

Process Improvements boost quality and physician satisfaction at Christian Hospital

CUSTOMER-INSPIRED® SIX SIGMA METHODOLOGY REDUCES REPORT DELIVERY TIME BY 50%

by Doris Peckron, Director, Health Information Management, and Marty Herbst, Manager, Transcription

Christian Hospital faces increased competition from other St. Louis area hospitals and, in a proactive move to cut losses and improve goodwill with admitting physicians, instituted a process improvement initiative that focuses on the primary customer of each key process. One such process undergoing transformation is the delivery of transcribed reports – a process that touches every patient going through the hospital. This article describes how turnaround times were slashed in half and what further improvements are planned.

Background

Christian Hospital is a non-profit organization, 493-bed acute-care facility located on 28 acres in unincorporated north St. Louis County, Missouri. A founding member of BJC HealthCare, Christian Hospital has more than 600 physicians on staff and a diverse workforce of more than 2,500 health-care professionals who are dedicated to providing the best care using the latest technology and medical advances.

In an area of St. Louis where a lot of older residents live, 55 percent of Christian Hospital's patients are on Medicare. This large, aging population comes in with multiple issues, which require more specialist consultations before surgery, and places a heavier burden on internal services within the hospital. In late 2004, Christian Hospital retained Shaw Resources to help launch a process improvement program to improve service efficiency, bolster patient and physician satisfaction, and boost quality throughout the organization.

Problem

The Chief Financial Officer receives a monthly report from the Transcription Department regarding history and physical, consult, and operative transcription report turnaround times and error rates. Even though the department was consistently meeting its service guarantee of 24-hour turn around times (TAT), the CFO was concerned about physician satisfaction with report availability. Additionally, the CFO was looking at current patient admission/discharge cycle times and thought that an improvement in transcription TAT would improve physician satisfaction by providing them with patient information in a shorter timeframe.

Process Improvement Approach

In June, 2005, the Transcription Department was asked to participate in the Process Improvement initiative to address report turnaround time. A cross-functional team was assembled with representatives from each of the affected departments: Marty Herbst, Manager, Transcription, Doris Peckron, Director HIM, Judy Moore, Hospital-Based Transcriptionist, Diane Williams, Home-Based Transcriptionist, Jackie Hoffman, Clerical Support, and Jerry Lohman, IS. Under the guidance of James Shaw, an outside consultant, they began gathering the data required to put together a process improvement plan.

With the patented Customer-Inspired® methodology formulated by Shaw Resources for a framework, the team followed a continuous process improvement structure similar to the Define Measure Analyze Improve Control (DMAIC) structure of Six Sigma, with one caveat: **everything had to be addressed from the point of view of the customer of the process.**

Define the Process

Using the commercially-obtained Process Advisor® software, the team worked through an eight-step patented process definition methodology, as follows:

1. Beginning with a process purpose statement, which explains why the process exists within the organization, the team brainstormed and established their Charter Statement: *To provide timely, accurate reports to the proper location.*
2. Next, a process owner had to be identified, someone who coordinates all process activities and is ultimately accountable for process performance. Marty Herbst, Manager Transcription, took on this role.
3. Working to refine the process definition, the team composed a table of outputs – what the process yields – along with identifying who the primary customer of each output is and what measures best indicated the delivery of the output to the customer. In this case, the output table is as follows:

Provide Transcription Services			Outputs
Customer	Output	Characteristic	Customer Measure
Caregivers	reports	timely	calls from caregivers inquiring about the report status (adverse indicator) increase in the # delinquent records (adverse indicator) time from when the report is dictated until the report is available (time related)
		accurate	# reworked reports (adverse indicator) # reports going to the wrong location (adverse indicator)
		accessible	calls from caregivers inquiring about the report status (adverse indicator)
		complete	# incomplete reports filed in the chart (adverse indicator) increase in the # delinquent records (adverse indicator)

Figure 1: shows the Outputs table produced by the Process Advisor software.

4. Once the outputs and primary customers were determined, the team then established the end of the process as experienced by the customer – when the report is placed in the chart. Customers of a process can be internal to the organization, like the physicians who dictate the reports, or they can be external to the organization, such as a nursing home or other facilities. All the customers of the reports, in the case of Christian Hospital, are caregivers: whoever needs the reported information to make a decision about the care needed for that patient.

