Healthcare Systems and Services Practice

Designing and implementing an integrated oncology care management program

Chiara Leprai; Edward Levine, MD; Alex Sozdatelev; and Denis Vaskov
In the past decade, a number of new approaches designed to improve the quality and safety of oncology care while controlling costs have been developed. These initiatives, which require closer collaboration between payors and providers, have been somewhat effective in controlling near-term costs. However, most of them were based on traditional managed care models and relied on prior authorization, step therapy, and formulary design to reduce the unnecessary utilization of high-cost oncology drugs, diagnostic testing, and procedures. As a result, they have made care delivery more cumbersome for all parties involved and have created friction between payors, providers, and patients. Furthermore, each of these initiatives has limitations that could impair its ability to achieve sustainable results.

In this article, we describe a more comprehensive and integrated oncology care management program that can be implemented in the US healthcare system. Our experience suggests that this program can deliver long-term benefits to both payors and providers. Even greater impact can be achieved if other stakeholders in the oncology value chain, especially patients and drug suppliers, are involved.

Chiara Leprai; Edward Levine, MD; Alex Sozdatelev; and Denis Vaskov

3 The State of Cancer Care in America, 2014: A Report by the American Society of Clinical Oncology.
Why the rising costs?

The advances in medical treatment that have improved outcomes and prolonged patients’ lives have also extended the duration of treatment and raised costs. The average monthly price of oncology drugs has been rising for decades; between 2009 and 2014 alone, the average inflation-adjusted monthly price of new oncology drugs increased by 48% (Exhibit 2). Those drugs and drug administration now account for about 34% of total oncology expenditures. This increase primarily reflects the high price and growing use of biologic drugs. However, the cost of radiation therapy and other forms of treatment have also been growing rapidly.

Treatment costs are not the only factors underlying the increase in spending on oncology care. Other important factors include:

Increasing cancer incidence. According to the National Cancer Institute, the cancer incidence rate in the United States grew by more than 16% between 1975 and 2010, largely because of population aging and earlier diagnosis.

Significant variations in treatment patterns. Treatment approaches vary considerably for patients with the same type and stage of cancer—not only across the United States but also among practices and physicians in the same localities. Although some of this variation is inevitable given the specific needs of each patient, a large portion of it reflects overutilization and waste.

---

**EXHIBIT 1 Five-year cancer survival rates in the U.S.**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>All cancers</td>
<td>48.9</td>
<td>66.1</td>
</tr>
<tr>
<td>Breast</td>
<td>68.3</td>
<td>90.5</td>
</tr>
<tr>
<td>Prostate</td>
<td>74.8</td>
<td>99.6</td>
</tr>
<tr>
<td>Colon and rectum</td>
<td>49.8</td>
<td>66.1</td>
</tr>
<tr>
<td>Lung and bronchus</td>
<td>12.2</td>
<td>17.8</td>
</tr>
</tbody>
</table>

*Source: National Cancer Institute, Survival Epidemiology and End Results (SEER)*
In recent years, payors and providers have started working together to develop more collaborative solutions for controlling costs without denying patients access to potentially life-saving drugs. Three approaches are being used most often:

**Newer approaches: Pros and cons**

In recent years, payors and providers have started working together to develop more collaborative solutions for controlling costs without denying patients access to potentially life-saving drugs. Three approaches are being used most often:

**Introduction of clinically based pathways to drive standardization of care.** Pathways define the sequence and timing of cancer treatment, based on cancer type, stage, and other patient-specific factors. Although providers can deviate from pathways when they deem it appropriate, the presence of a standard of care has been proved effective in decreasing treatment variability and
reducing the use of drugs likely to cause severe side effects.\textsuperscript{12} When pathways are used, payors typically reward providers based on their compliance with the pathways and performance on other process and outcome quality metrics.

The majority of existing pathways have limitations, though. They often focus on specific areas of oncology care (usually, on chemotherapy; less so on imaging and radiation therapy) without looking at patients holistically. Moreover, the large number and variety of pathways currently available creates operational complexities for both payors and providers by making it more difficult to consistently identify the optimal treatment path for a given patient. Furthermore, most current pathways are developed at the national level. Local physicians may not believe the pathways are appropriate for their patients, especially given that they had no input into their development.

