

How to Prepare for Health Care Reform Capitation Payment Systems: Controlling Costs & Managing Utilization

Mark Toso
TriNet Healthcare Consultants, Inc.

Introduction

Health Care Reform has at its two major objectives the control of the health care costs and the management of utilization of health care resources. The development of the managed care model has prompted providers, insurers, and employers to restructure the health care delivery model from its current shape as a group of fragmented delivery sites to an integrated entity which provides the full continuum of care. The resulting development of integrated health care systems, involving the merging of hospitals, the development of Physician Hospital Organizations, and the merging of insurers and providers, will enable the managed care networks and other payers to evolve toward reimbursement methodologies which are different than the traditional PER DIEM or PER CASE reimbursement systems employed today.

The directive for the formation of Affiliated Health Plans (Providers) and Health Alliances (Purchaser) under the Clinton Health Care Reform proposal is consistent with the development of a CAPITATION payment methodology or GLOBAL BUDGET as a payment system. A major implication of this type of payment system is that the financial risk of caring for the patient is transferred to the medical delivery system. This type of payment methodology is not generally considered viable unless the hospital and physicians are integrated and a sufficient population can be identified where the utilization of medical services by the population can be predicted with a reasonable degree of certainty. As integrated health care delivery system evolve, both of these criteria can be met.

A capitated payment methodology assumes that for a given insured population, the health care provider will cover all health care services for a fixed payment per covered life per month. This capitated payment could cover the full continuum of services, including acute hospital stays, non acute hospital stays, outpatient visits, home health visits, primary care physician visits, specialty physician visits, and tertiary physician visits, or some combination of the above services.

If managed care plans or Health Alliances move toward capitated payments or global budgets, the transfer of financial risk to the delivery system will require these systems to control costs and manage utilization. In order to prepare for this type of payment system, health care providers will need to be able to:

- Predict the utilization of health care services by a specific population, and;

- Predict the cost of providing those services with a significant degree of accuracy.

Additionally, under capitated payment the delivery system is taking on the risk normally assumed by the insurance company; therefore, unless this risk is modified within the capitation contract there may be additional accounting issues to address, such as financial reserve requirements.

The remainder of this article provides an overview of the development of capitation rates and some critical issues providers must consider if they move toward this method of payment.

Development of a Capitation Payment Rate

Figure 1 outlines an approach to developing a CAPITATION RATE to be paid to a delivery system by an insurer which covers an identified population. The methodology shown represents a general approach to developing a capitation rate and, as normally occurs within the health care system, the actual process will become considerably more complex. Section I requires the medical delivery system to have a cost accounting system which will allow the development of cost information by payer. The cost information will need to be adjusted for case mix and volume (fixed and variable breakouts) and allocated between inpatient and outpatient services. Section II requires the development of a market study by payer which identifies the use rate by service for the covered population. Since the delivery system will be responsible for managing the specific utilization of health care resources for the covered population, it is critical to understand the health care utilization behavior of that population. If the use rate increases above the rate assumed in developing the capitation rate, the delivery system may experience adverse financial results. Section III combines the information from the cost accounting system and the market study to develop the capitation rate. Figure 2 provides a sample calculation of a capitation rate for a specific service based upon a providers cost. Section IV identifies some of the more obvious risks associated with a capitated contract which should be addressed within the capitation contract. Finally, Section V summarizes several items which should be considered when negotiating a capitation contract.

