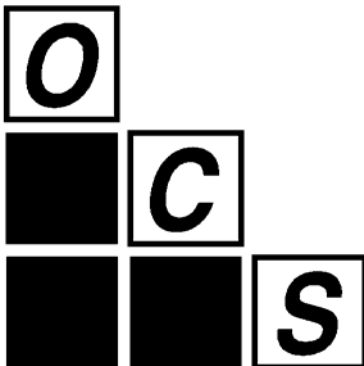


WHITE PAPER
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**PPS & Patient Outcomes
A Year in Review**



OUTCOME CONCEPT SYSTEMS®, INC

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Background & Introduction: A Year of PPS

Over the last few years the home health industry has undergone tremendous changes, and the market continues to evolve. Agencies first had to adjust to the implementation of OASIS in June of 1999, followed by the institution of JCAHO's ORYX Initiative in January of 2000. Then, on October 1, 2000, the shift from cost-based reimbursement to prospective payment changed the home health landscape permanently, generating long lasting implications that affected every area of agency management. Out of these regulatory changes emerged a fundamental transformation in home health agency philosophy—In a PPS environment, agencies have direct incentives to efficiently balance resource consumption and quality of care.

No longer do more visits mean more money. Rather than reimbursing agencies for their costs, PPS pays organizations a fixed amount based upon anticipated resource use as defined by a patient's Home Health Resource Group (HHRG)—a classification determined by clinical, functional and service data elements. Thus, agencies must ensure that their costs (including therapy, medical supplies, nursing services, etc.) fall within the episode reimbursement amount for each patient's HHRG. Of particular concern and importance during all of this has been the impact of changing regulatory requirements on agency performance. While survival dictates that agencies keep their costs within the designated payment amount, long term success in PPS demands that agencies manage the ideal equation: high outcomes with low utilization.

The ability to co-manage cost and quality has never been more important; however, the industry has lacked the tools to analyze and balance the relationship between utilization and outcomes. This analysis is intended to shed light on this critical issue by providing the industry with an overall perspective of the market and the patients being served. The data will show how utilization and outcomes have changed (or not) under PPS, while providing insight into how such items as agency characteristics and location may impact outcomes, case weight or utilization.

Recognizing that differences in data could be due to a number of factors, the goal of this report is to neither interpret the statistical findings nor draw conclusions about the long-term implications for home health. Rather, the information contained in this report is specifically designed to provide a foundation from which the industry can make educated decisions about where we go from here.

Methodology: The Analysis

Since 1998, OCS has collected and benchmarked data specific to the home health industry, including key indicators of patient outcomes and utilization. Patient outcomes are based upon information contained in the OASIS data set. Agency characteristics (profit status, size, and affiliation) are based upon information collected from agencies that submit data to OCS. Utilization data (hours of service and number of visits) are gathered directly from participating agencies' electronic billing files.

Utilizing a multi-disciplinary team of experts, OCS embarked on a complex analysis of information contained in OCS' national benchmark data warehouse, which includes approximately 2.5 million records and more than 1,000,000 complete patient episodes from over 700 home health agencies. Participating agencies include freestanding facilities, chains, hospital-based facilities, non-profits, proprietary organizations, and VNAs—all with different MIS vendors. Furthermore, the database represents geographic diversity, with organizations submitting from every part of the country. Utilization data is a subset of this larger outcomes database, with data from approximately 53 agencies representing about 8,500 complete cases (10,000 patient episodes).

Data generated by OCS' senior research analysts were then scrutinized by a variety of industry professionals to ensure accuracy and relevance. High level clinicians from diverse backgrounds helped to guide the research and analyze the results. Technical experts reviewed the

calculations. Business executives and financial analysts provided insight into the additional questions the information raised. Through this rigorous review process, the data was fine-tuned and a series of meaningful findings emerged.

Findings:

For the purposes of this analysis, we selected a series of key indicators that best reflect performance levels of home health agencies in a PPS environment. Recognizing the critical balance between cost and quality, we narrowed our examination to drivers of payment and indicators of both patient outcomes and resource consumption. We focused on any trends that emerged before and during the first quarters of PPS, looking for variances in the data within different components of the industry.

Case Weight:

One of the biggest questions about changes under PPS is directly related to the core of the prospective payment methodology—case weight. A case weight is reflective of the relative resource intensity of caring for a patient with certain characteristics, as defined by the clinical, functional and service components of a patient’s HHRG (Home Health Resource Group). This resource intensity determines an agency’s reimbursement for the care of a patient.

Example: How Does Case Weight Drive Reimbursement?

Caring for a patient with a 2.00 case weight is expected to consume twice the resources of caring for a patient with a 1.00 case weight. In this scenario, the agency would receive twice the reimbursement for the patient with the 2.00 case weight as the patient with the 1.00 case weight.

In looking at the national norms, we note that there has been a decrease in the average start of care (SOC) case weight over the first three quarters of PPS (**Figure 1**). While this decrease has been slight, it has also been steady, going from 1.29 in the fourth quarter of 2000, to 1.26 in the first quarter of 2001, and finally to 1.24 in the second quarter of 2001. The overall average SOC case weight for all of PPS is 1.26.

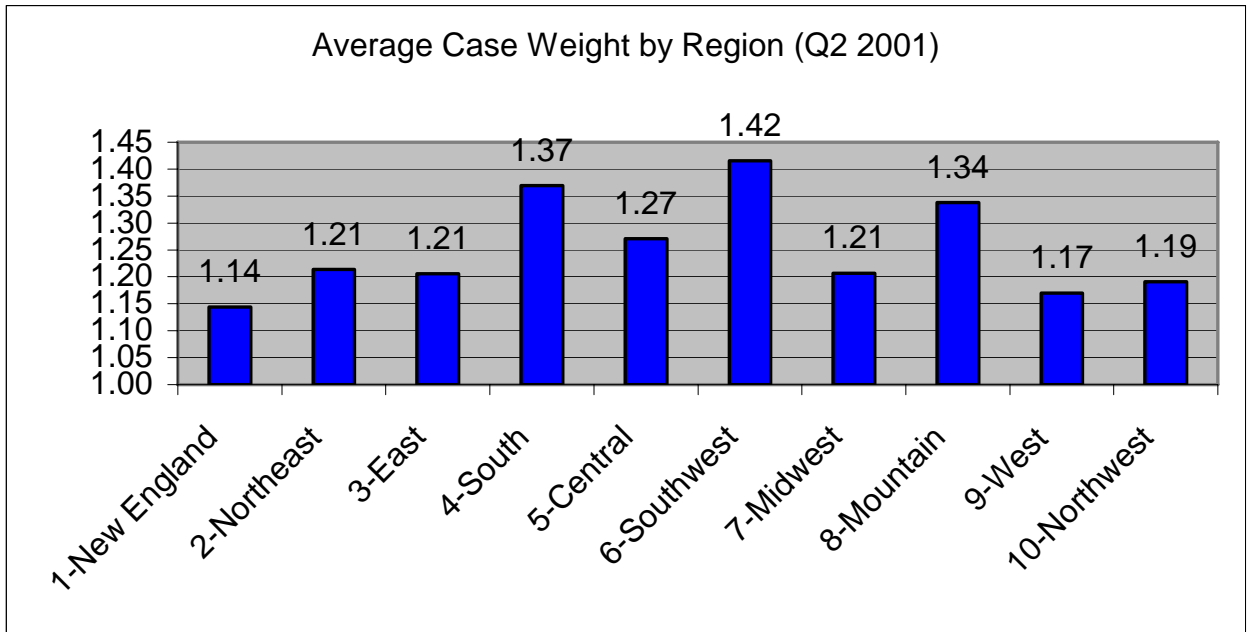
Figure 1

Average Patient Case Weight by Assessment Type				
	4Q00	1Q01	2Q01	All PPS
SOC	1.29	1.26	1.24	1.27
SOC*	0.91	0.88	0.87	0.89
ROC	1.28	1.26	1.25	1.26
Recert	1.08	1.09	1.09	1.09
Oth. Follow Up	1.42	1.42	1.43	1.42

Assessments collected during the designated time frame
SOC* = SOC with no further visits planned

Though national averages provide an important aggregate view of case weight, it is interesting to also examine variances by region. In reviewing data by Medicare Region (a map displaying Medicare Regions is included in Appendix A), there is indeed a slight variation in average case weight by region, with lower case weights in New England, the West and Northwest, and higher case weights in the Southwest, South and Mountain regions (**Figure 2**).

Figure 2



Average case weight for SOC assessments collected during the 2nd quarter of 2001

In addition to regional differences in average case weight, it is important to examine variations in average case weight by organization type. The graphs below demonstrate that although there is little difference in average case weight by hospital affiliation and agency size (**Figures 3 and 4**), there is a significant difference between proprietary and not-for-profit organizations (**Figure 5**).

Figure 3

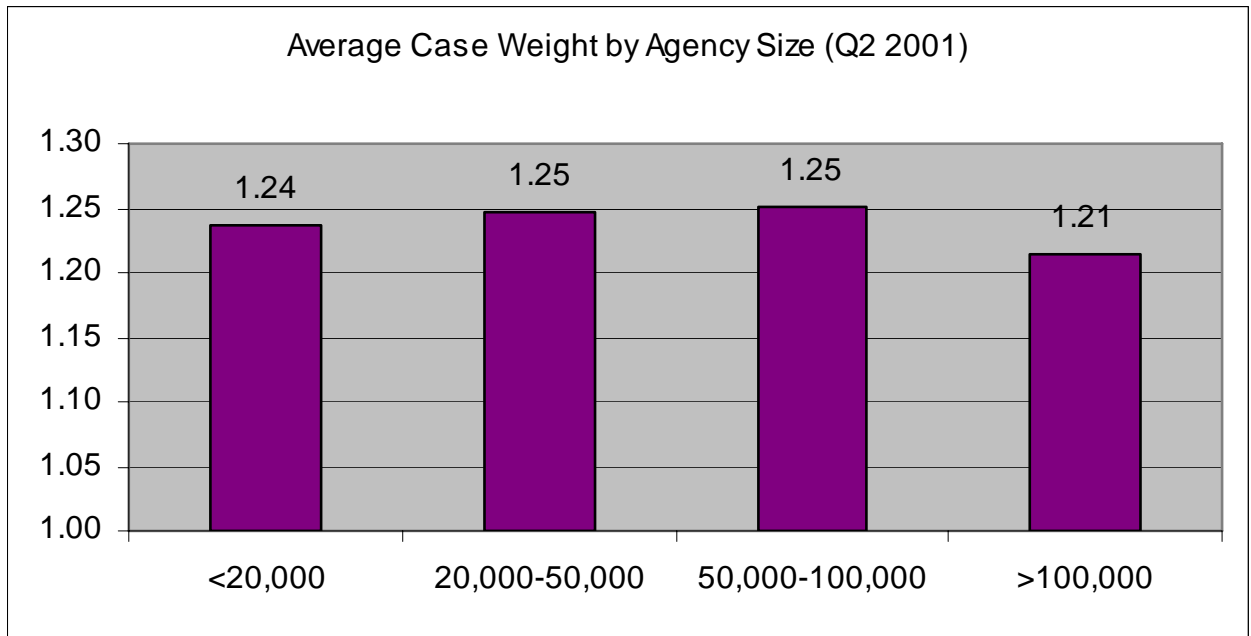
By Affiliation:



