

# A Health Services Research Agenda to Fully Integrate Cancer Rehabilitation Into Oncology Care

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## INTRODUCTION

Greater than 1.7 million Americans are expected to be diagnosed with cancer in 2019.<sup>1</sup> With effective screening, earlier stage at the time of diagnosis, and more effective treatments, cancer survivors are living longer after diagnosis than ever before.<sup>1</sup> Furthermore, in approximately 10 years, >70% of all cancer survivors will be aged >65 years and the limitations caused by cancer can exacerbate normal age-related functional declines. Adults with cancer are at risk of potential physical, psychosocial, emotional, and social problems during and after cancer treatment that can limit functioning in work and life roles and reduce quality of life.<sup>2</sup> In fact, between 60% and 90% of all individuals affected by cancer report a physical mobility or health difficulty at some point in their cancer journey, approximately 40% of adults with cancer report difficulties in basic activities of daily living (eg, bathing, dressing), and 55% to 60% report limitations in instrumental activities of daily living (eg, preparing meals, household chores).<sup>3</sup> Difficulty performing activities of daily living and mobility, otherwise defined as functional impairment, can build over time as survivors adjust and adapt to a “new normal” by restricting participation in meaningful activity.<sup>4-6</sup> The societal cost of decreased independence, early retirement, and disability will only increase over time as the number of cancer survivors grows.<sup>1</sup>

Unfortunately, many survivors are left to deal with the impact of treatment and late effects on their own.<sup>4,7,8</sup> Comprehensive cancer rehabilitation services (defined herein as those delivered by occupational and physical therapists, speech and language pathologists, exercise scientists, neuropsychiatrists, neuropsychologists, rehabilitation psychologists and counselors, physiatrists, rehabilitation nurses, dieticians, and other integrative health and supportive care providers) have the potential to improve individuals' functioning, restore their capacity to engage in employment and life roles, and optimize their quality of life from cancer diagnosis through survivorship.<sup>9-11</sup> However, use of these services remains severely limited.<sup>7</sup> The objective of this commentary was to generate a research agenda to advance the field of cancer rehabilitation to close the gap for unmet needs.

In oncology, the importance of integrating cancer rehabilitation services has been highlighted in Institute of Medicine/National Academy of Medicine reports<sup>12,13</sup>; National Institutes of Health reports<sup>14,15</sup>; and National Comprehensive Cancer Network guidelines for pain, cancer-related fatigue, survivorship, and older adults with cancer (www.nccn.org).<sup>16</sup> Recent studies have demonstrated the effectiveness of cancer rehabilitation services in improving self-efficacy in functional and usual activities, muscular strength, and body image and decreased risks of adverse cancer outcomes (ie, lymphedema or upper extremity morbidity).<sup>17,18</sup> However, to the best of our knowledge, services remain severely underused, with only an estimated 2% to 9% of survivors receiving needed services.<sup>7,19</sup>

Barriers to the timely receipt of cancer rehabilitation services exist at the level of the patient, provider, system, payer, and policy.<sup>10</sup> Patients have low uptake of these services due to a lack of awareness of their benefits, lack of prioritization or interest, out-of-pocket costs, or travel and logistical demands.<sup>18,20</sup> Among oncology providers, barriers include a lack of knowledge of rehabilitation services, how to refer, and who to refer<sup>19</sup>; a lack of awareness of the benefits<sup>21</sup>; a lack of

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clinical pathways or standards pointing to cancer rehabilitation services as best practices<sup>9</sup>; a lack of the availability of (or knowledge of) services in oncology-based institutions or in nearby communities<sup>22</sup>; a lack of infrastructure supporting an easier referral process; and an underrecognition of potential cost savings and reduced complications with the use of early rehabilitation programs. Payer-level, system-level, and policy-level barriers include an unwieldy system for navigating rehabilitation insurance benefits, financial caps on rehabilitation therapy sessions, low reimbursement rates for rehabilitation,<sup>23</sup> high costs of cancer care for patients and society,<sup>24,25</sup> and a drive to avoid the overuse of health care to control costs.<sup>26</sup>

To our knowledge, few studies or frameworks exist regarding how to best overcome barriers and integrate oncology care with cancer rehabilitation.<sup>27</sup> Addressing the fragmentation of cancer care and rehabilitation requires a collaborative approach,<sup>27</sup> and asking/answering questions at the intersection of policy, practice change, and patient outcomes and/or health services research. Health services research in rehabilitation is emerging,<sup>28</sup> with only a few studies published to date that provide data regarding the clinical benefits and potential cost-effectiveness associated with cancer rehabilitation or that target improvement in the implementation of cancer rehabilitation care. Health services research can develop knowledge regarding the impact of cancer rehabilitation services.

