

THE COMPUTERWORLD HONORS PROGRAM

CASE STUDY



ORGANIZATION:

NYU Hospital Center

PROJECT NAME:

Labor Productivity Management

Summary

NYU Hospital Center created a Web-based Labor Productivity tool that leveraged existing payroll, billing, and budget data and delivered it in a fresh and radically useful way. The new system, a holistic combination of people, processes, and technology, empowered hospital department managers to measure and monitor labor utilization while controlling associated costs quickly and easily. It transformed what was previously a theoretical exercise into timely, meaningful and actionable information that was a major piece in helping NYUHC achieve and maintain a major reduction in salary expenses. The system also identified opportunities for more accurate patient billing, and a favorable labor budget, while instilling a culture of accountability throughout the organization.

Introductory Overview

The financial wellness of a hospital is influenced by many factors, one of the most significant being labor costs. A sure way of improving profitability is to map hospital staffing budgets more precisely to patient volumes and units of service while controlling the associated costs. NYU Hospital Center (NYUHC), one of the world's premier academic medical institutions, found an innovative way to treat the issue of labor productivity management that improved the financial health of the entire organization. They created a Performance Management Office (PMO) and empowered its staff to develop with a labor productivity management tool that took advantage of the skills, knowledge and experience of senior leadership, multiple hospital departments, managers, and employees. In doing so, they transformed the organization into a culture of accountability and have been able to improve and sustain staff productivity levels across the hospital.

The key objective of NYUHC's labor productivity management project was to determine how productive employees are in both Fixed (Finance, HR, Security, etc.) and Variable (Nursing, Radiology, etc.) departments. Fixed department budgets are static; Variable department budgets are adjusted according to patient volume, acuity and units of service. The target for both is to stay favorable to budget, which means the department either worked with the same or fewer staff than budgeted during a specific pay period. Or appropriately "flexed" their staff up or

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down based on activity levels.

An earlier prototype for productivity management had been developed by outside consultants using Excel spreadsheets but was too cumbersome and complex for people to use. It was a good starting point, however, and provided a basic framework of business processes and requirements that helped when designing the new system. After a comprehensive consultative process that encouraged feedback from users and senior management, a new Labor Productivity tool emerged that everyone could understand, appreciate, and use. The reason is simple: NYUHC worked hard to get it right.

For starters, the Finance department had developed a decision support system several years prior and took great pains to represent accurate measurements of the value of each service performed in every department of the hospital – because, quite simply, “you can’t measure what you don’t know”. Called a Relative Value Unit (RVU), this unit of measure expresses the amount of effort (time, intensity of effort, technical skills) required by a provider in performing a given service relative to other services. For example, how much time it takes to apply a cast in the Emergency Department or perform a Chest X-ray in Radiology. Now an integral part of the Labor Productivity management system, RVUs are used to allocate salary expense (budget or actual) for the services performed. Because of RVUs, everyone is now looking at the same consistent view of the organization and using the same definitions – essentially they are all speaking the same language. There’s no misunderstanding or miscalculation of numbers.

The IT department evaluated how to implement and deploy the system most effectively. The answer was clear: a classic data warehousing application using modern and robust Web-based reporting technology to deliver fast, easy access to high-quality data. In a nutshell, the system uses a back-end Extract, Transformation, and Load (ETL) tool to extract data bi-weekly from Payroll and Patient Billing systems, and then transforms and summarizes it into an Oracle data warehouse for graphical reporting and analysis on the front-end via NYUHC’s secure intranet. Users can quickly evaluate summary data and then drill down to operational detail as needed.

NYUHC’s stable and robust technology platform coupled with their in-house expertise and project management skills enabled them to deploy the system in just five months. A rapid development IT team was assembled to work along with the PMO and Finance to complete the project. This team was made up of a project manager and specialists that each focused on a separate piece such as ETL, Database Administration, Application Development, Data Warehousing, and Report Writing, which all came together in the end to create the new Labor Productivity management system.

Using the new system, NYUHC’s 230 department managers can now quickly and easily analyze the productivity of their departments with a few mouse clicks. Mary Tedaldi, RN, MS, MA and Senior Director of NYUHC’s Performance Management Office, emphasizes “More than just reporting statistics, the Labor Productivity tool provides management with a structured approach to understanding the root cause of favorable and unfavorable results and taking corrective action where necessary.”

Directly from NYUHC’s Web-based executive dashboard, department managers can access 22 charts and 16 drill down reports from the Labor Productivity tool. The reports show actual labor expenses compared to budget in tabular and graphical formats so managers can easily see at a glance how a department is performing. The reports also provide drill-downs to detailed data to help understand the reason for any variance, for example, inappropriate skill mix, several



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employees on vacation at the same time, or high overtime usage. And they can even go a level deeper and find out the number of productive (regular and overtime) and non-productive (sick and vacation time) hours worked for each employee to highlight performance patterns requiring management attention. For example, a favorable budget may indicate an area that is short-staffed. Or it could mean that the budget should be revised at a more aggressive level.