Average case weight for SOC assessments collected during the 2nd quarter of 2001

Figure 4

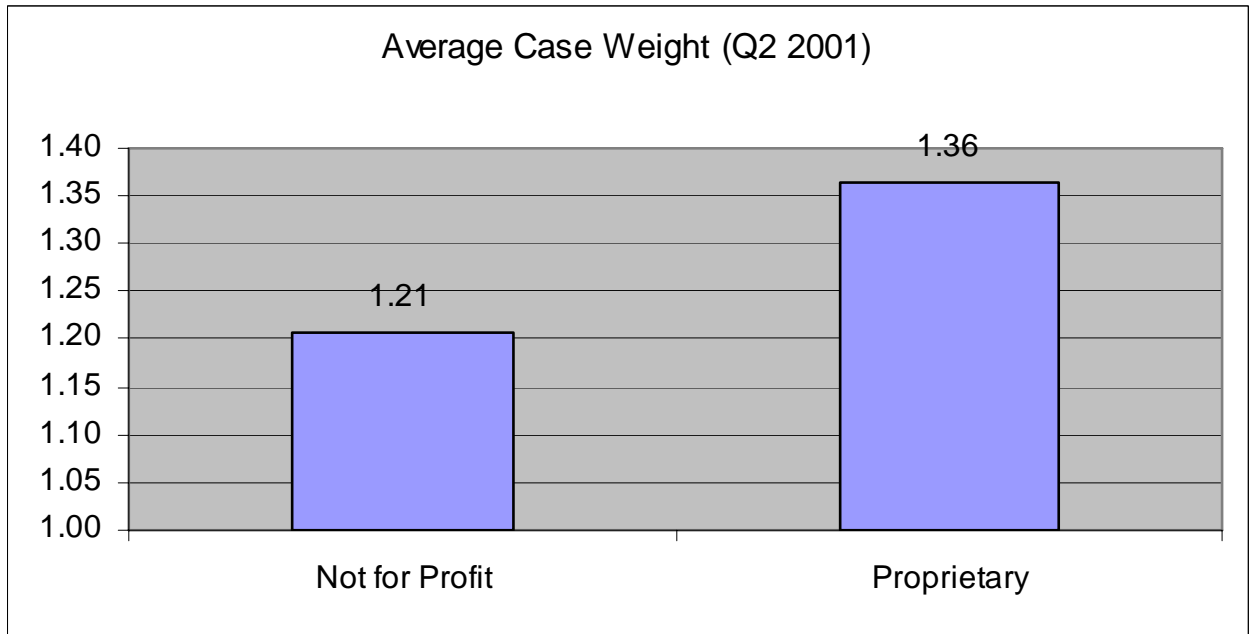
By Agency Size:



Average case weight for SOC assessments collected during the 2nd quarter of 2001

Figure 5

By Profit Status:



Average case weight for SOC assessments collected during the 2nd quarter of 2001

While the above analysis suggests that average case weight lies within the approximate range of 1.24 to 1.42 (depending on region and/or agency characteristic), a more detailed examination of the distribution of patients in each HHRG/case weight reveals another interesting finding. The case weight scale for PPS was designed such that 1.0 was expected to be the median case weight. As **Figure 6** indicates, just over half (52%) of all SOC assessments score a case weight

of less than 1.0, and just under half (48%) of the assessments score a case weight of more than 1.0 for the first three quarters of PPS. Thus, more than half of the SOC assessments are concentrated within the bottom 22 HHRGs, while the remaining SOC assessments are scattered across the top 58 HHRGs.

Figure 6

Distribution of SOC Case Weight in PPS

HHRG Range	Case Weight Range	4Q00	1Q01	2Q01	All PPS
C0F0S0-C1F1S1	.5265-.7978	26%	28%	29%	28%
C0F2S1-C2F2S0	.8058-.9949	23%	24%	25%	24%
C0F4S1-C3F1S0	1.0114-1.2922	7%	7%	7%	7%
C3F1S1-C3F4S1	1.3731-1.6822	8%	7%	7%	7%
C0F2S2-C0F2S3	1.6831-1.9348	16%	15%	15%	15%
C2F2S2-C2F2S3	1.9532-2.2048	16%	15%	14%	15%
C1F4S3-C3F4S3	2.236-2.8113	4%	4%	4%	4%

Percent of SOC assessments collected during the designated time frame

In the above chart we see an uneven distribution of case weights above 1.0 for the “All PPS” time frame—7%, 7%, 15%, 15% and 4%. Furthermore, the trending across quarters would seem to indicate that the two groups under 1.0 consistently gain a small percentage of patients, while the groups over 1.0 lose a small percentage. Interestingly, the group with the highest case weights (2.236-2.8113) remained stable over time, revealing that the portion of the patient population in the most resource-intensive HHRGs did not diminish, as did the patient population in other high-resource groups.

Drilling down a bit further, it becomes apparent that although SOC are not overwhelmingly concentrated in any one of the 80 possible HHRGs, a few HHRGs had slightly higher concentrations of patients at start of care. More specifically, **Figure 7** demonstrates that over all 80 HHRGs, SOC concentration ranged from 0% to 9%. In fact, 52 of the 80 HHRGs represented less than 1% of SOC each, four had approximately 6.5% each, and one had almost 9% (C1F2S0=0.8205). Looking at the distribution over time, there was very little change from quarter to quarter. In fact, only 16 HHRGs changed even noticeably—8 HHRGs, all with a case weight less than 0.9, increased slightly in percentage while 8 HHRGs, all with a case weight higher than 1.55, decreased slightly in percentage.

Figure 7

Case Weight Distribution					
HHRG	Case Weight	All PPS %	4Q00 %	1Q01 %	2Q01 %
C0F0S0	0.5265	3.6%	3.5%	3.6%	3.8%
C0F0S1	0.6074	0.1%	0.1%	0.1%	0.1%
C0F1S0	0.6213	6.6%	6.2%	6.7%	6.8%
C1F0S0	0.6221	2.3%	2.2%	2.3%	2.3%
C0F1S1	0.7022	0.5%	0.4%	0.5%	0.5%
C1F0S1	0.703	0.1%	0.1%	0.1%	0.1%
C1F1S0	0.7169	6.4%	6.1%	6.4%	6.6%
C0F2S0	0.7249	5.4%	5.1%	5.4%	5.7%
C0F3S0	0.7629	0.6%	0.6%	0.6%	0.5%
C2F0S0	0.7965	1.6%	1.6%	1.6%	1.6%
C1F1S1	0.7978	0.5%	0.5%	0.5%	0.6%
C0F2S1	0.8058	0.7%	0.6%	0.7%	0.8%

Case Weight Distribution (continued)					
HHRG	Case Weight	All PPS %	4Q00 %	1Q01 %	2Q01 %
C1F2S0	0.8205	8.7%	8.3%	8.8%	9.0%
C0F3S1	0.8438	0.1%	0.1%	0.1%	0.1%
C1F3S0	0.8585	1.5%	1.5%	1.4%	1.5%
C2F0S1	0.8774	0.1%	0.1%	0.1%	0.0%
C2F1S0	0.8914	4.4%	4.3%	4.4%	4.6%
C1F2S1	0.9014	1.2%	1.1%	1.2%	1.3%
C0F4S0	0.9305	0.2%	0.2%	0.2%	0.2%
C1F3S1	0.9394	0.2%	0.2%	0.2%	0.2%
C2F1S1	0.9723	0.4%	0.4%	0.4%	0.4%
C2F2S0	0.9949	6.7%	6.6%	6.7%	6.7%
C0F4S1	1.0114	0.0%	0.0%	0.0%	0.0%
C1F4S0	1.0261	0.8%	0.7%	0.8%	0.8%
C2F3S0	1.0329	1.9%	1.8%	1.9%	1.9%
C2F2S1	1.0758	1.0%	0.9%	0.9%	1.0%
C1F4S1	1.107	0.0%	0.1%	0.0%	0.0%
C2F3S1	1.1139	0.2%	0.2%	0.2%	0.2%
C3F0S0	1.1973	0.2%	0.2%	0.1%	0.1%
C2F4S0	1.2005	1.8%	1.8%	1.8%	1.9%
C3F0S1	1.2782	0.0%	0.0%	0.0%	0.0%
C2F4S1	1.2814	0.1%	0.1%	0.1%	0.1%
C3F1S0	1.2922	0.6%	0.6%	0.6%	0.5%
C3F1S1	1.3731	0.0%	0.1%	0.0%	0.0%
C3F2S0	1.3957	1.1%	1.1%	1.1%	1.0%
C3F3S0	1.4337	0.6%	0.6%	0.6%	0.6%
C3F2S1	1.4766	0.1%	0.1%	0.1%	0.1%
C0F0S2	1.4847	0.3%	0.3%	0.2%	0.3%
C3F3S1	1.5147	0.1%	0.1%	0.1%	0.1%
C0F1S2	1.5796	1.5%	1.6%	1.5%	1.5%
C1F0S2	1.5803	0.2%	0.2%	0.2%	0.2%
C3F4S0	1.6013	1.5%	1.6%	1.5%	1.5%
C1F1S2	1.6752	1.9%	2.0%	1.9%	1.9%
C3F4S1	1.6822	0.1%	0.1%	0.1%	0.1%
C0F2S2	1.6831	3.3%	3.3%	3.3%	3.2%
C0F3S2	1.7212	0.5%	0.5%	0.5%	0.5%
C0F0S3	1.7364	0.0%	0.0%	0.0%	0.0%
C2F0S2	1.7548	0.2%	0.2%	0.2%	0.1%
C1F2S2	1.7787	6.3%	6.7%	6.4%	6.0%
C1F3S2	1.8168	1.5%	1.6%	1.5%	1.4%
C0F1S3	1.8313	0.4%	0.4%	0.4%	0.4%
C1F0S3	1.832	0.0%	0.0%	0.0%	0.0%
C2F1S2	1.8496	1.5%	1.6%	1.5%	1.4%
C0F4S2	1.8887	0.2%	0.2%	0.2%	0.1%
C1F1S3	1.9269	0.5%	0.5%	0.5%	0.5%
C0F2S3	1.9348	1.0%	1.0%	0.9%	1.0%
C2F2S2	1.9532	5.8%	6.1%	5.9%	5.5%
C0F3S3	1.9728	0.1%	0.1%	0.1%	0.1%
C1F4S2	1.9843	0.5%	0.6%	0.5%	0.4%
C2F3S2	1.9912	2.2%	2.3%	2.2%	2.1%

Case Weight Distribution (continued)					
HHRG	Case Weight	All PPS %	4Q00 %	1Q01 %	2Q01 %
C2F0S3	2.0065	0.0%	0.0%	0.0%	0.0%
C1F2S3	2.0304	2.0%	2.2%	2.0%	2.0%
C1F3S3	2.0684	0.4%	0.4%	0.4%	0.4%
C2F1S3	2.1013	0.4%	0.4%	0.4%	0.4%
C0F4S3	2.1404	0.0%	0.0%	0.0%	0.0%
C3F0S2	2.1556	0.0%	0.0%	0.0%	0.0%
C2F4S2	2.1588	1.3%	1.4%	1.2%	1.3%
C2F2S3	2.2048	2.2%	2.4%	2.2%	2.1%
C1F4S3	2.236	0.1%	0.1%	0.1%	0.1%
C2F3S3	2.2429	0.8%	0.9%	0.7%	0.8%
C3F1S2	2.2504	0.1%	0.1%	0.1%	0.1%
C3F2S2	2.354	0.6%	0.6%	0.6%	0.5%
C3F3S2	2.392	0.5%	0.5%	0.5%	0.4%
C3F0S3	2.4073	0.0%	0.0%	0.0%	0.0%
C2F4S3	2.4105	0.3%	0.4%	0.3%	0.3%
C3F1S3	2.5021	0.0%	0.0%	0.0%	0.0%
C3F4S2	2.5596	0.7%	0.8%	0.8%	0.6%
C3F2S3	2.6056	0.3%	0.3%	0.3%	0.3%
C3F3S3	2.6437	0.2%	0.2%	0.2%	0.2%
C3F4S3	2.8113	0.3%	0.3%	0.3%	0.2%

Percent of SOC assessments collected during the designated time frame

In examining case weights, it is useful to take the analysis to a more detailed level by looking at the essential components that make-up an HHRG—the domain scores. Although domain scores and case weights both provide insight into the costs of services for any given patient and the associated Medicare reimbursement, agencies can use domain scores to infer the types of services that their patients require.

