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Kent Giles

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Using Clinical Financial Pathways to Capitate Cancer

by Kent Giles, M.P.P.M.

Cancer care and related services consume approximately 20 percent of the U.S. health care dollar and are projected to grow to 25 percent by the year 2010. Cancer today is the number two killer of Americans and will overtake heart disease as the number one cause of death in the United States by the year 2000. For these reasons, we who care for oncology patients must take the lead in developing more cost-effective and value-oriented approaches to providing care that is curative in intent and of the highest quality.

Reducing costs without sacrificing quality will require new tools and greater teamwork than we have seen in the past. It will require the blending of medical expertise, patient input, more advanced cancer technologies, and business acumen to design care systems that represent greater value. Finally, it will require the formation of new alliances of caregivers and health care managers.

Instead of clinging to traditional paradigms of how and where care should be delivered and reimbursed, the new team must be able to design innovative care plans that provide the best opportunity for cure and the most cost-effective method of care delivery. Capitation offers a framework in which to design higher quality patient care processes while engineering greater value.

WHAT IS CAPITATION?

Capitation can be defined as "an equal sum paid per person for guaranteed access to a defined set

Kent Giles, M.P.P.M., is executive director, South East Region, Oncology Therapies, Atlanta, Ga.

of health care services." The term capitation includes strategies such as 1) a global fee for an autologous bone marrow transplant that covers all professional and hospital services for six months of care for a single fee of \$85,000 or 2) a managed care product that provides a defined set of cancer services to a plan subscriber for a fee of \$18 per member per month. While the term denotes both financial arrangements, it most often connotes the latter example. Because capitation requires providers to work within predetermined cost boundaries, it creates a strong incentive for providers to identify more effective and efficient methods of providing care and can reduce the administrative overhead costs associated with claims processing.

A number of health systems and a growing number of specialty networks have developed capitated rates for a defined set of services or particular interventions such as a coronary artery bypass, medical oncology, and radiation therapy. Some integrated health systems are even beginning to offer total capitated health care products to insurers and self-funded groups. Institutions that have accepted financial risks through capitated fees for services have gained significant market share.

The success of capitation strategies for cardiac centers is encouraging cancer centers and a growing number of oncology practice management companies to pursue a similar approach. Cancer as a product line, however, is difficult to capitate because it encompasses more than 100 diseases, can affect any part of the body, is treated by multiple specialists, and is chronic in nature. In addition, cancer requires in-depth analysis that covers patient treatment over a period of five or more years.

OPTIONS FOR CAPITATING DISEASE

There are three broad strategies for capitating disease: historical analysis, traditional insurance approach, and clinical financial pathway method (See "Capitating Cancer" May/June 1994 *Oncology Issues* for more detail).

■ *Historical cost method.* This method determines the actual cost of treating patients with specific diseases based upon historical data from insurance company records, professional and hospital databases, and other similar sources. While this method can be used to compile the historical costs of providing care for patients with the same diagnosis, it lacks the ability to assess the impact that changes in the treatment process have on costs, provides no tools for improving the standard of care, and is ineffective in identifying unnecessary costs.

■ *Traditional insurance approach.* Under this method, developers of capitated rates use estimates, actuarial or otherwise, to project cancer treatment costs and develop per-person rates for coverage. While this method is widely used among insurance companies to develop premiums or dues, it has rarely been applied to the establishment of premiums for coverage of a single disease. While the traditional approach could be used to develop capitated rates for cancer, it fails to provide any mechanism for quality improvement or cost reduction. For these reasons, this approach is best used only as a tool for rate setting.

■ *Clinical financial pathway method.* This approach combines the tools used in CQI and clinical pathway development with cost accounting and industrial engineering techniques. By focusing attention on the specific steps in the

patient care process and determining their impact on clinical outcomes, better treatment plans can be developed and quality of care enhanced. Once the optimal clinical pathways are developed, the costs of each step can be determined. As users begin to focus on clinical outcomes and understand the benefits and costs associated with each procedure or step, opportunities for proactively engineering the best treatment plan and eliminating unnecessary expenses become apparent.

PATHWAYS AND THEIR FINANCIAL ELEMENTS

Seven basic steps are involved in pathway development.

1. Select a disease process.
2. Form a knowledgeable team.
3. Clarify knowledge.
4. Develop the clinical pathway.
5. Assign costs.
6. Implement the pathway.
7. Monitor results and continually improve the pathway.