This kind of variance reporting promotes accountability in the improvement and maintenance of productivity levels. The PMO staff does a thorough analysis of various reports and facilitates a process where department managers present corrective action plans to senior management. This process, supported by the tool, appears to be the main driver in getting results.

By raising awareness and educating staff on the underlying concepts of the system, NYUHC has achieved buy-in and adoption by senior leadership and hospital staff. The phenomenal success of the system is now anchored confidently in the people that rely on it to manage the efficiency of their departments. The bottom-line result is a favorable labor budget due to improved productivity, significant cost savings, and more accurate charge capturing.

Benefits

Increased labor productivity – The primary objective for NYU Medical Center’s PMO was to streamline and consolidate measurement and reporting into one central area to manage the performance of the organization as a whole. Through the development of the Labor Productivity management system, they created a measurement and monitoring infrastructure to support the timely and effective implementation of change and realization of results. This has yielded improved and sustainable labor productivity levels, reduced labor expenses, and produced a favorable labor budget.

NYUHC set very high-level benchmarks in terms of FTEs per AOB (full-time equivalency employees to occupied beds, a common measurement of productivity in the healthcare industry). At the time of initial assessment in 2004, they scored at 5.95. In 2005, they actually drove the number down to 5.75, for a cost savings of \$6-7 million, a considerable improvement for an academic medical institution. Peter Barden, Senior Director of Budget and Planning at NYUHC reports that the Labor Productivity Tool’s ability to measure, monitor and drive performance levels to where they wanted them to be has played a major role in the success of that initiative.

Accurate representation of labor productivity – Because of the effort that went into defining RVUs, and then the comprehensive process of educating users on what they meant, the Labor Productivity system has managed to pull people together for a common goal. Users received intensive training, documentation and education. When asked, “Where did you get that from?”, the PMO team explained thoroughly how calculations were done and what each column of data meant. Many columns don’t represent just one number but are a roll-up of several items in one bucket. For variable departments, it makes a huge difference for them to know the detail behind any variance. For example, on Nursing units, action might need to be taken and staffing may need to be adjusted, depending on what is happening on that unit. This was a very important aspect of usability and acceptance of the system.

Consistency, reliability, and credibility of information – NYUHC can’t afford any misunderstanding or miscalculation of numbers on their reports. Using Excel spreadsheets, the truth could sometimes get lost because information was presented in different ways and there was a



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greater chance of misinterpreting data and of errors. That's why the IT department utilized fail-safe technology to develop the Labor Productivity management system for reliable, accurate and high-quality data time after time. Performance management reports from the Labor Productivity System are reviewed with hospital executives every two weeks and everyone is on the same page.

An unexpected benefit of the Labor Productivity tool was uncovering errors or inconsistencies in the Payroll database. During the transition to a new Payroll system, the Labor Productivity tool picked up on data that hadn't been entered correctly, showed a variance, and enabled managers to fix the problem before too much time elapsed.

Timeliness of information – Historically, NYUHC has been limited to a monthly view of budget data because that's the schedule for most of their financial systems. Consequently, it would be the middle to the end of next month before you got a sense of what was going on in terms of budget variances. Timeliness was a big issue. Now that the Labor Productivity tool delivers information on a bi-weekly basis, managers can pick up any discrepancies very quickly – they literally jump right off the charts. This helps to catch trends and pinpoint areas that may require special attention before a situation worsens.

Increased management accountability and better overall labor management - Greater understanding of service value resulted in increased management accountability. The Labor Productivity system enabled service managers to be more responsive and responsible. Now any variances between budgeted and actual labor costs bubble up very quickly. If you are a service line that is experiencing high labor costs, it shows graphically on the report and must be dealt with by some kind of correction action. Senior leadership actively participates in the review of these corrective action plans through a Labor Productivity Committee that is facilitated by the PMO and meets every two weeks. The committee is chaired by the Executive VP/COO and consists of the CFO, CNO, the SVP of Hospital Operations and the SVP of Human Resources. Department managers present their corrective action plans to the group and a dialogue takes place that provides insight to operational issues and proposed resolutions for improvement in productivity.

There are always minimum staffing requirements and situations that can't be helped – but there are also those that can be. Now managers are creating more tactical action plans to handle departmental variances. For example, they may introduce more shift flexibility by cross-covering and cross-training people. They may also implement tighter control mechanisms for per diem and overtime usage or float staff when patient volumes decrease. Some managers have set up staff pools on a per diem basis as opposed to paying overtime. For example, the Security department was paying out very high amounts of overtime every time there was a special event. They set up a staffing pool and were able to cover their needs with security guards on regular time, which produced significant cost savings.