Looking at patient distribution by domain scores, we find a very small percentage of patients in the highest clinical level (C3). The Clinical domain score represents the degree of a patient's medical condition and clinical severity. Similarly, we find a small percentage of patients in the highest functional level (F4), although we also see a small percentage in the lowest functional level (F0). The Functional domain score represents the patient's independence, including their ability to function in their activities of daily living. While there aren't any dramatic trends from quarter to quarter, **Figure 8** would seem to indicate that there has been a slight redistribution of patients within the middle levels of each domain score.

Figure 8

Patient Distribution by Domain Score

Clinical	4Q00	1Q01	2Q01	All PPS
C0	24%	25%	26%	25%
C1	35%	35%	35%	35%
C2	33%	33%	33%	33%
C3	7%	7%	7%	7%
Functional	4Q00	1Q01	2Q01	All PPS
F0	8%	9%	9%	9%
F1	25%	26%	26%	26%
F2	46%	47%	46%	46%
F3	12%	11%	11%	11%
F4	8%	8%	8%	8%
Service	4Q00	1Q01	2Q01	All PPS
S0	54%	57%	58%	56%
S1	5%	5%	6%	5%
S2	31%	29%	28%	29%
S3	10%	9%	9%	9%

Percent of SOC assessments collected during the designated time frame

The most dramatic change can be seen in the service domain—the component of the HHRG that captures the results of the “therapy question” (MO825), a new question added to the OASIS data set at the onset of PPS. This question requires the clinician completing the assessment to estimate at the start of care the number of therapy visits needed over the patient’s episode. S0 and S1 represent patients for whom fewer than 10 therapy visits are anticipated, while S2 and S3 represent those patients who will most likely need 10 or more therapy visits. In the fourth quarter of 2000, 41% of patients fell into the service domains that anticipated 10 or more therapy visits while in the second quarter of 2001 that number was down to 37%.

Self Study: Questions to Ask Yourself about Case Weight

- *What is my agency’s average case weight? How does that compare to other organizations like mine?*
- *What trends have I seen in my agency’s average case weight over time? What may be causing those trends?*
- *Are my patients concentrated in a particular HHRG range? Has this changed since the onset of PPS?*
- *Since case weight translates directly to payment, are we properly trained in diagnosis coding and using OASIS?*
- *Do we see any trends in domain scores which suggest a higher/lower need for clinical, functional or therapy services?*

Anticipated Therapy:

Because therapy so dramatically impacts both the cost of care and reimbursement, we took this analysis one step further. By examining how frequently patients were expected to have high therapy needs, and comparing anticipated therapy to actual therapy.

Before reviewing the data, it is essential to address why anticipated therapy plays such a major role in PPS. If an agency anticipates that a patient is going to need 10 or more therapy visits

during an episode of care, the case weight for that assessment is approximately a full point higher than it would have been without the anticipated need for therapy—a difference, on average, of roughly \$2200.

It is often difficult to anticipate a patient's need for therapy at the start of care, especially when a therapist is not completing the initial comprehensive assessment. Albeit difficult, accurate prediction of therapy use is extremely important in PPS. If too little therapy is predicted, the agency does get the benefit of having 60% of the full episodic payment at SOC—something that negatively impacts cash flow as the agency pays to take care of a patient who consumes more resources than the original reimbursement is prepared to cover. If too much therapy is predicted at SOC, however, the initial Medicare payment on the episode often exceeds the total reimbursement amount for the same episode with fewer than 10 visits, requiring agencies to actually have to return money to Medicare for that particular episode. Furthermore, predicting either too much or too little therapy has the potential to raise a red flag for Medicare surveyors—If an agency is consistently under or overestimating therapy need, Medicare may target the agency for an audit.

Given the importance of the therapy question, we first attempted to identify changes in the anticipated need for therapy. As **Figure 9** indicates, each quarter further into PPS, we see fewer patients being identified as needing 10 or more therapy visits at SOC.

Figure 9

Medicare SOC Assessments				
M0825	All PPS	4Q00	1Q01	2Q01
<10 Visits	61%	59%	61%	63%
10+ Visits	39%	41%	39%	37%
Medicare ROC Assessments				
	All PPS	4Q00	1Q01	2Q01
<10 Visits	66%	65%	67%	68%
10+ Visits	32%	33%	33%	32%
NA	1%	2%	1%	1%
Medicare Recert Assessments				
	All PPS	4Q00	1Q01	2Q01
<10 Visits	89%	89%	89%	88%
10+ Visits	11%	11%	11%	12%
Medicare Other Follow-Up Assessments				
	All PPS	4Q00	1Q01	2Q01
<10 Visits	57%	59%	56%	55%
10+ Visits	43%	40%	44%	45%
NA	0%	1%	0%	0%

Assessments collected during the designated time frame

Taking the analysis one step further, we then examined anticipated therapy visits versus actual therapy visits across the first three quarters of PPS. The data suggest that agencies are accurately predicting therapy use correctly 95% of the time if fewer than 10 visits were anticipated. However, agencies only accurately anticipated therapy use 61% of the time when 10 or more visits were planned. Therefore, close to **40%** of patient episodes for which agencies anticipated 10 or more therapy visits resulted in a complete episode payment of less than initially expected, and likely less than the initial **60%** installment, resulting in the return of dollars to Medicare.

Diagnosis:

Under the PPS regulations, the primary diagnosis directly contributes to a patient's clinical domain score and can add to the case weight. We wondered whether this change resulted in a difference in the top primary diagnoses cared for in home health, either because of a change in the way that primary diagnoses were coded or because of a change in the type of patients accepted to care. After evaluating six quarters of data, from the first quarter of 2000 through to the second quarter of 2001, we noted that the list was almost identical quarter to quarter with no noticeable change between pre- and post-PPS.

Approximately 37% of patients fall into one of these top ten diagnoses each quarter (see **Figure 10**). It is interesting to observe, however, that no single diagnosis stands out as the dominant diagnosis in home care.

Figure 10

Top 10 Primary Diagnoses

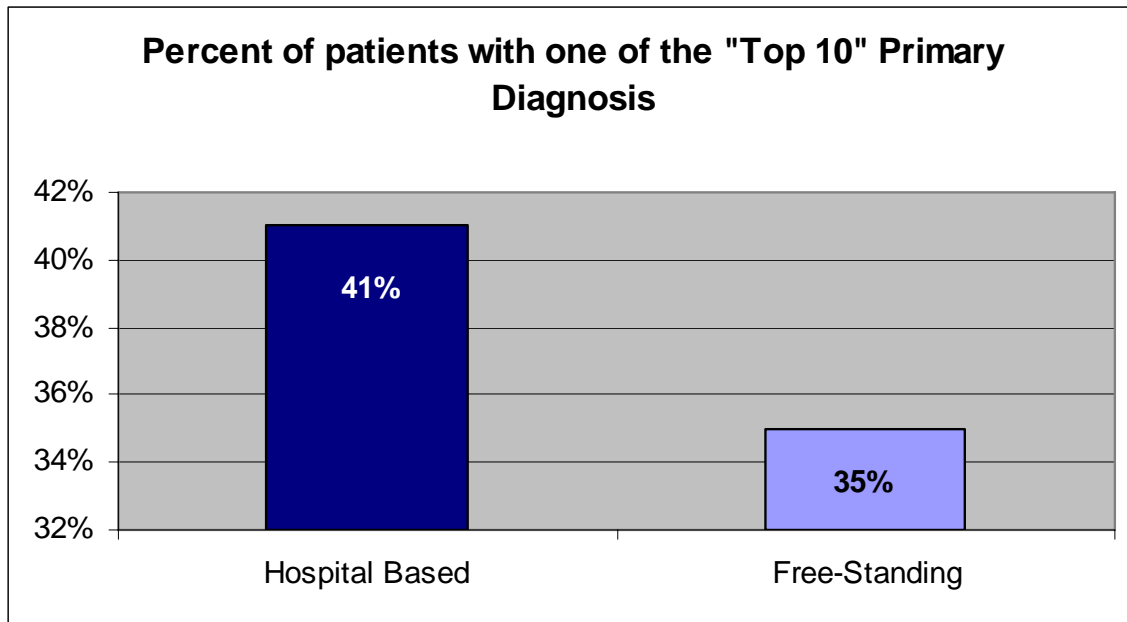
Primary Diagnosis		
715	Osteoarthritis	6%
428	Heart Failure	5%
250	Diabetes	5%
436	CVA-(Acute, ill-defined cerebrovascular Disease)	4%
414	Chronic ischemic heart disease	3%
707	Chronic skin ulcer	3%
781	Symptoms involving nervous and musculoskeletal systems	3%
820	Fracture of neck of femur (hip fractures)	3%
486	Pneumonia	2%
496	COPD	2%

Percent of SOC assessments collected during the 2nd quarter of 2001

Given the variation in case weight across agencies with different agency characteristics, we decided to also evaluate differences in top 10 primary diagnoses by agency characteristic in order to see if this accounted for some of the case weight variance. Interestingly enough, there was not a significant difference in the list of top 10 diagnoses by any agency characteristic. There was a noticeable difference, however, in the concentration of patients' top 10 diagnoses by affiliation, with hospital-based agencies having a slightly higher percent of their patients admitted for the care of one of the top 10 diagnoses (**Figure 11**). More specifically, 35% of patients seen by free-standing agencies are categorized in one of the top 10 primary diagnoses at SOC, as opposed to 41% of patients seen by hospital-based agencies.

Figure 11

Top 10 Diagnoses by Affiliation



Percent of SOC assessments collected during the 2nd quarter of 2001

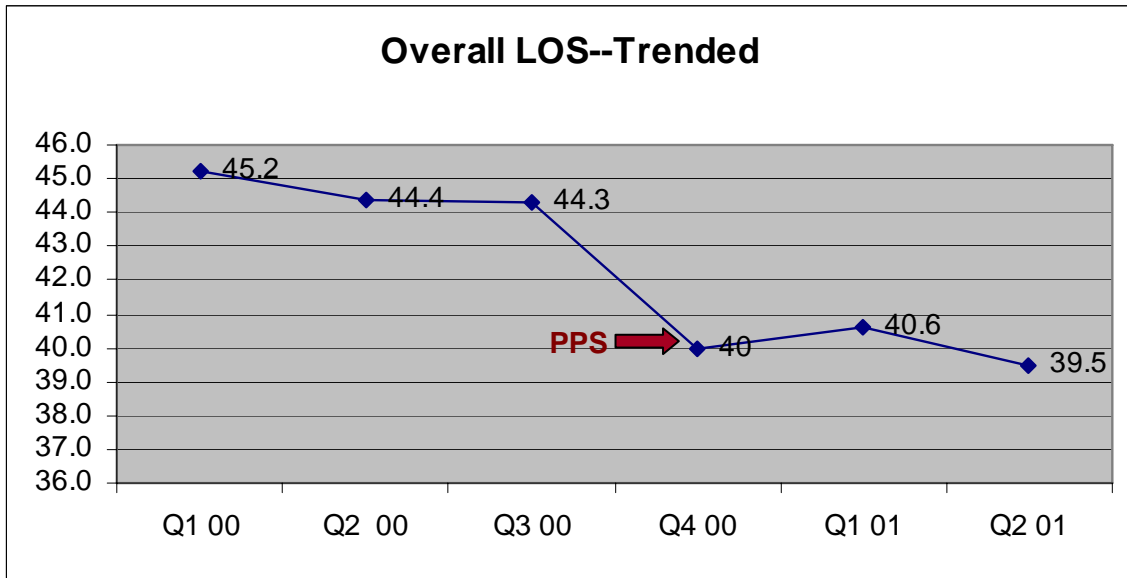
Self Study: Questions to Ask Yourself about Diagnosis

- What are the top 10 diagnoses for my agency? Has this changed over time?
- How do my diagnoses compare to other organizations like mine?
- Would it benefit my agency to focus marketing efforts towards particular types of patients or particular diagnoses?
- Could any of these diagnosis groups be “centers of excellence” at my agency?

