, we provide one-on-one mentoring and a lot of leadership opportunities for our students. You can't get that in a virtual environment. You get that in personal interactions."

Flexibility Links to Opportunities

Similar to the academic programs, most biopharmaceutical companies are expecting their workforce to return to the office at some point in the future. These expectations vary across the industry in terms of degree of flexibility and phased

approaches to the full-time return. There are lessons to be learned from the time we have all spent working remotely and some of the adaptations might be beneficial even in the postpandemic world. McGrath points out that on a positive note, many processes such as recruiting and onboarding have become more streamlined. What was once a gruesome scheduling and planning process for both the recruiters and the candidates can now be arranged within a very short period of time. "However, the downside is that it is a lot more difficult to gain that connectivity with people when you are not sitting in the same room with them. Additionally, you are not able to visit the company and walk the halls. You know, there is a vibe, there is this energy to a place that is meaningful for assessing cultural fit," he said.

Now that the job seekers have greater flexibility than ever to pick a preferred working arrangement, companies will have to be agile in their structural decision making to attract the right talent.

Furthermore, it is important to keep in mind that millennials now compose the majority of the workforce, and their priorities might not always align with those of previous generations. As job seekers are expected to go through increasingly more rigorous selection criteria and interview processes regardless of their experience level, they too expect more from their employers in return. Many applicants tend to value development opportunities, work–life balance, and the company's societal engagements above their compensation package when it comes to decision making.

With the apparent shortage of highly skilled professionals in health economics-related areas and the changing demographic, some companies might have to rethink their hiring approaches in order to remain at the top of their game. They might have to make flexibility their top priority in employee acquisition and retention. Tang pointed out that at Bristol Myers Squibb, for example, they actively work on creating various development opportunities for their employees, including working on their business needs and networking, as well as involving them in projects in which they are most interested.

Creating such streamlined talent development pipelines can be very beneficial in the longer run. Retention failure not only decreases an overall company's productivity, but it also costs on average 6 to 9 months' worth of salary to replace the lost employee.[2,3] McGrath pointed out that during the pandemic the retention rates have increased, and that people seem to have become more selective when making a move. He also added that this might, in fact, be a good thing, because just before the pandemic, the emerging trend was to change jobs every 1.5 to 2 years, which could be beneficial in terms of soft-skill development but not necessarily in growing a specific knowledge pool and becoming an expert in a particular area.

Huey and McGrath both point out that it will be very interesting to see how the landscape shifts and the choices that job seekers make once everyone begins returning to the office.

HEOR programs admit only a handful of students each year and while the success rate of placing students in permanent roles at the end of their program remains extremely high, this could be in part an indicator that the demand is exceeding the supply.

Tying It All Together

In general, HEOR programs admit only a handful of students each year and while the success rate of placing students in permanent roles at the end of their program remains extremely high, this could be in part an indicator that the demand is exceeding the supply. Creating this extreme competition for fellowships does, of course, help companies attract top-level talent, but it does not address the increasing demand for entry- and mid-level professionals. Now that the job seekers have greater flexibility than ever to pick a preferred working arrangement, companies will have to be agile in their structural decision making to attract the right talent. As Tang pointed out, "The only thing that doesn't really change is the change itself."

References

1. Pizzi L, Onukwugha E, Corey R, Albarmawi H, Murray J. Competencies for Professionals in Health Economics and Outcomes Research: The ISPOR Health Economics and Outcomes Research Competencies Framework. *Value Health*. 2020;23(9):1120-1127.

2. Center for American Progress. There are Significant Business Costs to Replacing Employees. Published November 12, 2012. Accessed October 20, 2021. https://www.americanprogress.org/wp-content/uploads/2012/11/CostofTurnover.pdf.

3. USI Insurance Services. Cost of Employee Turnover. Published April 9, 2019. Accessed October 20, 2021. https://mnwi.usi.com/Resources/Resource-Library/Resource-Library-Article/ArtMID/666/ArticleID/782/Cost-of-employee-turnover#:~:text=The%20Society%20for%20Human%20Resource,in%20recruiting%20and%20training%20costs.

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By the Numbers: Race for Talent in HEOR

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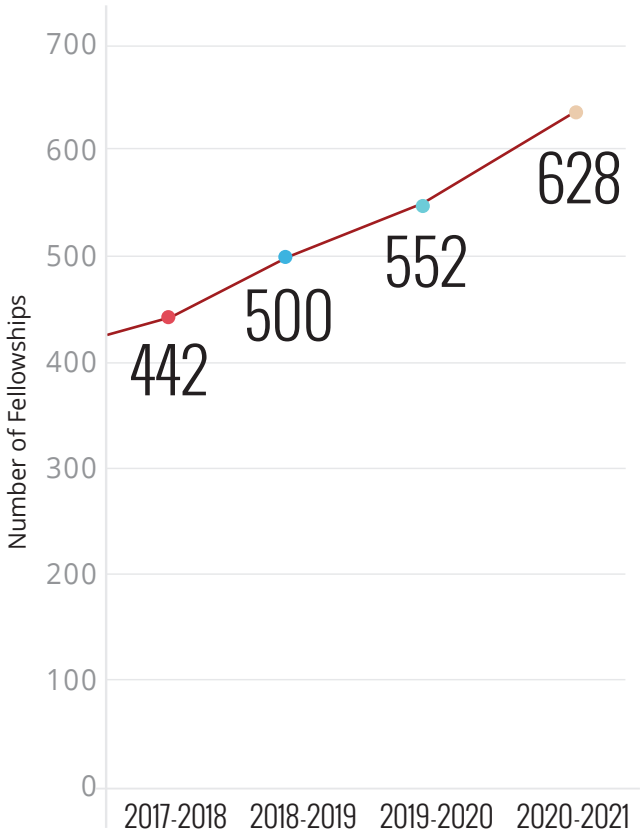
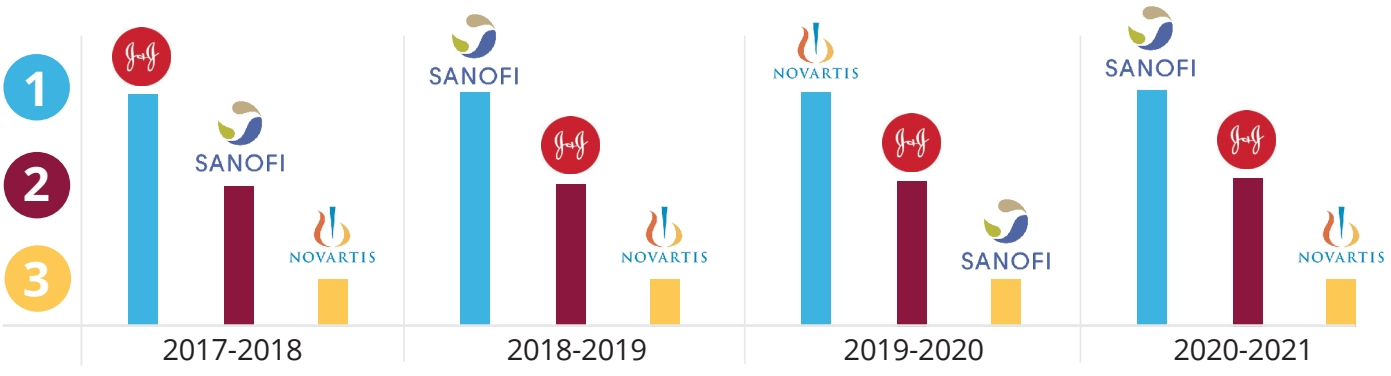
Common Competencies Across Academia, Internships, and Fellowships

