

# Using Data Analysis and Dashboards to Identify Problems and Propose Solutions in Home Care

By Fran Lorion, CIO  
VNA of Boston

Here at the VNA of Boston IT Department, we have a long history of developing custom reports to assist management. And when the oldest VNA in the country uses the words "long history," one must keep in mind the organization was established during the first Cleveland Administration (1886). We are certainly proud of our heritage and totally focused on delivering the very best care to our patients. In the IT Department, improving patient care quality means we measure, report, analyze and adjust.

While delivering continuously better care was never easy, recent increased competition and regulatory changes have made that goal much more difficult to achieve. We have learned that if we do not continually strive to be the best - then we are doomed to mediocrity. This paper describes how we measure, report and analyze so that clinical and financial management may make informed adjustments.

Since 2000, we have used various tools and techniques to access the data in our systems in order to provide management with the necessary information to run the business. We designed custom reports to augment those provided by our vendor (McKesson), generally from SQL Server databases and Crystal Reports. Other reports were produced using a combination of vendor supplied reports that generated MS Access databases to enable us to drill down further into the enormous store of data in the computer.

One example of this methodology comes from our [PPS Analysis Reports](#). We run these reports monthly and sort them both by episodes beginning and episodes ending during the date range. They display detailed episodic information at agency, district, team and individual clinician level. By drilling down further, we can view individual episodes, by clinician, with cost and margin analysis included. These PPS Analysis reports have been instrumental in helping management control Visits/Episode, LUPAs and SCICs.

Another report quite popular with Clinical Operations is our [5/9 Week Report](#). What is interesting about this report is not so much what it contains but the way in which Clinical Operations managers decided to use it. While our PPS Analysis Report is useful to the agency's business managers because it reveals excellent detail about a previous month's episodes, it is not a tool that provides information in time for clinicians to do anything about its results. What clinicians needed was a way to look at activities taking place during an episode, when they would still have an opportunity to make visit or practice changes that might result in better outcomes, fewer LUPAs, lower visits-per-episode and more accurate M0825 answers.

Consequently, we adapted the monthly PPS Analysis Report to run weekly and only for active episodes. Each week, clinical management focuses on episodes that began 5 and 8 weeks earlier. This deep into an episode, they discovered, it is easier to see visit patterns and how they match individual plans of care. The point not to be overlooked is that we always had this information available to us. It is the way we use the data that significantly changed, thereby adding substantial value to the organization. The innovation led directly to lower Visits-per-Episode, lower LUPA rates and more accurate M0825 answers.

Another key report is our Dashboard Indicator Report. This was developed to integrate various data elements from business, financial and clinical sources within the computer in order to give everyone a clear and consistent view of every key business driver. This report was one of the key contributors to our dramatic turnaround several years ago and is eagerly anticipated each month by those whose job it is to be fascinated with each month's progress in a number of important business areas as our turnaround continues.

In the early days of PPS, the VNA was under tremendous financial stress trying to adjust our business model to adapt to that year's dramatic reimbursement changes. We were losing several millions of dollars each year until we did manage to get the business turned around. Recently, the VNA of Boston posted gains of over \$1 million. Our ability to access data and use it effectively is what kept us in business. Because our Dashboard Indicator Report shows a rolling twelve months of data, it helped focus senior management on the areas most critical to our survival and gave us an ability to quickly see trends developing as well as measure improvements as the changes enabling them were being implemented.

We have tapped every possible piece of information from internal and external sources to use as benchmarks in order to continually improve our operations in administration, finance and clinical. We have used data from CMS, OCS, Fazzi Associates, home health line, Home Care Automation Report, Remington Report and Success in Homecare. These data, along with our own benchmarks, help us to position ourselves for improvement.

### **New Challenge: Stale Data, General Data**

Up to now, however, we have been frustrated with our inability to get detailed information about Outcomes and Adverse Events in a timely manner and at a level where we can effect changes necessary to compete in the coming P4P world. All of our Outcomes and Adverse Event data were certainly available, but no more frequently than quarterly and no more detailed than at the agency level. In today's environment of low margins and increased competition, that frequency and that detail are inadequate.

