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Changing Physician Incentives For Cancer Care To Reward Better Patient Outcomes Instead Of Use Of More Costly Drugs

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ABSTRACT More-sophisticated chemotherapy regimens have improved the outlook for cancer patients since the 1970s, but the payment system for cancer chemotherapy has not changed during that time span. The "buy and bill" approach for reimbursement provides incentives for medical oncologists to use expensive medications when less costly alternatives that deliver similar results are available. Furthermore, the system does nothing to assess how much value society derives from high-price drugs. This paper reviews the historical context of "buy and bill" reimbursement and considers the use of clinical pathways and bundled payments, two alternative strategies that are being tried to reward physicians for improving outcomes and reducing the total cost of cancer care.

Cancer therapy has made great strides since the 1970s, when physicians had to rely on fewer than a dozen chemotherapy medicines, imprecise early-generation radiation machines, and disabling surgical techniques. Chemotherapy drugs now target specific genomic abnormalities; about 150 effective drugs are available for cancer therapy; and new surgical techniques minimize negative consequences while producing better results. Cancer mortality rates are decreasing: Between 1990 and 2007 the overall death rates declined 22 percent for men and 14 percent for women.[1]

The reimbursement scheme for cancer chemotherapy, however, remains unchanged. Medical oncologists, the physicians who prescribe and administer these drugs, buy them at wholesale prices and, in effect, "sell" them to payers at a profit. This "buy and bill" approach is driving bizarre and unintended incentives. The system encourages the selection of the most expensive drugs and discourages the use of lower cost generic medications, even if the clinical results are similar. As a result, society often gets poor value for the money it spends.

This paper proposes an episode payment system for cancer chemotherapy that makes oncologists' income independent of drug selection and rewards physicians for improving outcomes or reducing the total cost of cancer care.

The Historical Background

In 1942 a patient suffering from Hodgkin's disease was treated with nitrogen mustard, a compound originally developed in a secret program for gas warfare.[2] This marked the beginning of cancer chemotherapy. If not handled expertly, most chemotherapy drugs then were toxic to both patients and the providers who administered them. The need for specialists who intimately understood these drugs and their uses gave birth to the specialty of medical oncology.

Once oncologists had learned how to handle these medications safely, they were able to provide the majority of treatments in their offices. They purchased the medications from drug wholesalers and then charged insurers for them at the retail price. The first drugs for cancer were relatively inexpensive. For example, the standard treatment for breast cancer in the 1970s was a single infusion that included three drugs—cyclophosphamide, methotrexate, and

5-FU—and cost about $250. These infusions had only a small impact on an oncologist's income because most of that income came from professional fees for patient care.

Indemnity insurance dominated the market from the 1950s to the early 1980s. Medical oncologists established a retail fee that private indemnity insurers paid in full. Medicare, however, used a standard reference for pricing, the average wholesale price. The drug manufacturer determined this price. As managed care programs using fixed fees evolved, oncologists negotiated reimbursements with private payers based on some percentage of the average wholesale price. However, that term was misleading because there was no consistent relationship between the physician's cost for acquiring the drug and the published average wholesale price. The differences were often quite large.

As more drugs became available, the frequency of treatments increased, and drug margins overtook professional fees as the major source of a medical oncologist's income. The new emphasis on drug margins led to some egregious excesses. News reports exposed oncologists who made fortunes by favoring drug brands with larger margins.[3]

Policy makers took note. In 2003 Congress created a new standard reference for reimbursement, the average sales price, as part of the Medicare Prescription Drug, Improvement, and Modernization Act. The law required manufacturers to report to Medicare their actual drug sale transactions with providers, which allowed the Centers for Medicare and Medicaid Services to determine accurate acquisition costs. Each quarter, the agency calculated the average sales price based on weighted cost averages.

The same law changed Medicare chemotherapy reimbursements so that oncologists received a fixed 106 percent of the average sales price. Congress also agreed to new payment codes for the nurses, pharmacists, and specialized equipment needed to administer chemotherapy drugs.

The lower unit costs created by the 2003 law produced an immediate savings for Medicare and an equally quick decrease in practice income for medical oncologists. In order to make up the losses to their income, the oncologists raised their prices to private insurers. Oncology practices with a strong market share were able to obtain the higher prices. Private payers were often forced to continue reimbursement based on the average wholesale price or a much higher percentage of the average sales price than the 106 percent paid by Medicare.

