

Improving Organizational Performance: Decreasing Operating Room Turnaround Time

Improving Organizational Performance:

Decreasing Operating Room Turnaround Time

LCDR Dorka M. Picard, MSC, USN

U.S. Army- Baylor University Graduate Program

In Healthcare Administration

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.

1. AGENCY USE ONLY (Leave blank)		2. REPORT DATE April 1998	3. REPORT TYPE AND DATES COVERED FINAL REPORT (07-97 TO 07-98)	
4. TITLE AND SUBTITLE Improving Organizational Performance: Decreasing Operating Room Turnaround Time			5. FUNDING NUMBERS	
6. AUTHOR(S) LCDR Dorka M. Picard, MSC, USN				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Potomac Hospital 2300 Opitz Boulevard Woodbridge, VA 22191			8. PERFORMING ORGANIZATION REPORT NUMBER 32f-98	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) US ARMY MEDICAL DEPARTMENT CENTER AND SCHOOL BLDG 2841 MCCS-HRA US ARMY-BAYLOR PROGRAM IN HCA 3151 SCOTT RD SUITE 1412 FORT SAM HOUST TEXAS 78234-6135			10. SPONSORING/MONITORING AGENCY REPORT NUMBER	
11. SUPPLEMENTARY NOTES				
12a. DISTRIBUTION / AVAILABILITY STATEMENT Approved for public release, distribution is unlimited.			12b. DISTRIBUTION CODE	
13. ABSTRACT (Maximum 200 words) Potomac Hospital, a 153 bed community hospital in Prince William County, Woodbridge, VA, endeavored to decrease the Operating Room (OR) turnaround time from over double industry standards to 20 minutes. Performance Improvement teams streamlined operations by focusing on surgical services leadership, patient scheduling and scheduling system upgrade, and other factors affecting OR turnaround time. Turnaround time was measured at three stages, baseline at initial review (Aug 97); Nov 97 during process review, and Mar 98 during initial performance improvement implementation. The data showed that while the goal of 20 minutes turnaround time was not achieved during the seven month time frame, significant increases in the number of cases to achieve 15-20 minute turnaround times were attained; however, other turnaround times of over 65 minutes affected the mean significantly. Recognizing that performance improvement efforts are long term, Potomac Hospital leadership has made a commitment to the long term performance improvement efforts with favorable outcomes.				
14. SUBJECT TERMS Operating Room, Surgical Services, Turnaround Time			15. NUMBER OF PAGES	
			16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT N/A	18. SECURITY CLASSIFICATION OF THIS PAGE N/A	19. SECURITY CLASSIFICATION OF ABSTRACT N/A	20. LIMITATION OF ABSTRACT UL	

ACKNOWLEDGEMENT

My sincere thanks and appreciation go to Mr. William H. Flannagan, Jr., FACHE, Potomac Hospital Chief Operating Officer, Chairman of the Surgical Services Steering Council, and my preceptor. He had the foresight to assign me the Surgical Services Improvement Project early on in my residency and afforded me the opportunity to participate in all aspects of the performance improvement initiatives.

A special thanks go to the members of the Surgical Services Steering Council who endeavored to take the leadership challenge and pursue changes in an environment not accustomed to it. The Council members are: Rolland Gallup, Senior Vice President for Finance; Robert A. Cohen, M.D., Chairman, Operating Room Committee; Pamela C. Enjetti, M.D.; Richard N. Jenet, M.D.; Douglas B. Brady, M.D.; Gail D. Russell, RN, Vice President for Nursing; and Donna Allison, RN, Director for Surgical Services.

The membership of the OR Committees receive my sincere appreciation, thanks, and respect. These are the unsung heroes who actually make all changes happen and carry the brunt of leadership decision making. They were honest with their opinions, pursued difficult decisions, and molded together as Teams to benefit the whole, Potomac Hospital customers. My hat is off to all of you. Membership of the Committees is:

Leadership

Robert Cohen, MD, Chairman
Pamela Enjetti, MD

Scheduling

Douglas Brady, MD, Chairman
Kay Weber, RN
Kelly Hastings, VP

Turnaround Time

Richard Jenet, MD, Chairman
Donna Allison, RN
Loris Swann, RN
Marie Martin
Martha Beverly

A special thanks goes to Barbara Carlston, Director of Materials Management who endeavored to keep the Logistics end of the processes intact and was absolutely invaluable in completing various Requests for Proposal and assisting the Operating Room complete a detailed inventory.

To the consultants from Ernst & Young, LLP, Mary Jane Edwards and James Mrava who facilitated all our workgroups each Friday for seven months; my complete admiration of your accomplishments and the endeavors you pursue daily in support of performance improvement efforts. You are unequalled.

Last, but never least, my heartfelt thanks to my husband LCDR Larry L. Picard, MSC, USN. He is my strongest advocate, reviewer, and critic; the sole reason I have achieved beyond my dreams.

ABSTRACT

Potomac Hospital, a 153-bed community hospital in Eastern Prince William County, Woodbridge, VA endeavored to decrease the Operating Room turnaround time from over double the industry standards to 20 minutes. The baseline Potomac Hospital Operating Room turnaround time was measured in July/August 1997. The hospital compared itself to a National benchmark and hired consultants to facilitate performance improvement teams achieve efficiencies to decrease the OR turnaround time. Factors affecting turnaround time were identified; pre-operative patient preparation, instrument availability, scheduling of patients, physician tardiness, delay of first cases, etc. The performance improvement teams streamlined operations by focusing on surgical services leadership, scheduling of patients and upgrading the automated system, and other factors affecting turnaround time. Turnaround time was measured at two stages of performance improvement, October/November 1997, during process review, and February/March 1998, during initial implementation. Findings depict that OR turnaround time increased by 6 minutes during process review and decreased to baseline time by initial implementation. The data showed that while the goal of 20 minute turnaround time was not achieved during the seven month time frame, significant increases in the number of cases to achieve 15-20 turnaround times, however, other turnaround times of over 65 minutes affected the mean turnaround time significantly. Recognizing that performance improvement efforts are long term, Potomac Hospital leadership has made a commitment to the long term performance improvement efforts with favorable outcomes.

TABLE OF CONTENTS

INTRODUCTION..... 2

STATEMENT OF PROBLEM..... 6

LITERATURE REVIEW 6

METHODS AND PROCEDURES..... 9

RESULTS 11

 AUGUST 1997 DATA..... 12⁴

 NOVEMBER 1997 DATA..... 13

 MARCH 1998 DATA..... 14

DISCUSSION..... 16

 KEY DEFINITIONS..... 17

 PHYSICIAN COMMUNICATION PLAN..... 18

 DEFINED ROLE OF OPERATING ROOM COMMITTEE..... 18

 CENTRALIZED VERSUS DECENTRALIZED SCHEDULING SYSTEM..... 20

 MODIFIED BLOCK SCHEDULING..... 20

 TRAINING OF OPERATING ROOM AND SCHEDULING PERSONNEL..... 21

 AUTOMATED PROCEDURE CARDS..... 22

 PHYSICIAN TO PHYSICIAN COMMUNICATION..... 22

 CENTRAL STERILE SUPPLY..... 23

 OR STAFF BUY-IN..... 24

 SURGICAL COORDINATORS..... 24

 HOUSEKEEPING..... 25

RECOMMENDATIONS..... 27

REFERENCES..... 29

LIST OF TABLES

Table 1	
Surgical Services Performance Improvement Tracking Sheet.....	30

LIST OF FIGURES

Figure 1 31
 Potomac Hospital OR Turnaround Time Comparison Bar Chart
 All Inclusive Data Without Schedule Gaps Jul-Aug 97

Figure 2 32
 Potomac Hospital OR Turnaround Time Pareto Diagram
 All Inclusive Data Jul-Aug 97

Figure 3 33
 Potomac Hospital OR Turnaround Time Pareto Diagram
 Data Without Schedule Gaps Jul-Aug 97

Figure 4 34
 Potomac Hospital OR Turnaround Time Run Chart
 All Inclusive Data Jul-Aug 97

Figure 5 35
 Potomac Hospital OR Turnaround Time Run Chart
 Data Without Schedule Gaps Jul-Aug 97

Figure 6 36
 Potomac Hospital OR Turnaround Time Comparison Run Chart
 All Inclusive Data With Mean of Data Without Schedule Gaps

Figure 7 37
 Potomac Hospital OR Turnaround Time Bar Chart
 All Inclusive & Data Without Schedule Gaps

Figure 8 38
 Potomac Hospital OR Turnaround Time Pareto Diagram
 All Inclusive Data Oct-Nov 97

Figure 9 39
 Potomac Hospital OR Turnaround Time Pareto Diagram
 Data Without Schedule Gaps

Figure 10 40
 Potomac Hospital OR Turnaround Time Run Chart
 All Inclusive Data Oct-Nov 97

Figure 11 41
 Potomac Hospital OR Turnaround Time Run Chart
 Data Without Schedule Gaps Oct-Nov 97

Figure 12 42
 Potomac Hospital OR Turnaround Time Comparison Run Chart
 All Inclusive Data With Mean of Data Without Schedule Gaps Oct-Nov 97

Figure 13 43
 Potomac Hospital OR Turnaround Time Comparison Bar Chart
 All Inclusive & Data Without Schedule Gaps Feb-Mar 98

Figure 14 44
 Potomac Hospital OR Turnaround Time Pareto Diagram
 All Inclusive Data Feb-Mar 98

Figure 15 45
Potomac Hospital OR Turnaround Time Pareto Diagram
Data Without Schedule Gaps Feb-Mar 98

Figure 16 46
Potomac Hospital OR Turnaround Time Run Chart
All Inclusive Data Feb-Mar 98

Figure 17 47
Potomac Hospital OR Turnaround Time Run Chart
Data Without Schedule Gaps Feb-Mar 98

Figure 18 48
Potomac Hospital OR Turnaround Time Comparison Run Chart
All Inclusive Data With Mean of Data Without Schedule Gaps Feb-Mar 98

INTRODUCTION

The purpose of this study is to evaluate the effectiveness of process improvements on factors which impact operating room turnaround time at Potomac Hospital in Woodbridge, VA. Potomac Hospital is a 153-bed community hospital providing medical, surgical, and emergency services to Eastern Prince William, Northern Stafford, and Southern Fairfax counties in the Commonwealth of Virginia. Process improvements were identified and implemented between September 1997 and February 1998. The study was prompted as a result of the surgeons, through the Planning Committee, suggesting that Potomac Hospital establish an Ambulatory Surgical Center based on increased case load and potential revenue of ambulatory surgical services.

Potomac Hospital enlisted the assistance of Ernst and Young LLP consultants to conduct a comprehensive review of surgical services and to evaluate Potomac Hospital's baseline as compared to National standards. The consultants noted that additional operating rooms are not needed at this time, however, they identified opportunities for improvement in five areas: turnaround time, first case late start and delay cascade, case scheduling process, information systems, and leadership roles and responsibilities.

Turnaround time, defined as the time measured from prior patient out of the operating room suite to succeeding patient in the room for sequentially scheduled patients, averaged 40 minutes at Potomac Hospital in August 1997. Industry best practices are approximately fifteen minutes (Arthur Andersen & Co.) While there are multiple factors for the length of turnaround time, it was noted that open available operating time would significantly increase if Potomac Hospital turnaround time were reduced to 20 minutes.

Frustration with first case late starts and subsequent delays was a major source of discontent by physicians, especially those that followed later in the day experiencing the results of the late start as delays cascaded to their scheduled operating room times. A clear definition of start time was not available and thus was individually interpreted. A three-month retrospective data analysis was conducted and it was noted that only 13% of the surgeries scheduled for 0800 started on time.

The scheduling process at Potomac Hospital is centralized. The Operating Room schedule is a combined effort between Central Scheduling and the Operating Room staff. The computer-generated schedule is released to the Operating Room staff 48 hours prior to surgery; the Operating Room staff makes subsequent changes to the schedule manually. Surgeons perceive that patient scheduling after the release date is difficult at best. The scheduling software did not provide management reports or provide automatic adjustment of operating room time schedule based on historical data or surgeon trends. In short, multiple issues were identified and a modified block scheduling system was recommended.

Data gathering and analysis, specifically for management of operating room efficiency and effectiveness was conducted with some computer support, but was mostly manually manipulated and cumbersome. Inconsistent integration of manually collected data was found to be a problem. Difficulties in peri-operative data collection and analysis were apparent and an Operating Room specific information system was recommended.

Factors, which enhance efficient utilization of operating room resources, were not managed effectively through the current leadership structure. Clear delineation of responsibilities and operational definitions of start time and lateness was recommended.

Ernst and Young LLP consultants concluded that additional operating rooms were not required at this time, however, efficiencies in the above areas would enhance utilization.

Utilization of operating rooms at the time of the analysis was 84%, which included inefficiencies in turnaround time. It was predicted that with an increase in efficiency the operating room utilization rate would fall to 74%. Industry best practices are 80% utilization.

With the consultants recommendations in hand, Potomac Hospital executives formed a Surgical Services Steering Council and identified key physicians to head three committees. The committees, Leadership, Scheduling, and Turnaround Time were selected because they would have the most impact on all the areas noted. The committees were multidisciplinary in nature with representation from administration, nursing, medical and ancillary personnel. They were given specific charters and timelines for evaluating issues relative to their areas of expertise, and were to provide detailed implementation plans to the Steering Council. Data collection for further comparative analysis was to be coordinated with consultants.

The Leadership Committee charter was to explore new approaches of leadership that would maximize Operating Room utilization and increase physician satisfaction. Specifically they were to address key definitions in the Operating Room with an emphasis on "start time." Physician compliance with Operating Room policies were to be reviewed and amended as required; the role of the Operating Room Committee was to be reviewed and further defined; a communication plan to all surgical specialties was to be devised; and a detailed implementation plan was to be produced.

The charter of the Scheduling Committee was to explore a new scheduling approach in the Operating Room that would maximize utilization and customer satisfaction; determine the

viability of modified block scheduling at Potomac Hospital; redesign the scheduling process; and develop a detailed implementation plan for the new process.

The charter for the Turnaround Time Committee was to identify factors that contribute to prolonged turnaround time; redesign processes to achieve decreased turnaround time; and develop a detailed implementation plan for the improved process.

As a result of weekly committee meetings, the consolidated implementation plan, Table 1, was presented and approved by the Steering Council in October 1997. The Committees pursued weekly meetings to discuss improvement initiatives, progress, and issues. The Ernst & Young LLP consultants acted as facilitators through implementation date, February 1998.

It was anticipated that increased Operating Room efficiencies at Potomac Hospital would have the following results: If first case start delays could be reduced to 5%, an additional 24 hours per month could be realized. Potomac Hospital has a potential gain of 75 hours Operating Room time monthly by reducing turnaround time to 20 minutes. Based on both efficiencies noted, a potential of 50 cases (two hours each) per month could be added. At an average billing rate of \$800/hour, an additional \$80,000 in Operating Room billings and potential revenue could be realized.

Increased efficiency and utilization of Operating Room services would provide the surgeons and surgical staff additional operating room time, and greater schedule predictability based on decreased process variance. Increased utilization and level of service would increase surgeon satisfaction and potentially increase surgeon and hospital revenue.

STATEMENT OF PROBLEM

Potomac Hospital's Operating Room Turnaround Time is over double the industry standard. An opportunity for improvement exists to reduce the Operating Room turnaround times to a maximum of twenty minutes by identifying and improving on turnaround time variables. The objective of the Graduate Management Project is to evaluate the effectiveness of process improvements on factors, which impact operating room turnaround time and utilization.

LITERATURE REVIEW

Consultants of Ernst and Young LLP, in their comprehensive review of surgical services at Potomac Hospital noted that industry best practices for Operating Room turnaround time is approximately 15 minutes for inpatient facilities and less for Ambulatory Surgical Centers. Arthur Andersen & Co., in a 1992 study of best practices in ambulatory surgery noted the National benchmark for turnaround time was 13.5 minutes. Hoover (1994) notes that outpatient surgery will be the driving force in continued growth of ambulatory care in the 1990s. He notes that providing efficient, high quality ambulatory surgical services should be a priority among health care providers. Hoover, noted that Arthur Andersen's survey to discover best practices in surgical services identified general success characteristics of best performers. These characteristics were business-focused relationships with physicians, the use of clinical protocols, patient convenience, cost management, strong leadership, teamwork, streamlined processes and efficient design. Other important factors included scheduling to maximize Operating Room use; achieving surgical efficiencies through reduced case pack assembly errors and equipment availability; a focus on cost capture rather than charge capture, sound materiel management practices, such as standardization and vendor teaming; and the appropriate use of automated

systems. Hoover noted the importance in evaluating the best practices applicability to specific facility environment and further evaluates what specific changes to the current processes would be necessary to adopt them. Mitchell (1996), at St. Joseph's Regional Healthcare System in Stockton, CA, reviewed the National benchmark and established a quality improvement team with the purpose of reducing their operating room turnaround time. The initial turnaround time at St. Joseph's Medical Center was 19.9 minutes. After the team implemented solutions, the turnaround time was reduced to an average of 16.3 minutes; an 18% measured improvement. A cost benefit analysis showed potential revenue of \$300,000 or potential savings of a little over \$119,000. Mitchell concluded that applying quality improvement principles to benchmarks could improve process performance. He also recommended communicating with professional organizations which have experience in benchmarking would ultimately save time and money as well as achieve desired results.

Potomac Hospital, based on the literature and in consultation with Ernst and Young LLP, decided to move forward on the recommendations. The Operating Room Steering Council chartered subcommittees to focus on Leadership, Scheduling, and Turnaround Time. They specifically address areas noted in the best practices characteristics of business focused relationships with physicians; streamline processes and efficient design; scheduling to maximize Operating Room use; achieving surgical efficiencies through reduced case pack assembly errors and equipment availability; and appropriate use of automated systems. Using quality management tools noted in Gilbert's productivity Management book and the Executive Learning, Inc. Handbook for Improvement, Potomac Hospital's O.R. Steering Group Turnaround Time Subcommittee set out to identify variables in which to focus.