Once a clinical pathway is developed, the pathway is broken down into individual elements and entered into a spreadsheet. Individual elements include items for which a cost can be determined and generally include all the items for which a provider charges, such as hours in the operating room, a specific surgical procedure, or a medication. These individual elements become the financial building blocks used to construct the clinical financial pathway and determine the total cost of treating patients with the same diagnosis or comparing costs between alternatives.

For the sake of efficiency, six levels of financial elements have been developed.

Level One: includes specific items such as an aspirin at \$2 in total costs (including overhead, delivery, and item) or one hour anesthesia, or one surgical tray

Level Two: combined costs associated with a clinical function, such as one hour of average operating room time (including anesthesia, O.R. time, surgical trays, surgical supplies, overhead, staff, etc.) or total costs associated with a week of radiation therapy (including simulation, treatment, and overhead)

Level Three: total costs associated with a segment of care such as a

radical prostatectomy (including O.R. time, professional fees, hospital O.R., hospital inpatient care for five days, precertification, preadmission testing, and send-home supplies) or the total costs associated with an autologous bone marrow transplant from date of admission through date of hospital discharge

Level Four: total costs associated with all segments of care for a breast cancer patient (including all technical and professional components associated with the diagnosis, evaluation, surgery, chemotherapy, radiation therapy, home care, hospice, and all other costs and processes required to treat the patient with breast cancer from diagnosis to cure or death)

Level Five: the average cost for providing disease-specific care to an insured population based on the projected incidence rates and estimated/defined costs for treating the projected diseases

Level Six: a total capitated fee that covers all costs associated with providing covered service to an insured population expressed on a per member/per month basis

Once developed, these elements can be used to project the costs of any clinical financial pathway designed by the work team and can provide valuable input into designing the most cost-effective treatment plans. As users become more experienced in developing clinical financial pathways, they are able to become more efficient by using higher level

elements in combination with a few Level One elements. For example, a Level Two element for the average cost of each hour of surgical operating room time (including all technical components for surgical supplies, anesthesia, trays, recovery time, etc.) is less time-consuming to document than having to list 30 to 120 individual Level One elements each time there is a surgical process. In cases where significant additional elements are necessary, such as profusion for an open heart procedure, additional Level One elements can be added to the standard Level Two element for each hour of surgery.

Figure 1 shows a portion of a clinical financial pathway for breast cancer. The pathway is divided into segments, or stages, that include onset, diagnosis, treatment, follow-up, complications, and relapse. Elements in this pathway include Levels One through Three elements of clinical action and their associated costs. A mammogram is a Level One element. Breast biopsy (combined technical and professional) is a Level Two element. Modified radical mastectomy, which combines the total technical and professional costs for the entire admission and surgical procedure, is an example of a Level Three element. Each element is multiplied by the percentage of patients who are anticipated to receive each service based upon the clinical pathway or actual experience. Used appropriately, the clinical financial pathway becomes a powerful tool for defining the components of care and understanding the costs of each element.

Clinical financial pathways can

Figure 1: Portion of Clinical Financial Pathway for Breast Cancer

Stage	Element	Cost	Volume/ 10 Cases	Total Cost
Diag	Mammogram	\$ 27.35	1.00	2,735
Diag	Aspiration	\$ 180.00	.70	1,260
Diag	DNA Histogram	\$ 77.00	.30	231
Diag	Breast Biopsy	\$ 1,235.00	.30	3,705
Diag	Interpretation Biop	\$ 160.00	.30	480
Diag	Consultation	\$ 180.00	.70	1,260
Trmt RT	6 weeks Rad MD	\$ 5,645.00	.50	28,225
Trmt RT	6 weeks Rad Tech	\$ 7,838.25	.50	39,191
Trmt Surg	Mod. Radical Mast.	\$ 11,833.00	.30	35,499

prevent opportunities for medical mismanagement by creating a clear understanding of which treatment strategies are appropriate for which patients at any stage of decision making. For example, a clinical financial pathway for a patient with metastatic breast cancer who is responding to combination chemotherapy would include a decision point that suggests the patient be considered for high dose therapy (HDT) with autologous bone marrow/peripheral stem cell rescue earlier in the course of treatment rather than after receiving multiple cycles of Adriamycin-based chemotherapy, which can lower chemosensitivity and render HDT less effective.

