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Editorial Overview

Health Services Research: Not just retrospective chart reviews



For many years, benchtop research was considered to be the preferred academic pursuit in the field of gynecologic oncology. Clinical research was generally classified into 2 genres: randomized clinical trials and retrospective chart reviews, the latter being considered the purview of residents and medical students. Fortunately, both the scope of clinical research and our understanding of what constitutes robust clinical research have now broadened considerably.

Health Services Research (HSR) evolved as early as the 1960s but came into general recognition in the 1990s, when the IOM defined it as “a multidisciplinary field of inquiry, both basic and applied, that examines the use, costs, quality, accessibility, delivery, organization, financing, and outcomes of health care services to increase knowledge and understanding of the structure, processes, and effects of health services for individuals and populations.” [1] Some examples of HSR include studies of the impact of insurance, co-pays or access to healthcare on health outcomes, the impact of practice variation on the quality of care, cost-effectiveness studies, and outcomes and comparative effectiveness studies.

With financial pressures on the United States healthcare system and in the wake of the Affordable Care Act of 2010, investigations of access to healthcare, its quality, costs and effectiveness, and the impact of specific healthcare policies on these outcomes, have become critically important. Accurate measurement of real-world healthcare outcomes is a prerequisite for implementation of policy aimed at improving quality and creating greater value in healthcare. HSR is not only valid, but necessary when considering whether interventions that demonstrate efficacy in clinical trials are accessible, applicable, of reasonable cost to payers, offer meaningful benefits to patients, and can be delivered in diverse real life settings.

In this special issue of *Gynecologic Oncology*, we include articles that highlight some of the central themes of HSR.

Assessments of cost and value in healthcare delivery are central to HSR; the United States spends more than \$3 trillion (18% of the national budget) on healthcare [2], with annual expenditures for cancer care in particular projected to exceed \$170 billion by 2020 [3]. Analyses of the cost of care are essential to understand the economic burden of particular interventions and identify the drivers for the rising costs of these interventions [4]. For this issue, Taylor et al. [5] analyzed disparities in patterns of hospice use and end-of-life costs among ovarian cancer patients using Texas Cancer Registry-Medicare data. The authors found that 75% of women enrolled in hospice prior to death but only 68% died with hospice care. Importantly, the median amount paid by Medicare during the last six months of life was \$38,530 for those in hospice compared to \$49,942 if never enrolled ($p < 0.0001$). Suidan et al. [6] assessed the costs associated with radiotherapy administered to women with low-risk and high-intermediate risk endometrial cancer and found

that radiotherapy was associated with an increased cost difference of \$9,873 compared to surgery alone (\$26,585 vs \$16,712, $p < 0.001$). Kwon et al [7] performed a cost-effectiveness analysis of BRCA testing of the first-degree relatives of known mutation carriers, finding this to be a cost-effective strategy. Finally, Foote et al. [8] used the ASCO value framework to assess the value of different strategies in platinum-sensitive recurrent ovarian carcinomas.

Since the release of the Institute of Medicine’s “To Err is to Human” [9] and “Crossing the Quality Chasm” [10] reports, considerable attention has been given to improving quality and patient safety in health care settings. Clinicians are increasingly called on to improve the quality of the systems of care that they deliver, and analyses and interventions tailored to improve the delivery of high quality care have a significant role in HSR. In this issue, Kumar et al. [11] review relevant contributions to Quality Improvement in our field. In addition, an investigation of a Quality Improvement bundle to reduce SSI by Van Nguyen et al. [12] demonstrated a 54% reduction in SSI during the post-intervention period.

There is increasing awareness that, in addition to survival and other clinical metrics, we need to understand more about the impact that cancer and its treatment have on the everyday lives of people living with and beyond cancer [13]. Over the past decade, the use of patient-reported outcomes has become a prominent topic in gynecologic oncology care. The study by Sun et al. [14] addresses patient’s preferences for cancer risk management strategies among with Lynch Syndrome, including chemoprevention, cancer screening, and preventive surgery. The authors found that surgical interventions were the least preferred strategies. These findings highlight the importance of understanding women’s preferences to facilitate optimal use and adherence to cancer risk management strategies. Meyer et al. [15] compared symptom burden and functional recovery in women undergoing primary cytoreductive surgery or neoadjuvant chemotherapy and interval cytoreductive surgery within an enhanced recovery after surgery program (ERAS). Furthermore, Wang et al. [16] reported the development of an instrument to measure peri-operative symptom burden for patients undergoing surgery for gynecologic cancer or benign conditions. Finally, Gressel et al. [17] reported that the use of the PROMIS ePRO was a feasible method to inform referral of gynecologic oncology patients to ancillary services.