The Association for Anesthesia Clinical Directors' (AACD) definition of Operating Room turnaround time is the time measured from prior patient out of room to succeeding patient in the room for sequentially scheduled cases. The AACD definition was used as the operational definition for turnaround time for this study as well. Variables, which impact this turnaround time, are inherent in room turnover time. Since the AACD defines turnover time the same as turnaround time; turnover time for this study is defined as the time the patient leaves the operating room until the operating room is ready to receive the next patient. Turnover time variables include housekeeping; anesthesia set up, instrument availability and set up, etc. Processes, which impact on turnaround times, do not always happen sequentially, as a matter of fact many processes are conducted simultaneously (Ernst & Young LLP, 1997). For that reason, the measurements of this project are limited to turnaround time. The processes and variables were identified and times minimized, however, they were not measured individually. It was expected that as specific variables were identified, and times for each minimized and maintained, the operating room turnaround time would also decrease. This Graduate Management Project evaluates the effectiveness of process improvements on factors, which impact operating room turnaround time and utilization. To accomplish this a baseline turnaround time was measured; underlying variables which impact the operating room turnaround time were identified and streamlined; turnaround time were measured as processes were streamlined; and the success or failure of process improvements evaluated and related to process or staff variance. As of August 1997 Operating Room turnaround time at Potomac Hospital is 40 minutes. The 40 minutes was used as the baseline against which subsequent turnaround times were compared.

METHODS AND PROCEDURES

The Operating Room Turnaround time was measured daily for each operating room suite by documenting the time it takes from the time the prior patient is out of the room to the time the succeeding patient enters the operating room for sequentially scheduled cases. Potomac Hospital has six operating room suites; however, not all rooms are used daily. Daily turnaround times were calculated and averaged for 26 scheduled days the months of July/August 1997. The baseline turnaround time of 40 minutes was calculated as above.

Two additional random snap shots in time are used to evaluate progress; turnaround times for 24 days in the months of October and November 1997 and 24 days in the months of February/March 1998 were calculated. The former was during the process evaluation period and the latter was during the initial "on line" implementation phase where the Operating Room, Scheduling, and all surgeons were expected to comply with the new policies.

The Microsoft Excel program was used to calculate means of daily and total turnaround times. The data for the three samples was calculated two ways, each month with all available data, and after removing schedule gaps from the total data. The period for July/August 97 is addressed as Aug 97, the period of October/November 97 is addressed as Nov 97, and the period of February/March 98 is addressed as Mar 98.

The Excel program was used to construct Pareto charts to show the breakout of turnaround times during all periods, Aug97, Nov 97, and Mar 98. Pareto diagrams are analyzed individually and with each other. Executive Learning, Inc. (1997) documents that Pareto diagrams display the priority of factors or characteristics of a process. The tool was designed to identify the significant or "vital few" factors which may produce the greatest benefit if addressed. The visual display of data helps focus the reader's attention on 80% of the process activity.

The Pareto diagram is constructed by determining the categories and units for comparison of the data. In this case, the different turnaround times are selected. The categories are then ordered from largest to smallest, and a percentage of the total is calculated for each category. The cumulative percentage for each category is then calculated. A double Y-axis graph representing the total frequency and the cumulative percentages for each category is the result of the calculations.

The Excel program was also used to construct Run Charts. Run Charts are graphs of data taken over time. It is one of the tools used to display variation and detect the presence or absence of special causes. It may also be used to observe the effects of process improvement initiatives. The latter is the reason Run Charts will be used for this study.

The Run Chart is constructed by plotting the process variable, in this case daily means of Operating Room turnaround times, on the Y axis, and the sequence, in this case dates, on the X axis. The mean of the plotted numbers is calculated and the mean line is drawn on the graph. The data values are plotted and double line graphs are created. Special causes may be evaluated in shifts, trends, or patterns. Special causes will be addressed in the Results portion of this paper.

The Handbook for Improvement, A Reference Guide for Tools and Concepts, Healthcare Edition (1997) documents the type of analysis appropriate to be performed with various performance improvement tools. It is used as reference for interpretation of the bar graphs, Pareto diagrams, and run charts developed for this project.

The turnaround time process was monitored for approximately seven months through March 1998. It was measured at three random periods, August 1997 as a baseline, October/November 1997 during process review, and February/March 1998 during initial process

improvement implementation. The expectation was to significantly decrease the turnaround time to 20 minutes within that time frame.

At the seven month interval, or when deemed appropriate, operating room utilization may be analyzed and compared to the baseline utilization rate in Aug 97. Utilization rate is measured by dividing total available hours by total hours used in the six operating room suites. The utilization goal is a minimum of 80%.

RESULTS

Using the previously noted AACD definition for turnaround time, time measured from prior patient out of room to succeeding patient in the room for sequentially scheduled cases, the baseline turnaround time for Aug 97 was measured at 40 minutes. During the process evaluation, the mean turnaround time in Nov 97 went up to 46 minutes. At the process improvement "live" date, Mar 98, where most of the process improvements were in place, and the Operating Room staff, physicians, and scheduling personnel were to comply with the requirements, the turnaround time had returned to the baseline measure of 40 minutes.

Data collection was performed manually and was documented in five-minute increments. The diagrams and charts provided, Figures 1 through 18 are therefore depicted in five-minute increments. The few cases that were documented in exact minutes were rounded to the nearest five-minute increment and were calculated appropriately. The Mar 98 data collection instrument, Appendix A, provided for the ability to document exact data as well as standard delay codes. The data is entered daily in the upgraded scheduling system and automated reporting is scheduled to begin April 1998.

August 1997 Data.

The documented mean turnaround time for Aug 97 data is 40 minutes when the schedule gap data is removed. Figure 1 depicts a bar graph with both sets of data, all data inclusive and data without schedule gaps. The data depicts two peaks of high frequency in the distribution, one at the 25-30 minute level and another at the over 65 minute level. This most often occurs when two processes operating at widely different levels are mixed together (Executive Learning, Inc.) The impact may be an increased amount of idle time in the Operating Room while waiting for the next patient.

The level 1 Pareto diagram for all Aug 97 data, Figure 2, shows that 27% of the total data is turnaround time greater than 65 minutes. The next highest number of turnaround times was 25-30 minutes with an additional 21% of the total data. The third highest was 35-40 minutes with a percentage of 17%, and the fourth highest was 15-20 minutes with 15% of the total data. These four areas encompassed 80% of the data. It depicts turnaround time variations between 15-40 minutes, it then jumps to the > 65 minute category.

When the schedule gap data was removed from the Aug 97 total data, the mean turnaround time documented is 40 minutes. The Pareto diagram, Figure 3, now depicts the four highest turnaround times; 25-30 minutes (25%), 35-40 minutes (21%), 15-20 minutes (18%), and over 65 minutes (15%). This diagram demonstrates that while schedule gaps over 65 minutes decreased, a large number of cases continue with turnaround times greater than industry standards.

Three Run Charts were developed to evaluate shifts, trends, or patterns. All charts were modified to include the goal line, 20-minute turnaround time, for motivation of the staff

upon presentation of the data. Figure 4, depicts all of the Aug 97 data with daily averages plotted against the mean of the same data. The mean for this data is 56-minute turnaround time. Figure 5, depicts the Aug 97 daily averages without schedule gaps against the mean of the same data. The mean for this data is 40 minutes and is the one used as the baseline in accordance with the AACD definition of turnaround time. Neither one of the charts demonstrated shifts, trends, or patterns. Figure 6, depicts all of the Aug 97 data plotted against the mean of the Aug 97 data without schedule gaps. This specific run chart depicts shifts above the median turnaround time supporting the Pareto diagram data regarding large scheduling gaps. These large schedule gaps translate to idle time in the Operating Room with a consequent drain of resources.

November 1997 Data.

The documented mean for the Nov 97-turnaround time is 46 minutes, after the removal of schedule gaps from the all-inclusive data. The bar chart, Figure 7, again depicts a double peak at the 25-30 minute level and another at the over 65 minute level. Both peaks are similar to the Aug 97-bar chart, however, with increased frequencies of each.

The Pareto diagram for all inclusive Nov 97 data, Figure 8, depicts the four most frequent turnaround times: over 65 minutes (28%), 25-30 minutes (20%), 15-20 minutes (16%), and 35-40 minutes (15%). A comparison with the Aug 97 Pareto, Figure 2, depicts an increase in numbers of 15-20 minute turnaround times, however, it also depicts an increase in the over 65 minute times, which increases the mean turnaround time for the sample data.

When schedule gaps were removed from the data, Figure 9, the Pareto diagram depicts the four most frequent turnaround times. From the highest, they are: 25-30 minutes (22%), a 3% decrease from August; over 65 minutes (21%), a 6% increase from August; 15-20

minutes (18%), stable from August; and 35-40 minutes (16%), a 5% decrease from August.

These turnaround times encompass 77% of the Nov 97 data.

Run charts were developed again to evaluate shifts, trends, or patterns. Figure 10, depicts all of the Nov 97 data with daily averages plotted against the mean of the same data. The mean for this data is 54 minutes. Figure 11, depicts the Nov 97 daily averages without schedule gaps against the mean of the same data. The mean for this data is 46 minutes. Figure 12, depicts all of the Nov 97 data plotted against the mean of the Nov 97 data without schedule gaps. None of the charts demonstrated shifts, trends, or patterns, however, we continue to see large schedule gaps affecting the mean turnaround time.

March 1998 Data.

The documented mean of the March 1998 data is 40 minutes, after removal of schedule gaps from the all-inclusive data. Figure 13, depicts both data sets, all-inclusive, and without schedule gaps. Again we see two peaks of data, this time at the 15-20 minute level and again at the over 65 minute level.

Pareto diagram of the Mar 97 all-inclusive data, Figure 14, depicts the four most frequent turnaround time periods. In decreasing order they are: over 65 minutes (26%), a 1% decrease from Aug 97; 15-20 minutes (25%), a 5% increase from Aug 97; 25-30 minutes (17%), a 4% decrease from Aug 97; and 35-40 minutes (10%), a 7% decrease from Aug 97. These are positive accomplishments.

The Pareto diagram with schedule gaps removed from the Mar 97 all inclusive data, Figure 14, depicts the four most frequent turnaround time periods. In decreasing order they are: 15-20 minutes (28%), a 10% increase from Aug 97; 25-30 minutes (19%), a decrease of 6%

from Aug 97; over 65 minutes (17%), a 2% increase from Aug 97; and 35-40 minutes (11%), a decrease of 10% from Aug 97. After noting increases in the turnaround time of the Nov 97 data, the Mar 98 data is showing significant increases in the 15-20 minute turnaround time a positive achievement. The over 65 minute frequency, however, continues to negatively impact the mean of the data.

Run charts were also developed for this set of data to evaluate shifts, trends, or patterns. Figure 16, depicts all of the Mar 98 data with daily averages plotted against the mean of the same data. The mean for this data is 49 minutes. Figure 17, depicts the Mar 97 daily averages without schedule gaps against the mean of the same data. The mean for this data is 40 minutes. While no specific trends, shifts, or patterns were noted, an increased activity level below the mean is noticed. It is curious to note that the Operating Room achieved the 20-minute turnaround time goal one day in March, however, was not able to sustain the gain. Figure 18, depicts all of the Mar 98 data plotted against the mean of the Mar 98 data without schedule gaps. This run chart detects shifts above the median line, consistent with the Nov 97 chart demonstrating large schedule gaps affecting the mean turnaround time and impacting Operating Room resources when the rooms are idle for long periods of time.

While the mean turnaround time from Aug 97 through Mar 98 showed no change, there have been significant milestones achieved by increasing the frequency of turnaround times of 15-20 minutes. The mean appears to be heavily impacted by cases that have over 65-minute turnaround times. The Pareto diagrams provide the information to further focus the process improvements efforts.

The charts demonstrate a stable process in Aug with large gaps between scheduled patients demonstrating a need for surgical service efficiencies. The Nov 97 data showed

destabilizing services, during a time period of re-adjustment, specifically through increased turnaround times. The Mar 98 data is showing a greater frequency of turnaround times at the expected efficiency levels, however, many long gaps in scheduling continue to impact the mean of turnaround time measurements. The data continues to demonstrate Operating Room idle time periods.

Since the Operating Room turnaround time did not decrease from the baseline during the study, the utilization rate remained the same. Further analysis of utilization rate is not considered necessary at this time.

DISCUSSION

The purpose of the Graduate Management Project evaluated the effectiveness of process improvements on factors that impact operating room turnaround time and utilization. As previously noted, Potomac Hospital leadership established an Operating Room Steering Council which in turn chartered three Committees to evaluate current processes, establish implementation plans for the process improvements, and proceed with the improvements. To ensure the reader gets a broad overview of the interrelationships of an operating room suite and how different initiatives impact on one another, the issues of the Leadership and Scheduling Committees are discussed as well as those of the Turnaround Time Committee.

A detailed implementation plan is provided in Table 1. The plan details the specific tasks to be accomplished identified by number, beginning and end dates, and personnel responsible. The plan has been completed with a few noted exceptions. The plan is the working document by which all committees focus their efforts. Accomplishment of each task is a milestone in its own right.

As previously detailed in the best practices literature, business focused relationships with physicians is considered key to success in performance improvement efforts. Potomac Hospital enlisted the efforts of physicians who participate in the daily activities of the Operating Room and encouraged them to take the leadership role in the surgical services improvement process. Improvement efforts were taken from August through February and are ongoing. The "live" date for implementation and accountability was February 1998.

The Leadership group, composed of physicians, sought input from surgeons and established some key definitions and work practices. Their charter, to explore new approaches of leadership that would maximize Operating Room utilization and increase physician satisfaction, provided them with the ability to positively impact interrelationships with their colleagues at the same time it enhanced the Operating Room environment. The various factors they addressed impacted turnaround time in the Operating Room directly:

Key Definitions.

Start Time = Incision Time. The Leadership group defined "start time" as "incision time". This was a key definition since it had been subjectively defined, and various interpretations had been used. Some physicians defined start time as in the hospital time, others as in the Operating Room suite, and yet others as in the operating room prior to patient induction.

Tardiness: Five-minute grace period. Surgeons are expected to be in the Operating Room suite one half hour to the start time (scheduled time). The Leadership group also established compliance policies that are to be monitored through the Operating Room Committee, a multidisciplinary group led by surgeons.

These definitions impact the turnaround time directly because late start delays cascade through the operating day. Delays in start time at the beginning of the day may impact the rest of the physicians throughout the day. Physicians are expected to be on time for their first case of the day, as well as for those scheduled subsequently. The “show time” of half hour prior to surgery will allow the physician to greet their patients and discuss any issues with may impact the procedure with Anesthesia and the Nursing staff.

Physician Communication Plan.

A key issue was to establish physician to physician communication regarding Operating Room issues. A communication plan was established which included written communications to surgeons requesting their comments at key steps of the improvement processes, briefings at Surgical Department meetings, and briefings to physician office personnel. An initial letter to physicians apprising them of the Surgical Services Improvement Project was disseminated followed up with a survey regarding preferences in Operating Room scheduling options. Copies of physician communications, the survey conducted, and the findings are enclosed as Appendix B. The goal of the communication plan was to establish pro-active communications, and ensure and sustain surgeon buy-in to the process. To date based on personal communications among the physicians; the Leadership Committee feels that large portions of the surgeons have achieved buy-in to the process improvement efforts.

Defined Role of Operating Room Committee.

The role of the Operating Room Committee, a multi-disciplinary committee with physician leadership, was re-defined to be a proactive group in monitoring performance and

compliance with Operating Room policies. Reports to be monitored monthly by the Committee include case start delays with appropriate delay codes, case cancellations, central scheduling gap efficiencies, physician tardiness, Operating Room turnaround time, and schedule block utilization. Monitoring of these reports directly impact on turnaround time, as positive and negative trends will be identified early on with appropriate action taken when necessary. The importance of monitoring issues such as central scheduling gaps, case cancellations, scheduled block utilization, and physician tardiness cannot be over estimated. These issues may significantly impact turnaround times since they may be reasons for Operating Room idle time when rooms are ready to proceed with surgery. Since the "go live" date was February 1998 with block scheduling effective March 1998, the first automated reports to the Operating Room Committee will be provided in April 1998 depicting March 1998 data.

The Scheduling Committee with physician leadership was chartered to explore a new scheduling approach in the Operating Room that would maximize utilization and customer satisfaction. The current system was centralized and the Operating Room staff had not established buy-in to the centralization. While the scheduling system did contain an Operating Room specific module, it was not used by the Operating Room staff for anything other than to review the schedule when needed. The Operating Room schedule was received 48 hours prior to the surgery date at which time the Operating Room staff proceeded to make changes in the schedule to accommodate their requirements. Communication between the Schedulers and the Operating Room was limited. Various factors that impact turnaround time were addressed.

Centralized Versus Decentralized Scheduling System.

A common ground for all affected was identified. The Committee completed a telephone survey of various health care facilities in the area and identified the Operating Room systems in use. Ultimately the group reached consensus to retain and upgrade the current system, use the Operating Room scheduling module with built in reports for the Operating Room, and evaluate the system one year after it was fully on line. To that end, objective, measurable criteria were to be developed. The system will be evaluated March 1999.

Modified Block Scheduling.

Based on the Leadership Committee Communications Plan, a survey to all providers who schedule cases in the Operating Room was disseminated. A modified block schedule was recommended for Potomac Hospital. The block scheduling guidelines are provided as Appendix C. It was noted that some physicians were already blocking the schedule by default and it was a matter of recognizing the block officially. Modified block scheduling was implemented as of March 1998 with 40% of the schedule blocked. The schedule intervals were reduced to 15 minutes from 30 minutes to enhance compression of the schedule. It was felt that block booking would eliminate schedule gaps and consolidate cases by surgeons to optimize room, equipment, and Operating Room staffing utilization. Those physicians who were unable to comply with the block scheduling utilization requirements delineated, continue to book cases on a first come, first serve basis. They will, however, have to book the first available time to eliminate schedule gaps. In the past, the physicians were able to book cases at specific times regardless if earlier times were available, thus creating inefficient scheduling gaps. These gaps

had a negative impact on Operating Room resources since the Operating Room had to be staffed for daily operations regardless of the schedule gaps.

Training of Operating Room and Scheduling Personnel.

With the automated system upgrade and the new concept of block booking, staff training was imperative. The Operating Room staff was provided training on the Operating Room module to enable documentation of case specific information required as part of their duties. The Scheduling personnel were provided training on the system upgrade. Additionally, the Scheduling personnel were provided medical and surgical terminology classes to ensure cases were appropriately booked. The training served a dual purpose, it enhanced communications and relations between the Operating Room and the Scheduling personnel and it provided increased awareness of Operating Room requirements to the Scheduling personnel. Specifically the Schedulers understand the need for accurate documentation of cases, the need for documentation of special surgical instrumentation requirements, and the need to book cases based on the physicians average case lengths.

As a result, the surgery schedule release time has changed to 1200 the day prior to surgery. At that point the leading anesthesiologist of the day and the Director of Surgical Services review the next day's caseload. Any cases requiring booking for the next day would be add-ons to the released schedule. This new procedure eliminates the previous manual manipulation of the schedule, clearly defines when centralized scheduling responsibility ends and identifies when Anesthesia and Operating Room take over responsibility.

