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# *Performance Improvement in Home Health Care: Integrating Clinical and Satisfaction Data at the Patient*



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# *Performance Improvement in Home Health Care: Integrating Clinical and Satisfaction Data at the Patient*

## INTRODUCTION

To prepare for the changing reimbursement system in home health care, it is now more important than ever for agencies to understand how to leverage their clinical and satisfaction data in order to improve performance.

On January 1, 2008, Abt Associates, a private research and consulting company in the medical and life sciences sectors<sup>1</sup> under contract with the Centers for Medicare and Medicaid Services (CMS), began a two-year home health pay-for-performance demonstration in seven states, covering all four U.S. census regions.<sup>2</sup> The demonstration seeks to determine the impact of providing incentive payments to home health agencies based on patient outcomes and efficiency, quality of care, and overall service costs. Participating agencies will be assessed using a host of quality performance measures.

In addition, CMS partnered with the Agency for Healthcare Research and Quality (AHRQ) to develop a measure of patient perceptions of care provided by Medicare/Medicaid certified home health care agencies, called the Consumer Assessment of Healthcare Providers and Systems (CAHPS<sup>®</sup>) Home Health Care Survey, or HH-CAHPS.<sup>3</sup> CMS anticipates implementing the HH-CAHPS survey in late 2008 or early 2009, and that the results could be linked to home health care agency pay-for-reporting in 2010.<sup>4,5</sup>

## INSIGHT INTO PERFORMANCE IMPROVEMENT

In an effort to be a high performing organization and to be prepared for the changing reimbursement system, Home Nursing Agency (HNA), a Visiting Nurse Association agency headquartered in Altoona, Pennsylvania, partnered with OCS, Inc., the industry leader in clinical, financial, and operational information services to improve clinical outcomes and with Press Ganey Associates, Inc., the industry leader in patient satisfaction performance improvement to improve patient satisfaction.

In 2005, proactively leveraging their clinical data, HNA developed and implemented an episodic disease management program with the goal of reducing hospitalizations. Working with OCS, HNA reviewed outcomes, case mix, and utilization data to determine which patient populations had the greatest impact on their agency in terms of patient volume and targeted a key outcome for each patient subset. HNA identified their congestive heart failure (CHF) patient population as the target patient subset and began implementation of a CHF disease management program.

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During this period, HNA was also utilizing Press Ganey's Priority Index to identify specific measures of patient satisfaction as a means to impact overall satisfaction and likelihood to recommend. The Priority Index is designed to help agencies focus their satisfaction improvements on the processes most highly correlated with overall patient satisfaction.

HNA soon realized that the factors that drove patient satisfaction were similar to the components of their episodic disease management program. Improving these areas could yield improvements in both satisfaction and clinical outcomes. In 2006, HNA utilized a strategic patient-level analysis that integrated clinical and satisfaction data to identify factors associated with patient satisfaction. HNA embraced this data-driven approach and is leveraging this patient-level analysis to advise and evaluate performance improvement.

The purpose of this initial patient-level study (5,000 completed cases between September 2005 and May 2006) was to help HNA better understand the following questions:

- What types of patients were more or less satisfied
- How events during patient's care impact satisfaction
- Whether specific outcomes are associated with satisfaction

Patient attributes associated with satisfaction included a CHF diagnosis, improvement in oral medication management, reductions in hospitalization for injury or falls, and reduction in emergent care. The disease management components included the implementation of CHF care guidelines, assessments and tools to reduce injury from falls and to improve oral medication management, and a 24-hour nurse call line to triage calls that might normally lead to a visit to the emergency room. In addition to these components, HNA's episodic disease management program included changing visit utilization patterns, the use of wound and nutrition specialists, and integrating disease management materials and protocols into telehealth protocols for standardization.

Bolstered by the knowledge that there were distinct similarities between factors associated with patient satisfaction and the components of their episodic disease management program, HNA began using their CHF program as a vehicle for increasing satisfaction scores. Celeste Twardon, Vice President of Quality and Customer Service for HNA, stated, "We know we need to manage certain large groups with risk factors like CHF, COPD, and diabetes and we are aware that patient satisfaction is needed for patients to comply with their medical directives. So, to improve the clinical data, we need to move our patient satisfaction scores as well. If you look at one without the other, you're not seeing the whole picture."

