Tying Payment Incentives to Quality Measurement

By Lee N. Newcomer, MD, Monica R. Perkins, PhD, and Sheila A. Donelan, MS

UnitedHealthcare, Minnetonka, MN

UnitedHealthcare collaborated with five volunteer medical oncology groups to create an episode payment program designed to reward quality and cost improvement. The program began in November 2010 and is described in detail in another article.¹ Nineteen clinical episodes were created for patients with breast, colon, and lung cancer. Each medical group selected the chemotherapy regimen they believed was the best for each episode. UnitedHealthcare calculated the drug margin for each episode by using the existing fee schedule for each group. This sum was compared with the national average for that episode and the larger amount became the new episode fee. It was paid immediately with the presentation of a new patient. The chemotherapy drugs were reimbursed at average sales price whereas all other services were paid on a fee-for-service basis.

The medical oncology groups submitted basic clinical information at the time of initial presentation to determine the correct episode grouping. These data included the histology, clinical stage, relevant genetic information, and the intent of treatment (curative or palliative). The data were merged with each patient's health insurance claims at UnitedHealthcare to create a longitudinal record.

The medical oncology groups also collaborated with UnitedHealthcare to develop more than 60 measures of quality and cost for these episodes. The measures were intended to compare the performance across the groups and to generate hypotheses for quality improvement. The measures could also be used to increase episode payments if they demonstrated an improvement in outcome or a reduction in total cost of care. Each episode was illustrated by a bar graph showing the costs of cancer drugs, hospital care, and all other resources. Kaplan-Meier curves for overall survival were created for each metastatic episode. Other examples of quality measures included the time to progression for the first regimen in patients with relapsed cancer, admissions for cancer- or treatment-related symptoms, the use of granulocyte colony-stimulating factors, days in hospice, and days from last chemotherapy treatment until death. Other examples of resource use included the number of radiology procedures per episode, emergency room visits, and hospitalization rates for cancer- or chemotherapy-related comorbidities.

All analytic work was completed by UnitedHealthcare staff. At the time of initial analysis in September 2011, 514 patients had been treated by the groups, but only 175 patients were evaluable. The remaining 339 patients were excluded because they had not completed an episode ($n = 268$) or because of potential uncorrected payment issues ($n = 71$). The 71 patients may have incorrectly paid using the traditional fee-for-service

method as a result of claim system misclassifications. An additional sixth group was added to the analysis. This sixth group consisted of the national averages compiled from a database at UnitedHealthcare that contains combined clinical data and claims for more than 35,000 patients not treated by the episode pilot medical oncology groups. The data were initially reviewed by the medical oncology groups in February 2012. Three preliminary conclusions emerged from this review.

Quality management is possible using a combined database of claims and limited clinical data. The numbers of patients in these figures are too small for statistical inferences, but the graphs demonstrate the feasibility of these measures. Figure 1 shows an example of time-to-first-progression calculations for patients with relapsed cancers. This figure was designed to identify which regimens offer the longest disease-free progression for first-line therapy. Collaborative discussions were essential for improving the measures. For example, the group discussion for this measure identified some patients who had been treated before entry into the episode program, causing an artificial decrease in response duration. Figure 2 displays the rates of emergency room visits and hospital days for cancer and treatment comorbidities in patients with lung cancer. Medical group C demonstrated the same high rates of hospitalization for patients with breast cancer or colon cancer as well. This information prompted the medical group to review the specific patients involved. The review revealed that these patients were frequently readmitted, because they did not have prompt follow-up appointments in the clinic after initial hospitalization. This led to a change in the group's process for the follow-up of hospitalized patients.