The ease in which senior executives can access timely and relevant information brings problems to their attention that might not have been uncovered before. Plus, through the Labor Productivity Committee process, the system gives executives greater insights into the work being done “in the trenches” so they can better support their staff. It's a win-win on all sides.

Higher revenue for the hospital – Because RVUs are tied to the Patient Billing system, it forces staff to capture and input charges, ensuring they are charging appropriately for their services and correctly depicting patient volume. When problems do occur, for example, a missing charge slip or systems interface glitch, the Labor Productivity system highlights them for faster resolution.



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This has resulted in more accurate patient billing and increased revenue across the board.

Improved “Customer Service” – NYUHC consists of two hospitals, Tisch Hospital and Rusk Institute of Rehabilitation Medicine, and New York University School of Medicine. In addition, they have recently merged with the Hospital for Joint Diseases. For the PMO, the department managers in all of these institutions are customers. Their mission is to make it easier for department managers to do their jobs, which enables them to concentrate on delivering excellent patient care. The PMO recognized that when you are asking busy people with demanding jobs – especially those in clinical departments – to use a labor productivity tool, you have to get it right or risk losing their faith in the project altogether.

Organizational Learning – People were never before held accountable for managing their labor utilization at such a level and have accepted this responsibility through the Labor Productivity system. The reason being is that by providing an effective management tool and education process, they now understand labor productivity which has created an organization learning and cultural change towards accountability.

The Importance of Technology

The IT Department at NYUHC is a Web-based Java2EE compliant application development shop. They have standardized on Java for core development, Oracle for database management, and WebFOCUS from Information Builders for enterprise reporting. They use BEA’s WebLogic Server as their application server and Sun Microsystem’s iPlanet for their Web Server.

This project would not have been successful without the right technology mix. The IT department evaluated the business requirements – reliability, speed, security, and ubiquitous data access – and devised a robust and scalable technology solution to match. The result was a data warehousing application that receives live feeds bi-weekly from the NYUHC Payroll system (PeopleSoft) and the NYUHC Patient Billing system along with Budget statistics from the Finance department databases. It utilizes IBM’s Essential Data Stage (formerly Informix) to transform, analyze, and summarize the data in an Oracle data warehouse where it is ready to be analyzed. WebFOCUS enterprise reporting software is employed to report against the Oracle data and deliver operational business intelligence on demand. The PMO electronically notifies users via email that reports are available and provides a hyperlink to the Web Dashboard. NYUHC has chosen not to distribute financial reports via email for security reasons.

Nader Mherabi, Senior Director of Information Technology at NYUHC, says, “Our architecture provides a stable platform to ensure that the hospital’s sensitive financial information – the key data used in decision making – is reliable, secure, and timely so that info is at the users’ fingertips when they need it, wherever they may be.” The system takes advantage of the power of Oracle databases and denormalized data to maximize performance and serve up information at high speed.

The advantage of standardizing on these technologies for this and future development projects is faster time to market, lower Total Cost of Ownership, less training and support costs, and greater knowledge sharing.



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Originality

NYUHC took a unique approach to the problem of managing labor budgets by creating a new office for Performance Management and setting a new course for the organization as a whole. The approach successfully integrated people, processes, and technology and resulted in the hospital's first Labor Productivity Management system that was Web-based, accessible from the intranet, and radically useful.

In order to visually demonstrate the impact of every staff member's contribution to productivity, custom Web reports were designed which enabled users to quickly and easily find the metrics they need, whether summaries of volume-adjusted variances or detailed departmental performance and trends in tabular and graphical formats. Each user's access to information is customized to their level of management and scope of work. So for example, aggregate summaries of the whole organization are particularly helpful to senior executives whereas a department manager is able to view information for their respective department. The custom interface is a slick, intuitive front-end that presents complex information in a simple and straightforward way, making it easy for users to instantly decipher information and make decisions based on what they see. This dynamic interaction with the data is essential for yielding performance improvements across the organization.

One of the biggest advantages in the Web-based tool is the easy access to drill down reports which takes just a simple "click" of the mouse. Managers love this which saves them from having to look in different systems for operational reports that will support their variance. They just do not have the time for this and making their lives easier is key for user compliance.

There was nothing new in the fact that NYUHC was using RVUs to indicate the relative weight of various services and processes (in minutes or dollars) that take place in a hospital, from X-rays, to lab tests, to nursing days. They have been using them for cost accounting purposes for years. What is new, however, is the way RVUs were leveraged in the Labor Productivity tool to hold people accountable for their labor budgets. In fact, using RVU's for all departments in measuring productivity is unique to other hospitals. Most use different metrics specific to each department (i.e. # of procedures, cases) as opposed to a consistent measurement of volume. At a recent presentation of the NYUHC system at a HFMA conference, the audience responded in astonishment and was quite interested in learning more about the RVU system. Our goal is to publish this information and pioneer the system so that other hospitals use it as well which will provide us with the capability of external benchmarking.