- Business Management
- Economic Evaluation
- Clinical Outcomes
- Patient-Centered Research
- Health Technology Assessment
- Health Service Delivery
- Epidemiology and Public Health
- Methodological and Statistical Research

Trends in Industry Fellowships 2017-2021 in the USA



Top 3 Fellowship Industry Sponsors (2017-2021)



Understanding Value: The Providers' Perspective

Editor's note: This is part 3 of a series exploring what value means to the stakeholders in healthcare. Part 1, "Expanding the Value Conversation," appeared in the May/June 2021 issue, and part 2, "Understanding Value in Cancer Care," appeared in the July/August 2021 issue.

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Introduction

Caring for patients and improving their health is the core mission of our healthcare system. What gives providers meaning and satisfaction in their work? Understanding this is essential to address the physician and nurse shortage that is expected to worsen due to the burden of treating post-COVID-19 health problems, clinician burnout, and aging provider demographics. Retaining current staff and attracting capable and caring individuals to join them are priorities.

> Why do intelligent young people want to work in medicine? The desire to help people, cure the sick, and improve overall health and well-being is a major attraction.

For over a decade, the supply of working physicians in some key specialties has been trending downward. Reimbursement is more lucrative for medical procedures than for cognitive services. That inclines medical students toward surgery and other procedural specialties and away from primary care[1] and specialties like endocrinology and rheumatology, where the work is mostly cognitive. With the growing number of Americans with diabetes, the endocrinologist shortage is particularly worrisome.[2] The shortage is worst in rural areas.[3] This reimbursement imbalance is can be corrected by action at the federal regulatory level, but it will take several years before the impact is seen in young physicians entering the understaffed specialties.

Why do intelligent young people want to work in medicine? The desire to help people, cure the sick, and improve overall health and well-being are major attractions. Physicians are well paid, but other careers are equally, if not more, remunerative and require less training. Providing value to each patient in daily practice is a strong motivator. Workdays for the physicians, nurses, and others that provide hands-on patient care are long, intense, and exhausting. Every patient visit is an opportunity to help, but also to harm if a mistake is made, an important clue overlooked, or a wrong conclusion drawn. At the end of each day, it is important to walk away thinking, "I made a difference in someone's life today. I gave them something of value." To understand what that looks like, I asked the people doing the work, physicians with decades' experience caring for patients. They have seen much change in that time, and their perceptions are sharp and insightful.

Aligning Treatment Goals

The physicians I spoke with deal mostly with chronically ill patients. To help them, the provider must establish a long-term working relationship with each one. As the doctor-patient relationship develops, the physician listens to the patient and tries to discern and clarify that individual's goals for treatment. In some cases, the patient arriving for a first consultation doesn't know their diagnosis or the possibilities for treatment. Physicians diagnose, monitor progress, and refine their own goals for each patient. Often the doctor's and the patient's goals don't align well, and the physician tries to find common ground, meet the patient's expressed (and sometimes implied) needs, and achieve whatever other objectives the physician deems important.

Patient satisfaction is essential. As one patient with cancer put it, "You got me what I wanted." Every doctor wants to hear that—for personal satisfaction and because medicine is a business. Patients are consumers. When a patient comes in for a consult, if you don't convince them, "They'll just go down the street and make another appointment, so now the health plan gets another charge, and the [first] visit has no value," as Leo Bustad, MD, a cardiologist in Anchorage, Alaska, explains. "The hardest thing I do is nothing and you don't get paid for doing nothing. It takes a while to decide that nothing is the most appropriate course of action, and you have to then convince the patient and family that you know what you're talking about, which takes time."

Gary Craig, MD, a rheumatologist from Spokane, Washington, has practiced in the same community for many years and established long-term relationships with many patients, some of whom have continued to see him even after moving to other states. "I think value in healthcare depends on your perspective," he says. "From a patient's perspective, at least in my specialty, improving their pain control and physical functioning is probably the number one priority. The physician's biggest thing in rheumatology is actually preventing damage, to start people on a biologic drug that prevents damage, reduces their pain, improves their functional capacity, reduces their long-term loss from the workplace, and reduces their long-term mortality." Craig continues, "The problem is that patients fear the toxicity of these powerful new drugs. It takes a long office visit discussion, often 2 visits, to convince them to try the recommended drug."

"In rheumatology," he says, "It's really easy to improve short-term pain outcomes. You put them on steroids, which are probably the single most destructive class of medications in rheumatology. All of our drugs have side effects in percentiles, but steroids are the only class of drugs I know of that have side effects in 100% of people. So, the short-term aim of the patient can be accomplished with drugs that are not widely appreciated to have dramatic toxicity but do, and patients' perception of

drug toxicity is much higher with more aggressive disease-modifying drugs that are actually much safer than long-term use of steroids." Eventually Dr Craig is able to convince most of his patients to try a safer drug, but it takes time to change their minds, and payers resist paying for that.

Psoriasis is an autoimmune disease that can cause permanent joint damage similar to rheumatoid arthritis, although the more noticeable skin lesions cause some people to dismiss it as a skin disease. Many psoriasis patients are relatively young and live busy lives. Appearance, functionality, and convenience of administration all matter. Managing them involves helping them finding that balance, as Kristina Callis Duffin, MD, MS, Professor of Dermatology at the University of Utah, explains. "What I try to do in my world is figure out what the patient's values are, what matters most to them, and then to fit the right treatment that's safe for them. I dig into people's values a lot." She explains that in the past, treatment involved phototherapy in a hospital setting. "That was very time-intensive and costly. Phototherapy is now available at home, where if the patient does well, there's low risk. Not too much time, and if it's effective for them, it can be a good value."

> The time constraints of today's medical office environment require dependence on mid-level practitioners, such as nurses, physician assistants, behavioral health specialists, and pharmacists.