Length of Stay:

When PPS was implemented, the government established parameters for a patient’s “episode” of care in home health—60 days. Although length of stay is not a direct indicator of resource intensity, it is an interesting measure because it specifically addresses the time frame for which a patient is on service. To determine whether or not PPS had any measurable impact on length of stay, we trended the overall length of stay pre- and post-PPS. As **Figure 12** clearly indicates, average length of stay dropped considerably upon implementation of PPS.

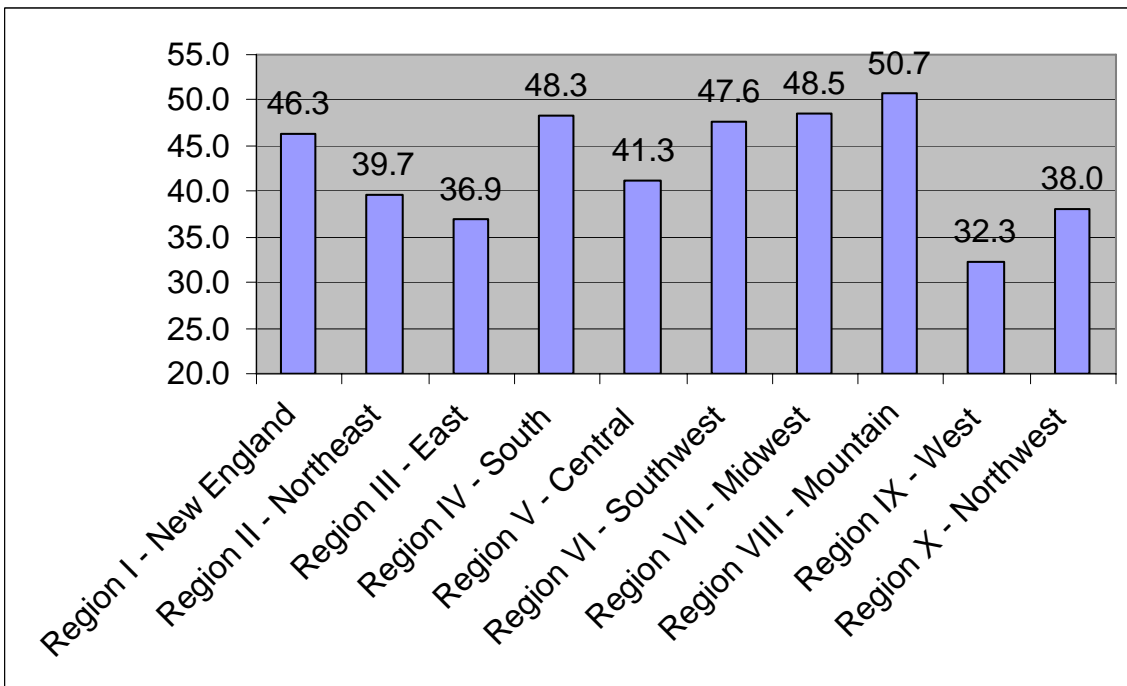
Figure 12



Includes patients discharged or transferred – discharged during the designated time frame

Once this overall trend became apparent, the next logical step involved identifying regional variances in average length of stay. **Figure 13** depicts the significant differences in average length of stay by geography, with higher averages in the Mountain, Southern, Southwestern and Midwestern regions and lower averages in the East, West and Northwest.

Figure 13

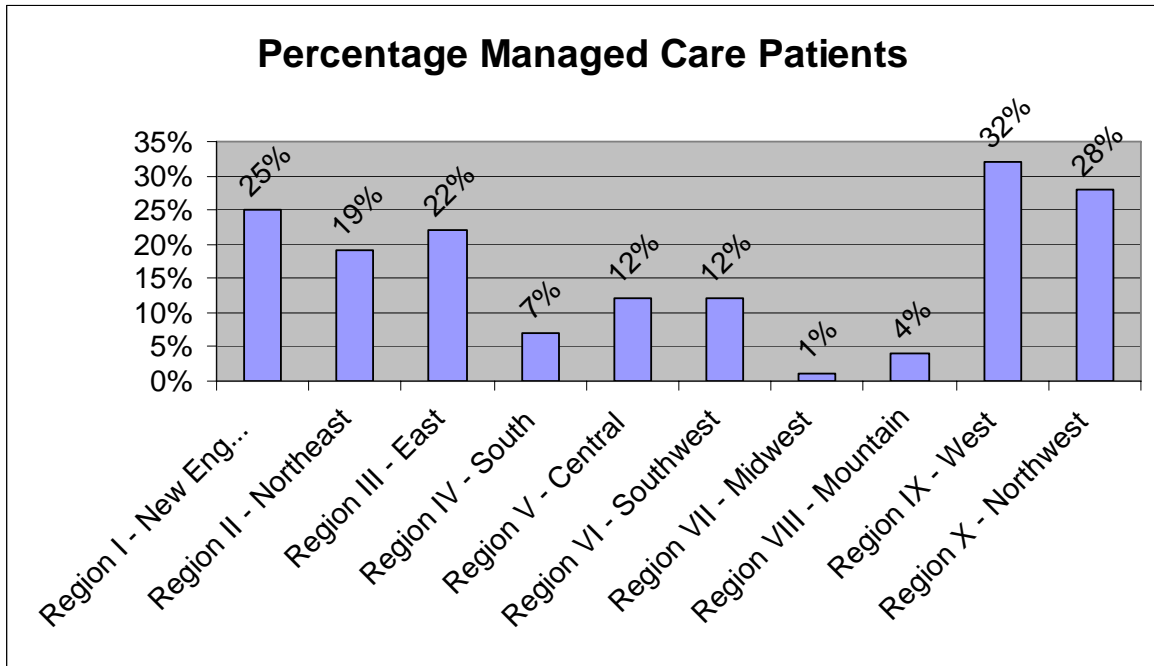


Includes patients discharged or transferred – during 4th quarter 2000 and 1st and 2nd Quarter 2001

When this same geographic pattern emerged in the hospital industry several years ago, it was observed that managed care penetration often has a measurable impact on practices throughout a particular region even among non-managed care organizations. Given this historical perspective, the next chart (**Figure 14**) depicts the percentage of managed care by region.

As expected, although unclear if directly correlated, the chart demonstrates that that the West and Northwest have a higher penetration of managed care and a lower length of stay.

Figure 14

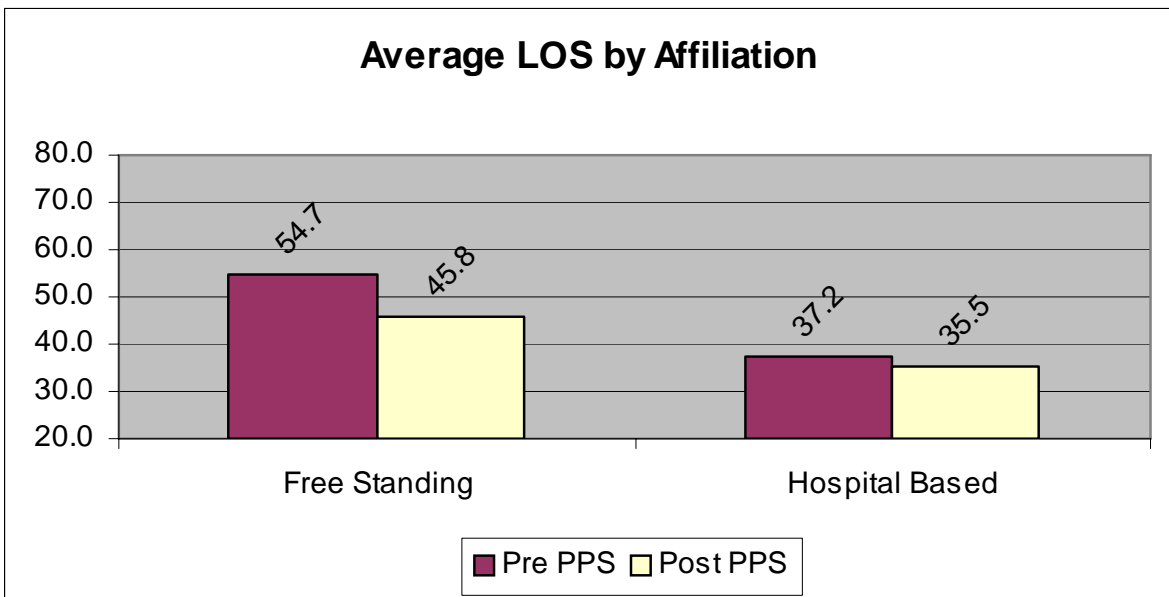


Patients admitted during 2nd Quarter 2001 with a payment source of Medicare HMO, Medicaid HMO or Private HMO/Managed Care

Drilling down a bit further, the following charts (**Figures 15, 16, and 17**) demonstrate characteristic based differences in average length of stay.

Figure 15

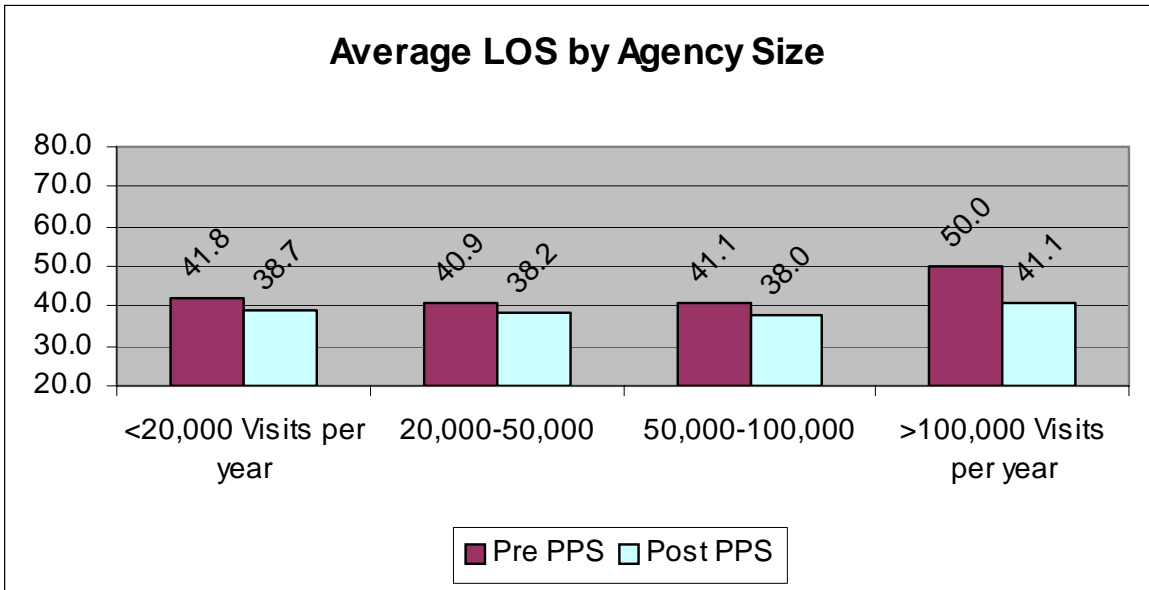
Affiliation:



*Pre-PPS = 1st Quarter 2000, 2nd Quarter 2000, 3rd Quarter 2000
 PPS = 4th Quarter 2000, 1st Quarter 2001, 2nd Quarter 2001*