Empowerment of providers through episode-based payment arrangements. More and more payors are experimenting with episode-of-care payment arrangements. CMS has also announced that it will expand its episode-based chemotherapy payment program.\textsuperscript{13}

In episode-based arrangements, payors either: (a) give providers a flat sum to cover pre-defined services delivered during a specified duration of treatment for a given type of cancer; (b) reward providers for achieving an average cost per episode (paid out on a fee-for-service basis) that is lower than a benchmark level; or (c) reward providers for controlling the rate of growth in the cost per episode (measured retrospectively). The providers may also receive additional rewards based on clinical outcomes, and the achievement of care quality goals may be a prerequisite for participation in savings. Several recent pilots show that well designed and implemented episode-based oncology payment programs can significantly decrease the total cost of care without harming clinical quality, financially benefiting both providers and payors.\textsuperscript{14,15}

Whether these pilots can be scaled up remains to be seen, however.

The effectiveness of episode-based payment depends on the specificity of the information given to providers to help them understand the sources of cost and outcome variations. Simply establishing a flat sum for payment without giving providers more detailed information on sources of variation may leave them without the tools to improve performance. Comparative, detailed information on cost drivers and outcomes is likely to achieve greater impact that can be scaled across different provider types (e.g., large academic medical centers vs. community hospitals vs. independent oncologists).

Support of provider-to-provider collaboration to increase care coordination. Accountable care organizations (ACOs), medical homes, and similar arrangements are designed to increase care coordination and potentially shift risk from payors to providers. The providers optimize care decisions for their patients by more closely coordinating care and are rewarded for their performance based on the total cost of care and quality metrics. The payors encourage and support interactions among the providers by giving


\textsuperscript{13}On January 26, 2015, CMS announced new initiatives to promote: a) better care (by encouraging integrated care, population health, and patient engagement); b) smarter spending (by encouraging the use of bundled payment arrangements); and c) healthier people (by advancing electronic health records, interoperability, and transparency). (See www.cms.gov/Newsroom/ MediaReleaseDatabase/ Fact-sheets/2015-Fact-sheets-items/2015-01-26.html.)


them IT tools and facilitating peer-to-peer discussions on performance. Depending on the providers’ readiness and appetite for risk, reimbursement models may offer limited upside only or substantial gain sharing and downside risk.

At present, there are about 10 oncology-focused medical homes accredited by the National Committee for Quality Assurance16 and only a handful of oncology-focused ACOs. These arrangements have been shown to control the cost curve without harming outcomes, but they are not easily scalable. Collecting and transferring the data needed to accurately track performance and calculate reimbursement is often a manual, time-consuming process. Moreover, not all physicians are comfortable with taking on risk, and some payors are unwilling to help risk-averse practices identify and capture value-creation opportunities.

**An integrated approach to improving quality and controlling costs**

After helping multiple payors and providers across the United States develop approaches for dealing with rising oncology costs, we have come to believe that long-term impact can best be achieved through an integrated program that begins with close collaboration between payors and providers, and combines elements from all three of the approaches described above (Exhibit 3). The program then radiates outward to involve others in the value chain, especially patients and drug suppliers. (See the sidebar on p. 6 for more details about how to involve these other stakeholders.) Our experience suggests that this combination delivers larger—and more sustained—results than do any of the program elements on their own.

---

**EXHIBIT 3** An integrated approach to oncology management

- Include the **whole spectrum** of disciplines involved in cancer treatment, as well as supportive care and appropriate transition to palliative care
- Have **consensus of local oncologists**
- Are **consistently updated over time** to reflect the most recent clinical evidence
- **Comprehensive care protocols**
- **Transparency**
- **Better quality at lower cost**
- **Alignment of incentives**
- **Outcomes and cost performance are assessed across the continuum of care**, on a time frame consistent with duration of the treatment
- Assessment leverages **data that providers trust and a methodology perceived as fair**
- Data on performance is **easily accessible to providers** and discussed regularly in physician forums

---

Extending alignment beyond payors and providers

Close collaboration between payors and providers can be very effective in reining in the cost and improving the quality of oncology care. However, maximum impact can be achieved only if other stakeholders in the value chain are included in the collaboration. Payors, for example, can use product design to encourage patients to select the most cost-efficient providers. Both payors and providers can take steps to encourage patients to adopt wellness behaviors and use preventive measures to reduce cancer incidence. Both sides can also work with suppliers to reduce the overall cost base.

Aligning incentives for patients
Payors can help cancer patients choose cost-efficient, high-quality providers through oncology-specific product designs and benefits. For example, they can use network narrowing or other levers to manage their network of oncology care providers more actively (e.g., based on the providers’ level of compliance with care protocols and clinical outcomes). This approach not only gives patients preferential access to cost-efficient, high-quality providers, but also gives providers an additional incentive to take part in the oncology management program, adopt care protocols, and participate in episode-based reimbursement models.