Significant variation in the quality of care suggests a wide variability in provision of care that may contribute to large cost discrepancies, and is a growing concern as policymakers, hospitals, and physicians continue to contain cost of care while assuring quality and safety. In the study by Calo et al. [18], the authors analyzed the compliance with completion of radiation therapy for cervical cancer, based on the location of care delivery, and found that patients who complete external

beam radiotherapy and brachytherapy at separate institutions have a higher rate of a treatment length that exceeds national quality guidelines. Finally, Zakem et al [19] analyzed variability in the adjuvant treatment of high intermediate risk endometrial cancer.

When a randomized trial is not practical or has not yet been conducted, well-designed observational studies have the potential to provide the best available evidence about the effects of clinical care [20]. Moss et al. [21] review the methodology of quasi-experimental design, which offer alternatives to the traditional randomized trial design. Quasi-experimental methods are a family of study designs that attempt to make causal inferences from observational data by identifying an aspect of the observed data that resembles a natural experiment.

Another HSR technique that can serve as a supplement to large randomized clinical trials, observational studies, and other existing evidence is the use of robust mathematical modeling of a well-understood disease to test prevention, screening, or treatment interventions. This type of modeling study can inform and shape healthcare policy. In this issue, Hall et al. [22] and Velentzis et al. [23] describe the use of such models to inform the best HPV vaccination and screening strategies to prevent cervical cancer in Australia and New Zealand.

Gaps in quality, equity, and access to affordable care permeate our health care system. Priorities for policymakers, hospitals, payers, and physicians are changing to give more importance to value, outcomes, and patient perception of care. As the delivery of high-quality, affordable health care services becomes increasingly difficult in clinical practice, HSR in gynecologic oncology is a timely and critically important and uniquely suited to assess existing care models and to guide future improvements for the care of women with gynecological cancers.

Author contribution

Both authors contributed equally to writing this article.

Conflict of Interest

Dr. Havrilesky reports grants from Astra Zeneca, grants from Tesaro, and a family member is an employee of Bioventus, outside the submitted work. Dr. Rauh-Hain has nothing to disclose.