5. Working in reverse, the team then identified the inputs – the products and services or information needed to produce the outputs of the process – and who the suppliers of the inputs are. Here, the suppliers are Treating Physicians who furnish complete and understandable dictation.

Provide Transcription Services		Page 1 of 1		Inputs	
Supplier	Input	Characteristic	Customer Measure		
Treating Physicians					
	dictation	complete	# incomplete reports (adverse indicator) # reports that need QA (adverse indicator) New Measure		
		understandable	# reports that need QA (adverse indicator)		

Figure 2: Shows the Inputs table for the Process Profile® Graphic.

6. Once the inputs and suppliers have been pinpointed, the beginning of the process, from the point of view of the primary customer, is determined – in this case, it is when the caregiver completes dictation of a report.

7. To clarify what happens in a process, a meaningful name is assigned. The Customer-Inspired methodology calls for a verb-plus-object format when naming a process; our team came up with the name “Provide Transcription Services Sub-Process.” This process name identifies all reports and tables associated with this process improvement project.

8. The final step in Defining the Process brings everything together in a high-level diagram that summarizes the process. Using the patented software, the team produced the following Process Profile® graphic:

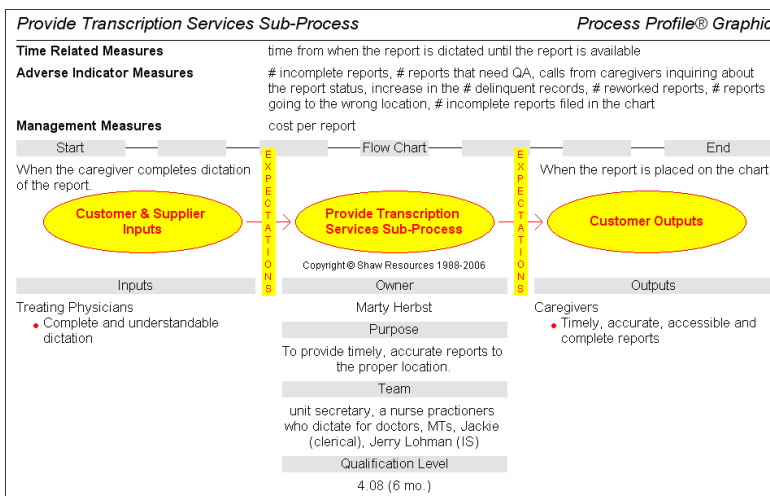


Figure 3: The Process Profile Graphic documents the definition of the Provide Transcription Services Sub-Process.

A significant component of the Process Profile graphic is the Qualification Level, which is a formal method of evaluating and ranking a process' performance. The Qualification Level, initially developed by IBM and later adapted to healthcare by Shaw Resources, develops a quantifiable measure for the “health” of the process so that everyone has an understanding of how well that process is performing; the lower the number, the better the performance.

The team started at level 6 – an unknown level of performance. After six months, we moved to 4.08, into the ‘Functional’ status of performance. Using the Process Advisor software checklists, the Qualification score was automatically computed.

Measure the Process

As shown in Figure 3 above, Marty and her team determined three types of measures:

- Time-related:** Time from when a report is dictated until it is available. A three-month analysis of turn-around times for selected types of reports – History & Physicals, Operations, and Consultations – showed a stable process with few deviations, and none of statistical relevance (see Figure 4 below for an example chart). This same stability made it a prime target for improvement, showing that the goal was easily attained. Additionally, since the transcription process directly affects one of the primary customers of the hospital (physicians and other caregivers), any improvements will have a double impact by increasing caregiver satisfaction.