Once completed, clinical financial pathways allow the user to establish capitated rates for each disease or to combine disease-specific rates to form the basis of a totally capitated cancer product. For example, clinical financial pathways can be used to establish global fees for common cancer such as breast, prostate, and colon and rectal (Figure 2). These global fees can then be marketed to payers as at-risk or shared-risk contracts. Each time a pathway is developed, the pathway becomes a Level Four element. After clinical pathways are developed for all the major high incidence cancers and some broad assumptions are made regarding the costs associated with cancers of a lower incidence, a capi-

tated rate can be established for use in "at-risk contracting" with payers.

MANY PLUSES, FEW MINUSES

The clinical financial pathway method requires large amounts of time to establish and may be perceived by physicians as an attempt to develop "cookbook" medicine. Nevertheless, its benefits far outweigh its disadvantages. The potential advantages of the clinical financial pathway method are that it:

- provides a logical multidisciplinary approach to treatment planning
- focuses on improving outcomes, i.e., quality
- clarifies treatment processes for all caregivers
- provides opportunities for

Figure 2: Analysis of Cancer Incidence and Financial Impact

Resource and Cost-Based Simulation Model								
Key Variables								
		Population:	2,700,000					
		% Female:	57%					
		% Male:	43%					
		Direct Costs:	55%					
		Indirect Costs:	20%					
		Market:	Atlanta, Ga.					
		Margin Factor:	0.25					
Disease	Male Incidence	Female Incidence	Cost/Case	Total Revenue	Direct Costs	Indirect Costs	Total Costs	Margin
Breast	9.29	964.95	\$47,500	\$ 46,276,448	\$ 25,452,046	\$ 9,255,290	\$ 34,707,336	\$ 11,569,112
Lung	954.34	618.68	\$67,000	\$105,392,340	\$ 57,965,787	\$21,078,468	\$ 79,044,255	\$ 26,348,085
Prostate	1174.93	0.00	\$53,000	\$ 62,271,396	\$ 34,249,268	\$12,454,279	\$ 46,703,547	\$ 15,567,849
Ovary	0.00	230.85	\$47,000	\$ 10,849,950	\$ 5,967,473	\$ 2,169,990	\$ 8,137,463	\$ 2,712,487
Uterus	0.00	454.00	\$38,000	\$ 17,252,190	\$ 9,488,704	\$ 3,450,438	\$ 12,939,142	\$ 4,313,047
Kidney	137.00	90.80	\$43,000	\$ 9,795,357	\$ 5,387,446	\$ 1,959,071	\$ 7,346,518	\$ 2,448,839
Bladder	380.81	116.96	\$34,000	\$ 16,924,248	\$ 9,308,336	\$ 3,384,850	\$ 12,693,186	\$ 4,231,062
Leukemia	147.45	112.35	\$87,000	\$ 22,602,078	\$ 12,431,143	\$ 4,520,416	\$ 16,951,559	\$ 5,650,520
Lymphoma	205.50	173.91	\$42,000	\$ 15,934,968	\$ 8,764,232	\$ 3,186,994	\$ 11,951,226	\$ 3,983,742
Hodgkins Disease	41.80	41.55	\$43,500	\$ 3,625,682	\$ 1,994,125	\$ 725,136	\$ 2,719,261	\$ 906,420
Multiple Myeloma	55.73	50.79	\$62,000	\$ 6,603,930	\$ 3,632,162	\$ 1,320,786	\$ 4,952,948	\$ 1,650,983
Brain & CNS	89.40	89.26	\$77,000	\$ 13,756,743	\$ 7,566,209	\$ 2,751,349	\$ 10,317,557	\$ 3,439,186
Melanoma	145.13	150.82	\$23,000	\$ 6,806,781	\$ 3,743,730	\$ 1,361,356	\$ 5,105,086	\$ 1,701,695
Colon-Rectum	695.44	621.76	\$41,000	\$ 54,004,995	\$ 29,702,747	\$10,800,999	\$ 40,503,746	\$ 13,501,249
Pancreas	121.91	115.43	\$57,000	\$ 13,527,810	\$ 7,440,296	\$ 2,705,562	\$ 10,145,858	\$ 3,381,953
Stomach	121.91	67.72	\$32,000	\$ 6,067,872	\$ 3,337,330	\$ 1,213,574	\$ 4,550,904	\$ 1,516,968
Esophagus	62.69	24.62	\$47,000	\$ 4,103,946	\$ 2,257,170	\$ 820,789	\$ 3,077,960	\$ 1,025,987
Oral	185.76	95.42	\$13,500	\$ 3,795,903	\$ 2,087,747	\$ 759,181	\$ 2,846,927	\$ 948,976
Liver	37.15	21.55	\$37,000	\$ 2,171,826	\$ 1,194,504	\$ 434,365	\$ 1,628,870	\$ 542,956
Other	564.25	1265.06	\$27,000	\$ 49,391,208	\$ 27,165,164	\$ 9,878,242	\$ 37,043,406	\$ 12,347,802
Totals	5130.46	5306.47		\$471,155,670	\$259,135,619	\$94,231,134	\$353,366,753	\$117,788,917
PMPY - \$163.60								
PMPM - \$ 13.63								