Figure 16

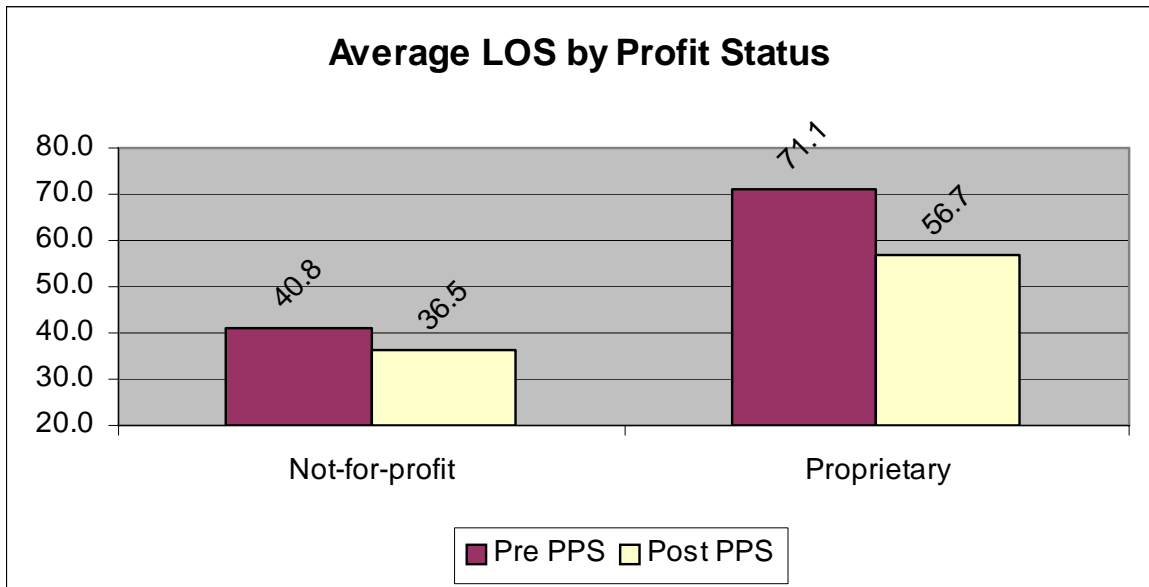
Agency Size:



Pre-PPS = 1st Quarter 2000, 2nd Quarter 2000, 3rd Quarter 2000
PPS = 4th Quarter 2000, 1st Quarter 2001, 2nd Quarter 2001

Figure 17

Profit Status:



Pre-PPS = 1st Quarter 2000, 2nd Quarter 2000, 3rd Quarter 2000
PPS = 4th Quarter 2000, 1st Quarter 2001, 2nd Quarter 2001

In the above charts, it is apparent that hospital-based agencies appear to have the lowest length of stay. The largest difference in LOS by agency characteristic is observed in the proprietary and not-for-profit groups. Even in a PPS environment, the difference between these two factions is still about 20 days. Agency size appears to have very little impact on LOS.

It is interesting to note that the drop in length of stay post PPS was a common factor in all segments of the industry and among all types of agencies. This drop was, however, most pronounced in the proprietary agencies, with a decrease of just over 14 days, and least dramatic in the hospital-based agencies, with a difference of only 1.7 days.

Self Study: Questions to Ask Yourself about Length of Stay

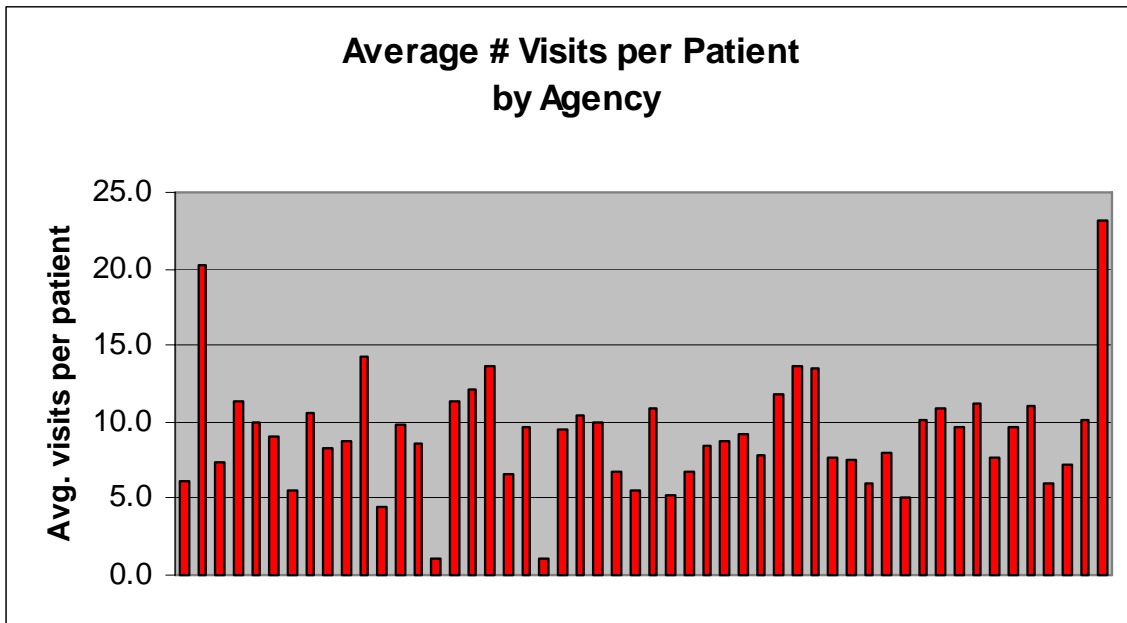
- *Is Length of Stay (LOS) a meaningful measure for our organization?*
- *How does our LOS compare to others in our region? With similar characteristics?*
- *What has been the impact of PPS on our average LOS?*
- *What impact, if any, has managed care had on our practice patterns?*

Visit Data:

When agencies are evaluating the relationship between resources and quality of care, visit data is an important indicator of performance. Although it would seem ideal to measure resource consumption by cost, this indicator is not comparable between organizations. Visit data, on the other hand, is a measure that is consistent between organizations. And, by comparing, understanding and controlling visits, agencies can typically compare, understand and control cost of care.

In looking at utilization data, we first established a baseline by determining that the average number of visits per patient was approximately **16** and the median was approximately **15** visits per patient. It is important to recognize, however, that in spite of these statistics, a great deal of variation exists between specific agencies, as the chart below (**Figure 18**) demonstrates.

Figure 18

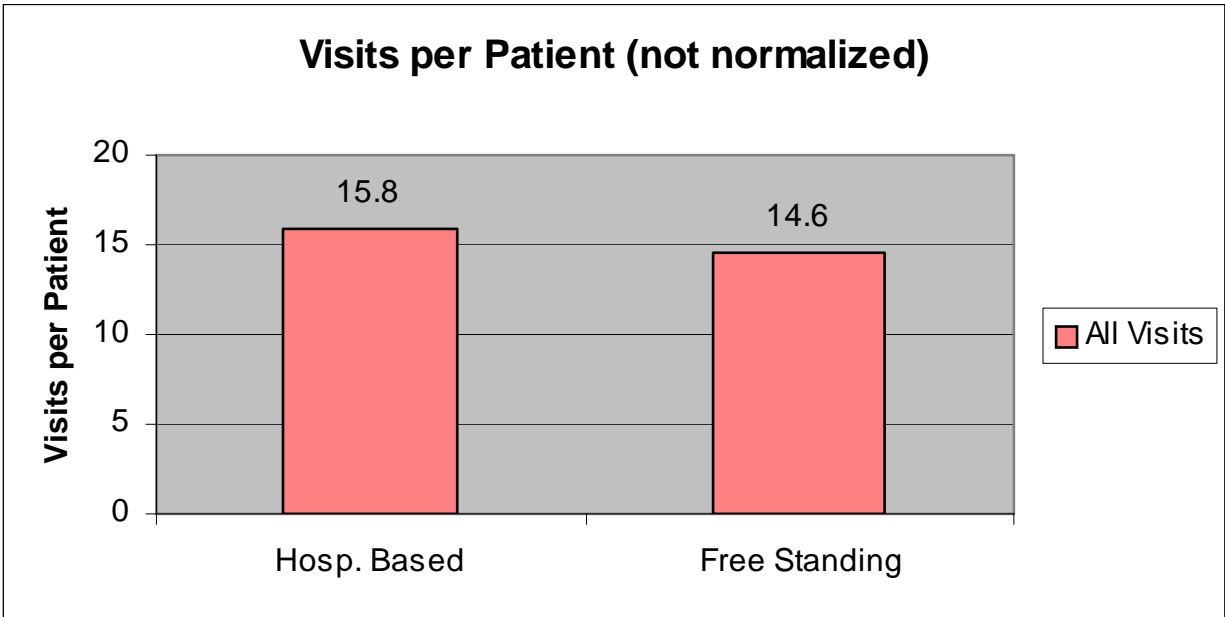


Average number of visits per patient, listed by agency, October 2000 – August 2001

As with the other analyses included in this report, the next step in this visit analysis involved constraining the data by agency characteristic to evaluate differences in average number of visits per patient by affiliation (**Figure 19**), agency size (**Figure 20**) and profit status (**Figure 21**).

Figure 19

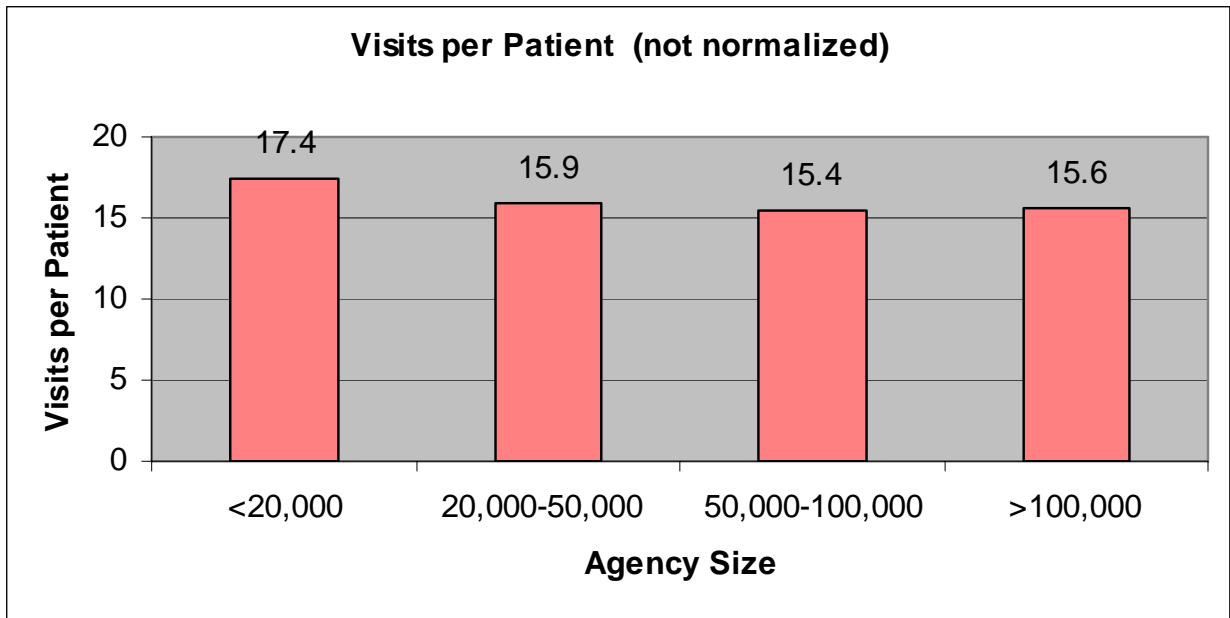
Affiliation:



Average number of visits per patient, October 2000 – August 2001

Figure 20

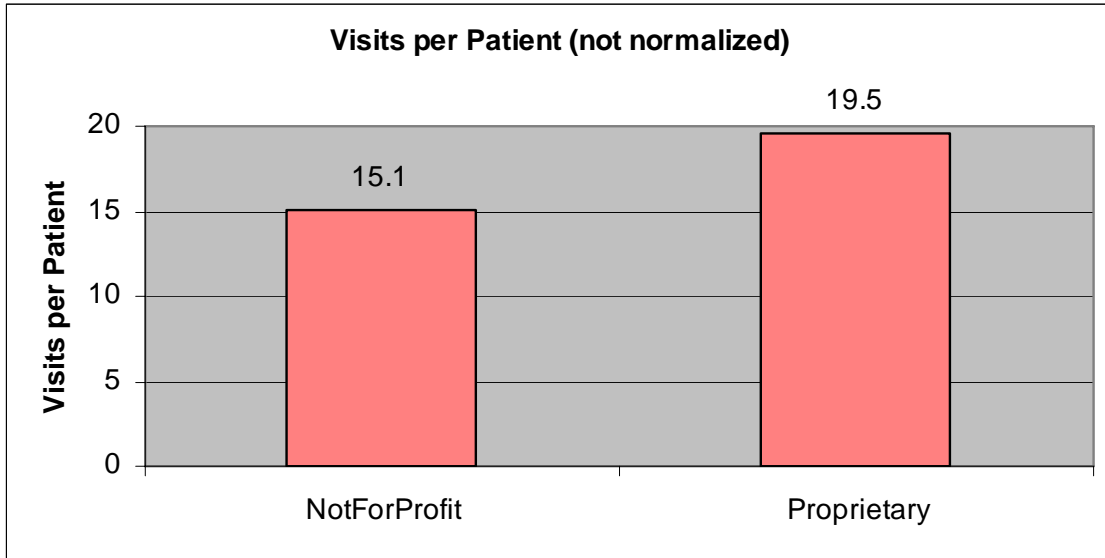
Agency Size:



Average number of visits per patient, October 2000 – August 2001

Figure 21

Profit Status:



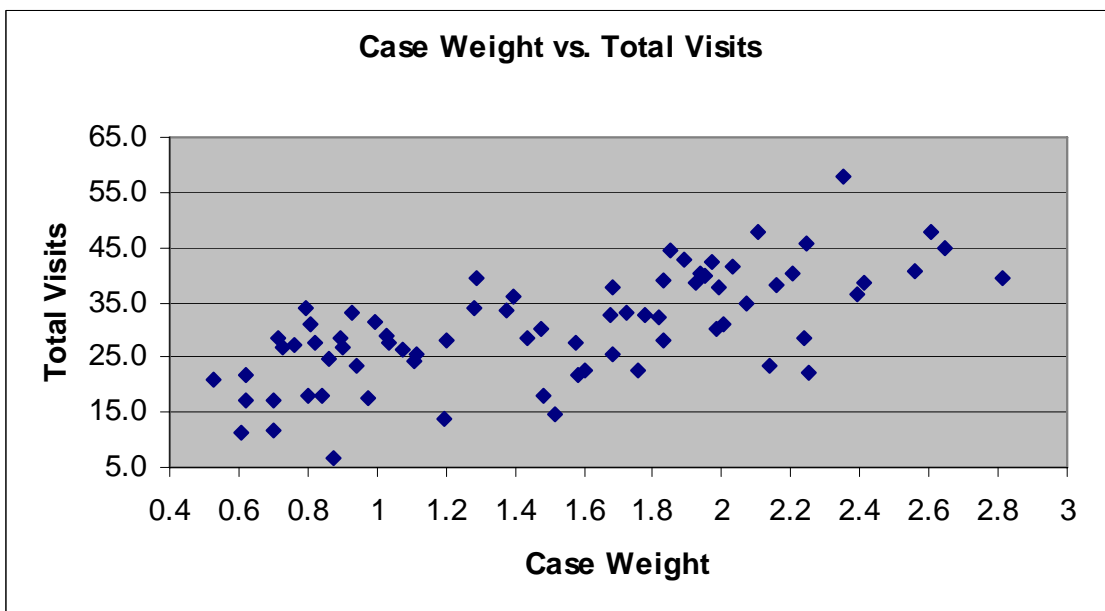
Average number of visits per patient, October 2000 – August 2001

While the above charts (Figures 19, 20 and 21) would seem to indicate that there is considerable difference in average visits per patient depending upon the organization type, this comparison of visit information does not control for organizations that care for patients that are more acutely ill. In the next section, we normalize visit data in order to control for patients with an expected higher resource intensity.

Normalized Visit Data:

The process of normalizing visits gives us a comparison of utilization data while taking into consideration the differences that are expected due to patient severity. Normalizing the data first requires the identification of a common measure of patient severity—case weight. As Figure 22 demonstrates, there is a clear relationship between number of visits and case weight. Generally, as the case weight increases so do the number of visits.

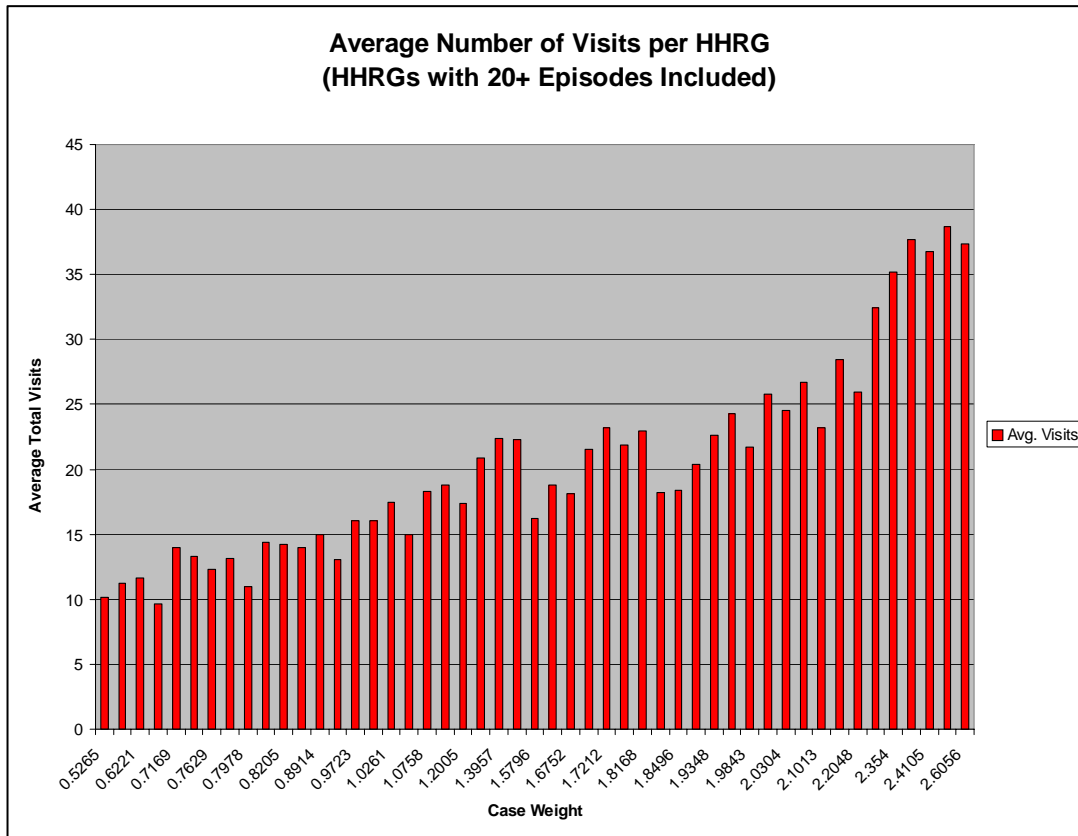
Figure 22



Case weight and visits for 60-day episodes completed October 2000 – August 2001

Excluding cases with LUPAs (low utilization payment adjustments), we find the same trend

Figure 23



Case weight and visits for 60-day episodes completed October 2000 – August 2001

In order to effectively normalize visit data using case weight, we divided total visits by case weight at the patient level. The resulting number was then “rolled-up” to an agency level and used for analysis.

Example: How does normalizing work?

Patient at Agency A—25 visits, case weight of 1.8
Patient at Agency B—15 visits, case weight of 0.9

How can we compare these patients and visits?

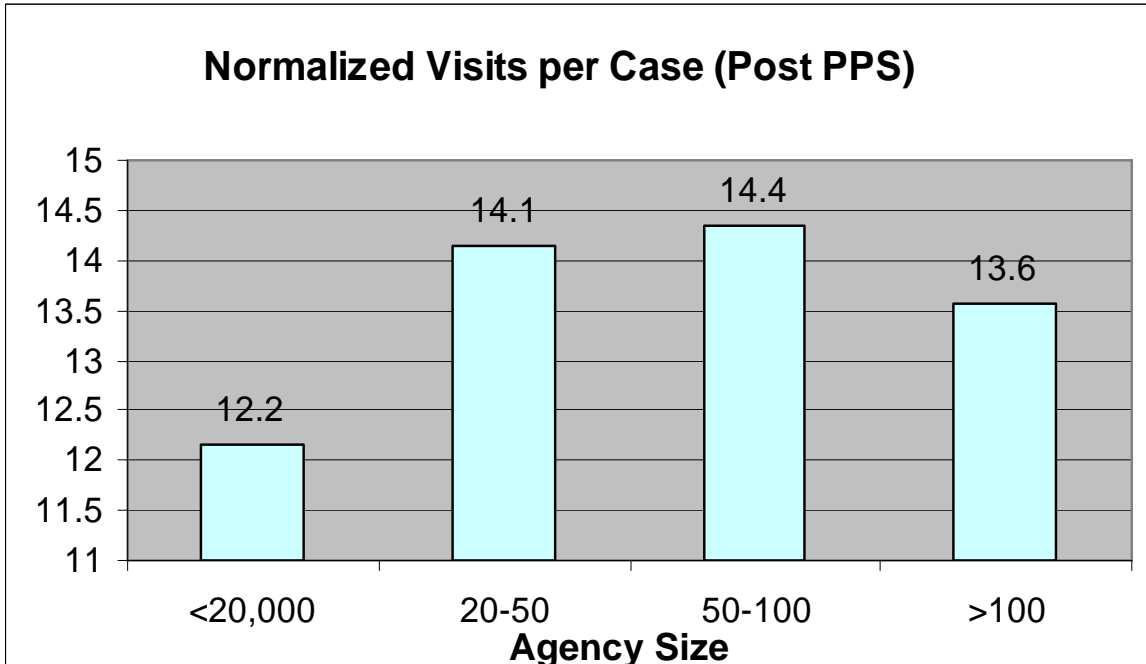
Patient at Agency A: 25 visits divided by 1.8 case weight= 13.9 normalized visits
Patient at Agency B: 15 visits divided by 0.9 case weight= 16.7 normalized visits

Agency A and Agency B can now compare their normalized visits.

Once normalized, we again analyzed differences in number of visits per patient across different organization types. In comparing the prior visit charts to the normalized charts below (**Figures 24, 25 and 26**) it would seem as if differences observed in our original analysis diminished (in the case of profit status and affiliation) and similarities began to show more significant variance (in the case of agency size).