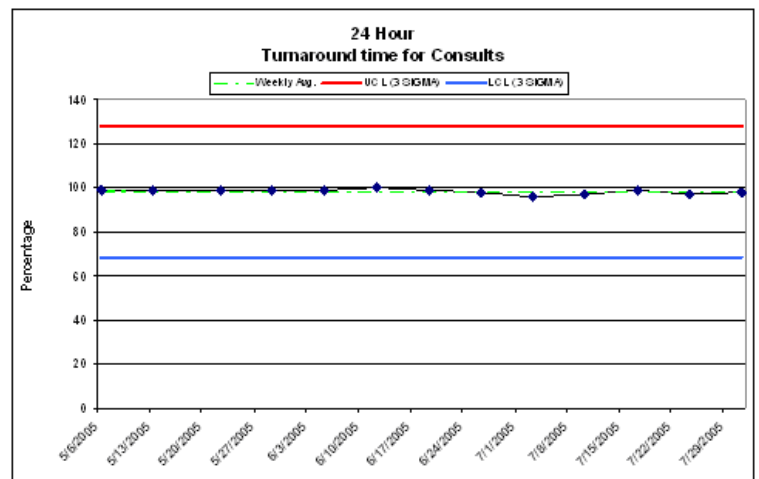


Figure 4: Shows the percentage of Consultation Reports turned around in 24 hours, which was the standard for turnaround time (TAT) for transcribed reports at the initiation of the process improvement project.

- Adverse Indicators:** # of incomplete reports; # of reports that need QA; calls from caregivers inquiring about the report status; increase in the # of delinquent records; # of reworked reports; # of reports going to the wrong location; # of incomplete reports filed in the chart.

- Management costs:** No resources were added and no cost increases were experienced outside those associated with increased volumes. The team delivered improved quality of service with no increase in unit cost – quality is free. Since the year-over-year cost per line was the same, the cost was actually less after adjusting for inflation.

Analyze the Process

Looking at all the baseline measures for the time from when a report is dictated until it is available (Figure 4), it was obviously a stable process with few adverse indicators (reports delivered later than 24 hours after dictation). From here, the team determined a new goal for the time-related measure, and wanted to make it a stretch goal by cutting turnaround times by 50 percent: 12-hour turnaround times for these reports.

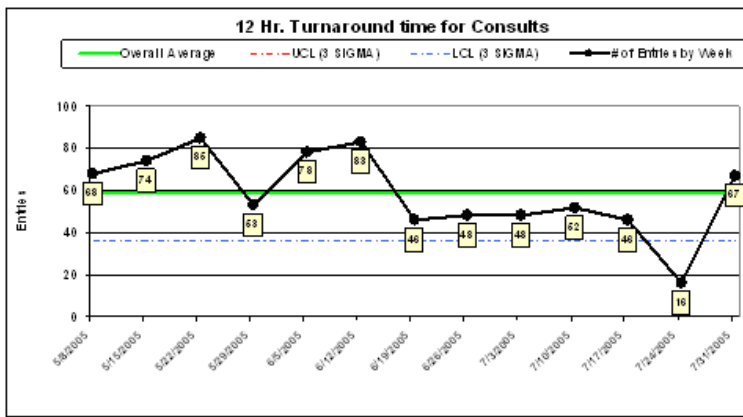


Figure 5: This Statistical Process Control Chart shows the number of statistically significant defects (outside three standard deviations from the norm) when the turnaround time (TAT) is cut 50 percent - from 24 hours to 12 hours. (Compare to Figure 4.)

Investigation into the causes for failing to achieve the 12 hour TAT uncovered a number of interesting sources contributing to the variation:

- Treating physicians dictate reports at all times of the night, as shown in Figure 6.

Time	H&P			CON			OP		
	Week of 8/20/2005	Week of 8/27/2005	Week of 9/3/2005	Week of 8/20/2005	Week of 8/27/2005	Week of 9/3/2005	Week of 8/20/2005	Week of 8/27/2005	Week of 9/3/2005
0 to 1		3		1	3	3			
1 to 2				1	3	1			
2 to 3				2	1	1			
3 to 4				5		2			
4 to 5						1			
5 to 6				2	1				
6 to 7	1		2	6	6			1	
7 to 8	1	4	1	5	22	8		5	1
8 to 9	15	24	27	29	31	16	8	8	6
9 to 10	28	28	24	29	49	40	8	21	18
10 to 11	26	34	33	35	49	48	21	18	19
11 to 12	27	29	30	34	56	40	20	9	21
12 to 13	20	38	32	32	52	41	19	20	13
13 to 14	30	28	21	38	41	50	15	24	15
14 to 15	19	32	19	34	41	50	5	19	14
15 to 16	20	17	16	35	51	40	12	18	11
16 to 17	21	25	25	37	44	46	8	14	15
17 to 18	17	30	14	23	33	34	18	8	11
18 to 19	14	8	12	23	18	21	4	4	6
19 to 20	9	5	3	19	12	20	6	2	3
20 to 21	4	2	1	5	6	7			
21 to 22	5	3		3	4	4			
22 to 23	2	3	2	2	2	2			3
23 to 24	2	4	3	2	5	3			2
TOTAL	261	315	265	402	530	479	148	171	158