For this article, we convened a team of oncology, health services, and rehabilitation researchers and thought leaders. We discussed opportunities to examine how rehabilitation delivered as part of cancer care might help to achieve the aims of better patient health, better patient experience, and lower cost for patients and to improve the work life of clinicians and staff. To stimulate science and offer a framework for a research agenda, we examined Donald Berwick's (former administrator of the Centers for Medicare and Medicaid Services [CMS]) 10 key health services research topics to transform care and achieve the "triple aim" of health care as well as a recently adapted version for rehabilitation and disability.<sup>28,29</sup> For this commentary, we included the "quadruple aim" that in addition considered how to improve the work life of clinicians and avoid clinician burnout,<sup>30</sup> which is a growing problem in oncology.<sup>31</sup> We then conducted an extensive literature review, identified the following areas of targeted research aims, and articulated a research agenda

to overcome patient-level, provider-level, payer-level, system-level, and policy-level barriers to cancer rehabilitation with the goal of improving rehabilitation access and delivery for survivors, as demonstrated in Table 1.<sup>28,29</sup>

### **Ten Suggested Areas of Targeted Health Services Research in Cancer Rehabilitation**

#### **1) Increase understanding of beliefs and expectations of patients and families, clinicians, and policymakers regarding cancer rehabilitation care, delivery, cost, and value**

An important initial strategy to better understand the beliefs and expectations of stakeholders will be to use qualitative research to develop new ways with which to implement feasible and acceptable interventions and overcome barriers. This approach has been used successfully to understand stakeholder beliefs regarding palliative care and psychological interventions for older adults with cancer.<sup>32,33</sup> Trevino et al<sup>33</sup> used a Research-to-Practice consensus workshop model to understand stakeholder perspectives and then developed strategies to overcome barriers and facilitate the implementation of quality psychological interventions. This strategy could shape public and clinical opinion regarding the importance of early access to multidisciplinary services.<sup>32,33</sup>

Similarly, research is needed to understand delivery or cost-sharing barriers, including out-of-pocket costs, as well as transportation, childcare, and time off from work. Research should test stepped care approaches to cancer rehabilitation in which providers tailor the intensity of care and the site and method of care delivery based on patient need and many patients can receive services at home through telemedicine.<sup>34-37</sup> Examining the perspectives of patients, clinicians, and health care administrators regarding the use of different levels and modalities of care (eg, telemedicine approaches<sup>37</sup>) and community-based resources for interventions such as exercise prescriptions would allow for the evaluation of preference and perceived value. As Berwick notes,<sup>29</sup> research also is needed to understand how best to engage patients in their care in ways that optimize outcomes in lieu of the increasing practice of shifting more costs to patients to facilitate engagement. This points to questions regarding the range of costs that will motivate a patient's engagement without becoming a barrier to seeking care in the first place, as well as the need to understand the features of rehabilitation care that support adherence.