**Amherst Health Delivery System
Development of Capitation Rates**

- I. Determine Delivery System Cost Base For Population Covered
 - Statistics By Payer
 - Develop Cost Base By Payer
 - Fixed Cost
 - Variable Cost
 - Case Mix Adjustment
 - Cost Allocation By Delivery Site:
 - Inpatient
 - Outpatient
 - Home Care
- II. Develop Use Rate Assumptions By Major Service
 - Population Covered (Inpatient/Outpatient)
 - Use Rate by Service (Inpatient/Outpatient)
 - Use Rate by DRG (Inpatient)
 - Use Rate by Payer by Age (Inpatient/Outpatient)
 - Use Rate by Site of Service
 - Use Rate – Outpatient
- III. Develop Capitation Rates
 - Subscribers by Insurer (Inpatient/Outpatient)
 - HMO's (Inpatient/Outpatient)
 - Health Alliance (Inpatient/Outpatient)
 - Commercial Insurer (Inpatient/Outpatient)
- IV. Identify Risks (Risk is Transferred to Provider)
 - Population Covered (Demographics too Small to Develop Use Rate)
 - Out of Plan Services/Provider control
 - Strength of Plan
 - Re-Insurance
 - Catastrophic Loss
 - Loss of Subscribers
 - Loss of Physicians
 - Risk Sharing (Stop Loss)
 - Operational Issues (Utilization Review)
- V. Develop Negotiation Strategies
 - Patient Incentives
 - Termination Clause
 - Inflation Indices
 - Implications of Not Negotiating
 - Initial Settlement Process (First & Second Year)
 - Risk Sharing
 - Volume Adjustment
 - Case Mix Adjustment
 - Operational Issues

Figure 1

Amherst Health Delivery System Sample Capitation Calculation

(1) Service	(2) Unit	(3) Use Rate Per 1,000	(4) Total Enrollees	(5) Cost/Unit	(6) Annual Units	(7) Total Annual Cost	(8) Cost Per Enrollee/Month
Name of Area			Estimate	Phase I	C3*C4	C6*C5	C7/12/C4
Inpatient Psychiatry	Disch	\$15.00	42,000	\$863.64	630	\$544,091	\$1.08
Inpatient Rehab	Disch	\$12.00	42,000	\$941.18	504	\$474,353	\$0.94
Total Capitation							Sum of C8

Figure 2

Amherst Health Delivery System Cost Per Unit By Service (Insured Population)

	Per Cost Accounting System Unit (1)			Cost/Unit	Total Cost/Unit	Variable Cost/Unit	Fixed
	Fixed	Variable	Total				
Inpatient							
Medical	\$1,150,000	\$650,000	\$1,800,000	1,500	\$1,200.00	\$433.33	\$766.67
Surgical	900,000	675,000	1,575,000	750	2,100.00	900.00	1,200.00
ICU	1,650,000	1,250,000	2,900,000	850	3,411.76	1,470.59	1,941.18
OB/GYN	750,000	625,000	1,375,000	750	1,833.33	833.33	1,000.00
Pediatrics	450,000	350,000	800,000	750	1,066.67	466.67	600.00
Nursery	750,000	350,000	1,100,000	725	1,517.24	482.76	1,034.48
Subtotal Hospital	5,650,000	3,900,000	9,550,000	5,325	1,793.43	732.39	1,061.03
						40.84%	59.16%
Non-Acute							
Psych	275,000	200,000	475,000	550	863.64	363.64	500.00
Rehabilitation	225,000	175,000	400,000	425	941.18	411.76	529.41
Subtotal Non-Acute	500,000	375,000	875,000	975	897.44	384.62	512.82
						42.86%	57.14%
Outpatient	2,750,000	2,250,000	5,000,000	9,500	526.32	236.84	289.47
						45.00%	55.00%
Home Health Care	175,000	250,000	425,000	6,000	70.83	41.67	29.17
						58.82%	41.18%
Subtotal Outpatient	2,925,000	2,500,000	5,425,000	15,500	\$350.00	\$161.29	\$188.71
						46.08%	53.92%
Total Non-Physician	\$9,075,000	\$6,775,000	\$15,850,000				
Primary Care	0	0	0				
Physicians							
Sub-Specialties	0	0	0				
Total Physician	0	0	0				

(1) The Unit measure is assumed to be adjusted for casemix.