Figure 6: Shows the number of reports dictated each week over 24 hours for a period of three weeks. Colored boxes show times covered by medical transcriptionists. Red boxes delineate reports dictated outside the covered hours before scheduling changes were made.

- Loosely structured Medical Transcriptionists schedule worked for 24 hour TAT, but could not meet the goal of a 12-hour TAT.

- 24/7 operation had significant gaps in it - particularly Saturday night, Sunday, midnights.
- Weekend and evening coverage was insufficient for volumes.
- Inconsistency of transcriptionists' start times and hours worked per day, as shown in Figure 7 below.

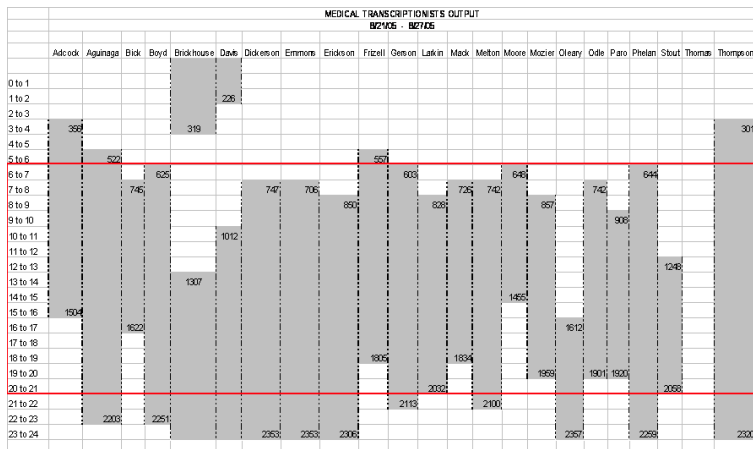


Figure 7: Original time schedule for medical transcriptionists (numbers are start and stop times) shows considerable gaps in coverage during peak times of physician dictation, delineated in red box (see Figure 6).

- Home-based transcriptionists lacked information about volume of reports in the queue for transcription and who was working what hours.

Improve the Process

Initially, we identified the most pressing 'defect' of the transcription process as reports not printing in the correct place (going to the wrong unit/printer in the hospital). We brainstormed the causes of this process deficiency. The brainstorming revealed a surprising number of reasons behind this shortcoming (see Figure 8).

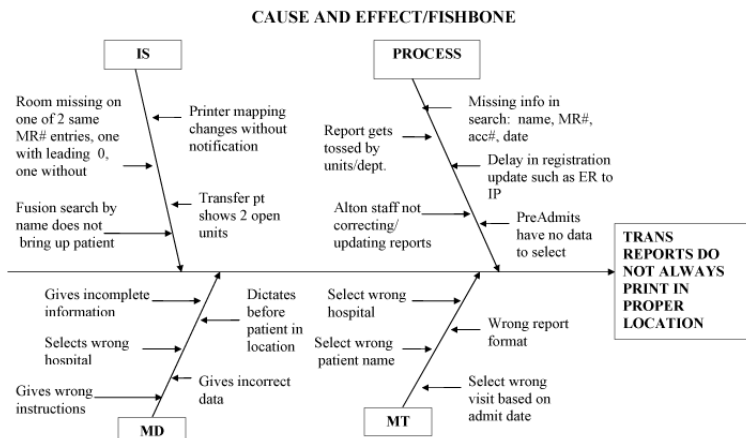


Figure 8: This fishbone diagram shows some of the various causes for a report printing in the wrong location.