Automated Procedure Cards.

The process of transitioning surgeon preference cards to automated procedure cards is ongoing. The goal is to standardize cases as much as possible and eliminate as much procedure variation as possible between surgeons. Upon case scheduling, the procedure cards will automatically detail the instrument and packs required for the procedure in order for ancillary personnel to pull them. If a case cart system is implemented at Potomac Hospital, procedure cards may be used to pull requirements at the Central Sterile Supply room, thus alleviating the Operating Room personnel of burdensome requirements while trying to maintain Operating Room efficiencies.

The Turnaround Time Committee, a multidisciplinary team led by a surgeon, investigated the reasons turnaround time was over double of industry standards. It was noted that all users contribute to Operating Room efficiencies. Physicians, Operating Room staff impacts turnaround time, case scheduling, patient pre-surgical preparation, instrument availability, and housekeeping. A representative from each area was invited to become a committee member. The goal of the groups was to reduce turnaround time to 20 minutes or less. Factors affecting Operating Room turnaround time included the following:

Physician to Physician Communication.

Within the Operating Room, it was determined that Anesthesia would assign an Anesthesiologist as leader to address daily Operating Room physician issues such as emergent schedule add-ons, case bumping, etc. The role of the Anesthesiologist on running the schedule in conjunction with the Operating Room nursing leadership was communicated to the surgeons.

The Anesthesiologist became the arbitrator of physician issues to enable the Operating Room nursing staff to focus their efforts on maintaining efficient function and utilization of the OR. Physician requirements, to be to the Operating Room on time, and have their patients ready for surgery, including the required history and physical, and ancillary exams were communicated to surgeons as part of the communication plan. They were made aware of the case start time policy and ongoing monitoring efforts through the Operating Room Committee.

Central Sterile Supply.

The Central Sterile Supply Department has the potential to significantly impact Operating Room turnaround time by ensuring instruments are available when required and processing used instruments as needed. Representation was included with the goal of effecting process improvements to consistently meet the needs of the OR.

The CSS hours of operation were evaluated and modified to ensure optimum hours of operation. Previously CSS hours did not meet peak Operating Room workload, which negatively impacted on instrument reprocessing or availability for next day requirements.

Instrument availability issues were addressed and usage rates and losses were determined. A baseline assessment of instrument use was conducted and an instrument count was completed at the end of March 1998 in conjunction with a total Operating Room inventory. Instrument needs assessment is ongoing at the present time.

Requests for proposals to various surgical suppliers were initiated to evaluate costs and benefits associated with a case cart system. The case cart system is evaluated with the goal to relieve the Operating Room of duplicate storage and efforts pulling case instruments and supplies so they may concentrate on surgical procedures and Operating Room efficiencies.

OR Staff Buy-In.

The Operating Room staff was apprised of the goals of the surgical service improvement project, to achieve industry best practices. A special briefing was provided to the Operating Room staff with details on all efforts of the improvement project. The Director was tasked to optimize staffing and establish clear task delineation and expectations of the Operating Room employees through their position descriptions. Buy-in from the peri-operative staff is considered essential and was communicated to the staff by the Director and at various staff briefings.

Positions for multi-skilled workers were established with the goal to reduce turnaround time by having employees who could perform multiple tasks such as instrument and supply retrieval, housekeeping chores, assist with prepping patients, etc. Three positions were filled in late February and orientation is ongoing.

Surgical Coordinators.

Nurses with Operating Room experience screen patients prior to surgery to ensure all laboratory, x-ray, EKG, and pre-operative work-up is completed. They were invited to become active participants in the improvement efforts. Surgical Coordinator work hours were extended through 2100 during weekdays, and a goal of 95% screening of surgical patients was established. This goal is to be monitored by the Operating Room Committee. A random review of 11 days in February documented a 91% compliance with the requirement.

The Coordinators are expected to screen pre-surgical patient records within 48 hours of surgery to ensure records are complete. Anesthesia will then review the patient records to ensure all laboratory and pre-surgical testing is within normal limits. If additional testing needs to be conducted, it can be completed ahead of the scheduled surgery date. In the past patients records were being reviewed just prior to the surgical procedure. If any medical record issues or any medical problems that had not been cleared were discovered at that time, the procedure was delayed, causing increased turnaround time and idle operating rooms. This proactive approach by the Surgical Coordinators will minimize process variations and will enhance turnaround time. The physician office personnel received an office resource manual, which delineates all requirements for pre-surgical testing and documentation. The manual is provided as Appendix D.

Housekeeping.

Housekeeping personnel were active participants in the performance improvement efforts as well. Housekeeping requirements in relation to Operating Room turnaround time were placed in the position descriptions and accountability was stressed. A liaison with the Operating Room staff was established to address any issues that may arise between departments.

Barriers to process improvements were identified early on in the planning phase. Some of the barriers identified were cultural change, consistent leadership and sponsorship of initiatives, physician resistance, and resources either human or material. The groups were alerted to the potential barriers and maintained heightened awareness throughout the implementation. Results show that in this process improvement initiative, the Operating Room turnaround time deteriorated before it improves. This may have been due to more accurate data capture, as the

teams became more educated in the processes however; it is beyond the scope of this project to determine the reason.

The data shows that the Operating Room turnaround time increased by 6 minutes from Aug 97 to Nov 97. The turnaround time returned to the baseline of 40 minutes between Nov 97 and Mar 98. As previously noted, it is beyond the scope of this project to determine the reason for the increase between the Aug 97 data and the Nov 97 data. The detailed data from Nov 97 and Mar 98, however, depicted significant increases in 15-20 minute turnaround times, a positive accomplishment. In Nov 97, 18% were 15-20 minutes, whereas in Mar 98 it was 28%, an increase of 10%. In comparison, 65 minute and over turnaround times were decreased. As of Mar 98, 17% of the turnover time was over 65 minutes, where in Nov 1997 it was 21%, a decrease of 4%.

These decreases in lengthy turnaround times may be attributed to multidisciplinary involvement and the performance improvement efforts of the whole staff. The characteristics of the best practices noted by Arthur Andersen & Co. (1992), were the focus of the Potomac Hospital improvement efforts. They are business focused relationships with physicians, streamlining processes in scheduling to maximize Operating Room use, achieving surgical efficiencies through reduced case pack assembly efforts and equipment availability, and appropriate use of automated systems. While the teams did not decrease the turnover time during this seven-month period, the foundation has been laid for continuous performance improvement.

The Potomac Hospital leadership has expended significant resources to enhance surgical services and is committed to the long term performance improvement efforts and favorable outcomes.

RECOMMENDATIONS

The surgical service improvement project is well on its way to achieving the desired 20-minute turnaround time. It is imperative to maintain the course of the efforts and continue monitoring the initiatives established. Continuous monitoring by a proactive Operating Room Committee will become the key to sustain the changes and the positive gains in turnaround time. Additional research efforts may glean interesting findings, however.

To more accurately document the turnaround time accomplishments, actual times to the minute should be recorded. The current estimates to 5-minute intervals does not accurately capture or reflect true times, and may distort true accomplishments.

Scanning of the spreadsheets shows that there may be peak hours where turnaround time is increased. Comparisons of time periods for turnaround time over 60 minutes may be appropriate to identify times where additional effort or resources may be expended.

Scanning the data also shows that room turnover, time the patient leaves the room to time room is ready may have significantly decreased during the time frame performance improvement efforts have been underway. Evaluation of turnover time averages compared to room turnaround times may provide average delays from room ready to subsequent patient in the room. This time period documents Operating Room idle time, which is a drain on allocated resources. Since the Operating Room module of the scheduling system is being used to document delay cause codes, a breakout of delays in comparison with the above data may also prove useful to Potomac Hospital leadership to focus further performance improvement efforts.

LIST OF APPENDICES

Appendix A	
Potomac Hospital Initiative Tracking	49
Appendix B	
Physician Communications.....	50
Appendix C	
Modified Block Scheduling Guidelines.....	51
Appendix D	
Surgery Resource Manual.....	52

REFERENCES

- Arthur Andersen & Co. (1992). Ambulatory surgery best practices. Dallas, TX: Arthur Andersen & Co.
- Ernst and Young LLP. (1997, September). Operating Room Steering Committee Kick-off Meeting. Washington, DC.
- Gilbert, J. A. (1990). Productivity management, a step by step guide for health care professionals. Chicago, IL: American Hospital Publishing, Inc.
- Handbook for Improvement. (2nd ed.). (1997). Brentwood, TN: Executive Learning, Inc.
- Hoover, J.A. 3rd. (1994). Ambulatory surgery centers best practices for the 90s. Journal of Healthcare Materials Management, 12 (5), 20-25.
- Lofti, V. and Pegels C. (1996). Decision support systems for operations management & management science. (3rd ed.). Chicago, IL: Irwin.
- Mitchell, L. (1996). Benchmarking, benchmarks, or best practices? Applying quality improvement principles to decrease surgical turnaround time. Best Practices Benchmarking Healthcare, 1(2), 70-74.
- Publication Manual of the American Psychological Association. (4th ed.). (1994). Washington, DC: American Psychological Association.

Table 1

Surgical Services Performance Improvement Tracking Sheet

Date: _____

Surgical Services Performance Improvement Tracking Sheet

OR Suite No: _____

Case #	Patient	Time Case Scheduled	Room Ready/Delay Code	Time In/Delay Code	Surg Starts/Delay Code	Surg Stop	Time Out/Delay Code
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							

Delay Codes:

- L07 Lab results delayed
- 015 Staff not available
- 016 Equip/Instruments not available
- P06 Pt arrives at scheduled time or later
- P07 Lab work incomplete
- P08 Other (Specify)
- R05 X-rays not available
- S26 Phys arvd at scheduled time or later

Cancellation Codes:

- AN Anesthesia Cancelled
- DE Patient Delivered
- FB Financial problem
- IS Insurance problem
- MC Medical clearance required
- MM Moved to main nuc

Delay Codes:

- S27 Orders written upon arrival (IV antibiotic, etc.)
- S28 H&P Written upon arrival
- S29 Physician left department
- S30 Previous surgeon created delay Anesthesia

Cancellation Codes:

- OT Other
- PI Illness/Death
- PT Patient cancelled
- SC Surgeon/Office cancelled

Figure 1
Potomac Hospital OR Turnaround Time Comparison
Bar Chart
All Inclusive & Data Without Schedule Gaps
Jul-Aug 97

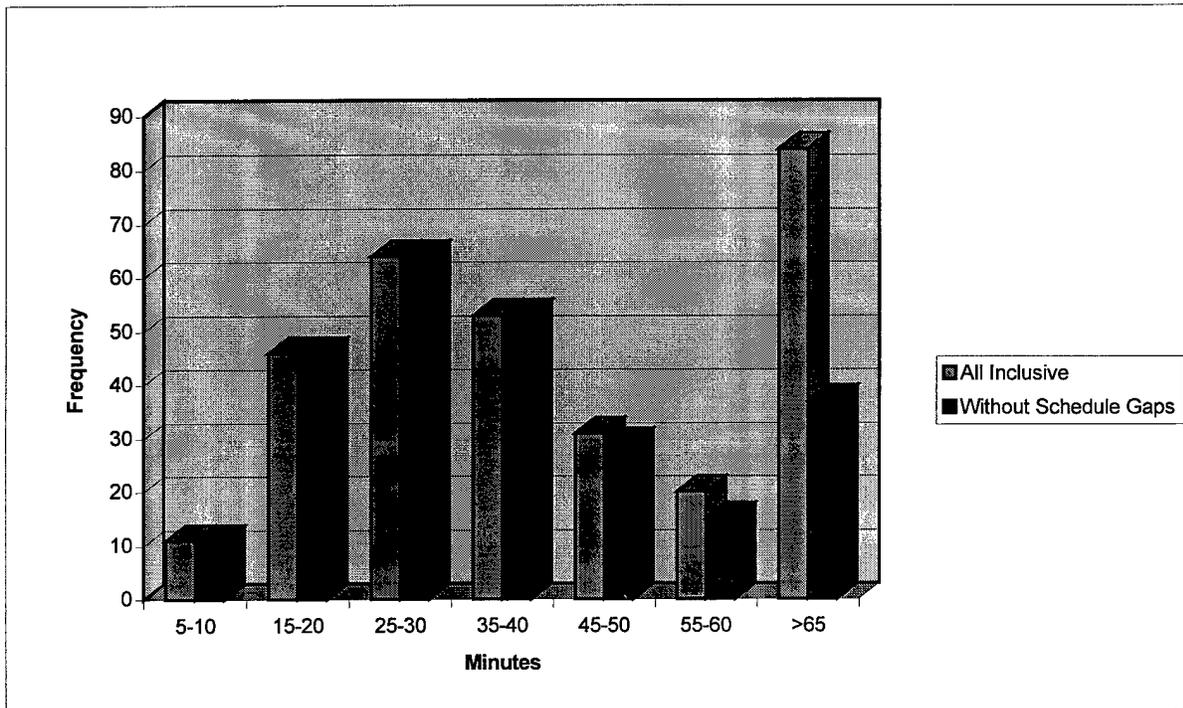


Figure 2
Potomac Hospital OR Turnaround Time
Pareto Diagram
All Inclusive Data
Jul-Aug 97

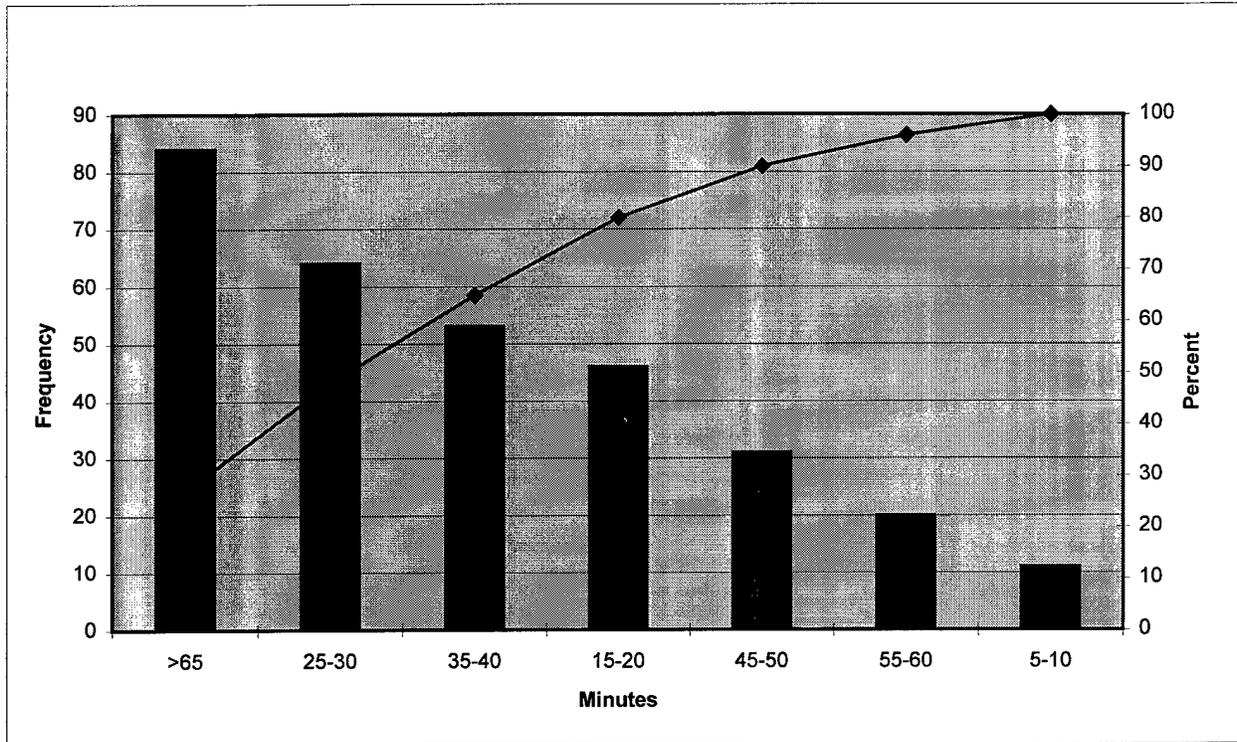


Figure 3
Potomac Hospital OR Turnaround Time
Pareto Diagram
Data Without Schedule Gaps
Jul-Aug 97

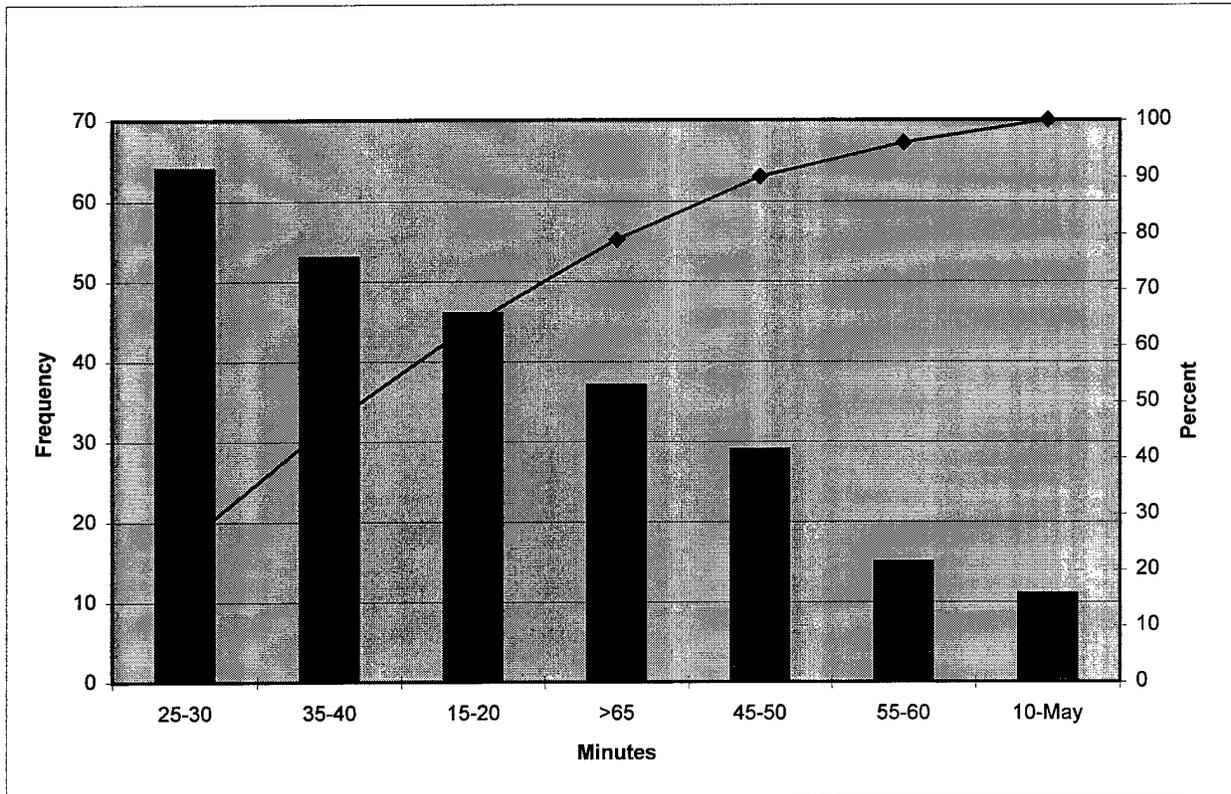


Figure 4
Potomac Hospital OR Turnaround Time
Run Chart
All Inclusive Data
Jul-Aug 97