Table 1

Example: Capitation rate Development

The specific issues related to the development of a capitation rate are discussed below:

Amherst Health Delivery System Population Use Rates (Insured Population)

Town	Total	Total (0-64)	Medical (0-64)	Surgical (0-64)	Discharges						Visits	
					ICU	Pediatrics	Maternity	Newborn	Psych	Rehab	Home Outpatient	Health
Belchertown	398	176	88	88	89	62	36	35	25	21	450	325
South Hadley	898	500	250	250	245	64	46	43	40	32	325	225
Easthampton	345	203	101	101	95	17	15	16	10	6	100	125
Hadley	379	222	111	111	105	22	16	14	8	6	150	133
AMHERST	2,920	1,300	650	650	700	387	275	258	180	152	5,368	3,882
Northampton	2,381	1,100	550	550	573	304	213	191	150	110	3,850	2,865
Hatfield	632	350	175	175	165	47	36	34	24	21	330	250
Grandby	751	250	125	125	145	152	96	98	88	70	650	545
Montague	555	274	137	137	145	56	41	39	30	25	450	325
Leverit	885	462	231	231	245	75	52	51	35	31	350	325
Sunderland	477	204	102	102	105	70	51	47	40	30	550	450
Total Area Discharges	10,621	5,040	2,520	2,520	2,612	1,266	877	826	630	504	12,600	9,450
ALOS			4.50	4.25	6.25	2.50	2.32	2.20			n/a	n/a
Total Population	55,000											
Insured Population		42,000	42,000	42,000	42,000	42,000	42,000	42,000	42,000	42,000	42,000	42,000
Insured Use Rate (1)	193.11	120.00	60.00	60.00	62.19	30.14	20.89	19.67	15.00	12.00	300.00	225.00

(1) Medical: (Discharges/Population)* 1,000 = use rate per thousand Medical: (2,520/42,000) * 1,000 = 60.00

Table 2

Amherst Health Delivery System Can of Capitated Amount (Insured Population) – Full Cost

	Per Market Study		(C)	(D)	(E)	(F)	(G)
	(A)	(B)					
	1993 Service Area Population	Projected Area Use Rate	Projected Units	Existing Market Share Prior to Capitation Contract	AHDS Cost Per Unit	Total Cost	Cost Per Member Per Month ⁽¹⁾
Inpatient							
Medical	42,000	60.00	2,520	59.52%	\$1,200.00	\$3,024,000	\$6.00
Surgical	42,000	60.00	2,520	29.76%	2,100.00	5,292,000	10.50
ICU	42,000	62.18	2,612	32.55%	3,411.76	8,910,028	17.68
OB/GYN	42,000	20.89	877	85.48%	1,833.33	1,608,530	3.19
Pediatrics	42,000	30.14	1,266	59.25%	1,066.67	1,350,272	2.68
Nursery	42,000	19.67	826	87.76%	1,517.24	1,253,454	2.49
Non-Acute							
Psych	42,000	15.00	630	87.30%	863.64	544,091	1.08
Rehabilitation	42,000	12.00	504	84.33%	941.18	474,353	0.94
Outpatient	42,000	300.00	12,600	75.40%	526.32	6,631,579	13.16
Home Health Care	42,000	225.00	9,450	63.49%	\$70.83	669,375	1.33
Primary Care Physicians	42,000	0.00	0	0	0.00	0	0.00
Sub-Specialists	42,000	0.00	0	0	0.00	0	0.00
Tertiary Sub-Specialists	42,000	0.00	0	0	0.00	0	0.00
Total Cost						\$29,757,682	\$59.04

⁽¹⁾ This cost is based upon the providers existing cost per unit for the insured population and does not reflect the reduction in cost per unit based upon the fixed and variable relationship of the provider if the incremental volumes is directed to the provider.
 Calculations: Col. C = Col. A * (Col. B/1,000) Col. F = Col. C * Col. E Col. G = Col. D/Col. A/12

Table 3

Determine Delivery System Cost Base for Population Covered

Table 1 shows sample cost information for the hypothetical Amherst Health Delivery System by major service for its existing insured patients. The System has been offered an exclusive contract to provide services to the insured population if a capitated rate can be developed. The information is divided into fixed and variable cost per discharge or visit by major service for the identified population. This example does not include the physician cost components but identifies those components in order to be included in the future. It is important to note that without the inclusion of physicians in the capitation contract the delivery system would not control the primary decision-maker with regard to service utilization.