**TABLE 1.** Ten Suggested Areas of Targeted HSR Demonstrate the Value of Cancer Rehabilitation

HSR to Achieve the Triple Aim of Better Care, Health, and Value in Health Care (Berwick 2015 <sup>29</sup> )	HSR for Rehabilitation and Disability (Graham 2018 <sup>28</sup> )	HSR to Better Demonstrate Cancer Rehabilitation Value (Current Study)
Molding the beliefs and expectations of patients, families, and communities	Embracing the beliefs and expectations of patients, families, and communities	1) Increase understanding of beliefs and expectations of patients and families, clinicians, and policymakers regarding cancer rehabilitation care, delivery, cost, and value <ul style="list-style-type: none"> <li>• What are key stakeholder perspectives and understanding of the value of cancer rehabilitation?</li> <li>• What are the innovative program models with which to address stakeholder needs?</li> </ul>
Better ways to involve physicians in change	Better ways to involve rehabilitation professionals in change	2) Better ways to involve all stakeholders in change, including academic and community-based oncology, primary care, and cancer rehabilitation clinicians, patients, payers, systems, and policymakers <ul style="list-style-type: none"> <li>• What is the best way to involve and engage all stakeholders in changing the standard of care?</li> <li>• How can we build urgency among stakeholders for change to occur and be sustainable?</li> </ul>
Rationalizing measurement	Rationalizing measurement	3) Create value metrics that truly add patient-centered value rather than adding to the clinician’s to-do lists <ul style="list-style-type: none"> <li>• What are the best metrics with which to capture value in the eyes of each stakeholder?</li> </ul>
Transitional business models for hospitals	Transitional business models for rehabilitation services in all parts of the care continuum	4) Accelerate and scale changes that work by evaluating the inclusion of rehabilitation in value-based care payment initiatives <ul style="list-style-type: none"> <li>• Need to test the models of care to better understand how rehabilitation impacts care today</li> <li>• Need to make a case to test new models on what we learn from existing care</li> <li>• What is, and what could be, our added impact on shared oncology outcomes?</li> </ul>
Understanding the nature and magnitude of waste in health care	Understanding the nature and magnitude of waste in rehabilitation services	5) Improve evidence regarding drivers of variations in care and identify low-value care <ul style="list-style-type: none"> <li>• What are the efficient delivery models and how do risk-stratified, stepped care and value-based bundled care improve outcomes and potentially reduce waste?</li> <li>• What are the best methods with which to coordinate care among multiple providers working at the top of their licenses?</li> </ul>
Exploiting and developing telehealth	Exploiting and developing digital health technology	6) Assess the use of technology for referral, evaluation, and treatment delivery <ul style="list-style-type: none"> <li>• Will a combination of symptom management including service provision also improve outcomes?</li> <li>• Will the use of telehealth and mobile health improve outcomes for those with and without traditional access?</li> </ul>
Creating the new workforce	Creating the new workforce, new clinical roles, or even disciplines, which may span established, discipline-specific scopes of practice	7) Build workforce capacity to deliver cancer rehabilitation services <ul style="list-style-type: none"> <li>• Will building integrated teams within the cancer care system while simultaneously training rehabilitation therapists provide a better balance between need and appropriate use?</li> <li>• Will the integration of trained cancer rehabilitation providers decrease the workload of oncology clinicians?</li> </ul>
Redesigning the “scoring rules” used by key federal actors	Redesigning the “scoring rules” used by key federal actors	8) Answer key questions within cancer rehabilitation and HSR so they can inform the redesign of health policy “scoring rules” <ul style="list-style-type: none"> <li>• What are the questions that need to be asked routinely, as well as how to measure and then transition to build those important questions into cancer care delivery?</li> </ul>
Scaling changes	Scaling changes including implementation	9) Test methods for dissemination and implementation of new care models <ul style="list-style-type: none"> <li>• How can we develop and implement effective models of care, test implementation strategies in diverse contexts and settings, and evaluate dissemination approaches?</li> <li>• How can we use hybrid study designs to learn and adjust more rapidly?</li> </ul>
Developing more dynamic evaluation methods	Developing more dynamic evaluation methods; health care reform evolves more rapidly than health research methodologies; program evaluation procedures need to use more efficient and pragmatic approaches	10) Develop agile program evaluation methods that allow for rapid feedback and continuous quality improvement <ul style="list-style-type: none"> <li>• What are the agreed upon metrics to pull together improved standards of care delivery and change how value and quality-based care are defined, measured, and evaluated?</li> </ul>

Abbreviation: HSR, health services research.

Each column represents key suggested areas for HSR and displays each article, including the current study, demonstrating the evolution of ideas.