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To improve patient satisfaction, HNA adapted aspects of their disease management program. In an effort to improve patient satisfaction with aide's communication, HNA began providing aides with cell phones and calling cards to enhance their ability to communicate with patients when they were running late. Similarly, in an effort to improve satisfaction with nurses, HNA focused on improving nurse communication about treatment and progress with patient and family in the assessment process and procedures.

### EVALUATING PERFORMANCE IMPROVEMENT

To evaluate whether the disease management program reduced visit utilization and hospitalization rates, and improved satisfaction scores of their CHF patient population, HNA decided to once more leverage integrated patient-level data. Specifically, HNA partnered again with OCS and Press Ganey to conduct a second patient-level study integrating clinical and satisfaction data. Unlike the initial study which focused on identifying factors associated with patient satisfaction, the purpose of the second patient-level analysis was to compare the hospitalization rates, satisfaction scores, and visit utilization of CHF patients at HNA before and after the implementation of the disease management program in order to evaluate the effectiveness of that program.

### METHODS

OCS/Press Ganey researchers evaluated the impact of the HNA disease management program on rates of hospitalization, emergent care, select measures of clinical improvement, patient satisfaction scores, and visit utilization.

Specific measures of hospitalization included

- Acute care hospitalization rates
- Hospitalization for injury

Hospitalization for exacerbation of CHF Specific measures of clinical improvement included

- Improvement in oral medication management
- Improvement in transferring

Specific measures of patient satisfaction included

- Overall patient satisfaction
- Likelihood to recommend
- Satisfaction with arranging care
- Satisfaction with dealing with the office

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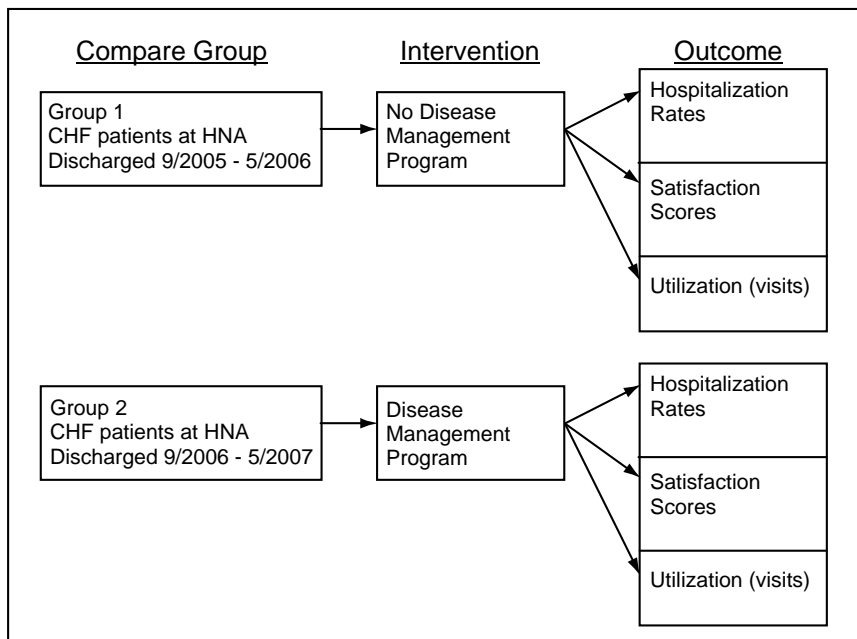
- Satisfaction with aides
- Satisfaction with aides communicating changes in schedule
- Satisfaction with nurses
- Satisfaction with staff educating patients and family as to patient progress
- Satisfaction with therapists
- Satisfaction with other general issues

Specific measures of visit utilization included

- Total visits per case
- Visits per discipline: skilled nurse, aide, OT, PT, ST, MSW

To evaluate the impact of HNA's disease management program, researchers compared the outcomes for two groups of patients, referred to as Group 1 and Group 2. As illustrated in the conceptual framework shown in **Figure 1**, Group 1 was comprised of patients with a diagnosis of CHF who were discharged from HNA during the initial study period of September 2005 – May 2006 (Time 1), prior to full implementation of the disease management program. Group 2 was comprised of patients with a diagnosis of CHF who were discharged from HNA one year later, September 2006 – May 2007 (Time 2), after the full implementation of the disease management program.