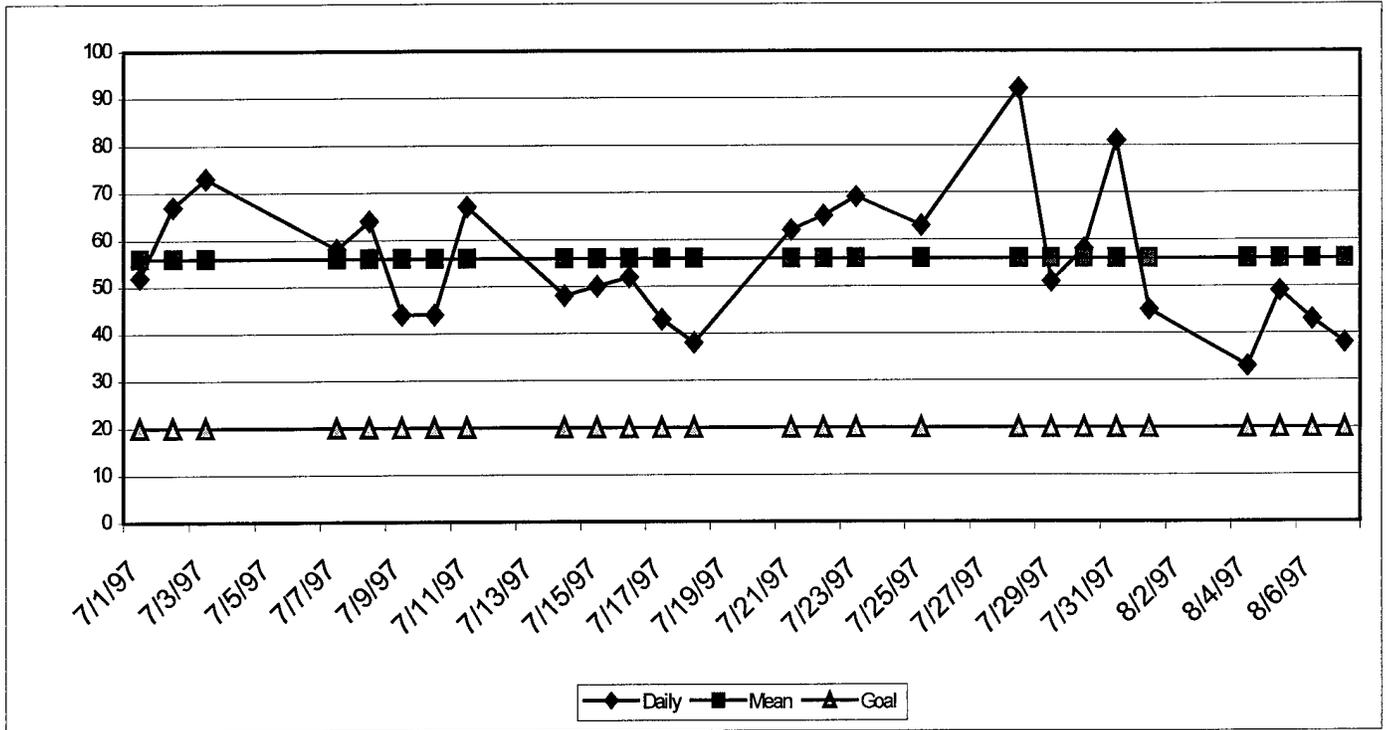
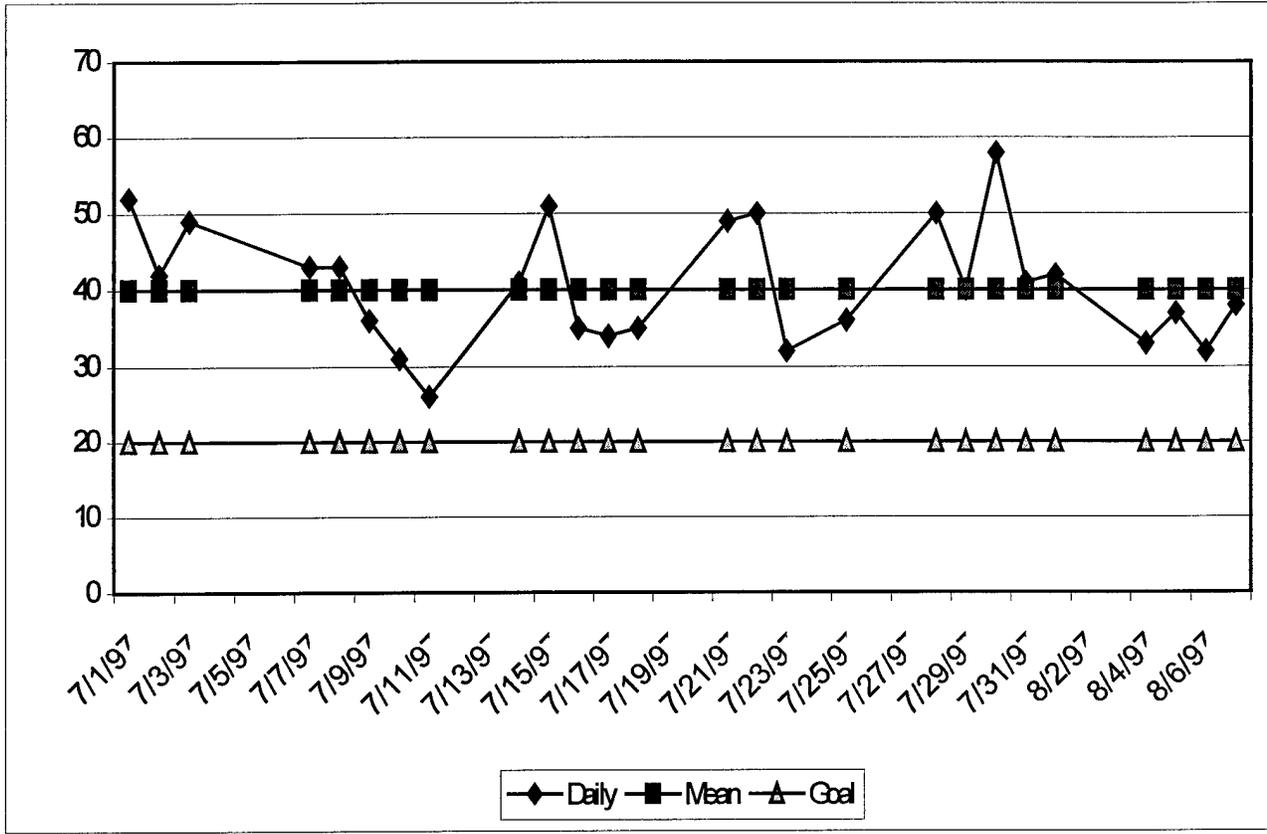


Figure 5
 Potomac Hospital OR Turnaround Time
 Run Chart
 Data Without Schedule Gaps



July-Aug 97

Figure 6
 Potomac Hospital OR Turnaround Time Comparison
 Run Chart
 All Inclusive Data With Mean of Data Without Schedule Gaps
 Jul-Aug 97

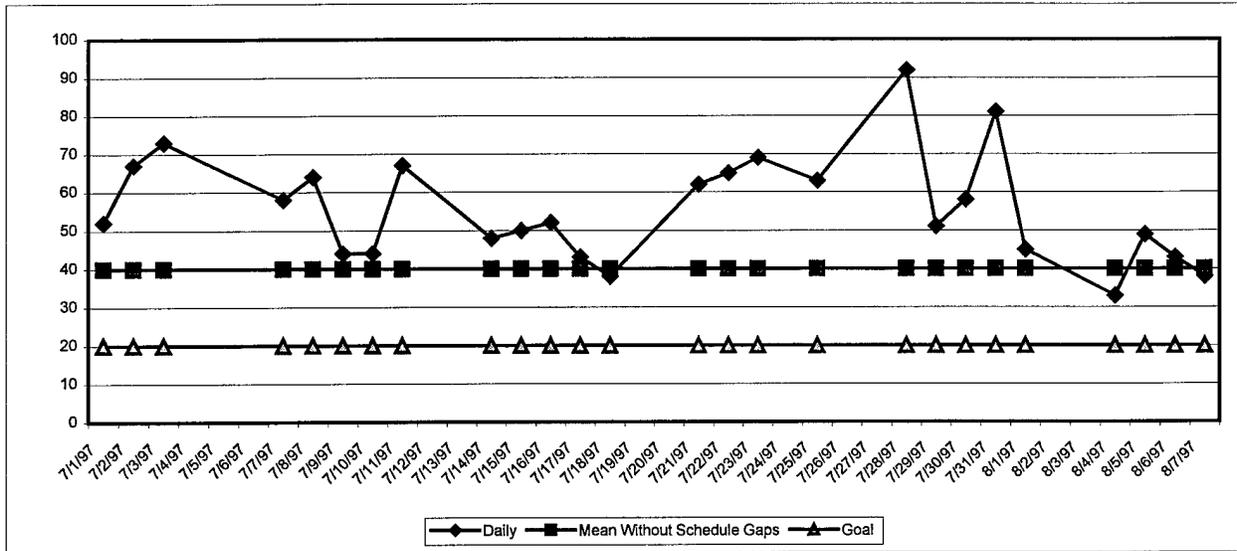


Figure 7
Potomac Hospital OR Turnaround Time Comparison
Bar Chart
All Inclusive & Data Without Schedule Gaps
Oct-Nov 97

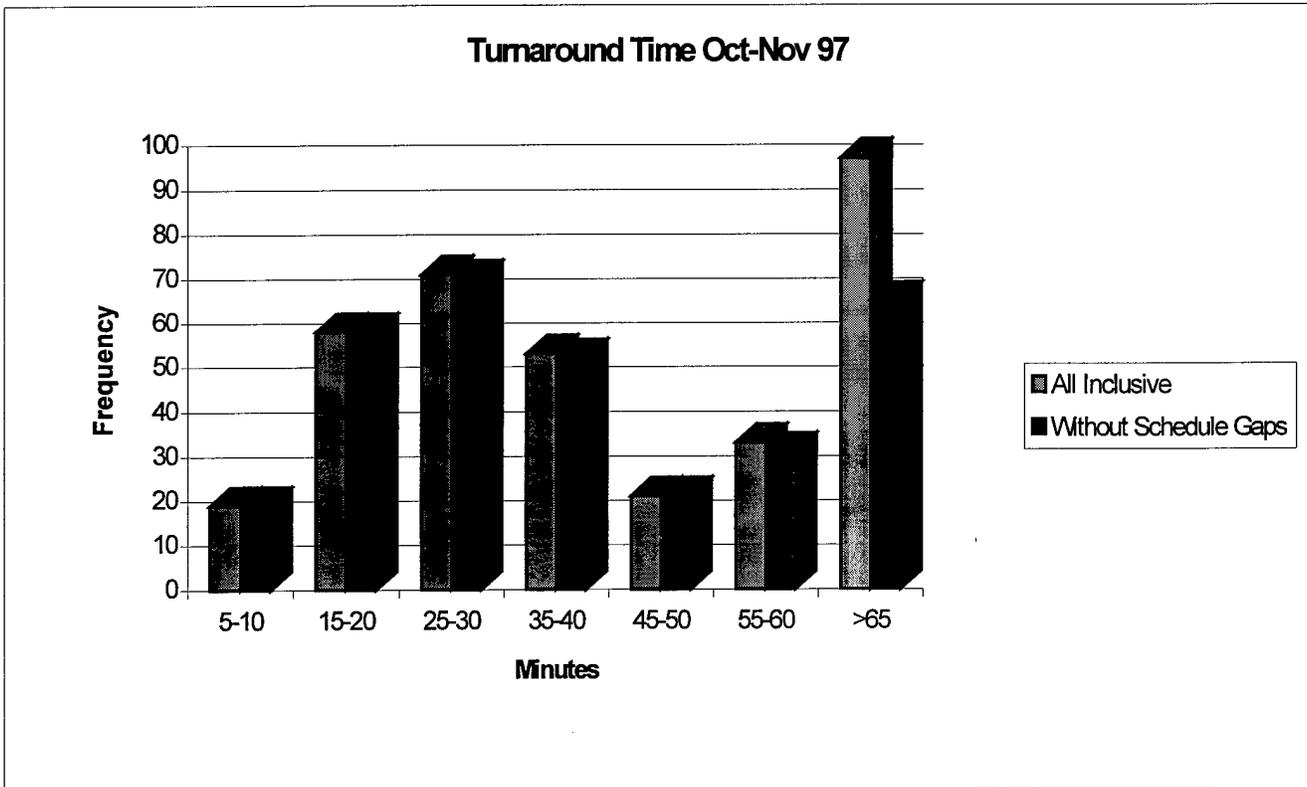


Figure 8
Potomac Hospital OR Turnaround Time
Pareto Diagram
All Inclusive Data
Oct-Nov 97

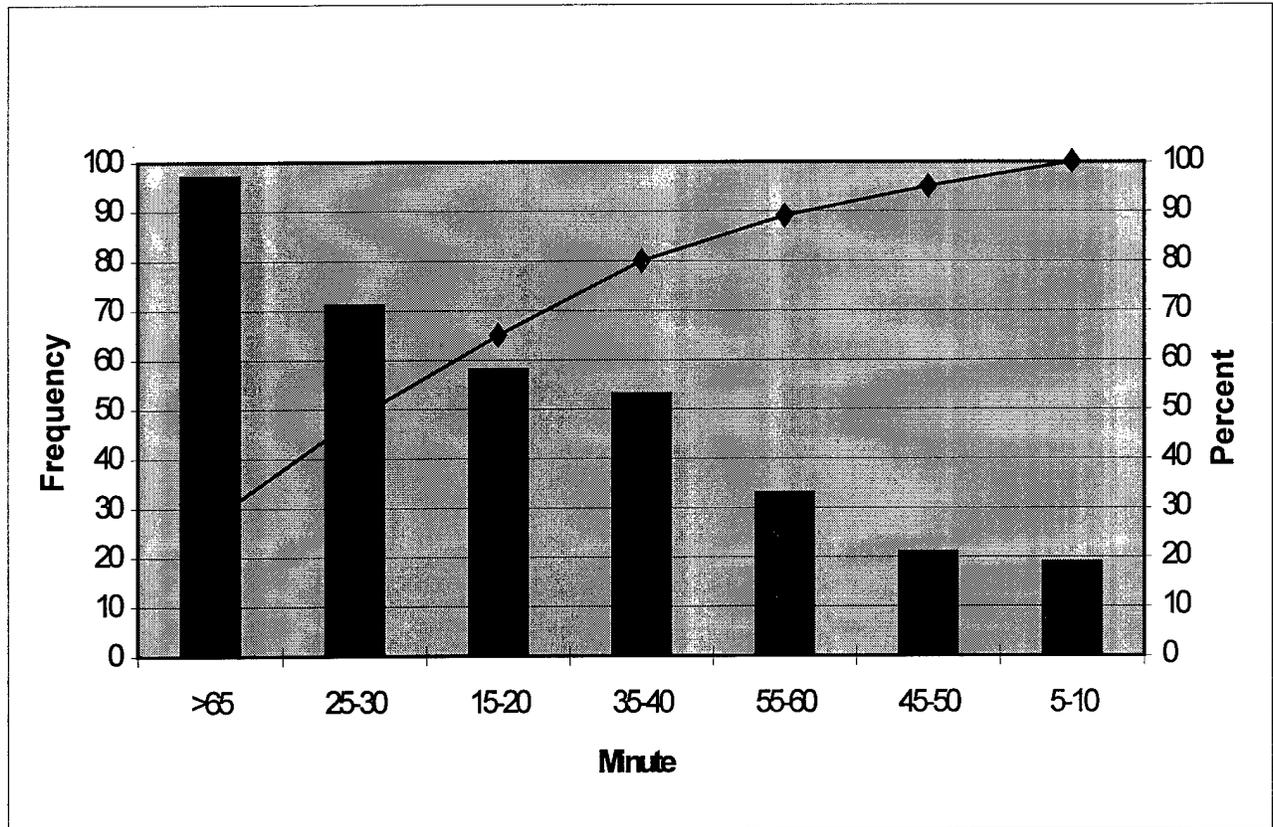


Figure 9
Potomac Hospital OR Turnaround Time
Pareto Diagram
Data Without Schedule Gaps
Oct-Nov 97

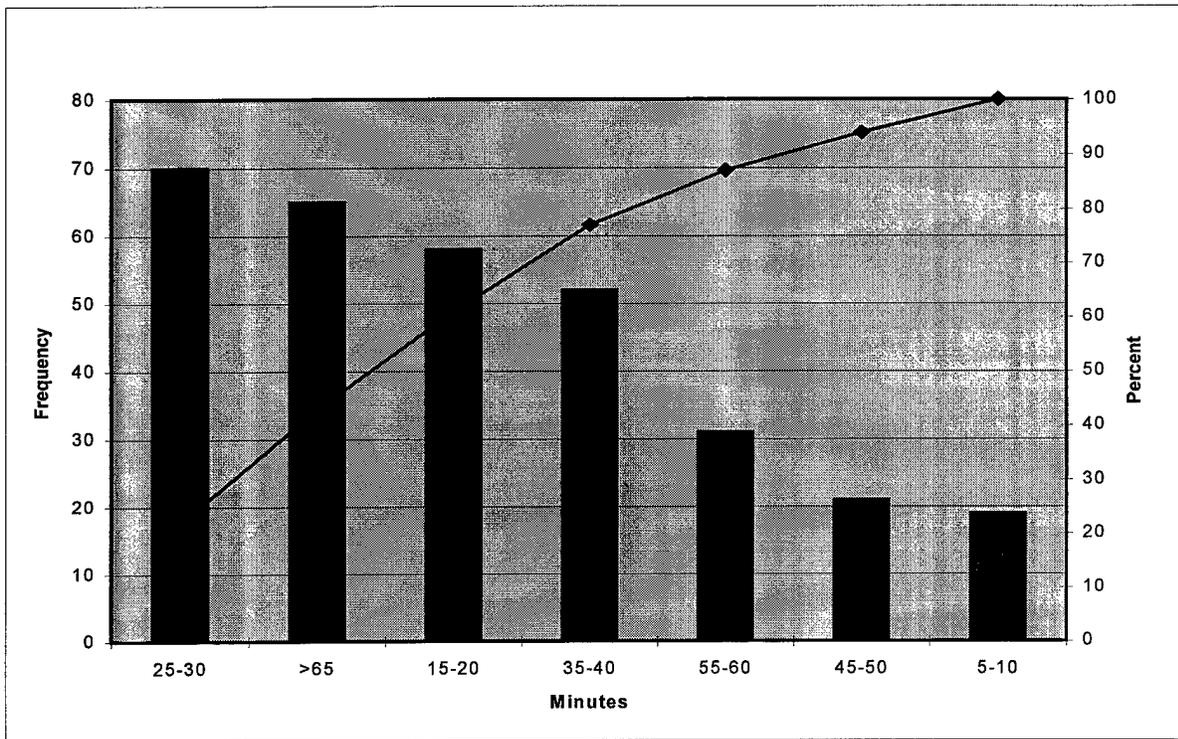


Figure 10
Potomac Hospital OR Turnaround Time
Run Chart
All Inclusive Data
Oct-Nov 97