improving patient education and support

- encourages proactive decision making
- identifies duplicate or unnecessary steps/processes/wasted resources
- provides a basis for accurate cost analysis and evaluation
- serves as a basis for capitated rates.

While the clinical financial pathway method can be implemented in any environment, its ultimate success depends on the following factors:

- information systems sufficient to collect clinical and financial data and relate them in an evaluable manner
- procedure and diagnosis-specific cost accounting systems
- financial systems that are clinically focused rather than billing focused
- quality indicators that are outcome based.
- patient and physician involvement in decision making
- teamwork between physicians and other providers (hospitals, surgery centers, radiation centers, etc.)
- sharing of information among all parties
- executives that value accurate data and foster a culture of continuous quality improvement and objective decision making
- the ability to generate large market share (a direct relationship has been demonstrated repeatedly between high volume and high quality and high volume and lower costs). Higher volume also helps reduce risks for providers when they assume "at risk" contracts.
- integration of health systems to create networks of providers who can meet all patient needs including academic relationships for research and tertiary/quantary care.

BECOMING BETTER STEWARDS

Maintaining our current low rate of health care inflation and further reducing the cost of care will require the best efforts of the oncology community and the public at large. As more effective technologies that are also more costly to provide (not all new technologies, however, will be more costly) come on-line, society will have to begin making choices as to where money should be invested in our economy.

The question that society and the health care community must

... **t**he
clinical financial
pathway becomes
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defining the
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and understanding the
costs of each element.

face is how and where to invest finite resources. Is it really so bad to spend 14 percent of our GNP on health care? What other items represent higher priorities in our society?

Philosophy aside, the successful health care organizations of the future will be those that can capture significant market share by providing a higher standard of care at a reduced cost. Of the three methods for establishing capitated rates, the clinical financial pathway method offers the greatest potential for improving quality and establishing the kind of information systems that will empower institutions to more efficiently manage patient care processes. While some have argued that any form of capitation will result in cost savings, it should not be assumed that all providers will maintain the same quality of care or become more cost-effective just because they are paid less. Some providers may reduce access or lower quality in order to "live within the capitated fee," and organizations that lack the tools and expertise to perform quality improvement and cost-reduction activities might make this choice. Under capitation, providers who were once accused of over-treating patients for economic gain may be accused of under-treating patients.

Some capitated providers may even face suit from patients who believe that the provider attempted to improve profits by withholding care. For this reason, providers who do not base their capitated rates on well-defined clinical pathways face the risk of having to justify their actions in court. Clinical financial pathways provide a solution to these dilemmas by defining treatment plans in advance of capitation, negotiating reasonable capitated rates, and reducing costs by either eliminating waste and/or improving outcomes.

Because the clinical financial pathway provides a powerful tool for reducing costs while improving quality, it reinforces stewardship, i.e., doing the most good with a limited pool of resources. By establishing clinical financial pathways that promote prevention and early detection, higher cure rates should be attainable. By preventing cancer from occurring, cost savings are obviously dramatic and capitated reimbursement can be said to encourage additional efforts in prevention. Since not all cancers can be prevented, clinical pathways that reinforce early detection can help reduce treatment costs by allowing treatment to begin before the disease has opportunity to become more difficult to treat. For example, by detecting breast cancer early enough to treat the patient with lumpectomy and radiation therapy, cure rates approximate 90 percent and costs approximate \$22,000 compared with the costs associated with treating more advanced disease that could require several clinical interventions and eventually an autologous bone marrow transplantation for a combined total treatment cost of \$200,000 and a significantly lower opportunity for cure.

In conclusion, the clinical financial pathway method focuses on stewardship and offers the best opportunity for improving quality, optimizing resource utilization, eliminating wastes, and developing realistic capitated rates. Other methods include the traditional insurance approach and historical cost method. While these techniques are effective in rate setting, they fail to provide any opportunities for enhancing quality of care, reducing costs, or defense against acquisitions of inappropriately withholding care. ■