The new payment system also amplified the perverse incentives inherent in "buy and bill" reimbursement for drugs. Researchers at Harvard University compared the treatment of lung cancer patients before and after the legislation was enacted and found the following trends: More patients had access to chemotherapy than before; the use of inexpensive generic drugs declined; and the use of costly drugs increased.[4]

These findings are not surprising, given the economic incentives. First, the drop in income produced by lower unit costs provided an incentive for oncologists to see more patients, which not only replaced lost income but also improved access. Second, with the average sales price based on a fixed percentage of acquisition cost, low-cost generic drugs produced very low margins for oncologists. For example, oncologists pay as little as $5.00 for many generic drugs, which produces a margin of $0.30.

The Harvard study showed that when oncologists had the option to choose between a low-cost and a high-cost drug for therapy, they preferred the more expensive option to maximize their margin.[4] Oncologists were acting rationally, from an economic perspective. The result for Medicare, however, was higher total expenditures for each diagnosis.

Recently, the advent of new drugs has made the cost problems stemming from "buy and bill" even worse. Thomas Smith and Bruce Hillner note that 70 percent of oncology drug revenues come from products released in the last ten years, and that most new molecules are priced at $5,000 per month or more.[5] Costs for cancer therapy, which reached $104 billion in 2006, are now projected to rise to $173 billion in 2020.[5]

Issues With The Current System

As noted above, the economic model for medical oncology is driven by drug selection and the resulting margins. The reimbursement system was created with good intentions. However, the escalating price of drug therapy has distorted the incentives. The current reimbursement system for chemotherapy drugs does not address value or quality. Abandoning drug margins as the source of income for medical oncologists is an important step toward the creation of incentives for the critical elements of care.

Value, defined as the benefit obtained divided by the costs in money and toxicity, can be measured from multiple viewpoints. One is the response rate realized by the patient. For example, does a patient receiving a new drug live longer than similar patients treated with standard therapy, or does he or she experience a better quality of life with the drug?

Clinical studies designed to answer these questions, and to determine whether the Food and

Drug Administration should approve a new drug, often use patients with no other medical conditions. Because of their excellent underlying health, such patients are the most likely to realize a benefit from any therapy. But they are often not representative of the patients in a typical medical oncology office.

For example, lung cancer patients often have other comorbidities such as emphysema and heart disease. Accordingly, a two-month extension of survival for patients in a clinical study may not be realized in a sicker group of patients. For a representative group of patients, the "real response rate" is unknown, and there is no incentive to measure it.

The concept of value for money is also ignored because there are no limits to the amount of money spent in current insurance reimbursement schemes. Insurance regulations mandate coverage for any indication approved by the Food and Drug Administration, regardless of the magnitude of the cost or clinical benefit.

Another view of value looks at comparative effectiveness: How does a new drug compare to other options in response rates, side effects, and cost? However, such comparisons seldom happen. Once the Food and Drug Administration approves a drug, oncologists are free to use it in any situation they deem reasonable. Typically, new drugs are more costly than older ones, and the financial incentives described above encourage physicians to use the higher-margin drug when multiple options are available.

A manufacturer puts its emphasis on marketing new drugs. It has no incentive to test its products against those of its competitors and risk a negative result. Federally funded cooperative cancer groups—collections of academic and private practices that conduct comparative-effectiveness trials for response rates—usually don't address cost issues. In addition, such trials often take years to launch and complete. Frequently, their results are irrelevant when they are published because by then the next generation of drugs has been released and is already in widespread use.

Quality, defined as adherence to evidence-based standards of care, is completely ignored in the current reimbursement model. The "buy and bill" system rewards volume only. Physicians should be able to produce the same advances in cancer mortality that we have previously seen in a more cost-effective fashion by addressing the issues of value and quality.

Next Steps

The current model is clearly not sustainable. A few key principles should be followed by any new payment model to address the current problems.

Payment incentives should support mechanisms for comparative-effectiveness analysis based on data about patient experiences.

First, the oncologist's income should be independent of drug selection. Second, the use and pricing of new cancer drugs should be based on value. Payment systems should provide incentives for manufacturers to create high-impact, affordable drugs. Drugs that fail to deliver a response in community practices should not be covered by payers. Third, payment incentives should support or create mechanisms for constant comparative-effectiveness analysis based on data about actual patient experiences. And fourth, physicians should be rewarded for improved outcomes that include clinical responses, patients' quality of life, and cost management.

CLINICAL PATHWAYS APPROACH Only two new payment strategies are being tested today. The most common is the clinical pathways approach. This method requires oncologists to treat specific clinical conditions with predefined chemotherapy regimens that are typically selected by a representative body of physicians. When several regimens are deemed clinically equivalent, the least costly one is selected. The oncologist may deviate from the pathway if the patient has a medical contraindication to that regimen. Oncologists are rewarded for compliance with the pathway through higher fee schedules, bonus programs, or other forms of incentives.