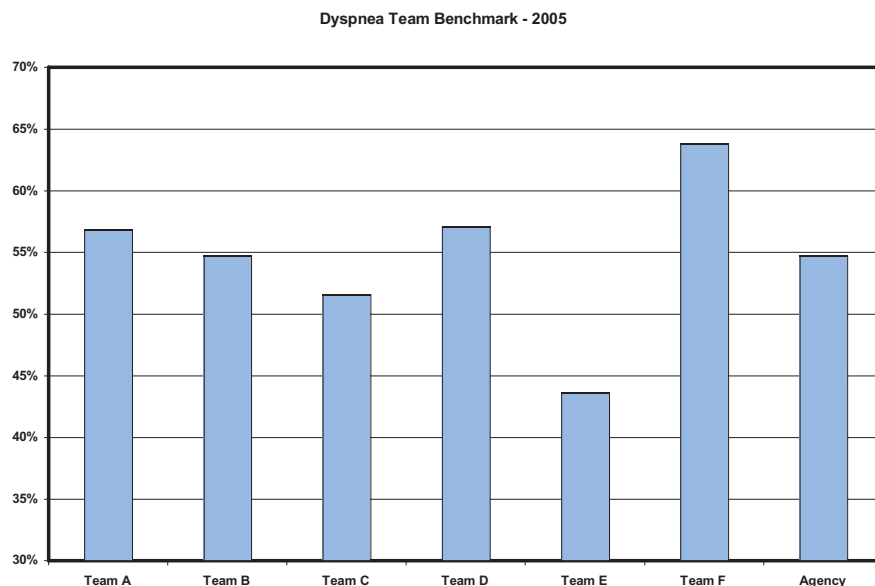
What made this particularly frustrating was that the data reported back to us quarterly actually came from information that was already in our computer systems. We saw that, in order to respond to the challenges of today's highly competitive and looming P4P environment, we not only needed to understand where to improve but we also needed the ability to monitor results no less often than monthly.

*The point not to be overlooked is that we always had this information available to us. It is the way we use the data that significantly changed, thereby adding substantial value to the organization. The innovation led directly to lower Visits-per-Episode, lower LUPA rates and more accurate M0825 answers.*

Help to meet the requirements of this realization happened to arrive just at the right time when our vendor, McKesson, invited us to participate in their ALPHA and BETA testing processes for a new decision support tool. With their new [Horizon Homecare] Insight 9.1 product, I now have the ability to “mine” the vast amount of financial and clinical data stored within our patient database. We have already developed mechanisms to report on Quality Outcomes and Adverse Events at agency, district, team and even individual clinician levels. Decision support tools such as this one help an agency improve overall quality by enabling them to search out “best practice” clinicians from the data. We use that information to develop practice changes for other clinicians who need help. We continue to monitor their improvement on a month to month or quarterly basis.

### Real world example #1: Dyspnea outcomes

A good example of this improvement process we developed is found in a recent initiative to improve our Dyspnea outcomes. We knew from available data that this was an area that needed some attention. In early 2006, we used data from [Horizon Homecare] Insight to analyze our clinical teams in order to select a one of them for a performance improvement initiative.



*Figure 1*

As can be seen in Figure 1, Team E’s outcomes, at 44%, were significantly lower than the other teams. Only 44% of the patients seen by Team E that were eligible for improvement in their Dyspnea outcomes were actually improving. Therefore, we selected them for this performance improvement initiative and established a goal of 70% improvement by August 2007. Once the team was selected, we ran the same type of analysis at the individual clinician level. With this benchmark established, it was then up to the team to develop its own practice changes aimed at improving outcomes.