With a plethora of emerging biologics for psoriasis, patients have the same worries that Dr Craig hears from his arthritis patient. Some of Dr Duffin's patients wonder how long a product has been approved. When they ask that question, "and you say it's been on the market for 4 or 5 years, and they say, that's not very long compared to Stelara that's been around for 11 years, you have to dig into that. More often I can persuade people to use the more highly efficacious drugs, because at the end of the day, I really just want to be clear." She helps patients balance effectiveness, safety, cost, speed of response, time required for treatment, and frequency of administration. For those who travel frequently, Stelara may be the best option because it's given once every 3 months. "It's great to have all these choices and it allows us to tailor them to the patient really nicely."

Communicating With Patients

A common concern of providers is having adequate time to communicate with each patient and gain their trust. "I would like to be able to do what I think is best for the patient that's sitting across the room from me," says Dr Bustad. "They need to feel that you have their best interests at heart, that you are devoting an adequate amount of attention and time, that you know what you're doing. If you can do those 3 things, they will leave thinking they got value. Time is the one factor that will, in patients' minds, diminish the perception of value. If they are rushed through their appointment, if they don't feel that they were listened to or that they were heard, or there just wasn't time to tell their story, their perception of value would be greatly diminished."

Explanations take time, as Dr Craig says, "We struggle to balance information presentation to patients in a way that provides a realistic view of the short-term and long-term benefits, but also warns them appropriately of what the long-term risks are—how to mitigate those long-term risks by properly reporting early side effects such as infections. When you have an active autoimmune disease, your immune system is attacking you and doesn't attack other things very well. But the risk of dying from a fatal infection on our current drug therapies, despite their immunosuppressive effects, is lower because having rheumatoid arthritis is more immunosuppressive than our therapies are, and it's really hard to explain that balance to patients."

Monitoring the patient's medication list and assessing adherence are important in any medical practice. Doing it right takes time, as Dr Bustad explains. "If somebody is taking 8 different drugs, I need to find out what they're taking, not what they're supposed to be taking or what's prescribed, but what they're actually taking, how much, and how often. If you have a 20-minute appointment, that might take 10 minutes. Oftentimes the initial reaction is no, nothing's changed, but when you go down the list medicine by medicine: 'How often do you forget to take that medicine? Did you take that medicine today? Your blood pressure is up a little bit.' In my experience, the electronic medical record med list is not reliable."

Hands-On Care Takes Time

The time constraints of today's medical office environment require dependence on mid-level practitioners, such as nurses, physician assistants, behavioral health specialists, and pharmacists. Diabetic patients benefit from working with a dietician that can take the time to understand their cultural and personal preferences, schedule constraints, and budget to help them plan healthy meals that facilitate blood glucose control, provide proper nutrition, and do not cause problems with other medical conditions the patient may have. Organization into teams or "pods" with improved internal electronic communication may increase efficiency.[4]

Cardiologists often see patients with heart failure that need ongoing IV treatment or close monitoring in a congestive heart failure clinic with a specialized nurse. The patients interact mostly with these nurse practitioners, who have time to provide the hands-on care they need. Nurses are very cost-effective in this setting. They provide the subjective relational care for these patients that face increasing limitations on physical activity. Intensive management is needed to maintain the delicate balance that preserves independence for as long as possible. When that balance is disrupted, the patient will spend several days in the hospital at considerable cost.

Dr Bustad described how patients with atrial fibrillation are referred to an electrophysiologist "who would then hopefully spend considerable time talking about atrial fibrillation, outlining diagnosis and treatment. After that initial discussion, the electrophysiologist would hand off to his nurse, who does all the patient interaction necessary to arrange the diagnostic phase of the evaluation, and then as they progress down the road to more invasive things. The doctor writes the orders in 5 minutes,

and the nurses carry them out for the time it takes. If the nurse, does a good job, the patient perceives value."

Extending Life and Improving Its Quality

In recent years, some specialties have achieved major improvements in extending life expectancy. Dr Craig reports that, "Over the 20 years from 1971 to 1991, the average age at death of rheumatology patients increased from 58. It's now 79, the same age as the general population. The most common causes of death for these patients were cardiovascular disease and infection. Cardiovascular disease in well-treated rheumatology patients is now the same level as the general population, so the modern therapy of rheumatoid arthritis has improved survival by 20-odd years and has improved patient quality of life very dramatically." Perhaps the greatest success story is the effective treatment of HIV. In 1996, patients expected to die in a few weeks were rescued and returned to life.

> Providing emergency care on site at the residential facilities makes sense because it leverages the staff's familiarity with the problems residents are likely to have and how to handle them.

Pediatric practice has its own rewards and challenges, says Neil Kaneshiro, MD, a pediatrician in Woodinville, Washington. "For me, value means that patients' health outcomes are better, and they are at a higher functional status than they were before intervention. And it was done in a reasonable fashion that wasn't overly costly in terms of money, time, or effort. I see a fair number of medically complex kids because I have a relationship with Seattle Children's, so they know I'm capable of managing some more difficult cases, kids that are intubated."

"Parents value access to care, in a way that works with their schedules and ability to make those appointments, either in person or virtual and expect to solve whatever problems they are bringing to the table," Dr Kaneshiro explains. "For the patients, I think they value being able to function normally. That is the big thing. So, for a 5 year old it's, maybe, go to kindergarten together, play with friends to the best of their ability. If we can do things that will optimize them, that's where they stand. They're going to have this condition for the rest of their lives, so what we're trying to do is maximize their ability to participate in life to the fullest extent that they can."

Special patient groups often need customized interpretations of value. For 2 ½ years, Stephen Kolesk, MD has overseen and provided on-campus primary care for children and youth at Woods Services, a Pennsylvania nonprofit organization that provides residential programs for over 500 young people and adults with a variety of learning disabilities, including autism and traumatic brain injury. He describes this practice as "a very, very unique space." Woods has a "value-based arrangement with a small insurance company here in Pennsylvania." The insurer understood that, "We were able to see folks with our primary care physicians rather than sending them to the emergency room." Of the 500+ residents, only about 120 have insurance. "We saved close to half a million dollars, and they got quality care—good or better care and continuity of care. We are able to achieve success with that."

Providing emergency care on site at the residential facilities makes sense because it leverages the staff's familiarity with the problems that residents are likely to have and how to handle them. "When folks with developmental disability and behavioral issues show up in the emergency room, it is a foreign place with people that don't know how to take care of them," Dr Kolesk explains. "They frequently become agitated and that creates a whole maelstrom of different things that happen to them that shouldn't."