The provider's cost per unit by service in Table 1 is based upon the providers historical experience with the insured population. This example assumes that additional (incremental) volume would be directed to the provider by the insurer. The initial capitation rate is based upon the provider's historical cost per unit applied to the insured's total population. The initial capitation rate would be modified for the fixed and variable cost per unit of the provider if the incremental volume is directed to the provider.

The backup for this table would include a breakdown of costs by DRG, by site of service, by case mix intensity, by physician, and other detailed information which is normally found within a health care cost accounting system. This information can be used in developing more detailed rates as well as in monitoring performance.

Develop Use Rates by Major Service for Insured Population

Table 2 calculates the use rate by major service for the population to be covered by the capitation contract. Although the Amherst Health Delivery System does not currently provide care to 100 percent of the identified population, it is assumed that it would be responsible for all of the insurer's covered lives in their service area once a capitation contract is negotiated.

Table 3 calculates the capitation rate assuming that the cost per unit for the insured population provided services by the Amherst Health Delivery System ("AHDS") would not change if the entire insured population is provided services by AHDS.

If the insurer directs all of its subscribers in the service area to utilize services provided by AHDS, and the use rates do not increase or decrease, then the capitation rate could be adjusted for the fixed and variable cost structure of the provider. For the purposes of this example it was assumed that the insurer covered the entire non-Medicare population in the service area. Based upon the above assumptions, the baseline capitation rate to cover costs was determined

to be \$59.04 per member per month (“pmpm”). This does not take into consideration the fixed / variable make-up of the cost per unit of the provider if the incremental volume is realized.

The insurer has made the determination that the Amherst Health Delivery System will be responsible for providing health care to the entire population that it insures. If there is existing capacity and the fixed and variable relationships developed in the cost accounting system are valid, then the baseline cost to provide services to this population is \$21,810,830 as shown in Table 4. If the incremental volume is directed to AHDS then the adjusted capitation rate based upon cost is \$43.28 per member per month. The reduction from \$59.04 per member per month to \$43.28 per member per month assumes that Amherst Health Delivery System is able to maintain utilization and cost structure at current levels and that the Delivery System provides all required services to the insured population.

In addition to covering the cost of delivering health care services, the capitation rate should also include, if possible, an amount to cover capital replacement, working capital, and profit margin. Table 4 includes a profit margin of 2.5%, a \$1.50 pmpm for capital replacement, and \$1.00 pmpm for working capital in the capitation rate to \$46.86 per member per month.

The success of the capitation contract is directly related to how well Amherst Health Delivery System projected its costs and how well it manages the utilization of the population covered. Table 5 demonstrates how an increase in the use rates or a variation in the services offered can have a deleterious effect on the financial condition of the Delivery System. In the example, an increase in surgical cases, ICU cases, and outpatient visits results in a loss of almost \$2.0 million dollars on costs. Table 6 demonstrates the impact of managing the utilization of the population to reduce the use rate. With a declining use rate for inpatient services and an increasing use rate for outpatient services the Delivery System would be paid \$597,991 over costs based upon the capitation contract. Cost management will have a similar effect on the financial condition of the Delivery System; an increase in costs above the rate allowed in the contract will result in a financial loss, a decrease in costs below the allowed rates will produce a financial gain.

Amherst Health Delivery System Capitation Rate Summary (Insured Population)

	Existing Volume & Casemix	AHDS Capitation Rate	Casemix Adjustment	100.00% Market Share Volume	Volume Adjusted Cost (1) (A)	Service Area Population (B)	Vol. Adj. Capitation Rate (A) / (B) / 12
Inpatient							
Medical	1,500	\$6.00	1.00	2,520	2,242,000	42,000	\$4.45
Surgical	750	10.50	1.00	2,520	3,168,000	42,000	6.29
ICU	850	17.68	1.00	2,612	5,490,529	42,000	10.89
OB/GYN	750	3.19	1.00	877	1,481,151	42,000	2.94
Pediatrics	750	2.68	1.00	1,266	1,040,744	42,000	2.06
Nursery	725	2.49	1.00	826	1,148,826	42,000	2.28
Total Inpatient	5,325	\$42.54		10,621	14,571,250	42,000	28.91
Non-Acute							
Psych	550	1.08	1.00	630	504,091	42,000	1.00
Rehabilitation	425	0.94	1.00	504	432,529	42,000	0.86
Total Non-Acute	975	2.02		1,134	936,620		1.86
Outpatient	9,500	13.16	1.00	12,600	5,734,211		11.38
Home Health Care	6,000	1.33	1.00	9,450	568,750	42,000	1.13
Total Outpatient	15,500	14.49		22,050	6,302,961		12.51
Total Non-Physician		59.04			\$21,810,830		43.28
Primary Care Physicians		0.00			0	42,000	0.00
Sub-Specialists		0.00			0	42,000	0.00
Tertiary Sub-Specialists		0.00			0	42,000	0.00
Total Physician		0.00					0.00
Capitation Rate At Cost		\$59.04					\$43.28
Capital Replacement		1.50					1.50
Working Capital		1.48					1.00
Profit Margin		1.48					1.08
Other		0.00					0.00
Capitation Rate Loaded		\$63.02					\$46.86