The team developed the following four initiatives:

1. A systematic way to assess Dyspnea, which became the "VNAB Dyspnea Scale"
2. Standard ways to teach patients how to use inhaled medications
3. Teach patients simple breathing and lower extremity exercises
4. Teach patients specific relaxation exercises

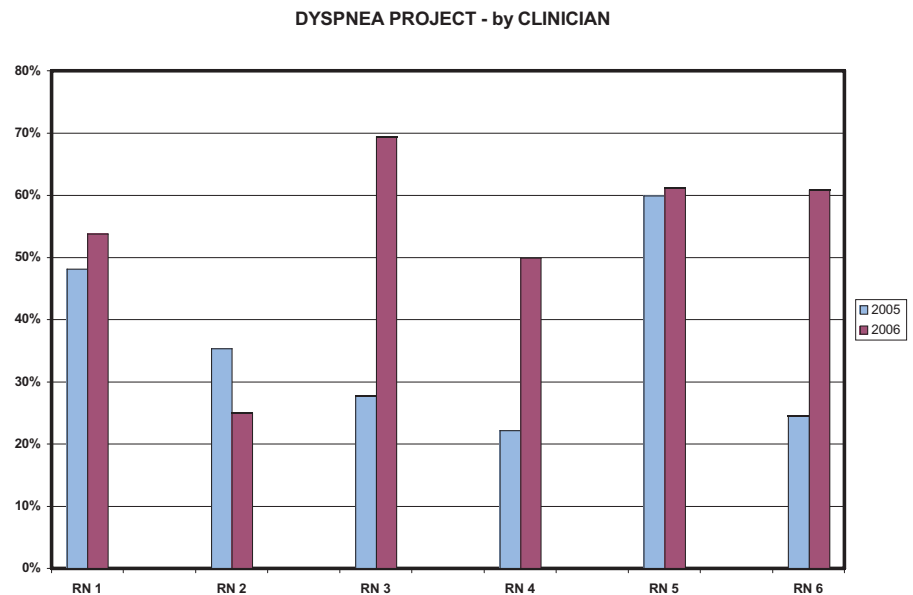
With the team selected and best practices defined, implementation was then up to individual clinicians, with the agency measuring progress. The impact of the project was felt almost immediately. The team's first quarter rate was 56% and by the end of the second quarter it had reached 60.51%, an improvement of almost 40%. That much improvement was even more dramatic against a backdrop of a mere 4% agencywide increase, from 54.81% to 58.72%, over the same time period.

An important point to repeat here is that if I did not have the ability to measure at individual clinician detail, the only improvement we would have seen was the overall 4%. Clearly, the key to meaningful improvement is:

- *establish a target,*
- *select and document a benchmark,*
- *select a project or pilot team,*
- *continuously measure, at the individual level, while introducing process improvements.*

*Decision support tools such as [Horizon Homecare Insight] help an agency improve overall quality by enabling them to search out "best practice" clinicians from the data.*

Figure 2 shows a cross-section of our clinicians on Team E, demonstrating that, while all of them have not achieved the same results, most have experienced dramatic improvements since adoption of new Dyspnea "best practices."



*Figure 2*

The advent of [Horizon Homecare] *Insight 9.1* has brought an additional analysis tool and with it access to clinical data that up to now was very difficult to isolate.

It also reinforces my theory that good reports generate the need for more information. How often I hear, "this report is great but if it just had this one more piece of data..."

We have applied the principles learned in the Dyspnea project to the following areas:

- *Management of Oral Medications (by Team / Clinician)*
- *MCH referrals (by Payer / Month)*
- *Clinician Analysis (Episodes / Visits / LUPA / Cost / Margin / etc.)*
- *PPS Analysis*
- *Quality Outcomes (by Discipline)*

### **Real world example #2: LUPA control**

Let's look at another example of how much more effective management can be in improving the organization by having the will and the ability to dig deeper into the vast amounts of data already at hand.

Our agency LUPA goal is 13.5%. Over the last twelve months our LUPAs ranged from 11.6% to 13.7% and we were at 13.01% during the first six months of this year, keeping us at goal in terms of agency average. Here, however, is why having the ability to drill down deeper and deeper can produce valuable information that an agency can act upon to make improvements where the need for improvement was not immediately apparent. By looking at how that 13.01% is divided up among our two district offices, we found that one is running at 12.38% and the other at 13.50%. Still not bad but we then took an even closer look. At the individual team level, I noticed that the rate varied from 9.94% to 15.05% across six teams. Now we could see, with increasing management interest, that we had "best practice" groups and groups that needed help.