**2) Identify better ways to involve all stakeholders in change, including academic and community-based oncology, primary care, and cancer rehabilitation clinicians, patients, payers, systems, and policymakers**

To successfully test models of care integrating oncology and cancer rehabilitation in the service of better outcomes, engaging all stakeholders to understand incentives is necessary to develop, disseminate, and implement feasible and effective solutions. Incentives and relevant outcomes for the patient may include returning to work and usual activities and ease of adhering to prescribed care. Clinicians' incentives and outcomes may be more effective care coordination and/or financial incentives. For rehabilitation clinicians, incentives may include improving the physical and functional health of patients, therapist productivity, and/or reimbursement. It is imperative to also include payers and major employers in these discussions because they have the ability to financially incentivize changes in care delivery. For example, the Center for Medicare and Medicaid Innovation has developed the Oncology Care Model as a means with which to incentivize quality care and patient health while decreasing costs. Private insurers also have developed value-based models of care to incentive certain outcomes and typically are focused on reducing emergency room visits, readmissions, and length of hospital stay, and patients returning to work.

Research should test the engagement of stakeholders as local champions with an "urgency" to make change because they understand the importance of the concept and the necessity behind implementing a new model of care. These local champions have the advantage of understanding the incentives within their setting and how to get buy-in from key decision makers regarding resource allocation for care delivery throughout all levels and systems.

Once these advocates for change in the care delivery system are energized, engaging oncology and cancer rehabilitation clinicians, patients, payers, and systems in collaborative research then can inform the faster translation, implementation, dissemination, and sustainability of programs to close the gaps in unmet needs. Health services research aids in determining current practices, identifying exemplars (if any), documenting gaps in care, and developing effective interventions to improve practice. These results can be combined with the stakeholder evaluations above to provide a quantitative and qualitative description of the current state and define how change to the standard of care can occur and be sustainable.

**3) Create value metrics that truly add patient-centered value rather than adding to the clinician's to-do lists**

There is a shortage of oncologists relative to patient demand that will become even more dire in the coming years.<sup>38</sup> The increased patient rosters and their associated paperwork and charting burden limit the time oncologists have for other meaningful activities (eg, research, education) and thereby contribute toward clinician burn-out.<sup>31</sup> To decrease the administrative burden of cancer care, research should determine value-based metrics and processes that better focus on valued patient-reported and objective outcomes. This line of value metrics-related research must clearly connect the patient assessments and outcomes with physician-level and clinic-level measures that indicate value to different stakeholders. Just as incentives differ, outcomes of interest and measures of high-value care for clinicians differ from the perceptions of payers and/or patients. For example, although oncology care generally focuses on survival, patients value physical and cognitive function and the ability to live independently, with as many as 50% of patients rating these factors as more important than survival.<sup>39,40</sup> By collaborating (oncology, health services research, and cancer rehabilitation researchers), multiple measures of value metrics (ie, patient, clinician, and administrator) all could be considered and evaluated. When gaps occur, new quality metrics then could be mandated.

**4) Accelerate and scale changes that work by evaluating the inclusion of rehabilitation in value-based care payment initiatives**

Before testing new models of care, rehabilitation clinicians need to examine types of payment models and how rehabilitation use can support the quality measures already in place. For example, the Medicare Access and CHIP (Children's Health Insurance Program) Reauthorization Act of 2015 (MACRA), which included the Quality Payment Program, had 2 parts: 1) alternative payment models; and 2) the Merit-Based Incentive Payment System (MIPS).<sup>41</sup> The goals of MIPS were to improve quality and resource use, improve the use of medical charting, and improve clinical practice.<sup>42</sup> Nevertheless, a lack of confidence to meet these requirements is high for oncology practices.<sup>41</sup> Researchers have recommended that clinics expand referral networks and increase funding to improve care coordination to meet future requirements.<sup>42</sup> Research is needed to better identify the impact of cancer rehabilitation on the outcomes of MIPS or alternative payment models

to improve care coordination. Once proof of concept and efficacy have been tested, a better case can be made for examining or creating new models of care. Testing different models of care, including how best to integrate rehabilitation services as team members working collaboratively on care coordination, ultimately could determine how to measure, define, and implement high-value, evidence-based care.