Armed with the findings from the analysis, the team made process changes aimed at improving the measures of timeliness, accuracy and printing to the correct location:

- To provide complete 24/7 coverage for physicians submitting dictation around the clock, the following changes were made to transcriptionists' schedules:

- Specific start times and days were assigned to all transcriptionists.
- Weekend rotations were introduced to supplement existing coverage.
- Evening / weekend coverage for odd hours not initially covered was established to provide true 24/7 staffing.

■ The following changes were made on the dictation system in routing work to the transcriptionists:

- Sequence of report types was tailored for each individual pool. Formerly, Consults gradually ‘fell to the bottom of the pool’ as new work types were added, therefore taking longer to get done. Additionally, the number of Consults were, at a minimum, two times greater than other reports due to the number of specialists called in by the attending physician for elderly patient care. Consults were therefore ‘realigned’ to move up higher in the transcription pool.

- Set up baseline “aging” pools; this flagged older reports, allowing the reports to be prioritized to appropriately meet the new 12-hour turnaround time goal.

- Developed “Guidelines for Home-Based Transcriptionists;” these guidelines were specific about the scheduling issues of times and days that were not covered by a transcriptionist. Schedules were reworked to make the turnaround time goals happen as required. Improved communications for down-times, time off, etc.

■ Information Systems-related changes included—

- Medical Record number was entered twice, one with an extra “0” and without a room number that caused the transcribed report to be sent to the wrong location – this was corrected by IS.
- Transfer patients showed in two open units, causing the report to be directed to the wrong location. This was fixed through programming changes.
- One surprising discovery in uncovering causes for reports printing in the wrong location was that transcriptionists would select the wrong patient type at the time of transcription. This error was eliminated by moving the patient type field in the patient search screen to the top of the screen. (See Figure 9)

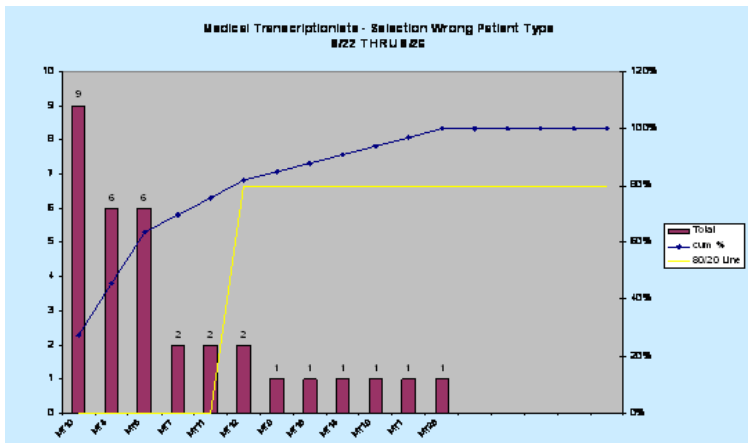


Figure 9: Pareto chart depicting transcriptionists selecting the wrong patient type - five of the transcriptionists were involved in 80 percent of the errors.

Control the Process

The team went even further in order to maintain control over the process and continuously improve it through benchmarking. They surveyed caregivers and contacted other hospitals, both internal to the BJC Health-care system as well as external organizations who were Baldrige National Quality Award Winners.

CHRISTIAN HOSPITAL TRANSCRIPTION SERVICES DICTATING PHYSICIAN EVALUATION & FEEDBACK				
Please indicate your perception of our services:				
	My expectations were.....			
	Exceeded	Met	Not Met	N/A
1. Is the dictation equipment easy to use?	37%	57%	6%	
2. Are H&P's, Cons & Ops transcribed timely?	40%	60%		
3. Are transcribed reports accurate?	37%	60%	3%	
4. Was transcription staff courteous and respectful when helping you?	70%	23%		7%
5. Would you recommend our transcription services over other hospitals?	75% YES	8% NO		17%*

Responses: 30

*Doctors do not go to other hospitals – could not compare

1. Some method to electronically sign dictations would be convenient.
2. Ability for MDs to sign electronically and make changes to notes electronically before signing in a web-based format.
3. Would like to review my dictations immediately.
4. Headset maybe easier.
5. All hospitals are about the same.
6. On par with other hospitals but not “over”.
7. Do a fine job here.