Figure 3 isolates nurses on the high-LUPA team who had at least 20 admissions during that period. It reveals individuals with LUPA rates as low as 6.12% and as high as 40.48%, with 8 of 14 team clinicians over our 13.5% target, telling us exactly where to pinpoint efforts. Further, the clinician who produced the 40.48% LUPA rate was responsible for 25 episodes during that period, raising concern that some patients might be underserved. Now, we could improve overall agency average by targeting training toward eight individuals. The remarkable point here is that this is an area where the agency assumed no problem existed because the average met the goal. Without the ability to drill down to the individual clinician level, this rich opportunity for improvement would have gone untouched.

LUPA Rates by Clinician

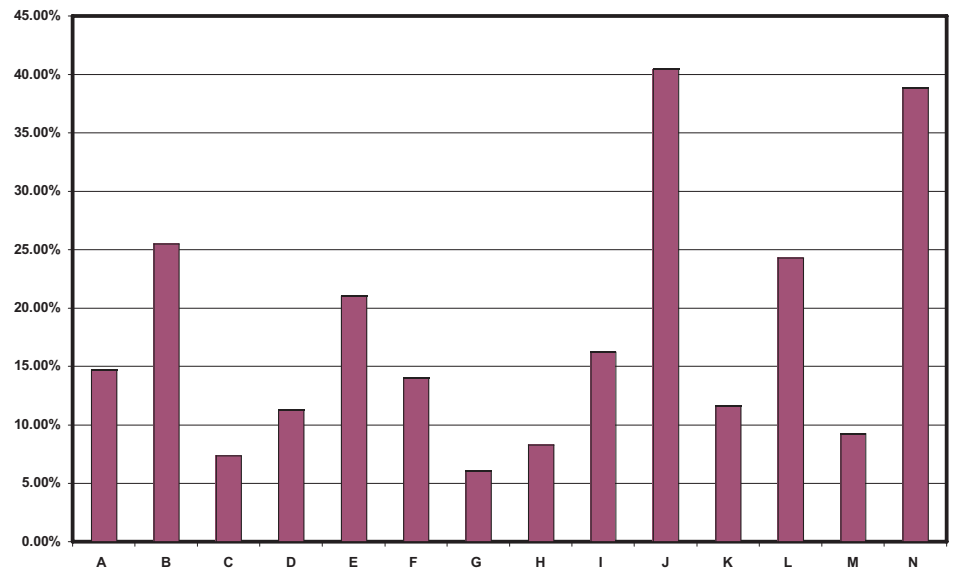


Figure 3

*The data that will help us [be the very best VNA of Boston we can be] is already there in our systems; our task in IT is to find it and make it available to management in such a way that they can analyze and act on it.*

While this LUPA improvement example may be a fairly simple one, the overall theory remains the same whether the focus is Outcomes, Adverse Events, margins or anything else. How can best practices be determined if data cannot be evaluated at macro and micro levels? In addition, you cannot clearly effect the necessary change without knowing the source of the problem.

Our objective here is not to be average, or good, or even great by anyone's standards other than our own. Our objective is to be the best that the VNA of Boston can be. The data that will help us get there is already there in our systems; our task in IT is to find it and make it available to management in such a way that they can analyze and act on it. Data is only data until you add some value to it – only then is it transformed into information.

### McKesson Provider Technologies

5995 Windward Parkway  
Alpharetta, GA 30005

<http://www.mckesson.com>  
1.800.981.8601

This article originally appeared in "Home Care Technology," Fall, 2006. All rights reserved by the Home Care Information Technology Council, <http://www.homecaretechnology.com> Reprinted with permission. Article reprint courtesy of McKesson Provider Technologies. ART106-12/06