His role is the culmination of decades of practice focused on prevention. "If you take care of patients the way preventive care is supposed to be, that you as a family physician see them on a regular basis, counsel them with their needs, and deal with those issues, you can prevent them from going into high-cost hospitals for their acute needs. For patients with diabetes, if you can affect their ability to take their meds and watch their diet, you could avoid the high-cost diabetic complications that occur. In this population, it's usually about behavior and seizures. That's the biggest thing we deal with—make sure that the person gets the medicine right, correctly assign the right medicine. Certain medicines might interact with their seizure medicines and affect their seizures." If patients transfer to a group home setting, someone still needs to make sure they take their medications.

Closing Thoughts

Providers see value through 2 lenses—their own and their patients'. Being a healthcare professional in the daily grind of today's high-tech, high-speed environment is not easy, and COVID-19 has made it even harder. We must help these dedicated providers continue to find value and satisfaction in what they do if we are to succeed in recruiting the next generation of smart and caring young adults to work in healthcare. The future health of our nation depends on it.

References

1. Petterson SM, Liaw WR, Phillips RL, et al. Projecting US primary care physician workforce needs: 2010-2025. *Ann Fam Med* 2012;10(6):503–509.

2. Sadhu AR, Healy AM, Patil SP, et al. The time is now: diabetes fellowships in the United States. *Curr Diab Rep*. 2017;17(11):108.

3. Kulka Amrita, McWeeny D. Rural Physician Shortages and Policy Intervention. Published December 12, 2019. https://ssrn.com/abstract=3481777.

4. Green LV, Savin S, Yina Lu Y. Primary care physician shortages could be eliminated through use of teams, nonphysicians, and electronic communication. *Health Affairs* 2013;32(1): 11–19.

Demystifying HEOR Recruitment

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The opportunities for health economics and outcomes research (HEOR) professionals have changed significantly over the last few decades, and candidate profiles have evolved accordingly.

Candidates for HEOR jobs have diverse backgrounds that employers need to be aware of in the current job market.

Employers do not all follow the same path in hiring, so understanding different employers' preferences is key to a successful job search

Setting the Stage

Health economics and outcomes research (HEOR) is a progressive and exciting field in the biopharmaceutical industry. Newer than other functional areas such as medical affairs or regulatory, HEOR is evolving at an accelerated pace due to the surge of specialty medicines, rare disease research, single or short-term high-cost technologies (eg, gene therapies), and the impact of COVID-19 on healthcare systems around the world. These changes manifest with increased use of performance-based agreements, focus on healthcare inequities, and advancement in formal and sophisticated health technology assessments (HTA) processes in an ever-increasing number of countries. All this has spurred increased awareness of the sector and expanded demand for people to work in HEOR on a global level and as the field evolves, so too will the candidates.

Building the Team

One basic criterion used to recruit HEOR talent is level and type of education. As the industry and payers realized the need for formal economic and comparative effectiveness research, HEOR was born out of biostatistics, epidemiology, and public health into the robust, complex field it is today. This history is reflected by the educational backgrounds of senior leadership in HEOR, contrasted with the requirements needed to enter the field now. Traditionally, HEOR professionals had a master's degree or preferably a technical doctoral degree (PhD, DrPH, ScD) in fields such as mathematics, statistics, or epidemiology accompanying a bachelor's degree in a life science subject. Nowadays, while technical doctoral degrees in a core technical field may break into HEOR roles, there is a strong preference for graduate education explicitly in health economics.

For candidates with clinical doctoral degrees (PharmD, MD, DO) entering HEOR, an increasingly popular and direct pathway is an industry fellowship in conjunction with a master's in HEOR. Fellowships provide an accelerated bridge between didactic and applied HEOR experience, often condensing 3 to 5 years of experiences into a 2-year program. A successful HEOR career will require a strong combination of both clinical and core technical skills; preferences vary by employer and job function as to whether candidates with a primary clinical background or technical background provide greater utility to the organization.

> With the increased rigor of fellowship programs (eg, most offer a combined master's degree) and diverse project and leadership opportunities, fellows have more doors open to them now than ever before.

Doctoral degrees, technical or clinical, may be preferred for candidates entering HEOR; however, the value of a specific degree loses its utility for senior-level positions. It is very rare that employers will screen out candidates if they have enough working experience in the field but lack formal HEOR training. Additionally, for niche roles within HEOR, such as modeling for HTA bodies, employers will often prioritize what they perceive to be a less risky option of hiring people with the exact experience needed for the position, creating a barrier for less-experienced candidates to enter the field and also restricting the career development opportunities for modelers who wish to progress away from technical positions (companies are eager not to let good modelers move away from "hands-on" positions).

Candidates with only clinical or only technical experience without past work experience within the biopharmaceutical sector may need to consider alternative paths into HEOR. Agencies and vendors that work with biopharma companies may be more willing to train candidates especially as the industry seems to be moving towards more of an outsourcing

model with HEOR research. Additionally, contractor positions may open the door to full-time positions and provide valuable experience needed to advance in the field. While it is still possible to make transitions from HEOR adjacent fields such as medical affairs, market access, or marketing, many candidates may need to supplement their industry experience with specialized HEOR training to secure their first position in HEOR. Interdepartmental transfers or rotations are common ways to laterally transfer into HEOR within an organization to get the requisite experience. For employers it is key to be cognizant of varied HEOR experience in lieu of specific degrees as a barometer of expertise in this field.

Do's and Don'ts in HEOR Recruitment

For candidates it is important to keep up with best practices when applying for HEOR positions. Gareth Lee, founder of G&J Lee Recruitment, shares his 12+ years of HEOR-specific experience with some of the recent trends in HEOR recruitment.

One of the first questions candidates have is, "Should I work with a recruiter?" Recruitment processes vary wildly between companies, especially as HEOR needs vary from company to company, with some companies now incorporating technical assessments, case studies, and presentations in their evaluation process. Furthermore, as some HEOR roles have a global focus, there is a need to understand international market differences and where access reimbursement considerations play a key role in commercial success. Most of these companies will want to see international experience if possible and may be less willing to invest in training candidates. Rather, they prefer "ready-made" candidates. However, hiring managers need to have realistic expectations because compared to more established markets, such as marketing or clinical research the number of eligible candidates can be significantly lower—usually 5 qualified candidates is an ideal target for most positions.