Considering that many quality measures actually are testing processes (ie, survivorship care plans), it is important to note that these processes may not actually translate into better patient outcomes, as defined by the patient's values. Patient-centered outcomes and costs need to be compared between usual, standard cancer care and a model in which patients are provided services to maintain functional status and participation in usual activities. The outcomes of these studies also could examine and contrast costs of rehabilitation services versus standard of care and the impact on overall cost of care. This research will involve funding collaborative research teams and links between claims-based data, electronic health records (EHRs), and clinic-level and patient-level variables.

**5) Improve evidence regarding drivers of variations in care and identify low-value care**

By examining the predisposing, enabling, and need factors that may predict health services use, researchers can better understand the variations in care provision and the use of cancer rehabilitation services relative to outcome measures. Linked claims, EHRs, and patient-reported outcome measures will allow researchers to test the appropriate use of these services, identifying which patients benefit or which components of care provide the greatest or least value. The evaluation of different delivery models (eg, stratified or stepped care), testing of protocols that encourage concordance with National Comprehensive Cancer Network guidelines, and methods for improving the integration and coordination of care among multiple providers would provide high-impact results that could encourage the adoption of beneficial models of care for stakeholders.

**6) Assess the use of technology for referral, evaluation, and treatment delivery**

Research is needed to test how technology can be used to improve cancer care delivery throughout the cancer care continuum from initial patient assessment to self-care management and triage to support services. Recently, Basch et al and Denis et al found that a reporting

system for patient-reported symptoms also improved survival.<sup>43-45</sup> Such a system could be leveraged to also provide triage to cancer rehabilitation services; including this in a rapid learning environment in which the model of care could be monitored and improved upon by stakeholders would be ideal.

There are a few examples in which the use of technology can support virtual cancer exercise and cancer rehabilitation systems, but they need further testing for feasibility, usability, acceptability, and implementation for a variety of populations.<sup>46,47</sup> Telehealth care is one type of delivery that needs further testing but recently was found to improve function, decrease pain, and decrease health care service use,<sup>37</sup> aiding community clinicians and increasing the reach of cancer rehabilitation in rural and/or low-resource settings.<sup>48</sup> The use of technology also can revolutionize the evaluation of value metric reporting, and by adding real-time assessment of outcomes and quality. Conducting this research will require collaboration with another stakeholder: technology companies. The key component will be aligning the incentives of these companies with stakeholder needs. Finally, if technology and data systems are tested and data shared, a large network of data would be available that could aid in the translation of research, implementation of evidence-based research, testing, and dissemination.

**7) Build workforce capacity to deliver cancer rehabilitation services**

Encouraging the training of rehabilitation providers who would work in integrated teams in the cancer care system is a near-term goal. To build these teams, work between oncologists and oncology care services, professional organizations that train rehabilitation specialists, and stakeholders from the survivor community will be critical.

In addition, it is imperative to work within higher education systems (ie, general and/or oncology-based medicine and rehabilitation-based education) to incorporate evidence-based cancer rehabilitation into their curricula. It will be important to pull in trainees at a variety of stages, undergraduate through fellowship, to expose these future stakeholders to the benefits of collaboration between oncology and rehabilitation. Health services research and foundations that support this type of research also could facilitate understanding of the value of cancer rehabilitation through future funding in training grants for fellowships and new and senior investigators.

### 8) Answer key questions within cancer rehabilitation and health services research so they can inform redesign of health policy “scoring rules”

The implementation of new models of cancer care delivery that better meet patient needs while dealing with provider shortages and reducing costs will need to be supported by new health policies. Testing new policies that truly are supportive of new integrated care approaches will require health services research that identifies appropriate scoring rules that can be used by the Office of Management and Budget, the Congressional Budget Office, and CMS, specifically the Center for Medicare and Medicaid Innovation, to evaluate these policies. Collaboratively, health services and cancer rehabilitation researchers need to identify what questions need to be asked routinely, and how to measure and then build those questions into cancer care delivery effectively. Once those questions have been identified, the outcomes can inform better scoring rules for future health policy that can direct cancer rehabilitation care. This approach has been used successfully to understand stakeholder beliefs regarding palliative care and to develop strategies to shape public and clinical opinion concerning the importance of early access to palliative care beyond the end-of-life context.<sup>32</sup>