Figure 24

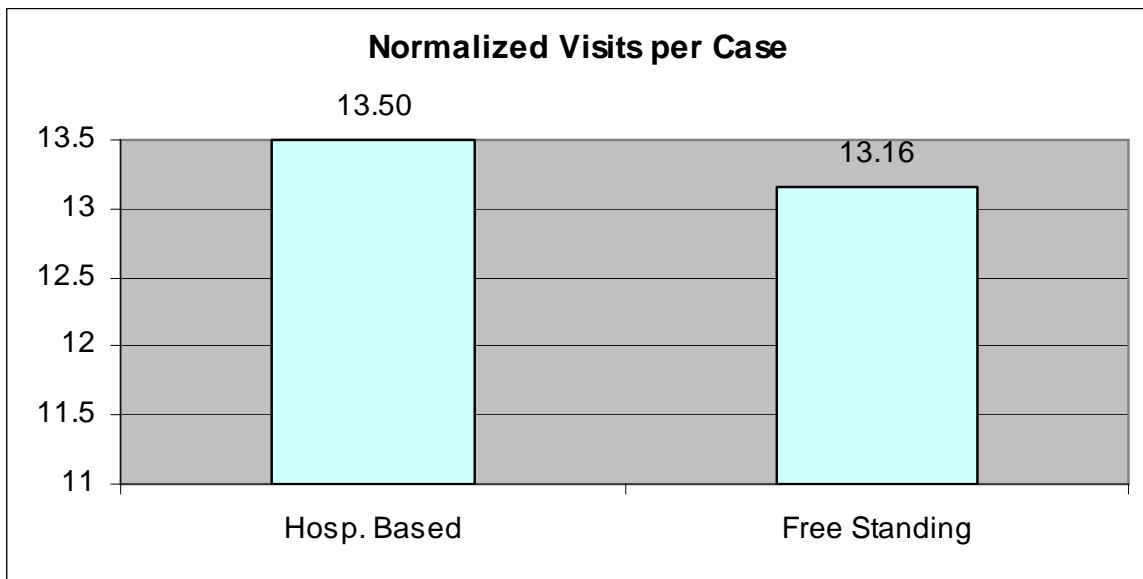
Affiliation:



Normalized visits per patient, October 2000 – August 2001

Figure 25

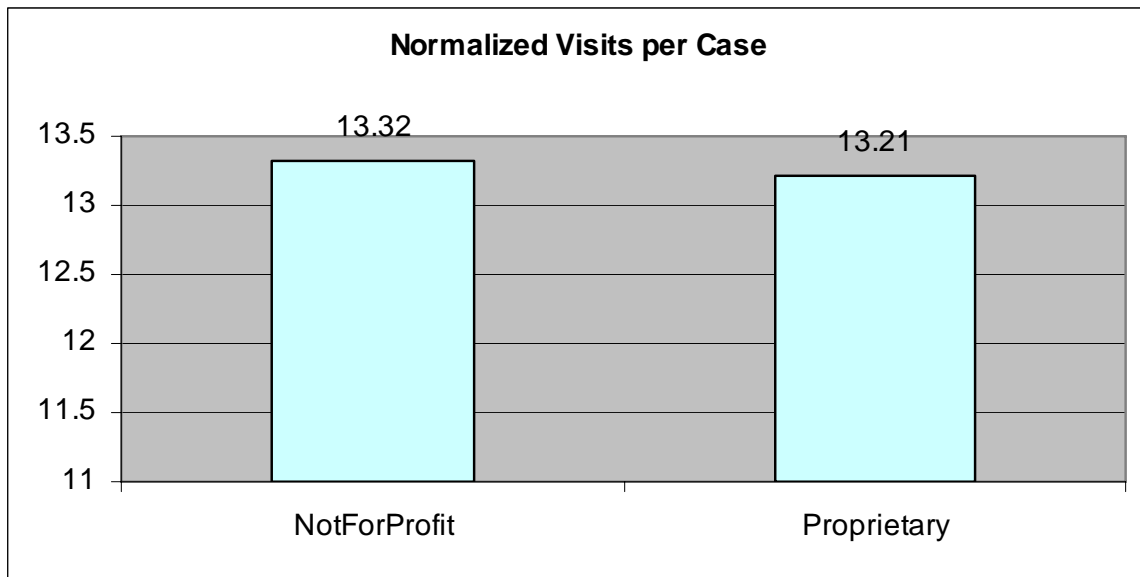
Profit Status:



Case weight and visits for 60-day episodes completed October 2000 – August 2001

Figure 26

Agency Size:



Case weight and visits for 60-day episodes completed October 2000 – August 2001

Self Study: Questions to Ask Yourself about Visit Data

- *What is my average number of visits per case? How has this changed since the onset of PPS? How does this compare to other organizations?*
- *Are particular diagnoses more or less resource intensive in terms of number of visits or hours of service?*
- *Have I developed specific care plans for my most care intensive patients? If not, might that help control costs while maintaining quality? If so, what has been the impact?*

Quality Outcomes:

While indicators of resource consumption, such as case weight, length of stay, and visits are important to understand and study at a time when the payment structure as changed so drastically, it is essential that quality of care not be overlooked. In early 2000, looking forward to PPS, many agencies were concerned that the onset of PPS and the associated focus on minimizing costs would have a detrimental effect on patient outcomes. Thus, this piece of the analysis focuses on the impact of PPS on patient outcomes.

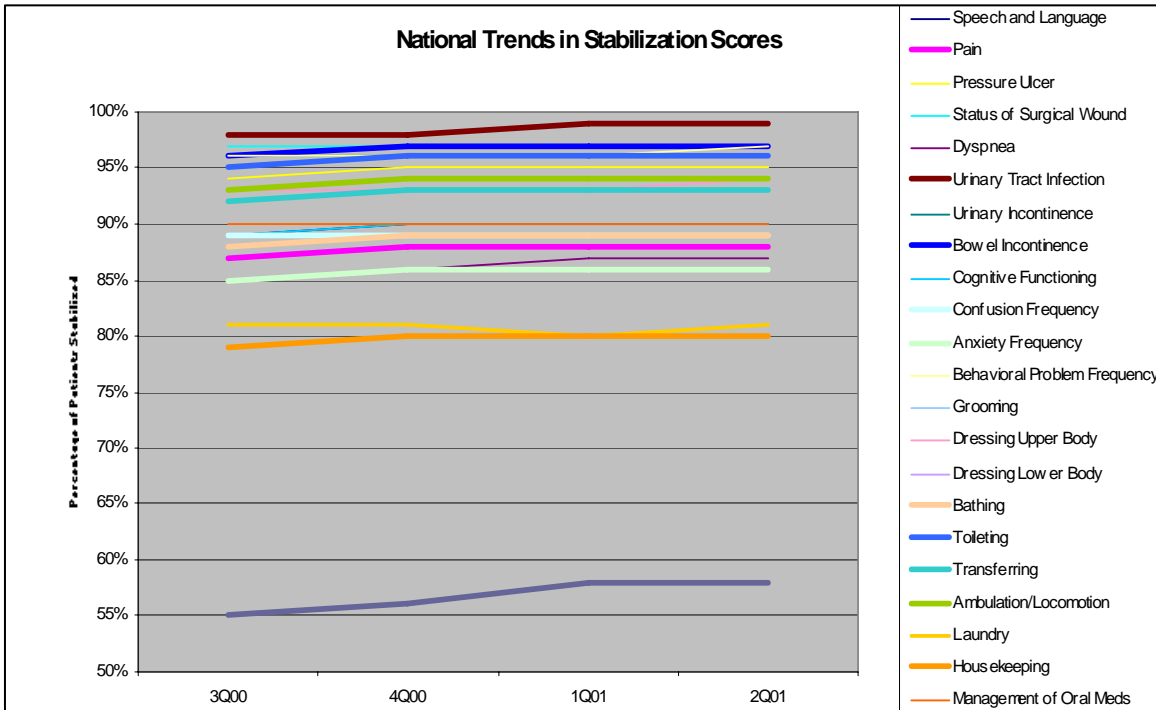
Quality outcomes for this portion of the analysis are based upon information contained in the OASIS data set. An outcome is measured by comparing the score on the OASIS assessment at SOC to the score at Discharge. There are three different outcome measures that can be used for the purposes of this analysis:

- **Improved** measures how many patients DID improve out of those who COULD HAVE improved
- **Declined** measures how many DID decline our of those who COULD HAVE declined
- **Stabilized** measures how many DID stay the same or improve out of those who COULD HAVE

To observe any changes in outcomes, the chart below (**Figure 27**) trends stabilization scores from third quarter 2000 to second quarter 2001 across a series of key ADL's and IADL's.

Interestingly enough, the chart would seem to indicate that patient outcomes did not suffer with the onset of PPS. In fact, they may have actually improved.

Figure 27



Overall national norm for patients discharged during the designated time frame

Self Study: Questions to Ask Yourself about Outcomes

- *What has been the impact of PPS on outcomes in my agency?*
- *How do my improved, stabilized and decline percentages compare to other organizations like mine? To national norms?*
- *Are there any particular service lines or diagnoses that have consistently lower scores? Consistently higher? Why?*

Looking to the Future:

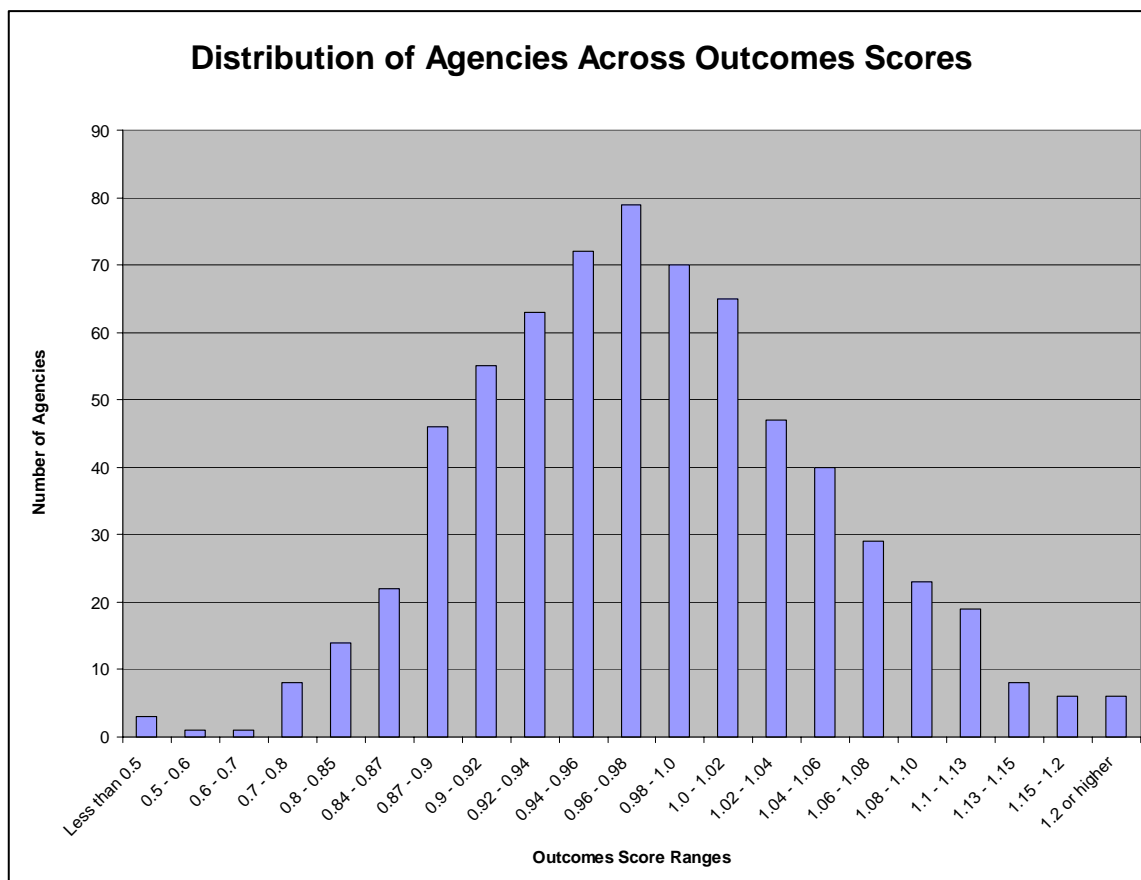
The detailed information found in the above data is an important factor in managing the relationship between utilization and outcomes. Unfortunately, it can be messy to examine the many different indicators of resource use in the context of the many different outcome measures. While the breakdown of individual outcomes is useful and a necessary component of an agency's performance improvement efforts, it is helpful for agencies to start with a more manageable set of information to serve as a snapshot of their performance. Toward that end, the future of outcomes lies in the identification of a framework for high-level, simplified and comparable analysis.