**Figure 1 Conceptual Framework For Patient-Level Analysis**



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Researchers compared select patient characteristics drawn from HNA OASIS data between Group 1 and Group 2 using tests to examine mean scores (t-tests) to discern if there were any variations between the two groups that might mitigate the ability to see differences between outcomes achieved by each. Next, they used OASIS data to compare specific measures of hospitalization, emergent care, and clinical improvement using t-tests to discern whether there were any significant differences between the two groups. Researchers then used t-tests to discern whether there were significant differences in satisfaction scores between the two groups. To conduct this step, with permission from HNA, researchers linked OCS and Press Ganey patient-level data from the two date ranges. Leveraging HNA utilization data, in the next step of the analysis, t-tests were used to examine whether Group 2 had significantly fewer visits than Group 1. Assuming differences in outcomes and visits would be detected, researchers designed a final set of additional analyses to discern how 1) the number of visits for patients in Group 2 were associated with measures of satisfaction and, 2) whether high rates of hospitalization and emergent care medications were associated with measures of satisfaction. These final analyses utilized the linked patient-level dataset.

### SUMMARY OF FINDINGS

1. Few differences in patient characteristics noted between compare groups
2. Significant improvement made in outcome measures
3. Few significant differences in satisfaction scores were noted between Time 1 and Time 2
4. Significant reduction in visits seen between Time 1 and Time 2
5. Number of visits appears largely unrelated to satisfaction scores for Group 2

### EXPLANATION OF FINDINGS

#### **Few differences in patient characteristics noted between compare groups**

As shown in **Table 2**, Group 2 had a significantly higher case weight than Group 1, but a slightly lower average age. This change in case weight was likely a result of intensive and ongoing staff supervisory education to ensure OASIS accuracy including diagnosis ranking and coding. Other than these, researchers did not identify any differences between these groups regarding gender, race, length of stay, and proportion who live alone, smoke, drink alcohol, were obese, and were discharged from the hospital. This suggests that the two groups were fairly homogenous. Therefore, any differences in outcome are not likely due to demographics or case mix, however, differences in case weight and age should be kept in mind when interpreting the results. Time 2 Non-CHF patients had a significantly lower proportion of female and smoking patients and higher case weight than Time 1 Non-CHF patients.

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**Table 2 Comparison of Patient Characteristics**

Patient Characteristic	CHF		Non-CHF	
	Time 1 (Group 1)	Time 2 (Group 2)	Time 1	Time 2
Patient Count	287	286	4869	5146
Average Age	81.3	78.6*	70.6	70.1
Female Gender	61%	59%	61%	59%*
Race: White	97%	97%	97%	97%
Race: Black	1%	1%	1%	1%
Discharged from Hospital	67%	71%	57%	56%
Lives Alone	34%	33%	28%	29%
Smokes	17%	12%	21%	15%*
Alcohol	2%	1%	2%	2%
Obese	20%	27%	23%	23%
Average Length of Stay (Days)	51.96	45.69	44.3	43.56
PPS Case Weight	1.0675	1.1870*	1.2587	1.3154*

\* Time 1 compared to Time 2, significant at  $p < .05$

### Significant improvement made in outcome measures

As seen in **Table 3**, a significantly higher proportion of patients in Group 2 experienced improvement in management of oral medications and improvement in transferring as compared to Group 1. Similar significant differences—although not quite so dramatic—were seen among the Non-CHF patient population (oral medications: 48% vs. 42%; transferring: 62% vs. 51%). Researchers also saw reductions in rates of emergent care and hospitalization between Group 1 and Group 2. A similar reduction in emergent care and hospitalization rates was also noted among the Non-CHF group between Time 1 and Time 2.