Figure 10: Results of the treating physician survey.

Surveys tend to try to measure satisfaction, which is a temporary state of mind, and therefore not a preferred measure for quality or loyalty. So the Process Improvement Team created a survey that instead measured how well the transcription services met/failed to meet or exceeded treating physicians’ expectations.

The feedback from team members and customers (caregivers) has been overwhelmingly positive. One physician recently commented that “I dictated the report, and by the time I got to my office, the report was there.”

Additional control measures were put in place, such as adding a Weekly Production Statistics Report to track TAT, defects, etc, that helps the team manage the process more effectively.

Benchmarks against other organizations, especially against world-class Baldrige-winner hospitals, gave the team a better understanding of where the Provide Transcription Services Sub-Process stood. The team selected sister BJC Hospital Missouri Baptist Medical Center as their internal comparison; and Baldrige winners DePaul Health Center, St. Louis, MO, St. Luke’s, Kansas City, MO, and Baptist Hospital, Pensacola, FL, as their external benchmarks.

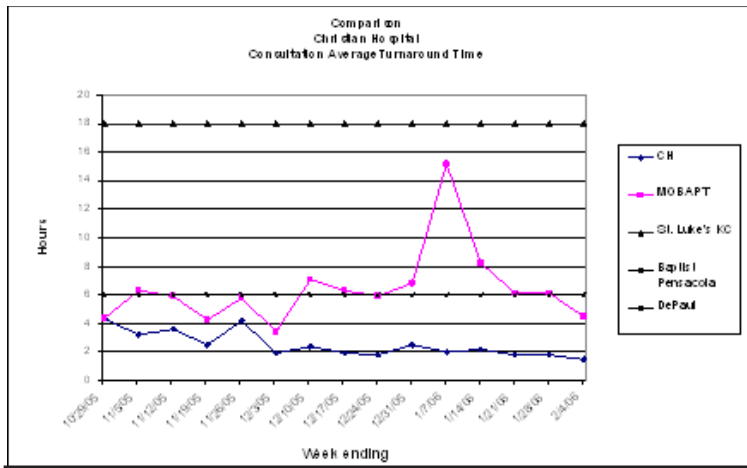


Figure 11: This chart shows how Christian Hospital's Consultation Report transcription services

Accomplishments

In a relatively short amount of time – only six months from inception – the Process Improvement Team has learned a great deal about the Provide Transcription Services Sub-Process and made some exemplary improvements.

- Met or exceeded our goals and benchmarks of six hours for H&Ps and Consults, 12 hours for Operations, One hour for Stats.

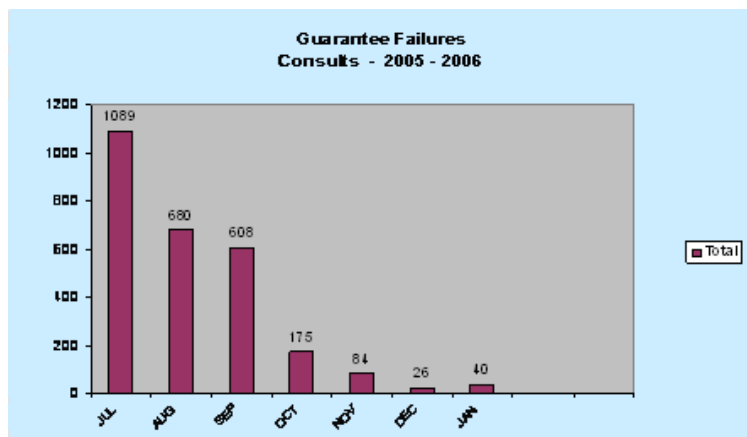


Figure 12: This chart shows steady improvement in the number of overall guarantee failures

- Manager (Marty) was set up with a home-based workstation to monitor and address the escalation process put in place (ie: fill in weekend slot, unusual number of reports backing up in the queue, or a technical problem).
- Daily emails on volume status to Medical Transcriptionists increased to three times a day made the status more real-time to provide transcriptionists with a better view of volume.
- Weekly Production Statistics Report - new report internal to the team from Marty to track TAT, defects, etc, to help manage the process more effectively.
- Medical Transcriptionists' Work Schedule is emailed three weeks in advance, which ensures appropriate coverage 24/7. Transcriptionists previously did not see the schedule at all and now schedules are sent out nine weeks in advance to help all staff to organize vacations, and other personal time off.