(1) Based upon fixed/variable breakdown in Table 1 and volume in Column D.

Table 4

**Amherst Health Delivery System Estimated Payments Based Upon
Capitated Payments (Global Budget) and Increasing Use Rates**

	Existing Volume & Casemix	AHDS Capitation Rate (A)	Projected Volume & Casemix (B)	HMO Contracted Budget (A) * (B)	Actual Volume & Casemix (C)	Actual Cost (No Inflation) (A) * (C)	Gain (Loss) Variance
Inpatient							
Medical	1,500	\$4.45	2,520	2,242,000	2,400	\$2,190,000	\$52,000
Surgical	750	6.29	2,520	3,168,000	3,000	3,600,000	(432,000)
ICU	850	10.89	2,612	5,490,529	3,500	6,797,059	(1,306,529)
OB/GYN	750	2.94	877	1,481,151	900	1,500,000	(18,850)
Pediatrics	750	2.06	1,266	1,040,744	1,300	1,056,667	(15,923)
Nursery	725	2.28	826	1,148,826	850	1,160,345	(11,519)
Total Inpatient	5,325	28.91	10,621	14,571,250	11,905	16,304,070	(1,732,821)
Non-Acute							
Psych	550	1.00	630	504,091	700	529,545	(25,455)
Rehabilitation	425	0.86	504	432,529	500	430,882	1,647
Total Non-Acute	975	1.86	1,134	936,620	1,200	960,428	(23,807)
Outpatient	9,500	11.38	12,600	5,734,211	13,500	5,947,368	(213,158)
Home Health Care	6,000	1.13	9,450	568,750	10,000	591,667	(22,917)
Total Outpatient	15,500	12.51	22,050	6,302,961	23,500	6,539,035	(236,075)
Total Non-Physician		43.28		\$21,810,830		23,803,533	(1,992,703)
Primary Care Physicians		0.00		0		0	0
Sub-Specialists		0.00		0		0	0
Tertiary Sub-Specialists		0.00		0		0	0
Total Physician		0.00		0		0	0
Capitation Rate At Cost		\$43.28		21,810,830		23,803,533	(1,992,703)
Capital Replacement		1.50		756,000		0	756,000
Working Capital		1.00		504,000		0	504,000
Profit Margin		1.28		644,606		0	644,606
Other		0.00		0		0	0
Capitation Rate Loaded		\$47.05		\$23,715,437		\$23,803,533	\$(88,096)

Table 5

**Amherst Health Delivery System Estimated Payments Based Upon
Capitated Payments (Global Budget) and Decreasing Use Rates**