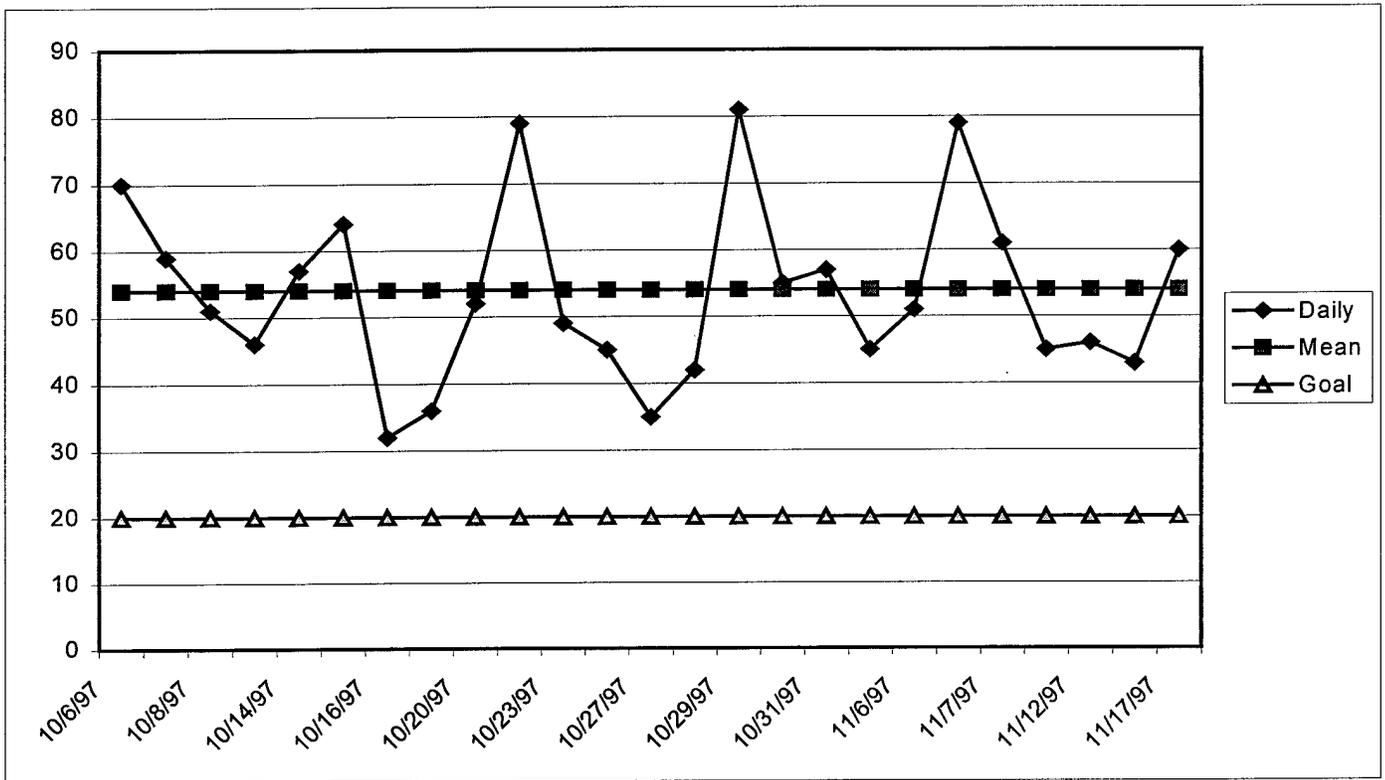


Figure 11
Potomac Hospital OR Turnaround Time
Run Chart
Data Without Schedule Gaps
Oct-Nov 97

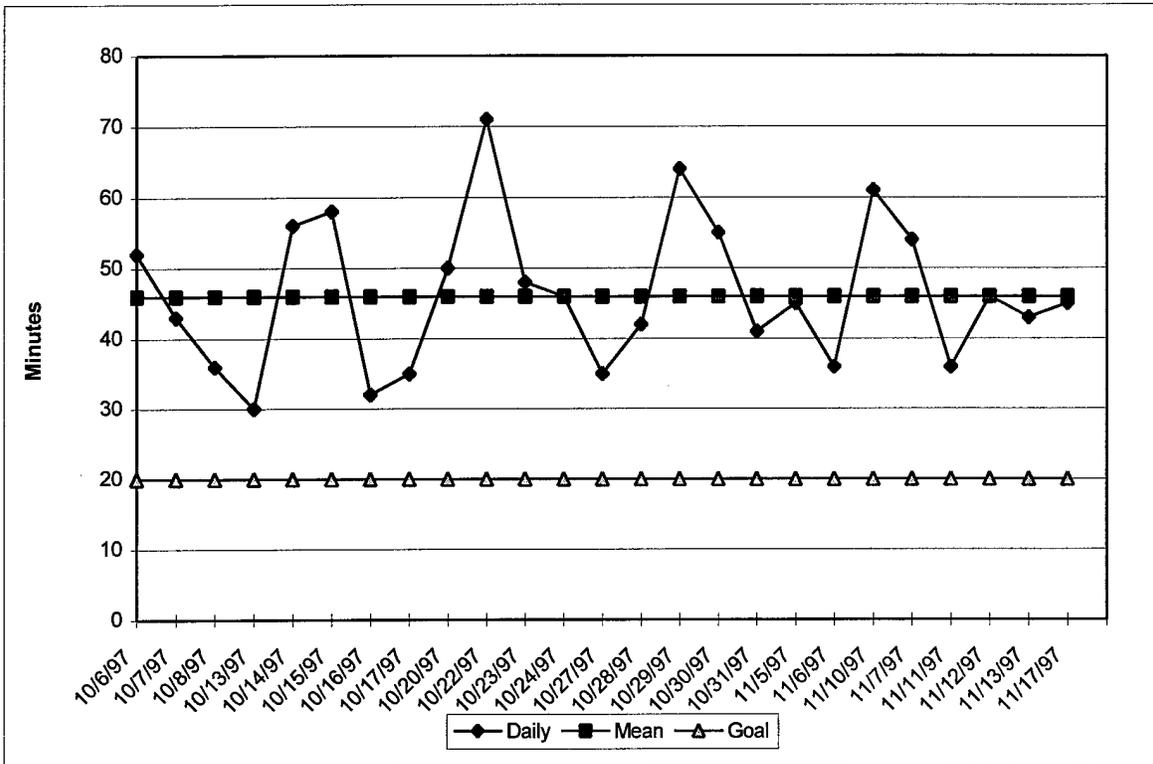


Figure 12

Potomac Hospital OR Turnaround Time Comparison
Run Chart
All Inclusive Data With Mean of Data Without Schedule Gaps
Oct-Nov 97

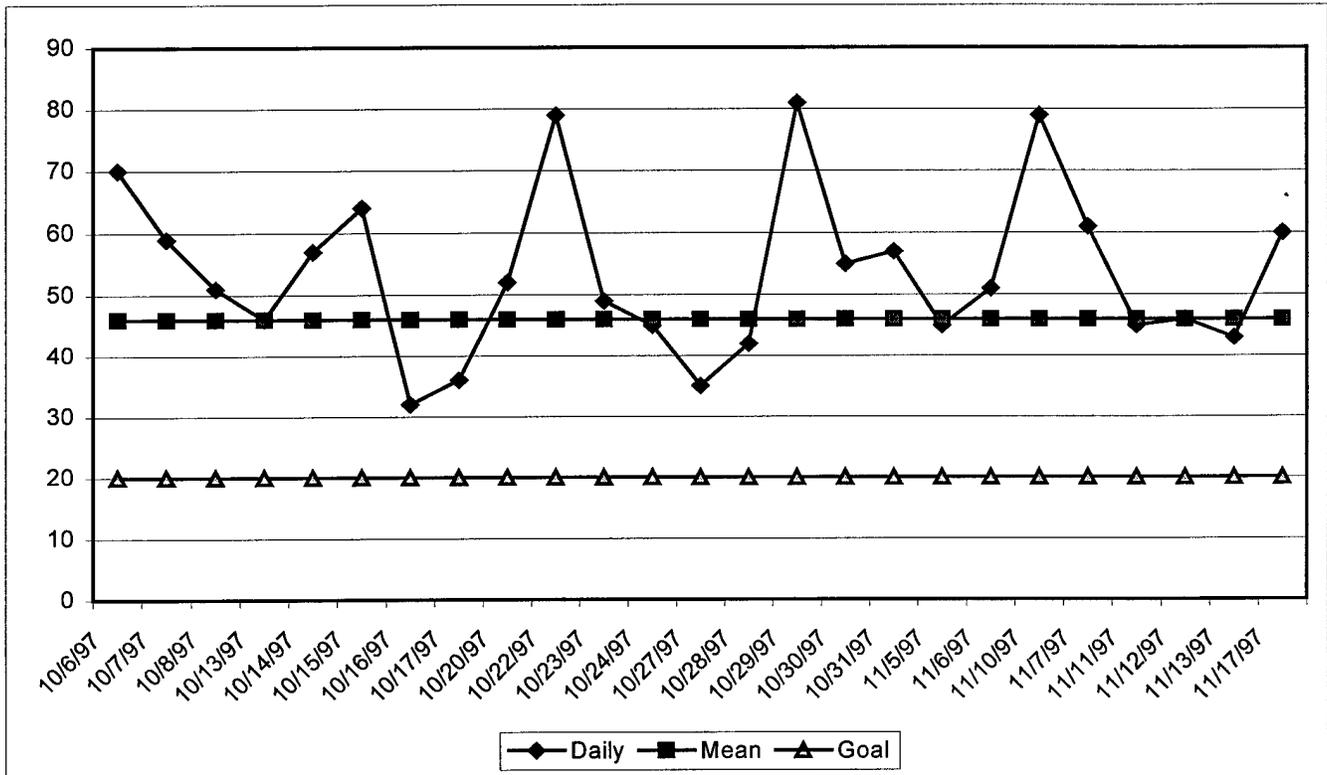


Figure 13

Potomac Hospital OR Turnaround Time Comparison
Bar Chart
All Inclusive & Data Without Schedule Gaps
Feb-Mar 98

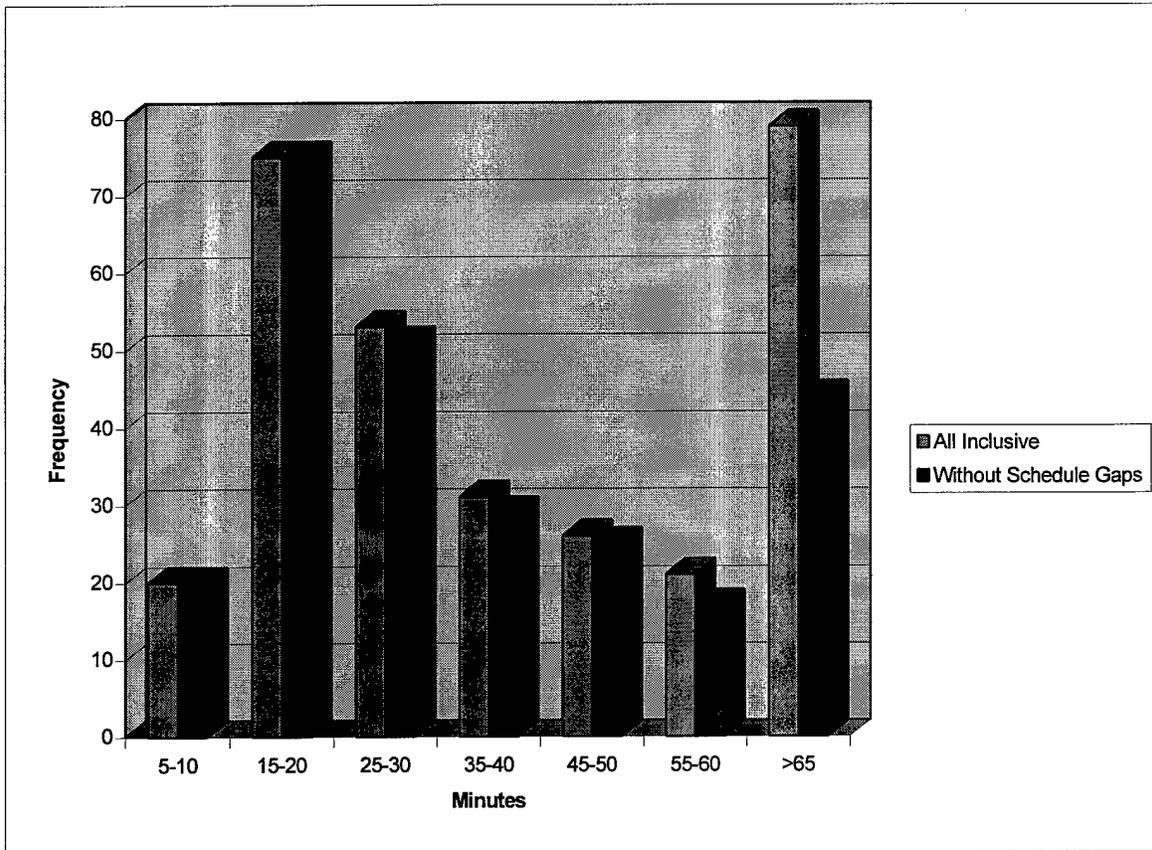


Figure 14
Potomac Hospital OR Turnaround Time
Pareto Diagram
All Inclusive Data
Feb-Mar 98

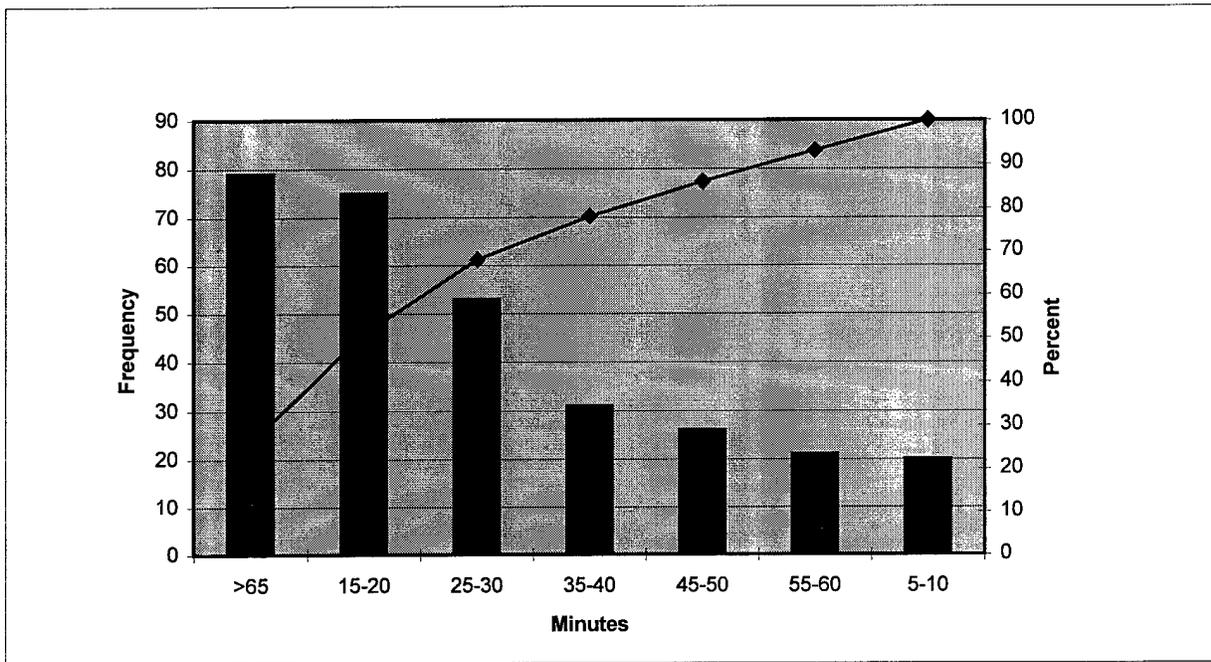


Figure 15
Potomac Hospital OR Turnaround Time
Pareto Diagram
Data Without Schedule Gaps
Feb-Mar 98