**Table 3 Comparison of Events and Select Outcomes**

Events and Outcomes	CHF		Non-CHF	
	Time 1 (Group 1)	Time 2 (Group 2)	Time 1	Time 2
Emergent care	27%	24%	19%	17%*
Acute care hospitalization	32%	29%	22%	21%
Hospitalization for injury	1%	1%	1%	1%
Hospitalization for CHF exacerbation	9%	8%	2%	2%
Improvement in management of oral medications	37%	49%*	42%	48%*
Improvement in transferring	41%	61%*	51%	62%*

\* Time 1 compared to Time 2, significant at  $p < .05$

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**Few statistically significant differences in satisfaction scores were noted between Time 1 and Time 2 for either the CHF or Non-CHF patients**

Table 4 lists the mean patient scores for Group 1 and Group 2, as well as for Non-CHF patients during Time 1 and Time 2 as a comparison. For CHF patients, with the exception of Group 1 having a significantly higher satisfaction with home health aides section score than Group 2, no differences were noted. For Non-CHF patients, in contrast, Time 2 saw a significant increase in satisfaction with arranging your care section score and satisfaction with nurses section score. The correlation (which examines the strength of a relationship) of Prospective Payment System (PPS) case weight with these outcome variables (for Group 1, Group 2, and the Non-CHF groups) was examined to explore its potential impact on these findings. However, no significant correlations were identified.

**Table 4 Comparison of Patient Satisfaction**

Patient Satisfaction	CHF		Non-CHF	
	Time 1 (Group 1)	Time 2 (Group 2)	Time 1	Time 2
Patient Count	56	43	997	1025
Overall patient satisfaction	95.7	93.8	92.9	93.7
Likelihood to recommend	96.4	96.1	95.3	95.8
<b>Survey Sections</b>				
Arranging your care	95.5	93.0	92.5	93.6*
Dealing with the office	93.4	93.4	90.0	91.0
Nurses	97.7	97.0	94.6	95.6*
Home health aides	97.2	89.4*	93.0	92.5
Therapists	95.3	96.9	94.8	94.3
Final Ratings	94.5	94.2	93.4	93.3
<b>Other Items</b>				
Satisfaction with aides contacting if late or not coming	97.0	90.3	93.3	92.6
Satisfaction with keeping family informed of treatment and progress	95.3	92.7	93.0	92.5

\* Time 1 compared to Time 2, significant at  $p < .05$

### **Significant reduction in visits seen between Time 1 and Time 2**

Comparative analysis of visit utilization revealed that Group 2 had significantly fewer total visits per case than Group 1, and significantly fewer skilled nursing visits. This was also true of the two Non-CHF groups at Time 2 vs. Time 1; additional reductions in home health aide and physical therapy

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(see **Table 5**). Initiatives in place during this time included the integration of telehealth units into the overall plan of care, as well as implementing specific care guidelines related to specific diagnoses. These initiatives were aimed at reducing the skilled nursing visits which is reflected in the discipline breakdown.

**Table 5 Comparison of Visit Utilization**

Average Visits per Case	CHF		Non-CHF	
	Time 1 (Group 1)	Time 2 (Group 2)	Time 1	Time 2
Patient Count	182	160	2448	2350
Total Visits	22.2	16.7*	22.3*	19.3*
<b>Visits by Discipline</b>				
Skilled Nursing	13.7	10.3*	13.2*	11.3*
Aides	4.5	2.6	3.8*	2.8*
OT	0.9	1.3	1.1*	1.5*
PT	3.0	2.5	3.9*	3.4*
ST	0.2	< 0.1	0.2	0.3

\* Time 1 compared to Time 2, significant at  $p < .05$

### **Overall, it appears the number of visits was largely unrelated to satisfaction scores for Group 2**

The relationship between patient satisfaction and number of visits for Group 2 was examined by correlating satisfaction section scores, overall satisfaction, and likelihood to recommend scores with total number of visits and visits by discipline. These analyses revealed that the number of skilled nursing visits was marginally negatively correlated with likelihood of recommending ( $-.39, p=.07$ ). Finally, the total number of visits was marginally positively correlated with satisfaction with home health aides ( $.47, p=.08$ ). All other correlations were not significant.