	Existing Volume & Casemix	AHDS Capitation Rate (A)	Projected Volume & Casemix (B)	HMO Contracted Budget (A) * (B)	Actual Volume & Casemix (C)	Actual Cost (No Inflation) (A) * (C)	Gain (Loss) Variance
Inpatient							
Medical	1,500	\$4.45	2,520	2,242,000	2,268	\$2,132,800	\$109,200
Surgical	750	6.29	2,520	3,168,000	2,268	2,941,200	226,800
ICU	850	10.89	2,612	5,490,529	2,350	5,106,476	384,053
OB/GYN	750	2.94	877	1,481,150	790	1,408,035	73,115
Pediatrics	750	2.06	1,266	1,040,744	1,139	981,670	59,074
Nursery	725	2.28	826	1,148,826	744	1,108,944	39,883
Total Inpatient	5,325	28.91	10,621	14,571,250	9,559	13,679,125	892,125
Non-Acute							
Psych	550	1.00	630	504,091	567	481,182	22,909
Rehabilitation	425	0.86	504	432,529	454	411,776	20,753
Total Non-Acute	975	1.86	1,134	936,620	1,021	892,958	43,662
Outpatient	9,500	11.38	12,600	5,734,211	13,860	6,032,632	(298,421)
Home Health Care	6,000	1.13	9,450	568,750	10,395	608,125	(39,375)
Total Outpatient	15,500	12.51	22,050	6,302,961	24,255	6,640,757	(337,796)
Total Non-Physician		43.28		\$21,810,830		21,212,840	597,991
Primary Care Physicians		0.00		0		0	0
Sub-Specialists		0.00		0		0	0
Tertiary Sub-Specialists		0.00		0		0	0
Total Physician		0.00		0		0	0
Capitation Rate At Cost		\$43.28		21,810,830		21,212,840	597,991
Capital Replacement		1.50		756,000		0	756,000
Working Capital		1.00		504,000		0	504,000
Profit Margin		1.08		545,272		0	545,271
Other		0.00		0		0	0
Capitation Rate Loaded		\$46.86		\$23,616,101		\$21,212,840	\$2,403,262

Table 6

Conclusions and Recommendations

Under a capitation contract the financial risk is transferred to the delivery system, which allows both the insurer and the employer to predict their costs for health care services more accurately. The following critical issues must be recognized by a delivery system which plans to enter into a capitation contract:

- Capitation contracts create incentives both to reduce utilization of health care resources and to employ the most cost effective delivery site and service. Delivery systems must have the ability to monitor performance as well as to effect change when necessary.
- Since physicians control the utilization of resources, they must be integrally linked with the delivery system or, at a minimum, operate under similar incentives for utilization and cost management.
- The list of services the delivery system is expected to provide must be clearly defined. For services the system can not provide it will need to either 1) establish contracts with other facilities for those services or 2) carve those services out of the capitation rate.
- The development of an accurate projection of utilization by the insured population by service is critical to the financial performance of the delivery system. Factors which may impact the utilization such as physician incentives, patient incentives and changes in patient demographics must be considered and monitored.
- The accurate projection of the costs of the utilization of resources by the insured group by service is critical to the financial performance of the delivery system.
- The acceptance of a capitation contract by a delivery system effectively makes the system an insurance company and consideration of maintaining financial reserves may be appropriate (See Hospital At-Risk Section in Technical Bulletin).

Based upon the above conclusions the following recommendations can be made:

- If the population considered in the capitation contract is small, the ability to calculate the utilization of the population accurately will have a high forecast error; therefore, the capitation contract should have provisions which prevent a catastrophic loss.
- If the health care delivery system does not currently have a cost accounting system or the ability to develop cost information by payer, it will be necessary to find a mechanism to develop this information prior to

entering into a capitation contract. In addition, utilization and resource consumption will need to be monitored on a concurrent basis.

- Within the capitation contract, provisions must be made to mitigate the risk being undertaken by the delivery system. These risks include stop loss coverage, volume corridors, Out-of-Plan services, catastrophic loss, significant case mix changes, outliers, etc. The contract should transfer back risk to the payer which is not controllable by the provider.
- During the initial year or years of the contract, the delivery system should build in a settlement process until it has a high degree of confidence in the accuracy of the utilization and cost projections.
- The delivery system must have the capability to monitor the contract in place, i.e. information systems and physician-supported utilization review functions.
- Determine what the involvement of the health care delivery system should be with respect to marketing the insurer (payer). There is an inherent conflict of interest if the success of the insurer directly improves the financial performance of the provider.
- The delivery system should have control over as many of the pieces of the continuum of care as possible prior to entering into a capitation contract, or have fixed payment arrangements with those providers which have been built into the capitation payment cost model.