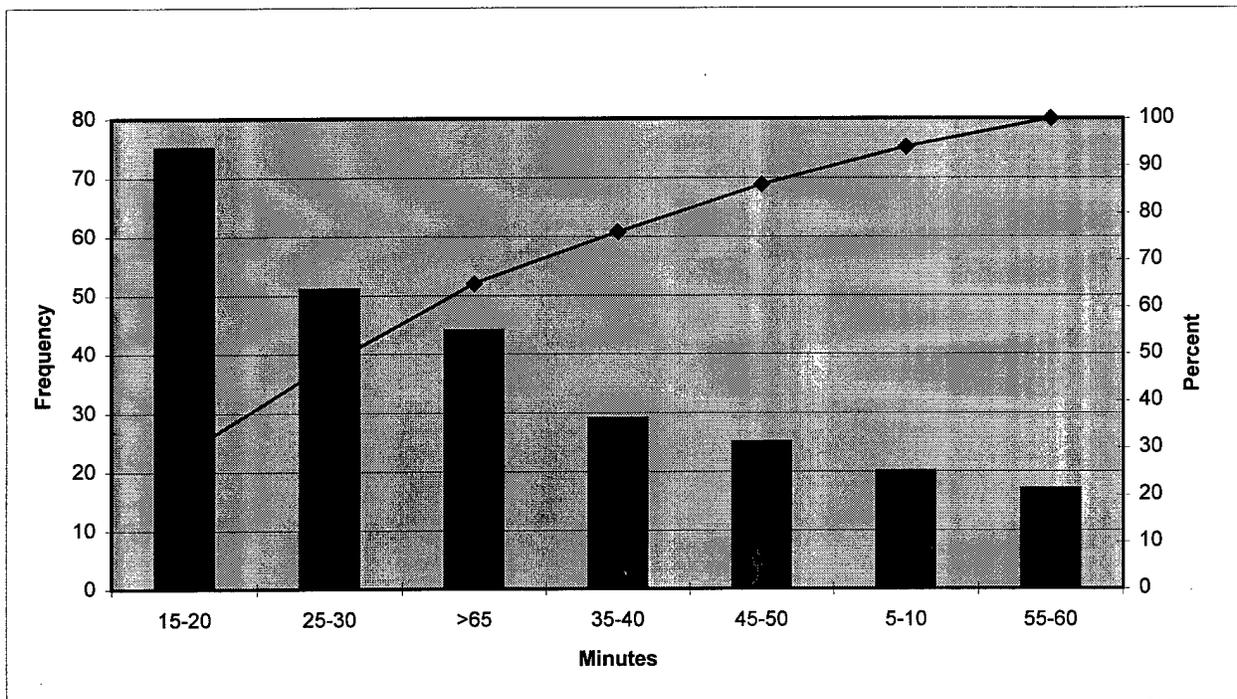


Figure 16
Potomac Hospital OR Turnaround Time
Run Chart
All Inclusive Data
Feb-Mar 98

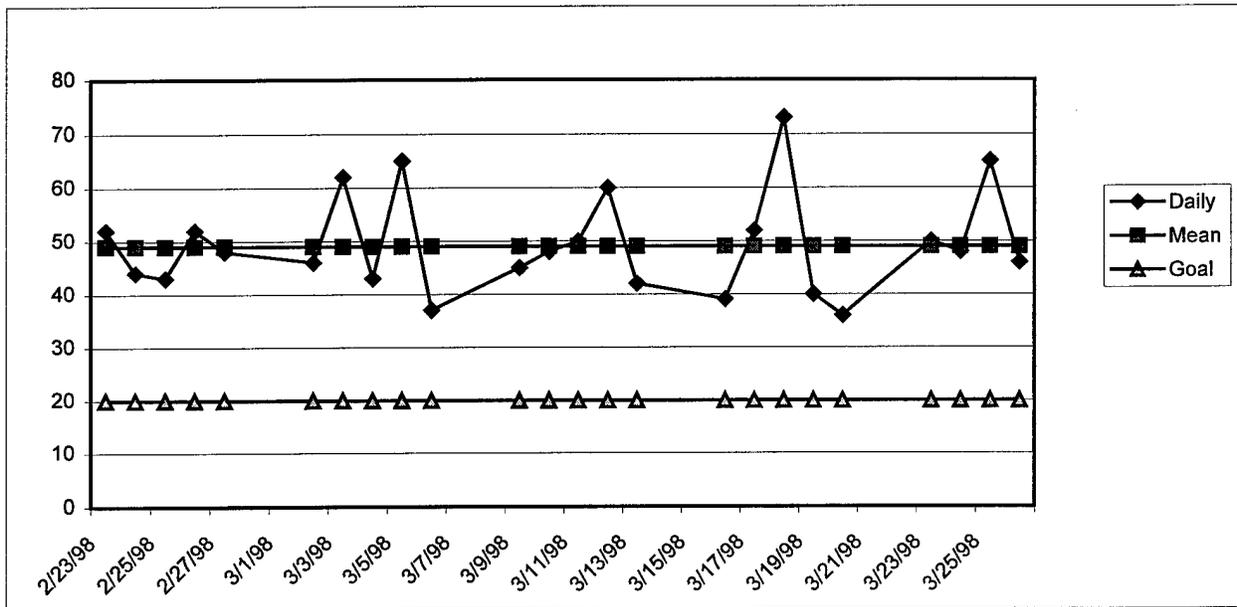


Figure 17
Potomac Hospital OR Turnaround Time
Run Chart
Data Without Schedule Gaps
Feb-Mar 98

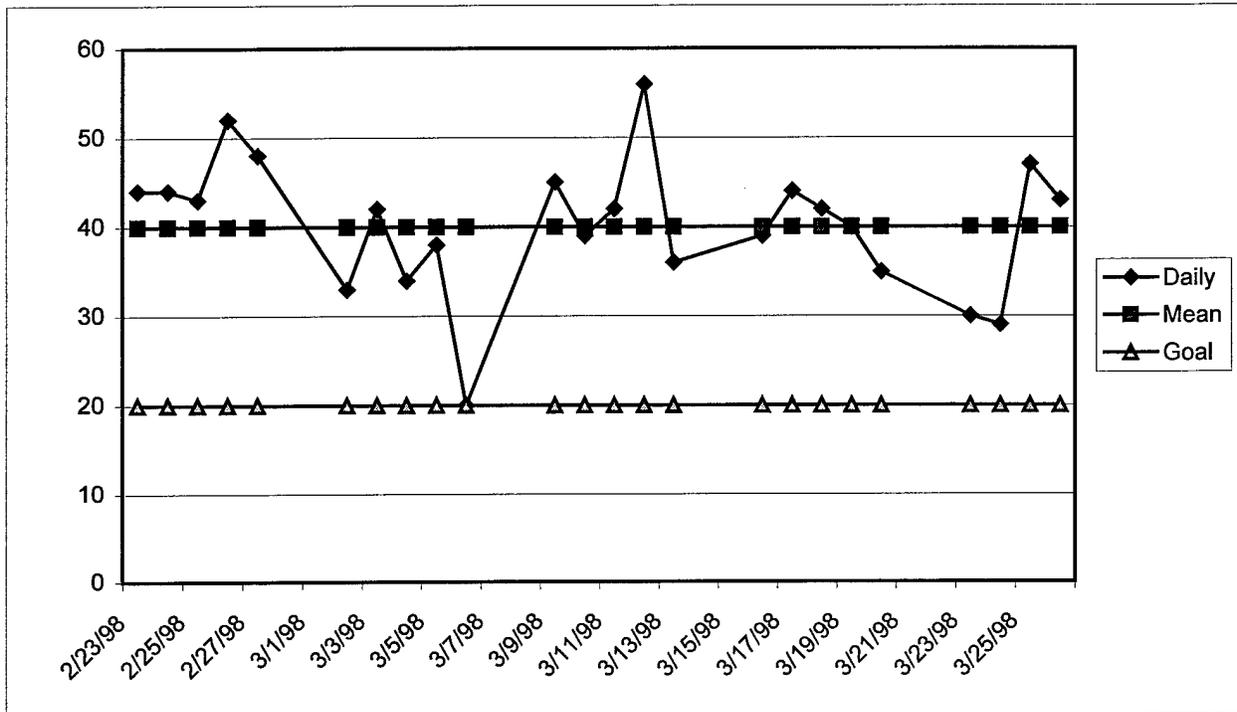
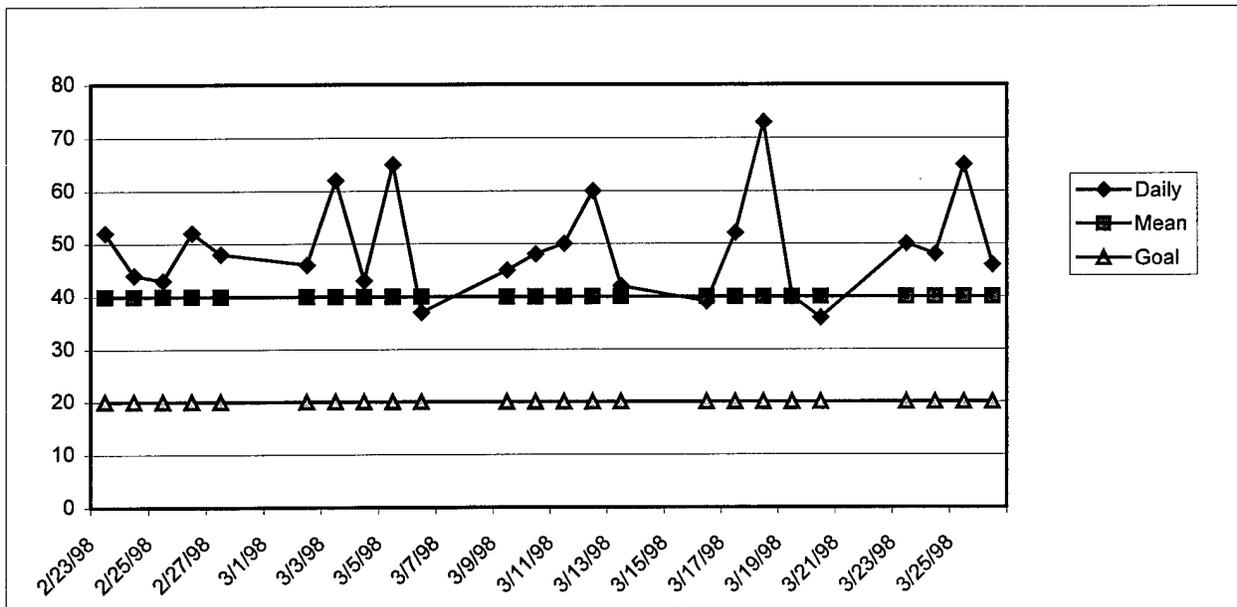


Figure 18
Potomac Hospital OR Turnaround Time Comparison
Run Chart
All Inclusive Data With Mean of Data Without Schedule Gaps
Feb-Mar 98



Appendix A

Potomac Hospital Initiative Tracking Sheet

Master

ID #	INITIATIVE	SUBSET	DESCRIPTION	START	FINISH	COMPLETE (Y,N)	DOCUMENTED (Y,N)	POINT
1	Leadership		Provide written definitions for OR case times	10/27/97	11/3/97	Y	Y	Cohen
2	Leadership		Establish criteria for measurement of non-compliance with OR rules and regulations	10/27/97	11/3/97	Y	Y	Cohen
3	Leadership		Establish criteria for disciplinary action	10/27/97	11/3/97	Y	Y	Cohen
4	Leadership		Identify forum to address OR leadership issues	10/27/97	11/3/97	Y	Y	Cohen
5	Leadership		Establish measures of effectiveness to be reported in OR leadership forum	10/24/97	11/3/97	Y	Y	Cohen
6	Leadership		Prepare communication plan for all impacted by the OR efficiency review	11/7/97	11/14/97	Y	Y	Cohen
7	Leadership		Brief OR committee	11/7/97	11/14/97	Y	Y	Cohen
8	Leadership		Implement communication plan	11/14/97	11/21/97	Y	Y	Cohen
9	Leadership		Determine administration and enforcement of daily OR operations policy	11/20/97	11/27/97	N	Y	Cohen
10	Leadership		Provide ongoing reports of OR efficiencies/issues in above forum	11/27/97	2/20/98	N	N	Cohen
11	Scheduling		Establish requirements of an OR Scheduling Software Program	10/24/97	10/31/97	Y	Y	Kelly
12	Scheduling		Establish requirement for knowledge of medical terminology for schedulers	11/10/97	12/1/97	Y	Y	Kelly
13	Scheduling		Establish requirement for knowledge of surgical procedures for schedulers	11/10/97	12/1/97	Y	Y	Kelly
14	Scheduling		Establish written criteria for scheduling surgical patients	11/10/97	12/5/97	Y	Y	Kelly
15	Scheduling		Establish efficiency criteria for CS System and CS position description	11/10/97	12/12/97	Y	Y	Kelly
16	Scheduling		Establish management criteria and tools required for scheduling software application	11/10/97	12/12/97	Y	Y	Kelly
17	Scheduling		Upgrade current or purchase new OR Schedule system	11/3/97	12/15/97	Y	Y	Kelly
18	Scheduling		Evaluate current OR scheduling system against above criteria	12/12/97	12/26/97	Y	Y	Kelly
19	Scheduling		Begin updating physician preference card module into the system with a schedule for completion	12/16/97	2/2/98	Y	Y	Kay
20	Scheduling		Implement data gathering of above measures to ensure efficiency and effectiveness	12/29/97	2/20/98	Y	Y	Kelly
21	Scheduling		Educate schedulers on basic medical terminology	12/1/97	1/28/98	Y	Y	Kay
22	Scheduling		Educate schedulers on basic surgical terminology	12/1/97	1/28/98	Y	Y	Kay
23	Scheduling		Submit Request for Proposal for OR Scheduling Software	susp.	susp.	N	Y	Diane
24	Scheduling		Evaluate at least three OR scheduling systems against above criteria	susp.	susp.	N	Y	Diane
25	Scheduling		Conduct cost benefit analysis	susp.	susp.	N	Y	Diane
26	Turnaround	Anesth.	Conduct staffing needs assessment to meet OR and SC workload	10/17/97	10/26/97	Y	Y	Enjetti
27	Turnaround	Anesth.	Provide Command and Control for daily OR schedule operations	10/17/97	10/27/97	Y	Y	Enjetti
28	Turnaround	Anesth.	Establish and provide anesthesia time requirement criteria to OR schedulers	10/24/97	11/7/97	Y	Y	Enjetti
29	Turnaround	Anesth.	Provide Command and Control for physician issues which impact the daily operations in the OR	10/24/97	11/7/97	Y	Y	Cohen
30	Turnaround	Anesth.	Collaborate with OR to evaluate need for Anesthesia Tech/multiskilled worker	10/24/97	11/14/97	Y	Y	Enjetti
31	Turnaround	Anesth.	Upgrade Anesthesia Tech/Multiskilled worker PD	11/14/97	11/21/97	N	N	Enjetti
32	Turnaround	Anesth.	Establish efficiency criteria for Anesthesia Tech/Multiskilled worker PD	11/14/97	11/21/97	N	N	Enjetti
33	Turnaround	CSS	Establish performance criteria for CSS Position Descriptions	10/17/97	10/24/97	Y	Y	Martha
34	Turnaround	CSS	Conduct inventory and needs assessment for surgical supplies stored in OR and CSS	10/24/97	10/24/97	Y	Y	Martha
35	Turnaround	CSS	Establish criteria for evaluating CSS hours	10/24/97	10/28/97	Y	Y	Martha
36	Turnaround	CSS	Evaluate Central Sterile Supply Staffing Requirements	10/24/97	10/31/97	Y	Y	Martha
37	Turnaround	CSS	Identify optimal hours for CSS	10/24/97	10/31/97	Y	Y	Martha
38	Turnaround	CSS	Collaborate with OR to evaluate need for CSR/multiskilled worker	10/24/97	11/7/97	Y	Y	Martha
39	Turnaround	CSS	Update appropriate Position Description to ensure multiskilled worker requirement met	10/24/97	11/7/97	Y	Y	Martha
40	Turnaround	CSS	Schedule presentation from at least two vendors	10/31/97	11/11/97	Y	Y	Martha
41	Turnaround	CSS	Establish controls to minimize/eliminate loss of instruments	10/24/97	11/14/97	N	Y	Martha
42	Turnaround	CSS	Educate staff on issue of missing/lost instruments	10/24/97	11/14/97	Y	Y	Martha
43	Turnaround	CSS	Establish Potomac Hospital criteria and quality control measures for case cart system	10/24/97	11/15/97	N	Y	Donna
44	Turnaround	CSS	Hire qualified employees	10/31/97	11/20/97	Y	Y	Martha
45	Turnaround	CSS	Submit Request for Proposal on Case Cart System	11/15/97	11/20/97	N	Y	Martha
46	Turnaround	CSS	Conduct inventory and needs assessment of current instrumentation with OR workload	10/24/97	11/28/97	N	Y	Martha

ID #	INITIATIVE	SUBSET	DESCRIPTION	START	FINISH	COMPLETE (Y,N)	DOCUMENTED (Y,N)	POINT
47	Turnaround	CSS	Provide quarterly reports on OR case mix percentages with industry standards; automate instrument log to track repairs and provide quarterly reports	10/24/97	12/3/97	N	Y	Martha
48	Turnaround	CSS	Based on inventory & req, purchase required instruments to meet OR needs	11/28/97	12/15/97	N	Y	Donna
49	Turnaround	CSS	Evaluate at least three Case Cart Systems against RPP criteria	12/19/97	1/9/98	N	Y	Martha
50	Turnaround	CSS	Conduct cost benefit analysis of case cart system	1/16/98	1/16/98	N	N	Frankie
51	Turnaround	CSS	Decide to upgrade current process or purchase case cart system to meet OR needs	1/19/98	1/21/98	N	Y	Martha
52	Turnaround	CSS	Eliminate redundancy of duplicate storage	10/24/97	2/13/98	N	Y	Martha
53	Turnaround	House	Establish efficiency criteria for OR Housekeepers in PD	10/17/97	10/24/97	Y	Y	Marie
54	Turnaround	House	Conduct needs assessment for OR housekeepers	10/17/97	10/24/97	Y	Y	Marie
55	Turnaround	House	Conduct assessment of OR housekeeper staffing patterns	10/17/97	10/24/97	Y	Y	Marie
56	Turnaround	House	Collaborate with OR on need for multiskilled worker	10/17/97	10/31/97	Y	Y	Marie
57	Turnaround	House	Get consensus on MSW requirements	10/24/97	10/31/97	Y	Y	Marie
58	Turnaround	House	Establish appropriate command/control for OR housekeepers	10/24/97	10/31/97	Y	Y	Marie
59	Turnaround	House	Establish OR Liaison for housekeeping	10/24/97	10/31/97	Y	Y	Donna
60	Turnaround	House	Conduct manpower needs assessment to ID # MSW needed	10/31/97	11/7/97	Y	Y	Marie
61	Turnaround	House	Upgrade Position Description for OR housekeeper/multiskilled worker	10/31/97	11/7/97	Y	Y	Marie
62	Turnaround	House	Educate OR housekeepers on needs and expectations	11/1/97	11/14/97	Y	Y	Marie
63	Turnaround	House	Establish standards for housekeepers in OR		11/14/97	Y	Y	Donna
64	Turnaround	OR	Provide document which identify minimum sterile supplies and equipment to be maintained in OR	10/24/97	11/7/97	Y	Y	Donna
65	Turnaround	OR	Collaborate with CSR to eliminate redundancies of sterile equipment and supplies in OR/CSR	10/24/97	11/7/97	N	Y	Donna
66	Turnaround	OR	Collaborate with Anesthesia, CSS, Housekeeping to establish multiskilled worker PD	10/24/97	11/14/97	Y	Y	Donna
67	Turnaround	OR	Establish OR staff efficiency criteria in Position Descriptions	10/24/97	11/14/97	Y	Y	Donna
68	Turnaround	OR	In collaboration with Anesthesia, establish written criteria for daily running of operations in OR	10/24/97	11/20/97	Y	Y	Donna
69	Turnaround	OR	Conduct inventory and needs assessment of current instrumentation with OR workload	10/24/97	11/28/97	N	N	Martha
70	Turnaround	OR	Begin manual update of procedure/preference cards with a scheduler for completion	10/31/97	12/15/97	Y	Y	Kay
71	Turnaround	OR	Establish process to automate preference cards	11/10/97	12/15/97	Y	Y	Kay
72	Turnaround	OR	Collaborate with appropriate departments in the implementation of a case cart system	TBD	1/20/98	N	N	Donna
73	Turnaround	SC	Evaluate need for Anesthesia representation at SC Section	10/24/97	10/24/97	Y	Y	Enjeti
74	Turnaround	SC	Establish Anesthesia position requirements at SC Section	10/24/97	10/24/97	Y	Y	Enjeti
75	Turnaround	SC	Establish criteria for ensuring prep room lab requirements in the record	10/24/97	10/24/97	Y	Y	Enjeti
76	Turnaround	SC	Establish criteria for ensuring anesthesia requirements in prep record	10/24/97	10/24/97	Y	Y	Enjeti
77	Turnaround	SC	Evaluate Surgical Coordinator staffing requirements	11/3/97	11/14/97	Y	Y	Loris
78	Turnaround	SC	Evaluate Surgical Coordinator Section Time Availability	11/3/97	11/14/97	Y	Y	Loris
79	Turnaround	SC	Establish efficiency criteria in SC Position Descriptions	11/3/97	11/14/97	Y	Y	Loris
80	Turnaround	SC	Coordinate with Ancillary Departments to ensure req in record w/in 24h	10/24/97	11/14/97	Y	Y	Loris