### **Take-Away: Disease management has had positive impact on HNA PI efforts**

The findings suggest that since the implementation of their disease management program the HNA patient population has experienced reductions in visit utilization while also experiencing a marked improvement in select clinical outcomes targeted by the disease management program – management of oral medications, transferring, hospitalization, and emergent care rates. What is more, these areas of performance improvement occurred in both the CHF patient population and the Non-CHF patient population. This suggests the disease management program has been beneficial not only to a target population (CHF), but its basic elements have also benefited the larger patient population at HNA. These improvements were achieved even as the average case weight among CHF patients and Non-CHF patients was significantly increasing.

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Taken together the analyses of the satisfaction data reveal both areas of growth and areas for potential improvement. However, these improvements were not seen in home health aide scores. Across all CHF patients, HNA maintained the existing high level of satisfaction, while experiencing a decrease in home health aide scores. The positive correlation between total number of visits and home health aides scores suggests that those who are visited less often are rating home health aides less. Further work to identify issues specific to CHF patients, and developing appropriate strategies based on those findings, could produce improved home health aide satisfaction scores.

### **HOME NURSING AGENCY SERVES AS A ROLE MODEL FOR LEVERAGING INTEGRATED ANALYSIS**

HNA serves as a role model for how a home health agency can leverage their standard clinical and patient satisfaction data, and how to pursue customized integrated analysis to advise and evaluate their performance improvement efforts. While the initial integrated patient-level analysis served more to validate and enhance the performance improvement efforts that were already underway at their agency, a different agency might have used results from a similar study to inform initial or ongoing discussions on where and how to focus their performance improvement efforts. Similarly, it is easy to see how the second custom patient-level analysis performed for HNA could be used as a template by which another agency could evaluate the impact of specific interventions on select patient populations to achieve both improvements in clinical and satisfaction outcomes.

Whether to provide analysis to meet internal performance improvement data needs or to meet the demands of the coming pay-for-performance environment in health care, analyses of integrated, patient-level, clinical, and patient satisfaction data can provide rich information and serve as a catalyst to improve care quality. Forward-thinking agencies, like HNA, will continue to actively seek out the possibilities presented by integrating their patient-level data.

Since research shows that improving patient satisfaction improves clinical outcomes and financial performance, Press Ganey Associates, Inc. and OCS, Inc. partnered to provide unique and powerful in-depth analysis for home health agencies. The Home Health Performance Monitor™, exclusively available to agencies that are both Press Ganey and OCS clients, evaluates multiple interrelated agency performance metrics, identifies areas of success and improvement, and sets target benchmarks for improvement. Also available is custom patient-level analysis to help home health agencies better focus their performance improvement efforts.

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### RESOURCES

<sup>1</sup>Abt Associates website: <http://www.abtassociates.com/index.cfm>

<sup>2</sup>Centers for Medicare and Medicaid Services, “The Home Health Pay-for-Performance Demonstration: Demonstration Overview and Terms and Conditions of Participation,” <[http://www.cms.hhs.gov/DemoProjectsEvalRpts/downloads/HHPP\\_General\\_Info.pdf](http://www.cms.hhs.gov/DemoProjectsEvalRpts/downloads/HHPP_General_Info.pdf)> (16 May, 2008)

<sup>3</sup>Agency of Healthcare Research Quality. 2007. CAHPS® Survey Products—CAHPS Home Health Care Survey. U.S. Department of Health & Human Services. Available at: [https://www.cahps.ahrq.gov/content/products/HH/PROD\\_HH\\_Intro.asp?p=1021&s=217](https://www.cahps.ahrq.gov/content/products/HH/PROD_HH_Intro.asp?p=1021&s=217).

<sup>4</sup>Agency of Healthcare Research Quality. 2007. Supporting Statement Part A: Voluntary Questionnaire and Data Collection to Pretest Proposed Home Health Care CAHPS® Questions and Methodology. OMB No. 0935-0124. Version: Nov 26th.

<sup>5</sup>S.A. Bavin, & B.R. Fulton, “The CAHPS® Home Health Care Survey (HH-CAHPS): Current Status, Future Implications” Press Ganey Associates, White Paper. CAHPS® (Consumer Assessment of Healthcare Providers and Systems) is a registered trademark of the Agency for Healthcare Research and Quality, a U.S. Government agency.

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