### 9) Test methods for dissemination and implementation of new care models

Results from health services research can be used to develop and implement effective models of care, test implementation strategies in diverse contexts and settings, and evaluate dissemination approaches. As efficacy data accumulate, Cochrane rehabilitation data synthesis projects can identify evidence-based interventions and support the development of clinical care guidelines and triage models. As evidence emerges, “best practice” models can be adapted to suit local needs and resources; for example, adaptations to suit rural and low-resource settings will be critical to improve access and quality of care.

Multiple potential designs from the field of dissemination and implementation science can be applied to facilitate rapid knowledge acquisition. For example, hybrid designs decrease the time needed to go through a traditional linear process from effectiveness research to use in clinical practice.<sup>49</sup> Effectiveness and implementation are tested within a single study with a hybrid design, offering information regarding both outcomes simultaneously and potentially speeding up the translation of

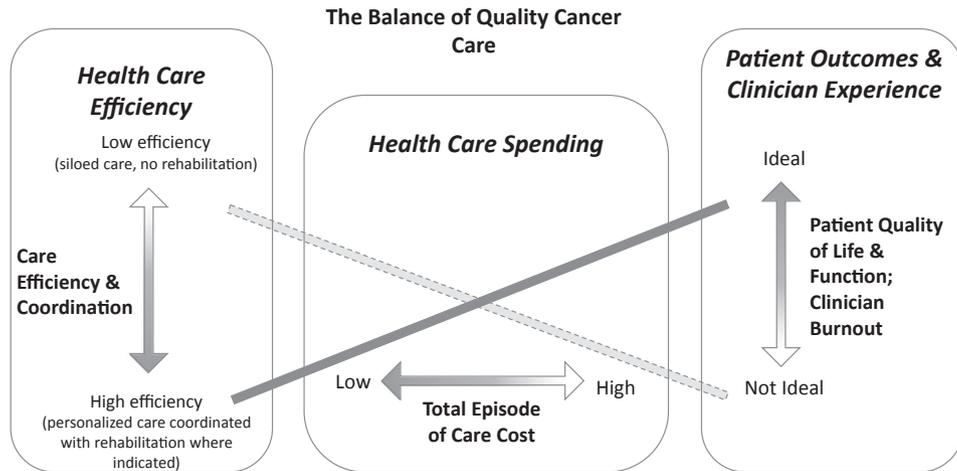
evidence into practice.<sup>50</sup> For example, a recent hybrid design study examining physical therapy for women with breast cancer reported not only the impact of the intervention on clinical outcomes, but also reported barriers to and facilitators of the program, leading to pragmatic next steps.<sup>51</sup> Other common dissemination and implementation study designs that may facilitate translation into practice include cluster randomized, stepped wedge designs, factorial designs, and head-to-head randomized implementation trials.<sup>52</sup>

### 10) Develop agile program evaluation methods that allow for rapid feedback and continuous quality improvement

Health care delivery is changing rapidly in the United States. Rapid learning systems offer an enormous opportunity for quality improvement and research.<sup>53-55</sup> When rapid learning systems are in place, researchers can examine data in real time from EHRs and quality registries to develop the feedback needed to continually improve care. These systems can evaluate different practice patterns and models of care to assess what works and what needs revision. This information then can be used to make informed decisions to pivot and change practices or to preserve and reassess them. Working together as an integrated cancer care team to determine agreed upon metrics can offer a way with which to coordinate care and change how value and quality-based care is measured and evaluated. This will allow teams to restructure care delivery based on any data and new evidence and be more agile in the process. However, rapid learning systems are not without their challenges.<sup>53-55</sup> To realize the potential of these systems, future research must address issues of data interoperability and usefulness as well as protections for the patient’s privacy and the challenge of informed consent.<sup>55</sup>