Payors can also design their co-payment and co-insurance requirements to give patients incentives to use lower-cost sites of care whenever doing so is clinically appropriate and safe. For example, co-payment and co-insurance rates could be lower for chemotherapy drugs administered in hospitals (assuming there is no difference in quality among the sites).

In addition, payors can use appropriate benefit designs (e.g., wellness bonuses) to encourage wellness behaviors and use of preventive measures that have the potential to decrease cancer incidence and ultimately reduce costs. The most obvious example of this is smoking cessation. Studies have shown that direct expenditures on medical care attributable to smoking and smoking-related illnesses amount to more than $2,500 per smoker; cancer care accounts for a significant portion of this spending. These costs can be minimized through appropriate smoking cessation programs. Providers can help make sure that smoking cessation programs and other methods of promoting wellness and preventive health are easily available to patients.

Finally, both payors and providers can take steps to raise patients’ awareness of cancer symptoms and how to seek care to increase their chances for early diagnosis.

Aligning incentives with suppliers
Both payors and providers can partner with other stakeholders in the oncology value chain to reduce the overall cost base while maintaining or improving care quality. This collaboration could happen in at least three ways:

Increase the penetration of existing services.
For example, payors could implement more prescriptive medical management initiatives, leveraging their scale to shift oncology drug

---

2 HCPCS is the acronym for the Healthcare Common Procedure Coding System.
3 More information on the Medicaid Drug Rebate Program can be found at www.medicaid.gov/Medicaid-CHIP-Program-Information/By-Topics/Benefits/Prescription-Drugs/Medicaid-Drug-Rebate-Program.html.
distribution to specialty pharmacies. This would result in almost real-time drug delivery, creating value for providers by reducing the up-front capital investments required to ensure the presence of an adequate stock of medications and appropriate cold storage. Moreover, the shift from “buy and bill” to specialty pharmacy (on a drug-by-drug basis to ensure that the timeliness of the supply and patient safety are not affected) would separate provider margin from the cost of the drugs, thus removing potential perverse incentives and creating a pool of value that could be redistributed to providers to reward them for adherence to care protocols.

Negotiate better conditions with pharmaceutical companies, leveraging larger scale and additional information. Both payors and providers could negotiate with pharmaceutical companies to obtain more competitive prices for oncology drugs by linking rates to real-world evidence of the drugs’ effectiveness. This option is especially feasible once standard care protocols are implemented and a credible mechanism for assessing performance and outcomes has been established.

Similarly, payors could negotiate rebates with pharmaceutical companies by collecting and leveraging National Drug Code (NDC)-level data on specialty drug utilization. Most private payors reimburse for infusions of cancer drugs based on HCPCS codes, and many HCPCS codes include multiple different but clinically equivalent drugs (each with an individual NDC) that providers can choose from. Payors could use the availability of NDC information to implement preferred drugs strategies in exchange for appropriate rebates from pharmaceutical companies. Again, a portion of this value could then be shared with providers. Some payors are already leveraging NDC data as a source of value creation; for example, CMS and state Medicaid agencies are using it to get rebates from the drug manufacturers and help offset Federal and state costs for most outpatient prescription drugs.

Create value by developing new collaborations. Finally, payors and providers could collaborate with pharmaceutical companies to develop and implement cutting-edge oncology care solutions. Next-generation sequencing, molecular imaging, and genetic screening have already saved the lives of many patients by enabling more effective cancer screenings, better treatment regimens, and more accurate care monitoring. Payors could complement the efforts of pharmaceutical companies in this field by providing appropriate (and blinded) patient data and detailed analytics on drug utilization, and by facilitating interactions between the companies and providers. Providers could ensure that next-generation sequencing is deployed when appropriate and corresponding treatment decisions are being made. Providers could also consistently codify and share their experiences with personalized medicine. Collaboration among all stakeholders in developing and implementing new oncology solutions could help ensure that patients get the best possible cancer treatment and could be another major element in driving down the cost of oncology care in the United States.
The collaboration between payors and providers should focus on coordination of care across disciplines (e.g., chemotherapy, oncology surgery, pathology, radiation therapy) because effective coordination is critical for improving outcomes and reducing variability among providers. Effective coordination across disciplines, in turn, requires local consensus on the best standards of care to ensure that those standards are consistently applied, as well as a robust framework for assessing, comparing, and incentivizing performance. The main components of this offering are therefore comprehensive care protocols to reduce variability in care delivery, increased transparency to drive optimal results, and alignment of incentives between payors and providers.