Appendix B

Physician Communications



1972 25 Years of Caring 1997

TO: Distribution
FROM: Robert A. Cohen, M.D.
Surgical Services Task Force

VIA: Jahan Joubin, M.D.
President, Medical Staff

William H. Flannagan, Jr.
Executive Vice President

DATE: September 23, 1997

SUBJECT: SURGICAL SERVICES IMPROVEMENT PROJECT

In an effort to improve customer satisfaction at Potomac Hospital, we are pursuing process improvements in the Surgical Services. Potomac Hospital has engaged Ernst and Young LLP to provide a comprehensive review of Surgical Services. Through interviews, tours, and data analysis, information has been analyzed and compared to Industry Best Practices in order to identify areas of improvement. Three areas have been identified as priorities, and will be our areas of focus in the upcoming weeks. These priorities are:

- Turnaround time
- Case scheduling
- Leadership roles and responsibilities

Some of the issues in these areas are as follows:

- Turnaround time: Frustration over prolonged turn around time, defined as the period between patient out to the next patient in the operating room, has been expressed by a number of surgeons. The average turn around time at Potomac Hospital is more than double Industry Best Practices. By decreasing the current turnaround time, open available hours would increase significantly.

- Case scheduling: The current scheduling system, which is a combined effort of Central Scheduling and the OR, has many inefficiencies. A modified block schedule, by surgeon and practice, is recommended to maximize OR utilization.

- Leadership Roles and Responsibilities: Factors that contribute to the most efficient use of resources, such as OR time and staff, are managed loosely through the current leadership

structure. Responsibility for the OR schedule must be clearly delineated, coupled with concise definitions of start time and lateness. Ownership for the entire Surgical Services process must be assumed by a leader sensitive to the needs of the patient, surgeon, anesthesiologist, and hospital.

Each opportunity will be addressed by an assigned focus team. Chairpersons for each initiative have also been identified and are to serve as a point of contact.

- Turnaround Time: Denis J. Halmi, M.D.
14904 Jeff Davis Hwy., Suite 401
Woodbridge, VA 22191
(703)490-8730 or (703) 690-1749
FAX: (703) 690-5897

- Case Scheduling: Douglas B. Brady, M.D.
2296 Opitz Boulevard, Suite 401
Woodbridge, VA 22191
(703)680-3200
FAX: (703)680-0203

- Leadership Roles
& Responsibilities Robert A. Cohen, M.D.
2296 Opitz Boulevard, Suite 240
Woodbridge, VA 22191
(703) 670-8614
FAX: (703) 583-6104

Your participation is key to our success. A survey regarding scheduling will be forwarded to you soon. Please ensure you complete and return it immediately. We encourage you to contact the appropriate Chairpersons with any comments, input, and suggestions.

We will provide you with periodic updates on the surgical services improvement processes and a final report early November.

Distribution:

Members: Department of Surgery
Department of Obstetrics and Gynecology
Gastroenterology



TO: Distribution 1972 卐 25 Years of Caring 卐 1997

FROM: Douglas B. Brady, M.D.
Chairman, Surgical Services Scheduling Committee *Douglas B. Brady*

VIA: Jahan Joubin, M.D.
President, Medical Staff *Jahan Joubin*

Roland Gallup
Chairman, O.R. Steering Committee *Roland Gallup*

DATE: September 29, 1997

SUBJECT: **Surgery Scheduling Survey**

Enclosed is a Surgery Scheduling Survey. In our efforts to provide efficient and effective services to our customers, Potomac Hospital is considering converting the surgical schedule from a first come, first serve, to a modified block scheduling system.

Modified Block scheduling may be defined as a system where a portion of the available scheduling hours are reserved for a specific period of time for a surgical specialty. The specialty surgeons would have exclusive rights to schedule during that given block of time until the specified release. Upon release, the block converts to open time for first come, first serve scheduling. With modified block, only a portion of the total hours available are reserved. For example, Specialty X has Tuesday mornings blocked from 0700 to 1200. The release time for that block is three days prior to surgery date. If the block is filled to 1000 by his release date, 1000 - 1200 converts to open scheduling, first come, first serve.

With that definition in mind, please **complete the survey and return by FAX or Courier to Frankie Picard, Administrative Resident, Potomac Hospital no later than October 8, 1997.** Her FAX number is (703) 670-7643. Frankie Picard may be reached at (703) 670-1896 and I may be reached at (703) 680-3200. Please feel free to contact either one of us if you have any questions or concerns.

Your comments are key to the success of this endeavor, reply immediately!

Distribution:
Members: Department of Surgery
Department of Obstetrics and Gynecology
Gastroenterology

SURGERY SCHEDULING SURVEY

Surgeon Name _____
Specialty _____

1. How long have you been practicing at Potomac Hospital ? _____
2. Do you have privileges at other hospitals? _____
 If yes, which ones? _____
 how many procedures at other hospitals _____
3. How many procedures do you schedule per week at Potomac Hospital? _____
4. What is your preference for case time?

		MON	TUES	WED	THURS	FRI
Morning	(0800-1200)					
Afternoon	(1200-1600)					
Evening	(1600-1900)					

5. Do you find your preferred time available when scheduling _____
6. In general, how many days in advance of the procedure date do you call to schedule? _____
7. How many cases do you have per week that need to be scheduled within 48 hours? _____
 Of these cases, what percent are: Urgent: _____%
 Patient/Surgeon convenience? _____%
8. Do you experience any difficulties scheduling these urgent cases?

9. Are you currently able to easily schedule cases back to back in the same room? _____
10. Would you prefer to have your own specialty reserved day and time to schedule your cases?

11. If you were assigned your own specialty time slot, would you be able to consistently utilize it?
 Reason: _____
12. Do you anticipate an increase or decrease in your volume over the next year? _____
13. When should a block begin and end?
 Morning: Begin _____ End _____
 Afternoon: Begin _____ End _____
 Evening: Begin _____ End _____

(OVER)

14. Please list any concerns or issues you have regarding modified block scheduling:

SUMMARY OF SCHEDULING SURVEY

15 OCTOBER 1997

An informal survey of surgeons and gastroenterologists was conducted by the OR Scheduling Subcommittee between 29 September and 8 October 1997. To maximize resource utilization Potomac Hospital is considering turning from a first come first serve to a modified block scheduling system. The purpose of the survey was to evaluate the support of the physicians in this endeavor.

A response rate of 38% was attained. Findings are noted below:

PERCENT RESPONDENTS	FINDINGS
48%	OBGYN
76%	Have privileges at other hospitals with 56% practicing at Fairfax. (Fairfax has modified block scheduling)
60%	Over 10 years practice at Potomac Hospital
48%	Majority of cases at Potomac Hospital
37%	Find preferred OR time available
52%	Schedule 1-2 wks in advance, 38% > 2 wks
48%	Schedule <48 hr notice, with majority emergent cases, 22% having "difficulty" scheduling
40%	Can usually schedule cases back to back
52%	Prefer reserved time and can fully utilize it
50%	Anticipate increased practice in next year, 50% stable

Most physicians prefer morning schedule. Block scheduling times preferred differ, however majority 0800-1200, 1200-1600, 1700-2000.

Results: Modified block scheduling most likely will be piloted at Potomac Hospital. Details are being worked this week by the subcommittee. A plan of action and milestones will be completed by the end of the month. Members of the Scheduling, Turn Around Time, and Leadership Groups will meet this Friday to discuss findings for each area.



1972 25 Years of Caring 1997

TO: Department of Surgery
Department of Obstetrics and Gynecology
Department of Anesthesia

FROM: Robert A. Cohen, M.D.
Surgical Services Task Force

VIA: Jahan Joubin, M.D.
President, Medical Staff

William H. Flannagan, Jr.
Executive Vice President

DATE: November 19, 1997

SUBJECT: SURGICAL SERVICES IMPROVEMENT PROJECT

In mid - September I advised you of the joint effort between physicians, nursing and administration to make substantive improvements in Surgical Services. This letter provides you and update of our progress, and highlights some of the upcoming changes that will make life better in the OR for all of us.

A complete overview of the progress will be presented at the December 4, 1997 Department of Surgery meeting. A notification flyer is enclosed. The Department of Obstetrics and Gynecology as well as the Department of Anesthesia will be scheduled soon.

The three priorities pursued were: turnaround time, case scheduling and leadership roles and responsibilities.

Turnaround Time

Several factors contribute to efficient operative patient flow. The role of the Scheduling Coordinator is crucial to assure all of the requirements are met before the day of surgery. The hours of operation have been extended in order to meet our goal of 95% of all outpatients are seen by the scheduling coordinator. We are conducting ongoing customer satisfaction surveys to better meet the needs of all the customers. There will be an education session and reception for all physician office managers to help communicate the changes.

Our goal is to decrease turnaround time to 20 minutes or less. Turnaround time is defined as the time period from last patient out to next patient in the OR suite. We will concentrate all needed resources under the supervision of the Surgical Services Director as the new multiskilled worker cadre is developed. While the rooms are being readied for the next patient, Central Service is

prepared to offer enhanced support to the OR through increased personnel to process the instruments and assure consistent high quality in the sets we use. Case cart systems are being explored to help achieve accuracy in the supplies needed for each case. We will transition our outdated preference cards to streamlined procedure cards. **Your input is crucial, and we will keep you informed as the standardization process unfolds.**

Case Scheduling

As you may recall, a survey was sent out to all of the surgeon community regarding modified block booking. Considering the response and our need to optimize the OR time available, we will institute modified block booking for up to 50% of the time available. We will eliminate scheduled gaps and consolidate cases by surgeon to optimize room and equipment utilization. This is a major change at Potomac Hospital, for the better. Most of us have been frustrated scheduling cases due to lack of time, pushing cases into the evening and night. We will strive to compress the day in order to give everyone a fair chance to schedule cases during prime time.

Administration has agreed to make a significant investment in the upgrade of the information system to facilitate Central Scheduling. The scheduling staff will undergo extensive training, under the guidance of Kay Weber, to enhance their understanding of medical terminology and facilitate case posting. The OR schedule will close at noon the day before surgery and the schedule will be carefully scrutinized by the OR Director and Anesthesia Leadership. At the same time the schedules for the next five days will also be reviewed in order to avoid crisis management. OR nursing management, along with anesthesia leadership, will advise the scheduling personnel of any needed changes and the schedule will be set. Any procedures posted after noon for the next day will be considered an add-on and will be given the first available time.

Leadership Roles and Responsibilities

In order to fully implement these changes, there must be consistent leadership and an equitable system to monitor performance and compliance of all team members - nursing, anesthesia and surgeons. While OR Nursing Management will continue with the daily coordination of the OR, Anesthesia will assume the leadership role to facilitate physician to physician communication and arbitration of difficult situations, such as add-on case prioritization.

The definition of start time was carefully considered. Many process improvements must occur in the upcoming weeks in order to make the following definition a reality:

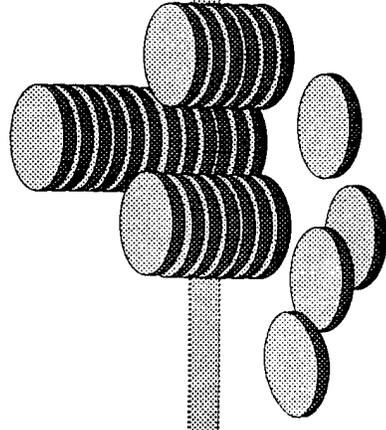
Start Time = Incision Time

The first case of the day start time will be 8:00 AM. The surgeons will need to be present in the OR 30 minutes prior to start time. A five minute grace period will be in place before the surgeon is considered late. A detailed policy regarding on time compliance will be forthcoming. The role of the OR Committee will be enhanced to assist with monthly monitoring of all performance expectations.

I have provided the highlights of the team's work. Please do not hesitate to contact Dr. Enjetti or me for further information. We recognize these improvements will require changing long standing practice, and that change is always hard. We ask for your support and constructive input to shape Surgical Services to the mutual benefit of Potomac Hospital and our individual practice needs. Thank you in advance for your interest.

Surgical Services Improvement Project

- **Who:** All surgeons
- **What:** Review of the Recommendations
Made with Ernst & Young
- **When:** December 4, 1997, at 5 p.m.
- **Where:** Hospital Auditorium
- **Why:** To bring you up to date for
implementation
- **How:** Update of progress and highlight upcoming
changes that will make your OR life more pleasant



TO:

FROM: Robert A. Cohen, M.D.
Chairman, OR Committee

DATE: January 7, 1998

SUBJECT: SURGERY BLOCK SCHEDULE

As you know, Potomac Hospital is engaged in a process improvement effort for surgical services. A modified block approach to the major OR schedule will begin on or about February 20, 1998. Based on the results of the survey of early October 1997 and a review of the past two months' surgical schedules, a draft schedule has been composed.

Unfortunately, your practice pattern did not indicate a preferred block of operating room time, therefore the committee has not assigned a block of time for your use. If you would like to request a block and feel you can comply with the attached guidelines, please indicate so with your signature next to the appropriate selection, and return this information by January 30, 1998. You may FAX it to me directly at (703) 583-6104. Every effort will be made to meet your request.

_____ (1) I do not request a block assignment. My cases will be scheduled on a first come, first serve basis.

_____ (2) I request the following block time assignment and will comply with the guidelines:

1st Choice _____

2nd Choice _____

**MODIFIED BLOCK SCHEDULING GUIDELINES
POTOMAC HOSPITAL
WOODBIDGE, VA 22191**

BLOCK SCHEDULE

- Operating Room block scheduling is a privilege which may be requested by consistent providers.

- The OR Committee is the authority which will designate, diminish, or delete block time.

- Blocked time may not exceed 50% of total available schedule hours.

- A block may be used by individuals, practices, or may be shared.

- Minimum blocks are four hours: AM (0800-1200), PM (1200-1600)

- Maximum block is eight hours.

- Anyone in block assignment must schedule all of their block before going to open time. If the block assigned for the given calendar week is filled completely, the block provider(s) may have access to any open time during that same calendar week (defined as Monday through Friday). The only exception to this would be in-house or emergency patients. The latter patients may be scheduled as time permits outside the provider's block time.

- Time within a block that has not been used (scheduled) within seven days of surgery will be automatically released to open time for use by anyone. The released block time will be subject to utilization computations for the block provider.

- Utilization of block time by provider(s) will be evaluated by the OR Committee as follows:

*Minimum monthly utilization to retain block is 70%.

*One month of less than 70% utilization results in a written notice from the OR Committee to the surgeon.

* Two months of less than 70% utilization will result in loss of the block time. The surgeon will be free to schedule in open time as available.

* A surgeon must provide a release statement in writing to Central Scheduling to release their block time due to vacation or unavailability. This will ensure it does not count against their utilization. Holidays and other hospital initiated unavailable time will be deleted from the provider's utilization computation.

OPEN SCHEDULE

- First come, first serve in the next available time slot. Open gaps will not be allowed in the schedule.



1972 25 Years of Caring 1997

TO: Department of Surgery
Department of Obstetrics and Gynecology

FROM: Robert A. Cohen, M.D. ✓
Chairman, OR Committee

DATE: January 30, 1998

SUBJECT: Operating Room Instrumentation

As the Surgical Services improvement effort continues, I would like to enlist your suggestions regarding instrumentation.

Potomac Hospital recognizes the surgeon must have dependable, high quality instrumentation readily available for every case. Please help identify specific instrument problems or needs based on your experience. Your input will help focus solutions.

Thank you in advance for helping improve our work environment. **Please FAX your reply to me at (703)583-6104 by February 10, 1998.**

Instrument Problems or Needs:

TO: Carol S. Shapiro, M.D.

FROM: Robert A. Cohen, M.D. *RA*
Chairman, Operating Room Committee

DATE: March 10, 1998

SUBJECT: SURGERY BLOCK SCHEDULE

=====

This memorandum serves as your confirmation of approval for block scheduling assignment at Potomac Hospital's Main Operating Room.

Your block assignments are Monday mornings from 0800 - 1200. The Potomac Hospital Block Scheduling Guidelines are enclosed for your information.

If you have any questions or concerns, please feel free to contact me at (703)670-8614.

cc:
Main Operating Room
Scheduling

Appendix C

Modified Block Scheduling Guidelines

**MODIFIED BLOCK SCHEDULING GUIDELINES
POTOMAC HOSPITAL
WOODBIDGE, VA 22191**

BLOCK SCHEDULE

- Operating Room block scheduling is a privilege which may be requested by consistent providers.

- The OR Committee is the authority which will designate, diminish, or delete block time.

- Blocked time may not exceed 50% of total available schedule hours.

- A block may be used by individuals, practices, or may be shared.