A good recruiter will be a very useful asset in the application and interview process helping candidates to secure a new position. Additionally, recruiters can potentially play a valuable role in presenting positions that are not visible on online job boards; however, there are several things to keep in mind when working with recruiters. They largely fall into 2 camps: those that work for large agencies, and those that work independently or for boutique companies. Large recruitment companies tend to have more resources and can reach out to a larger group of people but they may include in their scope many candidates who are not a good fit for the position. Metrics, such as number of applications submitted, affect a recruiter's priorities and lead to a "quantity over quality" approach to recruitment. Smaller recruitment companies are often more selective in their approach but may not provide the same quantity of candidates as a larger company. Smaller recruiters often work more closely with candidates and have a better understanding where an individual candidate may fit within a specific organization. Overall, recruiters (particularly in larger agencies) are generally more attentive to senior-level candidates (as they can often become hiring managers when they move on to a new position and bring new business back to the recruiter), and so entry-level candidates entering the HEOR workforce need to be mindful of the recruiter's motivations and whether they can offer them useful advice. Regardless of other factors, it is always a good idea to develop a professional relationship with any recruiter you work with as an experienced recruiter will be able to provide good industry knowledge and will have a strong contacts network that will be valuable to your career over time.

Candidates can often be impatient early in their career or when breaking into the field laterally, but there is no substitute for experience, both on the job and educational.

On average, candidates should target 3 to 4 positions at a time. While it can be tempting to apply to any and all positions that open up, typically the time spent networking, reaching out to contacts, and brushing up on technical and clinical skills may prove more valuable than applying to a dozen companies blindly (especially given the increasingly complex and time-consuming nature of current interview processes). Once an offer comes a candidate's way, it's important to critically assess if it will progress their career goals rather than taking the first offer that comes their way, though for many entering the workforce, gaining experience in multiple positions can prove to be valuable as a way to develop in the sector. Hiring companies know this and may be less willing to negotiate for entry-level positions. As candidates progress in seniority, the power dynamic between employer and employee flips, and candidates can be more selective in their job criteria, applying to one or two positions, and waiting for a position that suits their own career goals better.

In the End

HEOR recruitment is not an exact science and there are exceptions to observed trends. Candidates can often be impatient early in their career or when breaking into the field laterally, but there is no substitute for experience, both on the job and educational. Candidates need to be flexible and link their technical experience to the commercial priorities of the company. Demonstrating technical mastery along with strong clinical skills is a typical first step, and there are many avenues to demonstrate both. But the journey doesn't end there. As candidates apply for senior positions, softer skills become more important, with the understanding that these soft skills build upon a core technical foundation. For positions of any level, continuous professional development is important. Consistent training or education throughout one's career in new technologies and methodologies to stay abreast of market and career trends is needed to excel.

HEOR is an exciting and ever-evolving field that will continue to offer excellent careers to those who invest in it. No two companies or jobs are the same but by developing a strong blend of technical and commercial acumen, candidates at all levels can put themselves in a position to become the leaders of the future.

Starting a Career in HEOR With an Industry Fellowship: What's Next?

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All survey respondents found employment after participation in a fellowship program, with a majority landing in the biopharmaceutical industry.

The average base salary was $133K, with negotiated increases ranging from 0% to 23% over the initial offer.

The most reported barriers to employment included limited job opportunities, challenges related to the COVID-19 pandemic, and perceived inadequate education or experience.

Introduction

In the field of health economics and outcomes research (HEOR), completion of a fellowship in the biopharmaceutical industry provides advanced degree holders accelerated HEOR-applied training as well as exposure to the biopharmaceutical industry and the corporate matrix environment.[1] HEOR fellowships were introduced soon after the advent of the field of HEOR and over time, have grown in their breadth and scope, allowing for more opportunities postfellowship.[2]

With the increased rigor of fellowship programs (eg, most offer a combined master's degree) and diverse project and leadership opportunities, fellows have more doors open to them now than ever before.[3] Yet, it should be noted that fellowship salaries have remained largely the same as they were 30 years ago when the first HEOR fellows were completing their fellowships.[4]

The authors conducted a survey to understand the current career opportunities and trajectories available after completing an HEOR fellowship. As the interest and competition in HEOR roles have increased, so has the role played by HEOR fellowships in enabling job attainment. To our knowledge, this survey is the first attempt in the literature to identify the characteristics of HEOR fellows and understand their transition into employment postfellowship.

Methods

We utilized a 17-question cross-sectional online survey to understand fellows' baseline educational status, fellowship experience, and career outlook after fellowship. Additionally, we offered fellows the opportunity to provide feedback on difficulties faced during the job search and advice they would give to future fellows. A convenience sample of current and past fellows was obtained through an HEOR Fellow Workgroup established in 2017. This workgroup is unaffiliated with any specific professional organization and provides a network for current HEOR professionals completing an HEOR fellowship in the United States. The group includes over 100 active members and alumni. To be included in the study, participants had to self-report as a past or present fellow whose fellowship focused on HEOR.

Results

We received a total of 34 responses. The sample included respondents who began their programs between 2004 and 2021. All but one respondent had their PharmD prior to entering their fellowship program. Approximately two thirds of respondents participated in an officially combined master's fellowship program, and most, but not all, completed their master's degrees.

> Regardless of other factors, it is always a good idea to develop a professional relationship with any recruiter you work with as an experienced recruiter will be able to provide good industry knowledge and will have a strong contacts network that will be valuable to your career over time.

Twenty-eight respondents indicated their fellowship programs were intended to be up to 2 years long. Of the evaluable responses, the average length of fellowship participation was 19 months. Respondents started their search for their next job on average approximately 15 months into their fellowship. Common reasons for starting the job search included new employment opportunities within the fellowship company, desire to expand career growth, and explore other interests, and nearing the completion of the fellowship program.

When asked about which job sectors respondents applied to during their search, most applied within the biopharmaceutical industry. Eighty

percent of respondents applied to large biopharmaceutical companies (>100K employees), 70% to medium (10K-100K employees), and 40% to small (<10K). The next largest category of applications was for consulting jobs (30%). Most respondents (97%) successfully obtained 1 to 2 job offers, where the base salary offered was $132,882 per year. The 2 most reported job title/level of the positions accepted were "Manager" and "Senior Manager" (40% each). Only 3 respondents accepted a job at the "Associate Director" level. There were 3 "Other" category responses, 1 each of "pharmacist," "contractor," and "scientist." Although our analyses are limited by sample size and we are unable to show significance, average base salary trended towards being higher based on title: Associate Director ($152K, N=3), Senior Manager ($141K, N=14), Manager ($126K, N=14). Base salary was also higher for fellows completing their fellowship after 2018 ($137K, N=23) than before 2018 ($124K, N=11), which could be due to a mix of inflation but also reflecting the increased rigor of fellowships in recent years. Base salary was higher for the 16 respondents with another degree in addition to a PharmD than the 18 respondents with just a PharmD ($139K vs $128K).

After negotiation, fellows reported negotiated salary increases ranging from 0% to 23% over the initial offer. The 2 most offered incentives were annual bonuses (75%) and long-term incentives/stock options (60%). Other incentives offered were relocation (32%), sign-on bonuses, tuition reimbursement, and the ability to work remotely (38% each). Respondents reported being able to negotiate higher rates in any of the surveyed categories, including the incentives above, with increases in sign-on bonuses as being the most frequent (20%).