The use of pathways has been shown to lower the drug costs of cancer therapy. Marcus Neubauer and coauthors reported a 37 percent reduction in the drug costs for lung cancer patients using pathways developed by US Oncology, a national oncology management organization.[6] Other organizations using this approach with payers and physicians include Cardinal Health, Via Oncology, and New Century Health.

Pathways require an organizational structure for rapid updating as technology and evidence changes. The savings from the strategy are typ-

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ically one-time events, with no additional cost reductions in the following years. If pathways are not supported by a reimbursement schedule that pays a higher margin for generic and low-cost, effective brand-name drugs, then the physician could be biased to select high-cost drugs in his or her pathway.

Pathways do create an incentive for pharmaceutical firms to demonstrate that their drugs have major advantages in outcomes or costs, compared to those of competitors, so the drugs will be included in a pathway. However, pathways do not allow real-time comparisons between competing regimens.

BUNDLED OR EPISODE PAYMENT APPROACH Bundled payments were promoted by policy makers during the recent debates about health reform, and a broad Medicare bundled payment pilot program is scheduled to begin in 2014. This approach compensates providers with a single payment that covers most components of care.

To make reasonable profits, providers involved in a case must coordinate care to ensure that they manage resources efficiently. For example, an earlier Medicare pilot program used this model to cover all physician and facility costs involved in coronary artery bypass surgery. It is difficult, however, for a hospital or medical group to organize multiple specialists and facilities to share financial and clinical risk.

Medicare uses bundling as a standard payment scheme for renal dialysis. The single payment approach is easier in this case because one provider specialty, nephrology, provides all of the care for this complex problem. Similarly, the early proposal to bundle cancer care discussed below focused the single payment on medical oncologists only. The term *episode payment* has been used in this scenario because a single payment covers an entire treatment period, not because it covers providers in various disciplines.

Peter Bach and coauthors proposed an episode payment for chemotherapy based on average national costs for specific chemotherapy scenarios.[7] In this approach, providers could use only evidence-based regimens, and the cost would have to be less than the national average for each episode. The single episode payment would cover the cost of the drugs and their delivery to a single patient for a defined period of time.

The authors argued that pharmaceutical manufacturers would begin adjusting the pricing for their expensive medications to meet these criteria. Furthermore, physicians would choose less expensive regimens to remain profitable.

A PILOT PROGRAM FOR EPISODE PAYMENT In November 2010 UnitedHealthcare began a pilot program to test the episode payment approach with five large medical oncology groups. Each group selected the treatment regimen that it believed was clinically superior for nineteen discrete clinical episodes in breast, colon, and lung cancer. The oncologists committed to at least 85 percent compliance with their chosen therapies for UnitedHealthcare patients. Exceptions are allowed for a medical contraindication or enrollment in a clinical trial. The groups can change the selected regimens at any time, but they must achieve the same level of compliance.

UnitedHealthcare calculated the drug margin for each selected regimen by subtracting the average sales price—the price determined by Medicare as described above—from the group's usual reimbursement for the drug using the existing fee schedule. Average sales price was used as a proxy for the physician's actual acquisition price for the drug. UnitedHealthcare added a small case management fee to this margin to arrive at an episode payment for each of the nineteen clinical episodes.

UnitedHealthcare established time limits for each episode based on the chemotherapy regimen selected by the medical group. There are two types of episode time limits. Chemotherapy regimens that are intended to treat patients after surgery for cure—rather than for palliative care—are called adjuvant regimens. These treatments are given for a defined period of time and then discontinued. UnitedHealthcare added sixty days to the scheduled regimens to define the episode time period.

Patients with relapsed cancer cannot be cured. However, their cancer often responds to treatment for an indefinite period of time. For these cases, UnitedHealthcare used an arbitrary episode time limit of four months. The episode is renewed for additional four-month periods if the physician is still providing care to the patient.

New information from clinical trials about better drugs will require changes to the chemo-

therapy regimens in the future. As noted above, the medical groups may change their regimens at any time, but the episode payment will not be adjusted for new drug selections.

Each physician identifies eligible patients during their initial consultation, and his or her office registers the patient with UnitedHealthcare. The episode fee is paid immediately. During treatment, the physician is paid the average sales price for the drugs he or she administers. All other services are billed and paid for on a fee-for-service basis.

The episode program requires all of the participating oncology groups to meet together annually for the purpose of comparing results for each of the nineteen episodes. Examples of performance measures include patients' survival, relapse-free survival, and hospitalizations for complications; and the total cost of care for an episode. If the data identify a best practice, UnitedHealthcare anticipates that all groups will adjust their therapies accordingly. With different groups choosing different drugs but meeting annually to compare results, the system provides for real-time comparative-effectiveness evaluations of competing medications.