OCS Outcomes Score:

As a potential methodology for calculating a high-level outcomes score, OCS' Data Integrity Group (composed of clinicians, executives and technical experts) selected 15 key outcomes that would comprise the basis for the score. These were chosen based upon the effect on a patient's health and independence, along with the ability of clinicians to have a measurable impact on a patient's status.

After significant debate over an extended period of time, we developed a point system based upon a patient improving (2 points), staying the same (1 point), or declining (-2 points). We assigned points for each of the 15 outcomes and summed them to result in a single score for each of 356,000 patient cases. With this information, we created an index, thereby setting the median patient score to 1.00. Rolling-up to the agency level for 677 agencies, the scores range from 0-1.275, the median score is .968, and the average is .969. The following chart (**Figure 28**) demonstrates the distribution of agencies across outcomes scores.

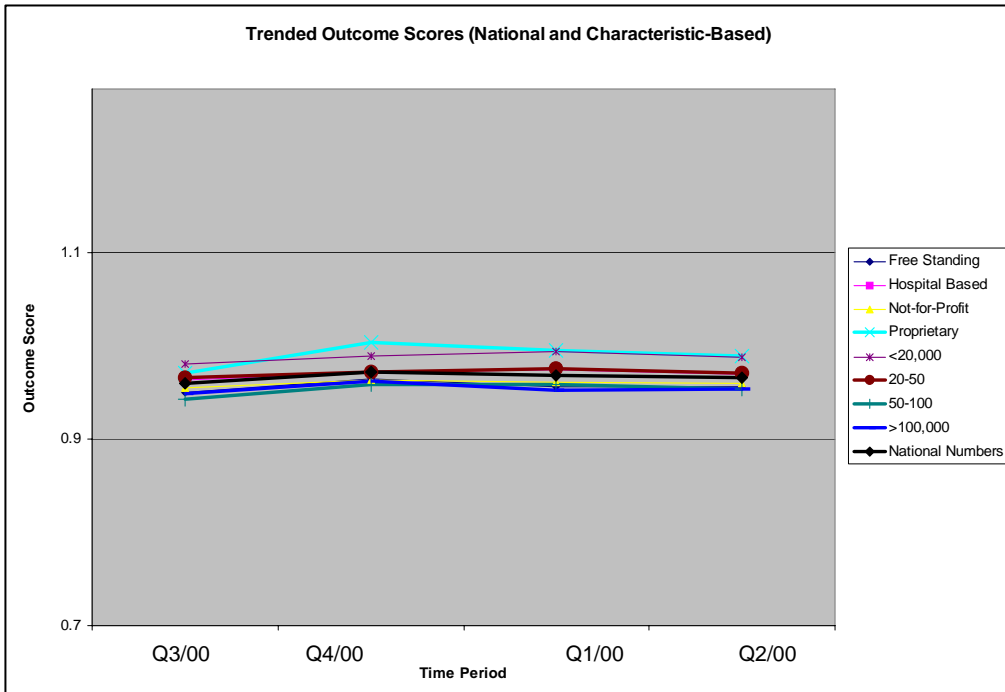
Figure 28



Outcome scores calculated at the agency level for patients discharged between July 2000 and June 2001

Agency scores were then grouped by organization type and trended over time. The next chart (**Figure 29**) demonstrates that there is little if any variation in the outcomes score across the norms for all of the different agency types. And, like the previous outcomes chart (**Figure 28**), the data seems to support the notion that PPS did not have a negative impact on outcomes.

Figure 29

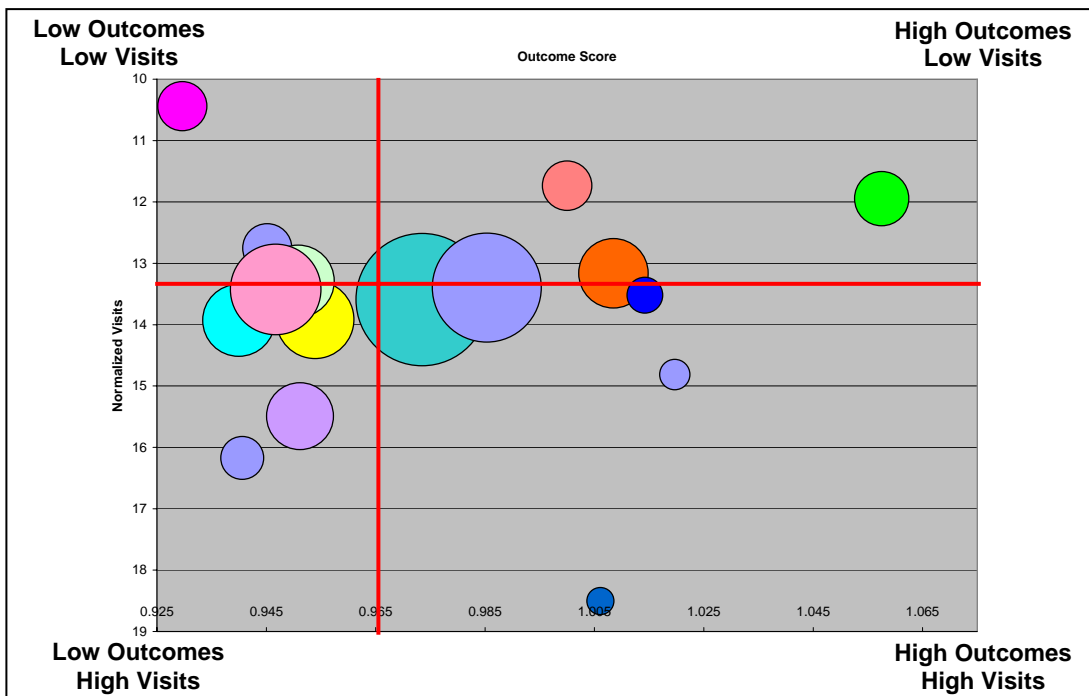


Outcome scores calculated for patients discharged during the designated time frame

Utilization vs. Outcomes: A Framework

The development of an outcomes score is the first step in the cross-comparison of utilization and outcomes. The missing piece is a score for utilization—If we were to use normalized visits as a measure of utilization, we for the first time have the ability to generate an analysis like the following:

Figure 30

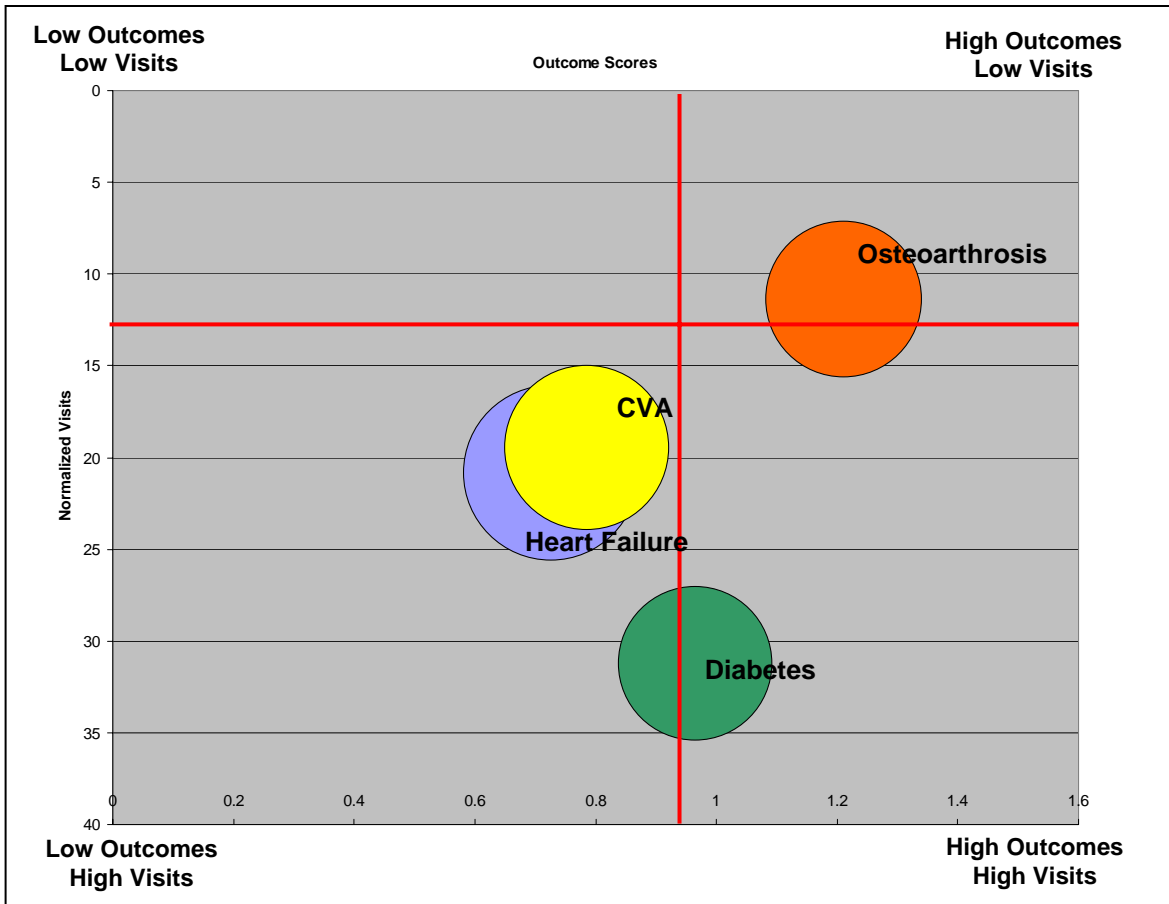


Includes patients, discharged October 2000 – August 2001, with utilization data

In the **Figure 30**, the X-axis represents outcomes scores from low to high, and the Y-axis represents normalized visits from high to low. The bubbles represent individual agencies, and the size of the bubble is indicative of agency size. The vertical red line shows the median outcomes while the horizontal red line shows the median of normalized visits. This graph visually demonstrates an organization's apparent management of cost and quality. Agencies that are average are located at the cross hairs of the red lines. However, best practices lie in the upper left quadrant (high outcomes/low visits).

Taking this analysis to the next step, and limiting it to agency-level analysis, individual organizations could then view their cost in conjunction with their quality performance across different service lines, as the following chart depicts:

Figure 31



Includes patients, discharged October 2000 – August 2001, with utilization data and the designated primary diagnosis at SOC

Conclusion:

Ultimately, success in a PPS environment requires that agencies effectively balance cost and quality. This analysis contributes data to the discussion so that industry experts, agencies, associations, consultants, and others can truly begin to understand how to attain the ideal cost/quality formula. The bottom line—each of us must ask ourselves, how can we use this information to shape and manage the future of our industry?

About Outcome Concept Systems

Founded in 1992 by a team of home care professionals, OCS is a Seattle-based company focused on providing home care organizations with sophisticated, yet easy to use, information solutions. A market-driven organization, with a backbone of outstanding client support, OCS is the premier quality management vendor for home health, hospice, infusion, HME/DME and private duty organizations. Having amassed the nation's largest home health benchmark data warehouse and developed the market's only "drill-down" desktop reporting program, OCS is endorsed by trade associations throughout the country and recommended by major MIS vendors.

Suggested Reading:

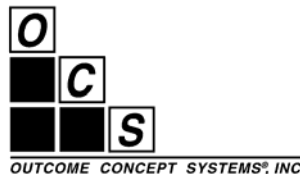
CMS OASIS Home Page: <http://www.hcfa.gov/medicaid/oasis/oasishmp.htm>

CMS Home Health Agency Manual: http://www.hcfa.gov/pubforms/11_hha/hh00.htm

University of Colorado Center for Health Policy & Research: <http://www.chspr.org>

OCS' White Paper Series: <http://www.ocsys.com/news/references.htm>

Home Health Line's Benchmark of the Week: <http://www.myhomehealth.com>



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