### Conclusions

Comprehensive cancer rehabilitation services can improve patients’ function, participation in employment and other defining life roles, and quality of life. Despite national reports calling for better integration of this care with oncology, barriers at the level of the patient, provider, health care payer, system, and policy preclude all but a minority of patients from receiving the care they need. The growing attention to cancer rehabilitation research within the last decade<sup>9</sup> is encouraging; however, the continued lack of health services research<sup>9</sup> limits the usefulness of this evidence base in overcoming these



**Figure 1.** Optimizing health care efficiency also will optimize patient outcomes, clinician experience, and cost.

barriers or improving the huge gaps in access to care. As research regarding cancer care and rehabilitation care delivery grows, attention to filling research gaps with the health services research articulated herein will be critical to the design of care models that integrate cancer rehabilitation with oncology and facilitate timely access to and reimbursement of cancer rehabilitation care for those who need it.

Pursuing the health services research topics outlined in this commentary also will necessitate key changes in how research is conducted and funded. Specifically, testing these research questions will require multidisciplinary, multistakeholder research teams; potentially novel funding models and partnerships; and innovative data linkages. First, conducting health services research to fill these critical gaps will involve creating research teams that engage all stakeholder points of view relevant to a particular question, including patients, families, and caregivers; primary care, oncology, and rehabilitation clinicians; and payers and policymakers. Funding opportunities such as those from the Patient-Centered Outcomes Research Institute that encourage such multistakeholder approaches as well as implementation science opportunities from the National Cancer Institute (NCI), the National Center for Complementary and Integrative Health, and the National Center for Medical Rehabilitation Research may provide platforms to further recommended research activities.<sup>56</sup> In addition, collaboration between health care funders, delivery systems, and academic researchers is needed to test pragmatic programs to

examine the feasibility, effectiveness, and efficiency of the integration of services. Consideration of hybrid designs, testing both effectiveness and implementation with a dual focus, could increase the speed with which research goes from bench to clinical practice.<sup>49,50</sup>

In addition, novel funding models and partnerships may be needed to stimulate this research. Similar to other fields, the reliance on grant funding alone to fuel projects aimed at improving value-based care is insufficient<sup>57</sup> and at times contraindicated. Funding for these research projects also may need to come from payers (eg, CMS, private payers) or health care delivery systems through pilots of new care delivery models, from new academic-private partnerships, or through other federal-level or state-level funds for testing new models of care. Finally, the health services research questions outlined herein will require innovative approaches to use existing data.

Figure 1 outlines how the quadruple aim can be assessed and realized in cancer care. Although striving for the ideal, this figure can be used to direct the levers to push for better patient health, better integration of care, and lower health care spending with better clinician experiences. To strike this, balanced research not only needs to occur in each individual aim, but by examining the overall framework and model as a whole.

In addition, we need to stimulate collaborations between cancer rehabilitation clinicians and health services researchers, and between rehabilitation researchers who conduct health services research on rehabilitation for patients with conditions other

than cancer. Examples of potential avenues include using existing data systems to begin this work, such as a collaboration with the Veterans Administration Health Services Office of Research and Development teams within an integrated health care system; a collaboration with the Center for Large Data Research and Data Sharing in Rehabilitation using data from the Agency for Healthcare Research and Quality to examine trajectories after hospitalization or outpatient care; research funding from the NCI to support health services research/rehabilitation partnerships and a set of research studies to answer some of the key questions identified herein; and targeted data collection to gather information regarding the uptake and access of rehabilitation in different cancer care delivery settings by either leveraging existing surveys or building new ones to capture information from patients about their need for or use of rehabilitation. Furthermore, the NCI Community Oncology Research Program, the network in which community oncology practices enroll patients (and stakeholders) to trials of cancer control, supportive care, or care delivery, potentially could provide the infrastructure needed for investigators interested in doing this type of research. Likewise, the Health Care Systems Research Network also may be a resource, or linked data sets such as the Surveillance, Epidemiology, and End Results (SEER)-Medicare database.

In this time of changing health care delivery and health care policy, health services research is critical to create better health, better patient experience, lower cost, and improvements in the work life of clinicians and staff. Attending to the health services research questions in these 10 priority areas will allow for testing of whether and/or how cancer rehabilitation interventions may help in the service of these outcomes and contribute to the development of more effective, feasible, and efficient care.

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