Success

Finance had previously worked with departments to determine RVUs and keep them updated but were met with little success. But with the establishment of the Labor Productivity tool, everyone now understands RVUs because there is a vested interest, raised awareness and total buy-in of the system. A real "team work" relationship has been successfully developed between Finance and the operational departments.

There were several key factors that ensured the project's success. First, they elicited senior leadership support and participation from the beginning. Then they made the system simple and not complex with a user-friendly interface and easy navigation so that people would take the time to view it. They listened carefully to department managers and provided them with the infor-



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mational reports needed to support variances. Finally, they embraced organizational learning, trained all users on the tool, and provided continuous and consistent communications about it.

Managers at all levels benefit from this tool providing them with critical information. According to John Harney, EVP/COO, there have been many tangible benefits achieved throughout the organization as a result of the Labor Productivity tool: greater accountability by managers, better understanding of how to flex staff based on workload, better use of non-productive paid time off, focus on patient charge capture, and creative ideas to align salary expenses at the least cost.

NYUHC's Building Services Division, which consists of transport, linen, and housekeeping services, has experienced substantial improvements as a direct result of the Labor Productivity Tool. Peter Aguilar, Director of Building Services at NYUHC, explains: "Before we started using the productivity tool, Building Services was consistently over budget with regard to salaries to the tune of 26 FTEs (approximately \$80,000 per pay period). Using the tool, we have brought that down to 3 FTEs (\$9,000 per pay period). Now I can easily examine every hour we utilize and look at all of our systems to see where we can improve our productivity."

There are 298 people in the Building Services Division. Seventeen managers use the tool regularly to compare productive hours versus non-productive hours and how they are running in terms of budget. "The tool has become my time management routine. If we budgeted 1000 hours, I want to know where we are in relation to those 1000 hours," says Aguilar.

Managers in Building Services can tell precisely where money has been spent from top to bottom of the department. According to Aguilar, his team knows when the new information is published on the intranet and rush to see how they performed. He adds, "The tool has made us respect the penny. Without it, there is no push to improve and no real understanding of performance throughout the year. The tool gives us the facility to compare actual to budget with regard to salaries so we can see exactly where we are, pay period by pay period. It helps us to be better managers by valuing every hour we use."

A real indicator of the success of the Labor Productivity project is that NYUHC's senior management wants to replicate it in other departments and functions throughout the hospital. The CFO has requested a similar Web-based tracking tool and corrective action plan process to measure and monitor non-salary expenses such as supplies and equipment.

To date, feedback from senior executives and department managers alike has been extremely positive. Executives have reported that the outcomes of this project have helped them make more informed and timely decisions. For department managers, the visualization of information has made the numbers come alive. Now RVUs really stand for something and everyone can more easily grasp both the clinical and operational impact of staffing decisions.

It was amazing how the project roll-out took place in such a short period of time. The project team began their work in May 2005 and by November of the same year, the Web-based tool went live and 70% of the 230 users have been trained to date. Training sessions are given monthly with attendance at full capacity including new managers. The fact that the tool's information can help dept heads manage is the impetus for them to learn how to use and understand the tool's capability.



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Difficulty

The Performance Management Office's first objective was to set up a balanced scorecard for the organization that contained global indicators for quality & satisfaction, growth, operations and financials. These are the highest levels of measurement for the hospital's fitness. Obtaining buy-in and consensus from senior leadership took some time, but it was important to have a mutual understanding of objectives before starting the labor productivity project.

Another challenge for the PMO was to overcome the perception of being a department that just reports statistics. They wanted to measure productivity and then take action - really do something in terms of the numbers. That's why they built in the structured approach to corrective action, and did it not as a punitive practice, but to motivate managers and employees to achieve higher performance levels.

Labor productivity had been a big issue for NYUHC and creating a system to manage it represented a huge cultural change. There was some resistance at first, not helped by the fact that the previous Excel-based tool had been so difficult to use and complex to understand which proved to be ineffectual. But they made the leap to the new Web system, inspired confidence, gained credibility, proved that it works, and now everyone is on board.

Overcoming these hurdles and pockets of resistance required a rigorous QA process so that people accept the system and trust the data. It's no good releasing something that is not ready for prime time because users will quickly lose faith in the product. NYUHC's IT team ensured the success of the project by developing a rock-solid tool that people can easily use. They educated users and communicated with them every step of the way. Users felt they were listened to and became an essential part of the project, which promoted buy-in. For example, with the previous Excel-based tool, almost every phone call was a complaint. The PMO went to senior management and said, "if you want people to be accountable, you have to give them the information they need." Now most of the phone calls are positive. Users love the reporting tool and the information that helps them manage more effectively - that's what they are responding to.