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### Development of Productivity Measurements for Healthcare IT

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**There is a never-ending search by healthcare managers to improve quality and productivity in the workplace. Successful implementation of information systems assumes that improvements with productivity and quality of work will occur, at least over time. In order to measure improvements, managers must establish monitors and develop base line productivity and quality standards. The ultimate goal is to achieve best performances from the work group.**

This process was recently undertaken at a Health Information Management Department at a large urban hospital in New York City. Hospital administration desired to streamline processes in the department to prepare it for an EMR (Electronic Medical Record) system scheduled to be installed within a year.

The management of the department had little to no traditional HIM training. Administration planned on restructuring the department and to hire a HIM director that would provide leadership during this critical transition period and beyond.

#### **Data Should be Collected Only if Useful**

The employees at this hospital are union members, with reward for seniority rather than performance. Employees rarely, if ever, received feedback regarding productivity and quality of their work. Historically, management collected large amounts of daily data on employee work. However, much of these statistics had lost meaning over time. Any data that is collected should be done so with purpose and intention. If not, then the process should be eliminated.

It was recommended that the department restructure the daily data collection so that the information collected was easy for both employee and manager to manage. The main focus was that the employees needed to quantify how much time was spent performing key functions within the department. Management needed to assure that the most important functions were being performed on time and with good quality. This is why quality and productivity standards needed to be established.

#### **Metrics for Productivity in Optical Imaging**

The focus on productivity initially began with the prepping, scanning and quality control (QC) functions of the optical imaging area. The department had an imaging system in place for many years to scan patient paper medical records.

Management developed the monitors for productivity: for prepping, inches of paper prepped per hour; for scanning and QC, images processed per hour were established. All work hours associated with each function were recorded by the employee as well as the number of inches of paper processed. The actual images scanned or QC'd were provided by reports from the imaging system.

It should be noted that the number of hours worked on a job function did not include breaks, lunches, meetings, etc. Worked hours reflected actual time worked. Non-work hours would also be collected as a way to monitor lost work time. Analysing lost work time could be advantageous to study and decrease as well. Management should attempt to maximise the time employees are paid producing work.

#### **Securing Employee Participation**

The imaging monitors were presented to the employees to review and make any suggestions. These monitors \ were agreed upon and

worksheets were developed for the employees to record statistics on a daily basis. Education was provided to the employees on how to complete the new productivity worksheets.

It took time for employees to adjust to the new method of documenting their work day especially keeping track of the hours spent on job functions. As management reviewed the worksheets, continuous evaluation of accuracy and completeness were made and employees were counselled as appropriate.

### **Documenting Productivity**

Excel spreadsheets were developed to document daily productivity amounts by employee and for the group.

The first set of data collection showed that there was a wide variety of production results especially for the prepping function (see Table 1). One employee had extremely high productivity of more than 10 inches per hour prepped. The lowest producing employee had less than two inches per hour prepped. The group average was 4.9 inches prepped per hour.

With this first set of data, management was able to make some actionable decisions. This analysis is an example of managing with data.

The number of hours worked per employee per week was taken into consideration. The employee with the lowest production worked the longest number of hours on this job function. Another observation involved the number of people involved with prepping.

In a "what if" scenario, if only the top seven performers prepped more hours during the week, the average prepping per hour would increase from 4.8 to 6.9 inches. If the top four performers prepped the average inches prepped per hour would increase to 8.2 inches.

The theory established based on this initial period was that having only top performers work at certain job functions management maximises the productivity and decreases the hours needed to perform the work overall. FTE reductions could ultimately be realised.

### **Tradition of Cross-Training**

Historically, management in the HIM department had made sure that all employees were cross-trained to perform as many jobs within the department as possible. In addition, management focused attention to the prepping function because this is the first step that needs to be completed when utilising optical imaging. If all the work of the department is up to date, that is without backlogs (which frequently occurred) prepping could be a bottleneck. All the other employees working on imaging would be waiting for prepping to be completed before they could perform their work.