The standardization of processes is difficult. Figure 3 shows the range of costs for patients with early-stage breast cancer whose tumors are positive for hormone receptors and underexpress the *HER2* gene. Each medical group has selected a taxotere and cyclophosphamide regimen for adjuvant therapy as their preferred choice. The drug costs are calculated using average sales price for all groups, so there should not have been any variation in costs other than the dosage adjustments for height and weight. However, the results revealed a range of costs from approximately \$9,000 to \$22,000 for the same episode of care. Additional analysis showed that only 14 of 26 patients received the intended taxotere and cyclophosphamide therapy. The others had variations in the number of cycles and drugs used.

There is wide variation in resource use. Figure 4 examines the usage of radiology procedures for a 4-month episode period for patients with relapsed cancers. The figure shows cost, actual number of procedures, and the location of the radiology service.

Figure 1. Time-to-progression calculations for patients with relapse measures, calculated from the date of episode enrollment. Numbers appearing above the bars indicate the number of patients.

Figure 2. Rates of emergency room visits and hospital days for cancer and treatment morbidities in patients with lung cancer. Raw inpatient days and emergency room visits are indicated in brackets: [inpatient days, emergency room visits].

Figure 3. Average total cost per episode for patients with early-stage breast cancer whose tumors are positive for hormone receptors and underexpress the *HER2* gene. Values after bars indicate number of episodes. ASP, average sales price. (*)Includes emergency room visits without admission, outpatient hospital, all physician, and ancillary costs.

This figure generated a number of hypotheses about the sources of the variation, which were later analyzed. For example, there was concern that physician-owned radiology equipment would induce overuse. However, these data showed that the highest-use group uses an outpatient hospital-owned facility for its radiology services. The data often provoked thoughtful questions and theories that needed additional evaluation before any action could be undertaken.

Figure 4. Diagnostic radiology cost and use in patients with metastatic cancer for a 4-month episode. Numbers to the right of bars indicate the number of procedures: number of episodes.

The primary question about this project—“Does it lower the cost of cancer therapy?”—could not be answered yet because of insufficient sample size. The purpose of this preliminary report is to demonstrate that cancer therapy can be measured by payers by combining insurance claims with a few essential clinical data measurements provided by physicians. This method has the potential to identify best practices by comparing the performance of medical groups and/or chemotherapy regimens for similar patient populations.

There were several generalizations about process learned from this initial experience. First, collaboration was essential for the project to succeed. This project was conceived as a pilot experience to help both physicians and UnitedHealthcare learn more about identifying and implementing improved care. The data discussion meeting opened with an agreement that no value judgments would be assigned to variation in care. Rather, variation was viewed as an opportunity to learn, with the goal of being consistent whenever possible.

Leadership is required to manage change. It took a tremendous effort for each medical group to choose and commit to a single regimen for each episode. The data revealed that, despite the commitment and intent to use a single regimen, there was still significant deviation from that intent without any clinical reasons to support the variation. Building the processes to identify the patient correctly, register the patient quickly, and treat with the right regimen for this program is a complex and difficult venture even for groups with committed leadership. The radiology variation is particularly vexing for the groups, because their physician partners resisted the idea of follow-up protocols similar to those used in clinical studies. Still, follow-up data will help measure the change effectiveness for these efforts. The business managers of each group were also essential leaders. The episode payment program required dozens of changes in standard billing practices that could not happen without committed resources from these practice managers.

Finally, it is uncertain whether this program will reduce costs. It is, however, a daunting task to correctly identify the patients, to change the billing systems for these patients, and to

adhere to the selected regimens. The medical groups expend substantially more administrative effort for each patient to participate in this program and these costs were not measured in the initial effort. The program does not address the pharmaceutical company pricing of new therapies. Medical costs could be increased if best practices are accomplished with expensive drugs instead of generics.

The episode payment program has taught participants methods for measuring performance. Outstanding performance can be rewarded with multiple payment methods. The most important lesson from this program has been that collaboration with data and measured performance is possible for cancer care.

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Corresponding author: Lee N. Newcomer, MD, UnitedHealthcare, 9700 Health Care Lane, Minnetonka, MN 55343; e-mail: lee_newcomer@uhc.com.

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