Early results from UnitedHealthcare's pilot program show opportunities for improved care and cost reduction. For example, all five groups in the program chose to use docetaxel and cyclophosphamide chemotherapy for early-stage breast cancer, yet the costs of treatment varied by 100 percent among the groups. In another example, there was wide variation in the number of radiology tests needed to evaluate new patients with breast or lung cancer. Final results from the first year of the pilot are expected to be released in the summer of 2012.

This approach is designed to reward oncologists at current levels for patient care while simultaneously severing the link between drug selection and practice income. When new evidence requires changing an episode's chemotherapy regimen to a more expensive drug, neither the episode payment nor the physician profit is increased. However, the physician is protected from financial loss because every drug is reimbursed at its average sales price, equivalent to its acquisition cost.

Physicians can increase their episode payment by improving their results. Either improving patients' survival or decreasing the total cost of care from one year to the next will trigger UnitedHealthcare to increase the episode payment.

Physicians and UnitedHealthcare's oncology team together assess the value for each scenario, using more than sixty measures such as survival and complications rates and total cost. The program does not mandate a maximum amount of dollars to be spent for a year of life gained. However, it does allow clinicians to assess the true impact of adding new drugs and potentially to stop prescribing drugs with no value—those that confer no survival benefit or improvement in quality of life.

Any payment system needs a broad consensus about the maximum amount of money society will pay for an additional month of life.

When comparing multiple regimens with similar response rates, physicians could use these data to select the most cost-effective therapies. Best practices are not limited to drugs alone: Radiology, radiation therapy, laboratory testing, and other services can also be evaluated.

Ultimately, a multidisciplinary bundle payment would be even more effective. This approach would offer a single payment to an organized group of surgeons, radiation oncologists, and medical oncologists who would collectively determine the best therapy. Provider groups would need sophisticated clinical and business integration to succeed with this approach. Many academic centers or multispecialty practices may already have the required infrastructure.

Conclusion

The two approaches described above—clinical pathways and episode payments for single and multiple disciplines—address drug pricing indirectly. These methods could exclude a drug from selection if it were ineffective, but only the proposal by Bach and coauthors would require a manufacturer of an effective medication to lower its price to continue coverage. The classic economic principles of competition, substitution, and utility don't apply in the case of a single-source drug paid for by a regulated payer who must provide coverage regardless of price. The issue of a fair price for a single-source effective drug is not addressed by physician incentives.

The payment system for cancer drug therapy

requires changes. Payers and policy experts should carefully align any new payment system with the desired outcomes for cancer patients and society, with the goal of achieving the best possible outcomes for the least amount of money. Any payment system needs a broad consensus about the maximum amount of money society will pay for an additional month of life. It also needs a reasonable process for determining if a given therapy has no value at all. The task is daunting, but the time has come to experiment with new models. ■

The author is an employee and shareholder of UnitedHealth Group.

NOTES

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In this month's *Health Affairs*, Lee Newcomer looks at the skewed incentives created by the prevailing payment system for oncologists. Under this "buy and bill" system, oncologists earn the difference between what they pay for chemotherapy drugs and the amount they bill insurers. The system in effect rewards them for selecting the most expensive drugs to treat their patients, as the markup is larger for these drugs than it is for lower-cost generic medications that achieve similar results. Newcomer examines more cost-effective alternative payment arrangements, including an "episode payment" piloted by UnitedHealthcare that covers the cost of the drugs, along with treatment according to agreed-upon guidelines, for a single patient over a defined period.

"The 'buy and bill' system for paying medical oncologists worked fine for a while, when there were fewer chemotherapy drugs and they cost about the same," says Newcomer, a board-certified oncologist who is senior vice president at UnitedHealthcare, with strategic responsibility for oncology, genetics, and women's health. "The problem now is that this system of paying has not changed, but the variation among drug prices has changed dramatically."

Newcomer was a founding executive of Vivius, a consumer-directed venture that allowed consumers to create personalized health plans. He had previously served as UnitedHealthcare's chief medical officer, focusing on the development of performance measures and incentives to improve clinical care. He also was chair of Park Nicollet Health Services, an integrated system of more than 700 physicians and a 400-bed hospital.

Newcomer received his medical degree from the University of Nebraska and a master's degree in health administration from the University of Wisconsin–Madison. He completed his internship and residency in internal medicine at the University of Nebraska Medical Center and a fellowship in medical oncology at Yale University.