34	**survey respondents**
19 months	**was the average length of fellowship**
15 months	**before starting to look for a job**
97%	**successfully obtained 1-2 job offers**
$132K	**base salary**
Up to a 23%	**increase in salary negotiated**

In order of most common to least common, the reported difficulties faced during the postfellowship job search include: the lack of job openings and opportunities, pandemic-related challenges due to COVID-19, perceived inadequate educational degrees or HEOR experience, lack of fellowship program support with recruitment, difficulties during job negotiations, and perceived higher competition with current internal company candidates. Finally, respondents were asked to provide prospective fellows advice for their next job search. The responses could be broadly categorized and the 3 most common themes were: (1) start the job search process early, even before the fellowship is complete; (2) build and utilize your professional network; and (3) do not discount the importance of salary negotiation.

Takeaways

This study assessed the demographics, fellowship participation, and job prospects of HEOR fellowship participants. Over 97% of participants had obtained PharmD degrees before beginning their HEOR fellowships. While the intended duration of respondents' fellowships was most frequently up to 2 years, the majority began looking for a job after 15 months into their programs. Surprisingly, one of the reported barriers to finding the first job after the fellowship was the perceived lack of training or experience for HEOR jobs. We speculate this could be a result of either the fellows' unmet needs unrelated to training during the fellowship (eg, obtaining a PhD) or a mismatch between the training and experience in the fellowship versus the experience required by prospective employers. While future research is required to further understand this observation, respondents frequently advised future fellows to start the job search early in the program and to build and utilize their professional network.

The generalizability of the study results is limited to PharmD fellows who participated in biopharmaceutical industry and consulting-based programs, and results may not reflect those who have participated in institutional or academically based programs in HEOR. Selection bias may have occurred during data collection especially if participants only reflect a subset of candidates who were more willing to participate, had the time to participate, or believed themselves to be "successful" in their job searches. Finally, biases related to nonresponse, social desirability, and recall could not be ruled out by the authors.

Final Thoughts

Despite the challenges reported by the survey respondents all obtained employment after participation in their HEOR fellowships. The majority of survey participants found employment within the biopharmaceutical industry or in consulting. Interestingly, academia and healthcare positions (hospital or community pharmacy) were the least reported employment categories. Overall, fellowships remain a valuable segue into the field of HEOR. Thus, for future HEOR fellows we share the following advice: be proactive, patient, and persistent and according to one respondent, "Trust that it will all work out."

References

1. Kane-Gill S, Reddy P, Gupta SR, et al. Guidelines for pharmacoeconomic and outcomes research fellowship training programs: Joint guidelines from the American College of Clinical Pharmacy and the International Society of Pharmacoeconomics and Outcomes Research. *Pharmacotherapy*. 2008;28(12):1552.

2. Shukla S, Khan Z, Pizzi L, et al. Relevance of the ISPOR Competencies Framework in HEOR Fellowships in the United States. *Value & Outcomes Spotlight*. 2021;7(3):28-29.

3. Thomas S. Have you heard about HEOR?: A Q&A with a fellow at the Program. Pharmacy Times. Published September 5 2017. Accessed August 30, 2021. https://www.pharmacytimes.com/view/have-you-heard-about-heor-a-qa-with-a-fellow-at-the-program.

4. Rule B, Fiore J, Murray B. Assessing the current landscape of pharmaceutical industry post-doctoral PharmD fellowships. Presented at the Drug Information Association (DIA) 51st Annual Meeting. Published 2015. Accessed August 30, 2021. https://pharmafellows.rutgers.edu/wp-content/uploads/2020/08/2015-assessingthecurrentlandscapeofpharmaceuticalindustrypost-doctoralpharm.d.fellowships.pdf.

Bridging the Talent Gap: Evolving Approaches and Embracing Opportunities

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The authors draw on academic and industry observations to consider different models for sourcing and delivering health economics and outcomes research (HEOR) work and developing HEOR talent.

Talent shortages are expected to continue as the demand on HEOR professionals expands into new healthcare technologies and "Big Data."

India is a rapidly evolving "hot spot" of HEOR talent.

Introduction

The relevance of health economics and outcomes research (HEOR) to healthcare continues to increase, driving the need for talent with specific skills as described in the ISPOR HEOR competency framework.[1] However, lack of skilled professionals around the world may hamper the availability of evidence and insights for decision making. It can take many months to hire and train an HEOR professional with the duration increasing in line with the required specialization and experience. The HEOR field has been further impacted by the global talent shortage post-COVID-19. Talent shortages are anticipated to continue as the demand on HEOR professionals expands into new healthcare technologies and big data.

Insights From Other Life Sciences Disciplines

HEOR is not the first discipline to meet the talent challenge. Strong growth of the life sciences pharmaceutical industry since the late twentieth century required new ways of working to access skilled talent, consistently meet increased regulatory standards, and manage costs. Clinical data management (CDM) was one of the first areas to shift to a new model due to the ability to standardize working processes, operate at scale, and centralize data. New partnerships between pharmaceutical companies and service organizations emerged to centralize tasks. Sponsor companies sought partners to take advantage of access to sizeable, skilled talent pools in cost-effective locations such as India and China.

The large-scale adoption of electronic data capture and global interconnectivity have increased the benefits of the centralization of CDM to the extent that it is now unusual to have big clinical data operations teams situated in North America or Europe. Sponsors have built in-house teams, insourced talent from third parties, or outsourced to clinical research organizations who have their own centralized teams.

There are similarities and differences between HEOR and CDM that drive delivery and sourcing practices (**Table 1**). The similarities between these 2 disciplines are now driving a comparable evolution in the delivery and sourcing of HEOR work.

Sourcing and Delivery Model Options

Companies have 2 broad choices when considering how to deliver HEOR:

1. To deliver with in-house resources, insource, or outsource from a third party.
2. To centralize or decentralize work.

To deliver with in-house resources, insource, or outsource from a third party?

The question of whether a company hires its own in-house resources or insources/outsources work to a third party is a related but separate decision to that of centralization with benefits and challenges. Outsourcing in HEOR is common. An online survey of researchers and suppliers in HEOR, real-world evidence, and related areas found that 41.5% of 157 respondents contracted almost all (76-100%) of their work and

Table 1: Similarities and differences between HEOR and CDM.

Similarities	Differences
• Shortage of HEOR and CDM specialized talent	• Smaller, shorter HEOR projects (<1 year) compared to CDM (average 3 years)
• Delivery cost pressures across pharmaceutical development and commercialization	• HEOR is typically intended for local healthcare decision makers. CDM supports local, regional, and global decisions

CDM indicates clinical data management; HEOR, health economics and outcomes research.