**Comprehensive care protocols**

Care protocols define standardized approaches for managing different types and stages of cancer, thereby reducing variability in treatment not justified by patient-specific needs. They are similar to, but more comprehensive than, the care pathways described above. Although care protocols are available for all the common cancer types, successful use of them depends on three factors:

**Scope.** Care protocols should include the whole spectrum of disciplines involved in cancer treatment. Recent studies suggest that the largest opportunity for reducing cancer-related costs lies in minimizing the number of avoidable inpatient stays due to side effects of cancer therapy, as well as avoidable use of intensive care units. Costs also tend to be concentrated in the last months of the patient’s life. Care protocols should therefore cover such topics as how to minimize the risk of side effects (e.g., hydration of a patient during chemotherapy infusions), how to provide rehabilitative care, when and how to transition from curative treatment to supportive and palliative care, and how supportive/palliative care should be provided to patients with cancer. The care protocols should also allow for the use of personalized medicine (also sometimes referred to as precision medicine) when appropriate. (For more details about personalized medicine, see the sidebar on p. 9.)

The more common types of solid tumors (e.g., breast, lung, colon, and prostate cancers) account for almost half of all new cancer cases and overall cancer spend; they are thus a reasonable starting point for standardization of care with care protocols. Once care protocols for these types of cancers are adopted, care standardization can be expanded to other cancer types (e.g., blood-borne malignancies). Then, efforts can be undertaken to ensure coordination among practices across various types and stages of cancer.

**Provider ownership.** Consensus among local oncologists is crucial for successful use of care protocols. Straight application of national pathways often delivers mixed results, largely because the pathways do not take local factors into consideration and buy-in from local providers has not been obtained. Allowing local physicians to tweak and enhance these pathways can significantly improve clinical outcomes and lower costs.

**Evolution over time.** Care protocols should be flexible—they must allow for updates
to accommodate the most recent cancer treatment developments and safety concerns. Thus, implementation of care protocols, and the oncology management program in general, must have a physician-led governing body that meets regularly to ensure that the protocols remain valid and relevant, or are changed when appropriate.

Payors, especially those with significant local market share and/or strong alignment with providers, can help facilitate the development and regular updating of comprehensive care protocols by encouraging conversations among local providers. Payors can also influence the protocols’ development by giving providers access to appropriately blinded data about all aspects of treatment—data that most providers would otherwise not see.

**Increased transparency**
Performance transparency is critical for verifying that providers follow the agreed-on care protocols whenever appropriate and identify opportunities for ongoing performance improvement. Episodes of care, when paired with care protocols, can present a suitable way to establish the needed transparency because they include a framework for evaluating and comparing physician performance, as well as mechanisms for understanding the sources of variation. It is important to note, however, that the concept of episodes does not accommodate the most recent cancer treatment developments and safety concerns. Thus, implementation of care protocols, and the oncology management program in general, must have a physician-led governing body that meets regularly to ensure that the protocols remain valid and relevant, or are changed when appropriate.

Payors, especially those with significant local market share and/or strong alignment with providers, can help facilitate the development and regular updating of comprehensive care protocols by encouraging conversations among local providers. Payors can also influence the protocols’ development by giving providers access to appropriately blinded data about all aspects of treatment—data that most providers would otherwise not see.

**Incorporating personalized medicine in care protocols**

Care protocols must be updated regularly to account for advances in oncology care, especially the growing use of personalized medicine to test cancer patients for known genetic mutations. Tumor genome profiling and other molecular tests can screen for a growing list of such mutations (called predictive biomarkers); when one is found, the patient can be given more targeted therapies. Often, this approach helps patients avoid less effective (or even ineffective) treatment courses, resulting in improved survival rates and better quality of life. Cost savings are also often achieved through reductions in treatment time and the rate of side effects and complications (especially those that necessitate emergency room visits or inpatient admissions). Furthermore, the cost of genetic profiling has decreased significantly in the past decade.

The use of predictive biomarkers is already considered standard of care for several tumor types (e.g., lung cancer, colorectal cancer, and melanoma), and it is highly likely to become standard of care for other cancers as the list of genetic mutations associated with malignancies expands. However, not all cancer types have been linked yet to genetic mutations, and treatments targeted to some of the identified mutations are not yet available. Thus, the care protocols should define which cancer patients should undergo genetic profiling, and under what conditions, at various stages of treatment.