- Minimum blocks are four hours: AM (0800-1200), PM (1200-1600)

- Maximum block is eight hours.

- Anyone in block assignment must schedule all of their block before going to open time. If the block assigned for the given calendar week is filled completely, the block provider(s) may have access to any open time during that same calendar week (defined as Monday through Friday). The only exception to this would be in-house or emergency patients. The latter patients may be scheduled as time permits outside the provider's block time.

- Time within a block that has not been used (scheduled) within seven days of surgery will be automatically released to open time for use by anyone. The released block time will be subject to utilization computations for the block provider.

- Utilization of block time by provider(s) will be evaluated by the OR Committee as follows:

*Minimum monthly utilization to retain block is 70%.

*One month of less than 70% utilization results in a written notice from the OR Committee to the surgeon.

* Two months of less than 70% utilization will result in loss of the block time. The surgeon will be free to schedule in open time as available.

* A surgeon must provide a release statement in writing to Central Scheduling to release their block time due to vacation or unavailability. This will ensure it does not count against their utilization. Holidays and other hospital initiated unavailable time will be deleted from the provider's utilization computation.

OPEN SCHEDULE

- First come, first serve in the next available time slot. Open gaps will not be allowed in the schedule.

Appendix C

Modified Block Scheduling Guidelines

**MODIFIED BLOCK SCHEDULING GUIDELINES
POTOMAC HOSPITAL
WOODBIDGE, VA 22191**

BLOCK SCHEDULE

- Operating Room block scheduling is a privilege which may be requested by consistent providers.

- The OR Committee is the authority which will designate, diminish, or delete block time.

- Blocked time may not exceed 50% of total available schedule hours.

- A block may be used by individuals, practices, or may be shared.

- Minimum blocks are four hours: AM (0800-1200), PM (1200-1600)

- Maximum block is eight hours.

- Anyone in block assignment must schedule all of their block before going to open time. If the block assigned for the given calendar week is filled completely, the block provider(s) may have access to any open time during that same calendar week (defined as Monday through Friday). The only exception to this would be in-house or emergency patients. The latter patients may be scheduled as time permits outside the provider's block time.

- Time within a block that has not been used (scheduled) within seven days of surgery will be automatically released to open time for use by anyone. The released block time will be subject to utilization computations for the block provider.

- Utilization of block time by provider(s) will be evaluated by the OR Committee as follows:

*Minimum monthly utilization to retain block is 70%.

*One month of less than 70% utilization results in a written notice from the OR Committee to the surgeon.

* Two months of less than 70% utilization will result in loss of the block time. The surgeon will be free to schedule in open time as available.

* A surgeon must provide a release statement in writing to Central Scheduling to release their block time due to vacation or unavailability. This will ensure it does not count against their utilization. Holidays and other hospital initiated unavailable time will be deleted from the provider's utilization computation.

OPEN SCHEDULE

- First come, first serve in the next available time slot. Open gaps will not be allowed in the schedule.

Appendix D

Surgery Resource Manual

POTOMAC HOSPITAL

Surgery Resource Manual



March 1998

Table of Contents

- ❑ **Introduction**
 - **What's New for 1998**

- ❑ **Surgery Scheduling Process**
 - **Overview**
 - **Required information for elective surgery**
 - *Surgery Booking Form (see attached)*
 - **Calculation of scheduled case length**
 - **Modified block scheduling**
 - **Emergency surgery scheduling**

- ❑ **Pre-Admission Process**
 - **Overview**
 - *Pre-Admission Accountability Form (See attached)*
 - **Pre-Admission testing requirements**
 - **Accessing the Surgical Coordinator**

- ❑ **Resources**
 - **Key telephone and fax numbers**
 - **How to order forms**
 - **Attachments**

Introduction

This manual is intended to serve as a quick reference guide for accessing Surgical Services at Potomac Hospital. It is our goal to make our services easy to use, responsive to the needs of our physician and patient customers, and to provide high quality, efficient service. In order to achieve these goals, we in the Surgical Services Department have undertaken a redesign effort to improve and simplify our processes.

Please take a few minutes to review the detailed steps that will help you use our facility. There are key changes that we hope will serve you better. These improvements are highlighted on the following pages.

We value your insight and hope you will share your reaction to the improved processes with us. Thank you in advance for your interest and cooperation.

What's New in 1998

□ SURGERY SCHEDULING PROCESS

- A modified block schedule will be used for cases scheduled in the OR. Up to 50% of the ORtime available will be used for modified block.
- Central Scheduling is responsible for the OR elective schedule composition and is the primary point of contact until noon the day prior to the finalized OR elective schedule.
- The elective schedule for the next day will close at noon daily. At that time it will be reviewed and modified, as needed, for clinical appropriateness by the Clinical Director for Surgical Services or designee and the Chairman of Anesthesia or designee. The next five days of schedules will also be reviewed daily for appropriateness.
- Specific information is required to schedule all elective surgeries, as outlined in the *Potomac Hospital Surgery Booking Form* attached.
- Scheduled procedure time shall not be less than the shortest historical time (average of last seven cases as captured in the upgraded OR database) given for the surgeon and specified procedure.
- Turnaround time coupled with surgery category based position and prep time will be added to the procedure time for the scheduled case length.

What's New in 1998

□ PRE-ADMISSION PROCESS

- All elective patients must have complete test results, EKG, surgical consents, history and physical, and pre-operative orders received by the Surgical Coordinator not less than 72 hours prior to the day of surgery.
- Surgery schedules may be re-arranged by the hospital if pre-admission work is incomplete less than 48 hours prior to the day of surgery.
- The *Pre-admission Accountability Form* must be completed by the surgeon's office and faxed to the Surgical Coordinator at least 72 hours prior to the day of surgery.

Surgery Scheduling Process

❑ SCOPE

- Potomac Hospital Main Operating Rooms.

❑ ACCOUNTABILITY

- Central Scheduling is responsible for the OR elective schedule composition and is the primary point of contact until noon the day prior to the finalized OR elective schedule. Responsibility for clinical appropriateness and related decisions is mutually shared by the Clinical Director of Surgical Services or designee, the Chairman of Anesthesia or designee, and the Chairman of Surgery or designee.

❑ WHO TO CALL TO SCHEDULE AN ELECTIVE SURGERY

- Central Scheduling is open Monday through Friday, between the hours of 0800 and 1700 for the scheduling of elective surgery.
- Scheduling may be accomplished by telephone at 670-1724.
- The elective schedule for the next day will close at noon daily. At that time it will be reviewed and modified, as needed, for clinical appropriateness by the Clinical Director of Surgical Services or designee and the Chairman of Anesthesia or designee. The next five days of schedules will also be reviewed daily for appropriateness.
- After noon the prior day, changes to the next day's schedule should be communicated to the Clinical Director of Surgical Services or designee by telephone at 670-1300.

Surgery Scheduling Process

□ WHO TO CALL TO SCHEDULE AN ELECTIVE SURGERY *(continued)*

- The OR elective schedule will be closed on the following holidays:

New Year's Day	(January 1st)
Memorial Day	(4th Monday in May)
Independence Day	(July 4th)
Labor Day	(1st Monday in September)
Thanksgiving	(4th Thursday in November)
Christmas Day	(December 25th)

□ REQUIRED INFORMATION FOR ELECTIVE SURGERY

- The *Surgery Booking Form* has been composed to facilitate the process. The following information must be provided at the time of scheduling by the attending surgeon or designee (office scheduler):

- - Patient's full name, phone numbers (home and work)
 - Patient's date of birth/gender
 - Patient's insurance information
 - Desired procedure date and time

Surgery Scheduling Process

- Surgical procedure
- Attending surgeon
- Estimated procedure length
- Required equipment (fracture table, microscope, laser, et cetera)
- Required implants or special supplies
- Extraordinary patient needs (isolation, language barrier, allergies, et cetera)
- Planned admission status (postoperative admission, outpatient, ambulatory)
- Recommended type of anesthesia

CALCULATION OF SCHEDULED CASE LENGTH

- **Central Scheduling will compare the historical time (average of last seven cases as captured in the upgraded OR database) for the surgeon and specified procedure with the time requested. The scheduled procedure time shall not be less than the shortest historical time.**
- **If additional time is needed, please request it at the time of scheduling.**
- **Central Scheduling will add other key factors to determine the total scheduled time:**
 - *Turnaround time* (last patient out to next patient in room) 20 minutes
 - *Position and Prep time* (patient in room to incision) by category
 - surgery category A 15 minutes
 - surgery category B 30 minutes

Surgery Scheduling Process

- sample surgery category criteria:

Category A supine position; stirrups; single scrub prep site

Category B thoracotomy position; prone position; use of special positioning device, such as the Mayfield headrest; multiple scrub prep sites

example for a Category A surgery:

procedure + turnaround + position/prep = scheduled case length
120 min + 20 min +15 min = 155 min

- **Turnaround Time is not added to 0800 cases.**

□ MODIFIED BLOCK SCHEDULING

- Up to 50% of the total, available staffed OR time may be blocked.
- Block time includes the reservation of the operating room and staff. Equipment is reserved when a surgery is scheduled on a “first come, first serve” basis.
- Modified block time must be requested and will be assigned in minimum blocks of four hours, a maximum of eight hours daily.
 - morning block 0800 to 1200
 - afternoon block 1200 to 1600
- A block may be used by individuals or groups.
- Time within a block that has not been used seven days prior to its date will automatically be released to open time for anyone to use.

Surgery Scheduling Process

□ MODIFIED BLOCK SCHEDULING (*continued*)

- **Block time assigned to an individual or group must be filled before scheduling is permitted in open time. Inpatients or emergency patients may be scheduled outside of the assigned block as needed to expedite patient care.**
- **Utilization of the block time by the individual or group will be evaluated monthly by the OR Committee as follows:**
 - *Time Used* is defined as patient in to patient out
 - *Unreleased Time* is defined as time not filled or released by the surgeon prior to the specified release time
 - *Example of how block time utilization will be calculated*

$$\begin{array}{rcl} \text{Time used - unreleased time} & / & \text{total available block time} = \text{utilization} \\ 25 \text{ hours} - 2 \text{ hours} & / & 28 \text{ hours} = 82\% \end{array}$$

- 70% utilization is required to maintain block assignment
- One month of less than 70% utilization will result in written notification from the OR Committee to the surgeon. Subsequent month of less than 70% utilization will result in re-assignment of block.
- Released time is converted to open time for other surgeons to utilize.

Surgery Scheduling Process

□ EMERGENCY SURGERY SCHEDULING

➤ All emergency surgery must be assigned one of the following classifications by the surgeon:

- CLASS I Patient's condition is life threatening and surgery must begin within 30 minutes.
- CLASS II Patient's condition is not life threatening but is considered an emergency and surgery must begin within two hours.
- CLASS III Patient's condition is not life threatening but is considered urgent and surgery must begin within six hours.
- CLASS IV Patient's condition is significant and surgery must begin within twelve hours.
- CLASS V Patient's condition indicates surgery more quickly than routine scheduling permits. Special arrangements may be made to accommodate.
- After 1700, all add-on urgent or emergent surgeries are scheduled through the Administrative Nursing Coordinator. Please call 670-1313 and ask that she be paged.

Pre-Admission Process

❑ SCOPE

- Potomac Hospital Main Operating Rooms.

❑ ACCOUNTABILITY

- Responsibility for the completion of pre-admission requirements rests with the attending surgeon.

❑ STANDARD I

- All patients should have completed pre-admission work on their chart 72 hours prior to the scheduled date of surgery. Pre-admission work is defined as history and physical, signed surgical consent, and required labs and test results.
- A *Pre-admission Accountability Form* (Attachment B) has been developed to facilitate the tracking of this information and should be completed by the surgeon's office personnel and received by the Surgical Coordinator at least 72 hours prior to the date of surgery. This form may be faxed to 670-0745.

❑ STANDARD II

- The patient's chart will be reviewed by the Surgical Coordinator and anesthesia 48 hours prior to the day of surgery. The 48 hour period does not include the weekend or holidays. The surgeon's office will be notified of any deficiencies no later than noon two days prior to the day of surgery. The surgeon is responsible for correcting deficiencies by 1700 two days prior to the day of surgery.
- Anesthesia will review all charts and test results by 1700 two days prior to the day of surgery. The Surgical Coordinator will obtain the patient's old medical records, as needed, for anesthesia.

Pre-Admission Process

□ STANDARD III

- All patients must have a complete chart, with anesthesia clearance two days prior to the day of surgery.
- In the event the chart is incomplete, abnormal test results are noted and require further work up, or the patient cannot be contacted for pre-operative instructions, the Surgical Coordinator will notify the surgeon by 0900 the day prior to surgery. The patient's incomplete pre-admission preparation may require a re-arrangement of the OR schedule to avoid delays.

□ PHYSICIAN ACCOUNTABILITY AND COMMUNICATIONS

- The surgeon is responsible for complete pre-admission preparation when medical clearance is not required.
- If the surgeon is ordering the lab work, these orders must be communicated to the physician providing medical clearance prior to the patient being seen.
- The surgeon must communicate the exact procedure to be performed and the scheduled date at the time the medical consult is requested.
- Communication regarding consults, lab requirements and results should be conducted physician to physician.

Pre-Admission Process

□ PRE-ADMISSION TESTING REQUIREMENTS

➤ All Patients:

- History and Physical (H&P)
 - to Surgical Coordinator at least 72 hours prior to surgery
 - performed within 7 days prior to surgery
 - valid up to 30 days on readmissions with the same condition
 - must be updated on the day of surgery (heart and lungs)
- Consent for Operative Procedure
 - at least 72 hours prior to surgery
- Interview with Surgical Coordinator (703/ 670-1724)
 - at least 72 hours prior to surgery

In addition to these standard tests, the specific patient types may require the following:

- **Females in the Reproductive Age Group (12 to 50 years), as required by surgeon:**
 - HCT, HGB
 - up to 30 days prior to surgery
 - repeat on the morning of surgery if bleeding
- **Males - 40 years and older/
Females - 50 years and older**
 - EKG
 - valid for 1 year in the absence of heart disease
 - all with heart disease or symptoms must have an official interpretation
- **Patients on Diuretics**
 - Chem 7
 - within 1 week of surgery

Pre-Admission Process

- **Chronic Renal Failure**
 - Chem 7
 - within 1 week of surgery, and
 - the morning of surgery
- **Diabetes**
 - FBS
 - within 30 days of surgery
 - repeat morning of surgery
- **Liver Disease (hepatitis, alcohol abuse, transplants, jaundice)**
 - Chem 24, PT/ PTT
 - within 30 days prior to surgery
- **Patients with Active Cardiac or Respiratory Disease**
 - Chest X-Ray
 - valid for 6 months if previous chest x-ray was normal
 - official interpretation to be on chart
- **Patients - 70 years and older having surgery for upper abdominal procedures, intratrathoracic procedures, chronic pulmonary disease**
- **ABG**
 - valid within 30 days of surgery
 - repeat if symptoms change in the interim
- **Patients on specific medications (digoxin, theophylline, lithium, dilantin)**
 - test for blood levels within therapeutic range
 - within 2 weeks of surgery
- **Additional blood tests are at the discretion of the surgeon**

Pre-Admission Process

□ NPO GUIDELINES

- > **Solids**
 - Minimum 8 hours NPO
 - all scheduled elective cases
- > **Water/ Apple Juice**
 - 2 ounces only, 2 hours pre-operation (for ingestion of medications)
- > **Medications**
 - 1 to 2 hours prior to surgery with 2 ounces of water (maintain close to baseline status)
- > **Special NPO Status (morbidly obese, pregnancy, diabetes, gastrectomy)**
 - NPO for greater than 8 hours
 - delayed gastric emptying
- > **Infants and Children below 2 Years**
 - NPO solids - 8 hours
 - May have 2 ounces water or apple juice, 2 hours prior to surgery
- > **MAO Inhibitors**
 - discontinue 14 days prior to surgery

Pre-Admission Process

❑ ACCESSING THE SURGICAL COORDINATOR

➤ PATIENT APPOINTMENTS

- The pre-admission visit should be scheduled through Central Scheduling at the time the surgery is scheduled.
- The Surgical Coordinator Office is open from 0745 to 2100, Monday through Friday.
- Central Scheduling will coordinate “same day” pre-admission visits during the normal hours of operation.
- Patient “same day” pre-admission needs will be accommodated as quickly as possible without disrupting scheduled patients.

➤ PRE-ADMISSION ORDERS

- Pre-admission orders must be received in the Surgical Coordinator’s office prior to the patient’s scheduled appointment.
- When faxing, there must be cover sheet indicating the patient’s name and the number of pages to be received. The patient’s name must appear on every page of the transmission.

Pre-Admission Process

❑ KEY TELEPHONE AND FAX NUMBERS

➤ CENTRAL SCHEDULING

telephone	670-1724
fax	670-1576

➤ SURGICAL COORDINATOR

fax	670-0745
-----	----------

➤ MAIN OPERATING ROOM

telephone	670-1300
fax	730-2674

➤ OUTPATIENT SERVICES (MOB)

telephone	670-1807
fax	670-4223

➤ OTHER TELEPHONE NUMBERS

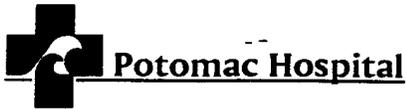
OR Unit Manager	670-1301
Anesthesia	670-1357
OR Admissions Desk	670-1272

Potomac Hospital Surgery Booking Form

Patient's Full Legal Name: _____		M/F: _____
Home Phone: _____		Work Phone: _____
Date of Birth: _____		
Procedure: _____		
Estimated Procedure Length: _____		
Insurance Carrier: _____		Insurance Account #: _____
Date/Time Desired: _____		Surgeon: _____
Pre-Op Diagnosis: _____		
Equipment (i.e, laser, fracture table) _____		Surgical Implants: _____
_____		_____
_____		_____
_____		_____
Special Patient Needs (allergies, isolation, non-English speaking): _____		

Anesthesia Type: - General - Local - Regional - MAC - Other		How Admitted: - POA - OP - AMB

Surgery Scheduling Office (phone): (703) 670-1724
 Surgery Scheduling Office (FAX): (703) 670-1576



Physician's Office
Pre-Admission Accountability Form
(to be sent with Physician's Instructions for Surgery MR 660/008)

Patient Name: _____

Date of Procedure: _____

Admission Type: (please circle) POA OP AMB _____

Surgeon: _____

Fax #: _____

Item	Received Date/Time	Responsible Person/ Location	Expected Date of Completion
H&P			
Consent			
Lab Work			
Medical Clearance			
EKG (if applicable)			
CXR (if applicable)			

Comments _____

Physician's Office will be notified 48 hours prior to surgery if incomplete.

Name of person contacted: _____