Table 2: Benefits and challenges of different sourcing strategies.

Model	Description	Benefits	Challenges
In-house	• Resources are part of company headcount	• High control of all aspects of the delivery team	• Fixed costs • Limited ability to flex team capacity • Reliance on internal skillsets • Lack of access to scaled capabilities where in-house needs do not warrant in-house scale
Insource	• Resources work as part of the company to the company's systems and processes on contract from a third party	• High control of all aspects of the delivery team • Variable costs • Ability to flex team capacity within the bounds of the third-party contract • Integration into company systems and processes	• Reliance on internal skillsets compared to a fully outsourced model • Lack of access to scaled capabilities where in-house needs do not warrant in-house scale
Outsource	• Delivery is performed by an outside organization to that organization's systems and processes typically on a project-by-project basis	• Variable costs • Ability to flex team capacity • Access to external skillsets • Access to scaled capabilities (technology and process)	• Delivery governance and visibility • Contracting overhead • Lack of integration into company systems and processes

another third contracted one-half to three-fourths of their work.[2] A large proportion of HEOR outsourcing has been to small consulting firms with niche specialization to meet local and technical needs. Niche players will continue to play an essential role alongside scaled HEOR service providers. Benefits and challenges of difference sourcing strategies are shown in **Table 2.**

To centralize or decentralize?

The question of whether to centralize or decentralize work spans industries and continues to be a topic of debate in boardrooms around the globe.

Since the early 2000s, growing cost pressures, shortage of local talent alongside increased global connectivity, and availability of technology is driving more use of centralized teams in the HEOR space. Multinational company affiliates are operating in more complex local environments requiring more spend on evidence development, evidence dissemination, and implementation science. Global HEOR teams want greater consistency, quality, and value from local spend. These trends are driving the centralization of certain HEOR tasks such as literature review, medical and scientific writing, and pharmacoeconomic modeling into larger teams of functional delivery specialists.

The benefits for HEOR are consistent with those in other life science areas where skilled talent and high productivity are essential (**Table 3**). The trend is anticipated to continue as life science companies and their service providers establish scaled and specialized HEOR delivery teams.

Distributed workforce model

The centralization of tasks inevitably drives a distributed workforce model where those commissioning the work are geographically distant from those delivering the tasks, often with time zone differences. Technology has been a key enabler for distributed working. In the early days, technology use was limited to email, teleconference, and video conference, alongside document management tools for version control. Today, collaboration technologies offer an efficient platform to run cross-functional product teams, which includes members from development, medical, and commercial functions, making it easy to execute a decentralized workforce model. Technology platforms also enable the running of advisory boards proficiently with regulators and payers to generate relevant insights for drug development.

With the advancement of platform functionality, virtual product launches and interactions with healthcare professionals by medical and sales teams, once traditionally conducted only through face-to-face meetings, have

Table 3: Key considerations to determine whether to centralize or decentralize tasks.

Centralize	Decentralize
• Do employees need significant training in specialized fields? • Can someone else do the work to higher standards? • Can the work be done more cost-effectively? • Is this a repeatable activity subject to scale benefits, eg, using formal processes or technology? • Is this an expertise activity subject to scale or scope benefits, eg, by clustering talent for best practice development? • Is technology available to facilitate distributed working? • Are performance metrics available to govern the work?	• Is high agility required? • Are tasks unique with limited opportunity for standardization? • Can the tasks be delivered by generalists? • Are there regulatory, legal, client, linguistic, or other requirements to deliver locally? • Are higher-cost delivery resources affordable?

become an acceptable approach. More evidence-generation work is being shifted to outsourcing business services partners, and increasingly to partners offering relevant technology. Technology companies are evolving solutions to run team interactions, leadership forums, and workshops alongside automation, analytics, and artificial intelligence. Such solutions are providing healthcare businesses an opportunity to optimize processes, run performance analytics, and take informed decisions to enhance operations. Supportive technologies such as literature review platforms are enabling stronger virtual collaboration. Companies are combining technology and HEOR domain expertise to offer end-to-end HEOR solutions.

The emergence of COVID-19 has seen companies adapting to the changing demands of doing business. This agility ranged from scaling up virtual hiring to leveraging a distributed workforce delivery model for project execution.

The shift of HEOR talent to new geographies

As the demand to submit evidence for reimbursement approvals at optimal price has become more stringent, organizations have started to look for HEOR talent in new markets, such as India. The benefits include cost advantage, scalability, and opportunities to optimize operations. India stands out for the high volume of science and technology graduates alongside a proven track record in building centralized teams in fields such as clinical data management.

The move of work to India commenced with HEOR evidence generation to understand clinical, epidemiological, and economic evidence in various disease areas. This shift was soon followed by work in areas of pricing and market access. Over time, organizations to which HEOR work was centralized have been able to scale up their operations and optimize their processes. They moved up the value chain by developing new skills in their teams and adopting technology. For example, literature review, patient-reported outcomes, statistical pooling of evidence through direct and indirect comparisons, writing reimbursement dossiers for various markets, and economic modelling.

Today, strategic work is being shifted from company headquarters to central and distributed teams. For example, roles such as Global Product Director positions, with the responsibility to shape product strategy for reimbursement approval at optimal price. The effort to upskill talent and the use of advanced technology has made this possible.

Developing Talent

The development of HEOR talent typically begins with academic training, supplemented by in-house HEOR courses (pharmaceutical companies, service providers), augmented by hands-on experience, and supported by professional bodies such as ISPOR.

ISPOR's role in developing talent

ISPOR is a key enabler for the growth of HEOR talent around the world through the expansion of ISPOR chapters. Multiple small ISPOR chapters have been established at a country, province, or academic institution level. Opportunities exist to strengthen connection into ISPOR, and the maintenance of standards through the creation of guidelines or minimal standard accreditation checklists for smaller chapters of ISPOR. These measures, together with mandatory linkages to global ISPOR chapters, would strengthen collaboration, consistency, and scientific rigor.

Global academic training

Many graduate and postgraduate programs are offering training in HEOR around the world. Students in a health economics program learn about using economic principles to determine the best way to allocate healthcare resources. Health economics content is available within programs entitled Public Health, Health Administration, Health Policy, Economics, Epidemiology, and Pharmacy at both degree and masters levels.

The United States and Europe have included HEOR as part of the academic curricula since the 1990s. A survey on the adoption of HEOR into the US academic curricula showed that 100% of pharmacy schools provided education in HEOR, with an average of nearly 20 to 35 hours of training during the course.[3] A 2002 study of European countries found that almost 64% of pharmacy schools had HEOR as part of their curricula.[4] Some academic institutes such as the University of York and the London School of Economics in the United Kingdom now have certification courses in HEOR.