- Turnaround time results/graphs discussed at monthly meetings so that everyone knows the current status.
- Transcriptionists "stepped forward" to take hours to fill the early am and late pm gaps – worked as a team to ensure that goals were met.
- Rotation schedules established for weekends – ensure coverage for all hours, and not enough people who wanted to work every weekend – so started a rotation schedule to give some people weekends off who needed/wanted them.
- AMH Turnaround Time improved as a byproduct – Alton Memorial Hospital is another institution within BJC, and Christian Hospital does their transcription as well.
- Cross-trained transcriptionists to do CH and AMH work types.
- Overall physician satisfaction with improved report delivery time has increased. A byproduct of the shorter report delivery times is that doctors remember more of the patient interaction and are able to make better corrections, thus, improving the quality of service to the patients.
- Process Qualification Level of 4.08 – This qualification level indicates that the process is functional and all primary customer expectations are being met. The process is systematically measured, and streamlining has begun.

ONE OF THE DOCTORS CALLED TO SAY THAT HE RECEIVED A REPORT THAT HE HAD "JUST DICTATED TWO MINUTES BEFORE. THAT IS AMAZING AND I AM THUNDERSTRUCK."

Next Steps

In order to facilitate continued improvements, the team identified several resources that would be required: the availability of a data resource person; capital resources to implement speech recognition and E-sign capabilities for physicians to electronically sign dictated reports; and expansion of the reporting capabilities of source system. Future objectives and challenges have been ascertained as follows:

- Implement new dictation system 2006-2007
 - Speech Recognition – This will provide additional convenience for physicians; the transcriptionists will become more like editors to improve productivity; cost savings and productivity to be determined.
 - National average age of Medical Transcriptionist = 52 (average age at Christian Hospital is 50); speech recognition will help prevent repetitive injuries (carpal tunnel, etc.) that affect older workers. Additionally, the new technology may attract younger workers; a major issue is that fewer people are selecting transcription as a career option.
- Increase / decrease volumes - no prediction available – either increase or decrease can be challenging with staffing:
 - Transcribed Lines increased 2.9% 2005
 - 2006 so far is up 9.6% – continued measurement will determine whether it is a trend, or just a seasonal flux.

- Provide Electronic Signature - by second quarter 2007; this was found to be the 'end of process' from the treating physician's point of view, while the transcription department considered it as a separate process. Providing this capability will decrease the time for paperwork for the physicians; also appeals to physicians who are technologically savvy, thus helping to recruit new admitting physicians.
- Provide alternate report distribution methods, i.e. email (currently using autofax, inter-office mail, US mail, pick-up) – another satisfier for physicians' offices.
- Seek feedback/survey from customers – this is part of the continued measurement, analysis, improvement cycles of the Customer-Inspired methodology.
- Communicate service guarantee by end of Q2 2006
 - STATS -- 1 hour
 - History & Physicals -- 6 hours
 - Consultations -- 6 hours
 - Operations -- 12 hours
- Process Qualification Level
 - 3.25 by August 15, 2006 - the service guarantee is communicated and re-survey the customers.

Summary

Dramatic, quantifiable results have been achieved within six months. Christian Hospital has not only cut report turnaround times from 24 hours to 12 hours or less, but has increased physician satisfaction regarding timely reports.

Shorter turnaround times have enabled dictating physicians to now focus on the quality of the reports. Since they receive the report in less time after speaking with the patient, they remember more of the patient interaction and are able to make better corrections, thus, improving the quality of service to the patients.

All the quality improvements have come at little or no cost, reinforcing the adage that quality is free. The benefits will be adding up for years to come as the same process improvement methodology that the team learned for the transcription process will also serve them well in dealing with future technologies.

The process improvement would not have been started as soon as it did without the buy in and support of the CFO. It is paramount that senior executives lead the charge for process improvement within the organization, and support recommendations for future improvements. With the backing of senior management, results like the ones realized by the Transcription Department can be pushed throughout the organization, one department at a time.

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