References

- [1] Institute of Medicine, Committee on Health Services Research: Training and Work Force Issues. Health Services Research: Workforce and Educational Issues, National Academy Press, Washington, DC, 1995.
- [2] A.B. Martin, M. Hartman, J. Benson, A. Catlin, National health spending in 2014: Faster growth driven by coverage expansion and prescription drug spending, *Health Aff.* 35 (1) (2016) 150–160, <https://doi.org/10.1377/hlthaff.2015.1194>.
- [3] A.B. Mariotto, K. Robin Yabroff, Y. Shao, E.J. Feuer, M.L. Brown, Projections of the cost of cancer care in the United States: 2010–2020, *J. Natl. Cancer Inst.* 103 (2) (2011) 117–128, <https://doi.org/10.1093/jnci/djq495>.
- [4] A. Ejaz, Y. Kim, G. Spolverato, R. Taylor, J. Hundt, T.M. Pawlik, Understanding drivers of hospital charge variation for episodes of care among patients undergoing hepatopancreatobiliary surgery, *HPB* 17 (11) (2015) 955–963, <https://doi.org/10.1111/hpb.12452>.
- [5] J.S. Taylor, N. Zhang, S.S. Rajan, M. Chavez-MacGregor, H. Zhao, J. Niu, L.A. Meyer, L. M. Ramondetta, D.C. Bodurka, D.R. Lairson, S.H. Giordano, How we use hospice: Hospice enrollment patterns and costs in elderly ovarian cancer patients, *Gynecol. Oncol.* 152 (3) (2019) 452–458.
- [6] R.S. Suidan, Weiguo He, C.C. Sun, H. Zhao, G.L. Smith, A.H. Klopp, N.D. Fleming, K.H. Lu, S.H. Giordano, L.A. Meyer, National trends, outcomes, and costs of radiation therapy in the management of low- and high-intermediate risk endometrial cancer, *Gynecol. Oncol.* 152 (3) (2019) 439–444.
- [7] J.S. Kwon, A.V. Tinker, G.E. Hanley, G. Pansegrau, S. Sun, M.S. Carey, I. Schrader, BRCA mutation testing for first-degree relatives of women with high-grade serous ovarian cancer, *Gynecol. Oncol.* 152 (3) (2019) 459–464.
- [8] J.R. Foote, A.A. Secord, M.I. Liang, J.A. Ehrisman, D.E. Cohn, E. Jewell, L.J. Havrilesky, Targeted composite value-based endpoints in platinum-sensitive recurrent ovarian cancer, *Gynecol. Oncol.* 152 (3) (2019) 445–451.
- [9] A report of the Committee on Quality of Health Care in America, Institute of Medicine, in: L.T. Kohn, J.M. Corrigan, M.S. Donaldson (Eds.), *To err is human: building a safer health system*, National Academy Press, Washington, DC, 2000.
- [10] Committee on Quality Health Care in America, Institute of Medicine. *Crossing the quality Chasm: a new health system for the 21st century*. Washington (DC), 2001.
- [11] A. Kumar, K.M. Nesbitt, J.N. Bakkum-Gamez, Quality improvement in gynecologic oncology: Current successes and future promise, *Gynecol. Oncol.* 152 (3) (2019) 486–491.
- [12] J.M.V. Nguyen, M. Sadeghi, L.T. Gien, A. Covens, R. Kupets, A.B. Nathens, D. Vicus, Impact of a preventive bundle to reduce surgical site infections in gynecologic oncology, *Gynecol. Oncol.* 152 (3) (2019) 480–485.
- [13] Ameeta Retzer, Derek Kyte, Lynn Calman, Adam Glaser, Richard Stephens, Melanie Calvert, The importance of patient-reported outcomes in cancer studies, *Expert Rev. Qual. Life Cancer Care* 3 (2–3) (2018) 65–71, <https://doi.org/10.1080/23809000.2018.1472524>.
- [14] C.C. Sun, L.A. Meyer, M.S. Daniels, D.C. Bodurka, D.R. Nebgen, A.M. Burton-Chase, K. H. Lu, S.K. Peterson, Women's preferences for cancer risk management strategies in Lynch syndrome, *Gynecol. Oncol.* 152 (3) (2019) 514–521.
- [15] L.A. Meyer, Q. Shi, J. Lasala, M.D. Iniesta, H.K. Lin, A.M. Nick, L. Williams, C. Sun, X.S. Wang, K.H. Lu, P.T. Ramirez, Comparison of patient reported symptom burden on an enhanced recovery after surgery (ERAS) care pathway in patients with ovarian cancer undergoing primary vs. interval tumor reductive surgery, *Gynecol. Oncol.* 152 (3) (2019) 501–508.
- [16] X.S. Wang, Q. Shi, L.A. Williams, C.S. Cleeland, A. Garcia-Gonzalez, T.-Y. Chen, D.R. Shahid, P.T. Ramirez, M.D. Iniesta, A.M. Siverand, L.A. Meyer, Validation and application of a module of the MD Anderson Symptom Inventory for measuring perioperative symptom burden in patients with gynecologic cancer (the MDASI-PeriOp-GYN), *Gynecol. Oncol.* 152 (3) (2019) 492–500.
- [17] G.M. Gressel, S.M. Dioun, M. Richley, D.W. Lounsbury, B.D. Rapkin, S. Isani, N.S. Nevadunsky, D.Y.S. Kuo, A.P. Novetsky, Utilizing the Patient Reported Outcomes Measurement Information System (PROMIS®) to increase referral to ancillary support services for severely symptomatic patients with gynecologic cancer, *Gynecol. Oncol.* 152 (3) (2019) 509–513.
- [18] C. Calo, J.O. Elliott, A. Clements, G. Reid, K. Rath, Cervical cancer radiation therapy compliance rates based on location of radiation therapy, *Gynecol. Oncol.* 152 (3) (2019) 528–532.
- [19] S.J. Zakem, T.P. Robin, D.E. Smith, A. Amini, W.A. Stokes, C. Lefkowitz, C.M. Fisher, Evolving trends in the management of high-intermediate risk endometrial cancer in the United States, *Gynecol. Oncol.* 152 (3) (2019) 522–527.
- [20] A. Melamed, J.A. Rauh-Hain, J.O. Schorge, Clinical Outcomes Research in Gynecologic Oncology, *Gynecol. Oncol.* 146 (3) (2017) 653–660.
- [21] H.A. Moss, A. Melamed, J.D. Wright, Measuring cause-and-effect relationships without randomized clinical trials: Quasi-experimental methods for gynecologic oncology research, *Gynecol. Oncol.* 152 (3) (2019) 533–539.
- [22] M.T. Hall, M.A. Smith, J.-B. Lew, J. O'Hallahan, G. Fentiman, H. Neal, M. Sage, K. Canfell, The combined impact of implementing HPV immunisation and primary HPV screening in New Zealand: Transitional and long-term benefits, costs and resource utilisation implications, *Gynecol. Oncol.* 152 (3) (2019) 472–479.
- [23] L.S. Velentzis, M.A. Smith, K.T. Simms, J.-B. Lew, M. Hall, S. Hughes, S. Yuill, J. Killen, A. Keane, K. Butler, J. Darlington-Brown, H. Hui, J.M.L. Brotherton, R. Skinner, A. Brand, L. Roeske, S. Heley, J. Carter, D. Bateson, I. Frazer, S.M. Garland, R. Guy, I. Hammond, P. Grogan, M. Arbyn, P.E. Castle, M. Saville, B.K. Armstrong, K. Canfell, Pathways to a cancer-free future: A protocol for modelled evaluations to maximize the future impact of interventions on cervical cancer in Australia, *Gynecol. Oncol.* 152 (3) (2019) 465–471.

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