Academic training in India

Over the past decade, HEOR has begun to be included in academic curricula in countries beyond the United States and Europe. India has been an area of focus. The first driver has been the search for HEOR talent in India by global pharmaceutical companies that are aware of the large scientific talent pool. Graduates were known to have a good understanding of healthcare, an ability to understand and perform systematic reviews and meta-analyses, and an understanding of pharmacovigilance. Centralized working models had been successfully implemented in other areas of healthcare research. The second driver has been the establishment of an India health technology assessment (HTA) body in 2017 focused on performing economic studies for reimbursement in healthcare programs.

> The question of whether a company hires its own in-house resources or insources/outsources work to a third party is a related but separate decision to that of centralization with benefits and challenges.

As the market needs changed so did the curricula and training at pharmacy schools in India. Students and academicians started to focus more on paper submissions, systematic literature review studies, health economic analysis, meta-analysis, and more to develop HEOR skills. In line with the trend in the western world, universities in India have started to provide graduate and postgraduate programs in the HEOR domain.

Concurrently, at the country level, the India ISPOR chapter formed in 2012. Leaders from the pharmaceutical industry came together to promote HEOR training through the institution as the "India chapter of ISPOR."

Budding HEOR professionals have been able to plug the HEOR competency gap leveraging the experience of experts at the India ISPOR chapter. Additionally, the continuity of student-driven initiatives on such chapters has helped to train young learners in various skills involved in the HEOR domain. Teaching of evidence-based medicine ranging from effective search strategies, drug development process, observational studies, statistical tools and the applications thereof, systematic reviews/meta-analysis, and clinical biostatistics to postgraduate students of pharmacy practice gave them an edge compared to those who did not study this in the classroom.

> Increased complexity of data, analytics, technology, and domain expertise will lead to an evolution of HEOR competencies.

These interactions not only improved technical skills, but also improved communication and teamwork.

Rajiv Ahlawat, PhD, a beneficiary of an ISPOR student travel grant and founding president of the student chapter at a premier institution, attended 2 annual meetings of ISPOR. He recalls, "ISPOR resources including courses, webinars, and workshops helped me in learning HEOR skills. I learned different skills, including leadership skills, soft skills, and event management via the ISPOR student chapter. Moreover, ISPOR helped in making connections and provide a platform to participate in national and international events."

Ishfaq Rashid, a doctoral student who spearheaded the student chapter of ISPOR for 2 years, says, "I have been associated with my ISPOR student chapter 6 years. Before that, I wasn't as knowledgeable about the HEOR domain. The credit to developing my competency in HEOR goes to my participation in the activities of the student chapter and I have chosen this as a career option. The ISPOR student chapter has helped me to improve my leadership qualities, oration, and event management skills, through my conducting webinars, workshops, etc. In a country like India, the support from ISPOR to students helps to develop HEOR personnel. Overall, ISPOR has had a strong positive impact in my professional development."

Experience From Industry-Academia Collaboration in India

As the demand for HEOR talent outpaced supply, industry and academia collaborations emerged to fill the supply-demand gap. The pharmaceutical industry started to collaborate with the ISPOR India chapter to support HEOR talent development and initiated webinars and short courses. Between 2014-2019, the India student chapter organized events including, but not limited to, critical appraisal of research papers, pharmacoeconomics and outcomes research, HTA, and healthcare financing in India. At all such events, participation from students and teachers was significant. These events strengthened linkage between the industry and academia, opened up internships, and ultimately employment opportunities.

Adapting to the Future of HEOR

The scope and complexity of HEOR are growing. Healthcare decision makers need HEOR as they consider drug spending and pricing, real-world evidence, and value assessment. Increased complexity of data, analytics, technology, and domain expertise will lead to an evolution of HEOR competencies. These changes could intensify the talent gap between academic curricula and industry needs.

Organizations will adapt. Companies will adopt efficiencies in business practices to optimize cost and processes while managing risks. The boundaries of what is traditionally delivered at headquarters and local countries will blur. The "distributed workforce model" will become a more widely accepted solution as companies adopt to new ways of working. Technology will enable organizations to harness the power of more connected global teams. Virtual rotations that provide experiential learning will enable organizations to leverage the benefits of a richer talent pool. This will shift more strategic work away from headquarters, especially to a distributed workforce powered by analytic capabilities and technology. The boundaries of workflows that have traditionally been split between headquarters and country operations will become less clear. Companies will centralize more work in dedicated teams for certainty of talent supply, simplicity, and cost. Strengthened virtual working models will enable distributed teams.

While the changing working environment offers many opportunities, virtual ways of working have their own challenges, from hiring and onboarding to employee engagement and retention. This has led organizations to evaluate and strengthen processes including technical and soft-skill training programs. Countries such as India will continue to strengthen academic programs, taking advantage of the increased volume of HEOR work being performed in India.

Closing Thoughts

While the talent gap is an issue in HEOR today, we can be optimistic. Organizations conducting HEOR are developing new ways of working, underpinned by technology, process, and training. Professional bodies such as ISPOR are providing connections, training, and standards to ensure continued ethical conduct and quality. Academic institutions around the world, including new geographies such as India, are strengthening their curricula. And most importantly, HEOR talent is embracing the opportunities to work in this dynamic and evolving area.

References

1. Pizzi L, Onukwugha E, Corey R, Albarmawi H, Murray J. Competencies for Professionals in HealthEconomics and Outcomes Research: The ISPOR Health Economics and Outcomes Research Competencies Framework. *Value Health*. 2020;23(9):1120-1127.

2. Peeples P, Carter J, Stevenson C. HEOR and RWE sourcing and procurement challenges and opportunities: a benchmarking survey. *Value Health*. PNS228. 2019;22(5):S324-S325.

3. Makhinova T, Rascati K. Pharmacoeconomics education in US colleges and schools of pharmacy. *Am J Pharm Educ*. 2013;77(7):145. doi:10.5688/ajpe777145.

4. Gafà M, Bilbija S, Martinova A, Bates I. Pharmacoeconomics: A view of EPSA member countries on issues related to awareness of the topic and the undergraduate curriculum. *Pharmacy Education*. 2002;2(4):171-175. doi:10.1080/1560221021000061850.

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2022–2023 TOP 10 HEOR TRENDS

The "**ISPOR 2022-2023 Top 10 HEOR Trends**" report will be released soon and will feature topics that ISPOR members see having the most impact in the field of health economics and outcomes research (HEOR) in the coming years. The latest information on the *ISPOR Top 10 HEOR Trends* report can be found at **www.ispor.org/top10trends**.

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