### **Avoiding Bottlenecks**

This resulted in most employees prepping, especially on Monday mornings, so that a bottleneck would not develop. Looking at the data (Table 2), most of the employees working the least hours had lower productivity, which was lower than the average of the group. This managerial decision of having everyone prepping was not financially prudent and produced poor operating efficiency.

It was determined and shared with employees that key groups of high performers could get the same amount of work done with less hours overall. This would ultimately decrease the number of hours (i.e.: FTE's) needed to perform these functions. Each function of prepping, scanning and QC was divided into primary teams and secondary teams.

### **Building Primary Teams**

The primary teams were composed of mostly the top performers for each function. However, special consideration was taken regarding personal issues and skill levels. There were approximately 4-5 FTE's in each group and they were provided an estimated amount of hours they were to work on that job function. The secondary teams were selected to provide backups for the primary group (in case of vacation or sickness). This methodology was implemented so that employees could manage the work themselves with little management intervention. It also forced the employees to cooperate with each other.

The employees generally were very receptive to the information. The team development process had begun. They seemed to understand the concepts involved. ID numbers were assigned to each employee so that each employee was able to monitor their own performance and how they measured up to the group.

## **Feedback and Motivation**

Feedback to the employees was provided both in groups and individually. Graphs of productivity monitors were found to be the best method to share data. There were some employees that were challenged by the data and wanted to improve their productivity. Others found that their numbers were not close to average and immediately felt unworthy of their work. Poorer performers were given more time and opportunities to improve. Unsuccessful performers were assigned other tasks that were better suited toward their skills.

Group meetings took place to review results and provide time for discussions. Team development was evolving. The team was slowly learning to work as a group. In time, it is estimated that continuous feedback with employees will empower them to improve their individual and group processes and ultimately become a better work group.

## **Follow-On Monitoring**

Over the following months, data continued to be shared with the employees. Adjustments with employee work schedules were eventually made and the averages of the work teams began to solidify.

During the initial period, employee ID #4 had a productivity average for prepping of 10.6 inches per hour. However, this number was found to be exaggerated and the productivity average dropped to 3.4 inches per hour. Perhaps the drop in productivity was because of employee inaccuracy with the number of hours worked or the number of inches prepped.

## **Dealing with Poor Performers**

This employee also was not pleased with being placed in the primary team for prepping. The employee felt that prepping was not challenging and it was one of the employee's least favourite functions to perform. This negativity could also have resulted in decreasing this employee's productivity numbers. The employee may also have purposely worked at a slower rate because that was just his personality. Another note of interest was that this employee was the most senior ranked union employee in the department. He utilized his seniority to extreme measures constantly challenging management with a variety of issues. The management staff needs to consider reassigning this employee to another task that he wants to do.

## **Unexpected Surprises: Productivity Drops**

Other significant changes occurred when comparing the initial period to the two-month period. (See Tables 3 and 4). Three of the top performers dropped their averages significantly. Other than employee ID #4 (described above), employee numbers 24 and 22 decreased four and 2.9 inches respectively.

Another shock was that two of the lowest performing employees in the initial period improved their productivity significantly in month two. Employee ID # 23 improved from 1.6 inches per hour to four inches. Employee ID # 11 started at two inches and improved to 5.5 inches.

These changes in productivity shifts were unexpected. It is believed that the ID 23 and 11 were completely motivated to improve while the ID 4, 24 and 22 may have inaccurately documented their numbers initially and then adjusted later.

Productivity is affected by many different issues as described above. Additionally, special attention should be given to the number of hours worked per job function by employee and for the group.

## **Building Win-Win Teams**

Best solutions must be found to make the work environment a win-win situation for both individual employee and for the group. Management has not found the right mix of employees to perform prepping. There is much room for improvement by eliminating poorer performers from working certain job functions.