---

4. DNA sequencing costs: Data from the NHGRI Genome Sequencing Program. (www.genome.gov/sequencingcosts/)
not necessarily require bundled payments. Episodes can be applied for comparison purposes even if reimbursement remains fee-for-service as long as some pay-for-performance/gain sharing elements are included.

Successful implementation of episodes of care depends on several factors:

**Scope.** Provider performance and costs should be assessed across the continuum of care, from cancer diagnosis and treatment (chemotherapy, radiation, or surgery) to supportive and follow-up care (taking into account that some treatments might be more expensive but deliver better clinical outcomes). As a result, the duration of a cancer episode is important. To be comprehensive, the episode should last at least one year, ideally beginning about 30 days before the first treatment. In addition, the episode must establish mechanisms allowing adjustment of cancer treatments to reduce side effects and unnecessary utilization.

**Methodology.** If oncologists are to be compared based on compliance with care protocols, total cost of care, and quality of care (as reflected in such factors as the number of ER visits, survival rates, disease progression, and patients’ psychological well-being), the methodology used for data analysis must have a high degree of technical accuracy. Unless providers can understand and trust the results, and perceive them as fair, the methodology will not be effective in promoting the desired behavioral changes. The methodology should, for example, include the type and stage of cancer, and some form of risk adjustment to take into account patients’ comorbidities and other health factors that could lead to variations in care. It should also allow for a reasonable amount of variability among providers, but it should permit both payors and providers to identify the root causes of variability in outcomes so that more targeted performance improvement initiatives can be designed.

**Accessibility.** Data on performance should be easily accessible to providers without disruptions to their workflow. Results should be discussed regularly in physician forums to ensure that insights are captured and, when appropriate, the care protocols are updated.

Payors are well positioned to support providers in this area since they are independent third parties. Furthermore, payors typically have more advanced analytical skills and access to more data across the continuum of care than providers do.

**Better alignment of incentives**

Although transparency is fundamental for changing behaviors, it is usually more effective when supported by economic incentives. At present, many payors are switching from fee-for-service arrangements, which can lead to overutilization, to incentives that reward preferred sets of behaviors. If this trend continues, it is likely that most payors will ultimately move to incentives that reward desired clinical outcomes.

In the target state, episode-based reimbursement based on performance on clinical outcome metrics would ensure
the alignment of incentives between payors and providers, with the aim of improving care quality while controlling costs. The reimbursement for each episode would be adjusted up or down depending on disease progression, three-year survival rate, and/or cancer recurrence rate. The duration of the episode would take into account the characteristics of different types of cancer (e.g., a longer duration for slow-moving cancers, such as prostate cancer).

Reaching this target state will require time. A trust-based relationship between providers and payors must be established, the accuracy of the data used to calculate performance on quality metrics must be verified, and a baseline must be agreed on. To incentivize desired changes in provider behavior during the transition, payors could consider reimbursing them based on compliance with a well-defined set of metrics. For example, payors could increase the reimbursement rate for select evaluation and management codes to reward compliance with care protocols, and guarantee reimbursement for palliative care counseling and appropriate care coordination.

There are several elements a payor can use to help build trust and accelerate the transition to episode-based payments:

• Give providers transparency into the timeline for, and milestones of, the transition to episode-based reimbursement, as well as how data will be validated, so that all parties can align on assumptions and methodology early in the process.

• Make up-front investments (mainly, IT-related) to help providers build the tools required to track performance and achieve the best clinical outcomes.

• Establish partnerships with select other payors to ensure that providers are given consistent incentives to change their behavior and adopt the most advanced care protocols. Such partnerships are especially relevant in areas where no payor represents more than 10% to 15% of a provider’s total patient volume. The partnerships must be formed carefully, however, to ensure that they do not inadvertently raise legal issues and that they enable all participating payors to strike an appropriate balance between achieving a differentiated position in the marketplace and maximizing the value created for the system as a whole.

Payors and providers have the same primary goals for oncology care: to prolong patients’ survival and improve both their physical and psychological well-being. By collaborating on payment and care delivery innovations through a comprehensive, integrated oncology care management program, such as the one described in this article, they can improve the likelihood of achieving these goals while keeping costs under control.

Chiara Leprai (chiara_leprai@mckinsey.com) is a consultant in the New Jersey office. Edward Levine, MD (edward_levine@mckinsey.com) is a senior partner in McKinsey’s Silicon Valley office. Alex Sozdatelev (alex_sozdatelev@mckinsey.com) is an associate partner in the Chicago office. Denis Vaskov (denis_vaskov@mckinsey.com) is a consultant in the Chicago office.