Even though one could say that the initial period was not a true reflection of work performed, one could say that month two shows a better base of data from which to judge performance. Employee motivation needs to be further evaluated and team performance need additional discussions.

## **Management as Obstacle to Change**

The biggest obstacle of change has been within the management group. Logically, and in theory, management understands how the data works. They continue to make slow and sometimes illogical decisions. Long held beliefs of little to no backlogs at the end of the day continue to be emphasized. All employees still work on Monday mornings prepping records which defeats the purpose of only having the best performers work on certain functions.

The core problem with the department is that they are over staffed and work is distributed among all employees. If hospital administration was to force the department to cut positions, then setting priorities would be critical and managing by the numbers even more important. Until that happens there is not too much incentive to change management behaviour.

#### **Balancing Productivity and Quality**

Both productivity and quality of work must be balanced so that they are at the highest levels and neither suffers. Frequently, when productivity improvement is focused on, employees may sacrifice quality of work. Each employee must determine the best balance to optimally find the maximum output with the best quality that can be produced. Just as productivity must be measured, quality must be measured as well.

Quality monitors were implemented on a point system (ranging from 1-5), where management judges the severity of errors found. Minor errors are given low numbers and serious errors are given higher numbers like four or five. An example of a serious error resulting in an assignment of a five would be for indexing documents to the wrong patient. This would obviously result in a missing or lost record, one of the worst quality problems that could occur in a HIM department.

There are two ways that quality is monitored. Quarterly or biannually, audit samples are to be reviewed. Management will perform audits to look for quality of work. Minimum standards per function have been established and errors found through looking at a sample of an employee work would be reported.

In addition to the audit sampling technique, any error found through discovery during normal business would also be counted. Through these processes quality point measurement will be accumulated and compared among employees. Group benchmarking will ensue and quality standards will be established over time just as productivity has.

#### **Key to Building Productivity in Teams**

The key to a successful productivity program is to focus on facts and to share all information with the team. Total transparency is needed so that all parties can work together without hidden agendas. Accuracy is critical if managing with data. Employees must be trusted to accurately document the hours worked on each function and management needs to be able to share the data as accurately as possible.

#### **The Role of Information Systems**

Information systems need to provide management with tools to perform these types of tasks such as monitoring productivity and quality. The process described above was implemented with manual monitoring utilising data made available from the imaging system. However, the imaging system could provide more complete data if appropriate reporting was set up. For example, the system could keep track of how much time an employee works on scanning or QC. It also keeps track of employee output. All the data could be made available in management reporting, however, the vendor has not chosen to develop these management tools. The hospital could try to extract this data from the imaging system and develop a specialised tool to collect data. This probably would take a great amount of time to develop and even then it would not be complete because prepping is performed manually, outside of the system and therefore would have to still be manually tracked.

The expectations of end users and executive management require that software functionality and deployment of such systems incorporate automation of work. They demand to see evidence of tangible value for these investments. Productivity and quality measurement of work performed is at the heart of the matter. Improvement of staff performance and operating efficiency is expected of any information system. "You can't manage what you can't measure".

#### **Management Must Provide Leadership**

Management must set the stage for identifying key performance indicators. Productivity and quality of work are some basic concepts that can be monitored as key performance indicators for many different departments. Many hospitals are incorporating business intelligence systems which can pull data from several systems together. Truly managing by the numbers becomes increasing important as hospitals evolve into complete electronic environments.

Strong leadership is required to make change occur in any environment especially hospitals. Effective management of using productivity and quality measurement and monitoring has the potential to decrease costs and maximise labour. As described in this HIM department project, it takes time to develop productivity and quality monitoring systems and the issues revealed can be frustrating. The rewards can be great by developing effective teams and improving staff efficiencies. This consulting project was short lived and the end results expected had not been witnessed. However, with strong leadership and direction the HIM department has great baselines from which to work.

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