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Form Approved  
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1. AGENCY USE ONLY (Leave blank)		2. REPORT DATE August 1993	3. REPORT TYPE AND DATES COVERED Final Report (07-92 to 07-93)
4. TITLE AND SUBTITLE Increasing the Response Rate of the Patient Satisfaction Survey of Inpatients at National Naval Medical Center			5. FUNDING NUMBERS
6. AUTHOR(S) LCDR Charles O. Benninger, NC, USN			
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) National Naval Medical Center Bethesda, MD 20889-5600			8. PERFORMING ORGANIZATION REPORT NUMBER 32a-93
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) U.S. Army-Baylor University Graduate Program in Health Care Administration Academy of Health Sciences, U.S. Army (HSHA-MH) Fort Sam Houston, TX 78234-6100			10. SPONSORING/MONITORING AGENCY REPORT NUMBER DHC ELECTE MAY 03 1994 S G D
11. SUPPLEMENTARY NOTES			
12a. DISTRIBUTION / AVAILABILITY STATEMENT APPROVED FOR PUBLIC RELEASE; DISTRIBUTION IS UNLIMITED			12b. DISTRIBUTION CODE
13. ABSTRACT (Maximum 200 words) The patient satisfaction survey (PSS) of the inpatient area at National Naval Medical Center has a low rate of response by patients. Historically less than six percent of the patient population responds to the survey. A review of the literature documents that a low response rate produces a biased survey which will not be useful for management decision making or for a legitimate quality assessment program. The purpose of this paper is to describe a study which implements a staff education program and a standardized method for conducting the survey in an attempt to increase the patient response rate. An experimental model is used to study the effects of the changes among the involved nursing units. A chi-square test was used to test the difference in the rate of return of the questionnaires among the groups studied. A statistically significant difference was found between the group who received training and method standardization and the group who received no treatment. The study suggests that staff training and method standardization contribute to increasing the response rate to the PSS.			
14. SUBJECT TERMS PATIENT SATISFACTION SURVEY, TQL, QUALITY ASSESSMENT, STAFF DEVELOPMENT			15. NUMBER OF PAGES 34
			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

**Increasing The Response Rate Of The Patient  
Satisfaction Survey Of Inpatients At  
National Naval Medical Center**

**A Graduate Management Project**

**Submitted to the Faculty of**

**Baylor University**

**In Partial Fulfillment of the**

**Requirements for the Degree**

**Master of Healthcare Administration**

**by**

**Charles Benninger**

**LCDR, NC, USN**

**AUGUST 1993**

Accession For	
NTIS	CRA&I <input checked="" type="checkbox"/>
DTIC	TAB <input type="checkbox"/>
Unannounced <input type="checkbox"/>	
Justification _____	
By _____	
Distribution / _____	
Availability Codes	
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A-1	

**94-13133**  


**94 5 02 010**

### Acknowledgments

The author wishes to express his thanks to the many people whose help and encouragement were invaluable in completing this project. I wish to especially thank my family for their patience and support throughout this graduate program. Commander Stephen C. Rice provided extremely valuable leadership and guidance throughout this project. Lieutenant Commander Kenneth Miller's expertise and willingness to help was greatly appreciated. Petty Officer Richard Lind assisted during the data collection phase of this project.

## ABSTRACT

The patient satisfaction survey (PSS) of the inpatient area at National Naval Medical Center has a low patient response rate. Historically, less than six percent of the patient population responds to the survey. A review of the literature documents that a low response rate produces a biased survey which will not be useful for management decision making or for a legitimate quality assessment program.

The purpose of this paper is to describe a study which implements a staff education program and a standardized methodology for conducting the survey in an attempt to increase the patient response rate. An experimental model is used to study the effects of the changes among the involved nursing units. A chi-square test was used to test the difference in the rate of return of the questionnaires among the groups studied.

A statistically significant difference was found between the group who received training and method standardization and the group who received no treatment. The study suggests that staff training and method standardization contribute to increasing the response rate of the PSS.

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## **I. INTRODUCTION**

The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) requires a hospital to have a system in place which collects information concerning the patients' satisfaction with the care being provided by the hospital (1992). Parker and Kroboth (1991) emphasized the need for an adequate sample to be present to provide an accurate assessment of the surveyed population.

This project describes an attempt to identify a method to improve the effectiveness of the current survey process to increase the response rate of the patients being sampled. As health care organizations embrace quality improvement theories, the dependence of the supplier on accurate consumer information will increase (Rubin, 1991). The consumer must have adequate representation to provide meaningful information for decision making by the health care organization.

### **Background of the Study**

The National Naval Medical Center (NNMC) is a 427 bed teaching hospital which offers multispeciality services to its patient population. There are

approximately twelve hundred discharges from the inpatient area per month at NNMC. Historically, the patient satisfaction survey (PSS) has had a response rate of less than six percent of the patients being discharged from the inpatient nursing units.

The PSS process is the responsibility of the Patient Relations Department (PRD) which has direct accountability to the Deputy Commander of NNMC. The results of the PSS are reported in departmental minutes to the Commander through the quality assessment monitoring process.

The mandate for the PSS is provided in two NNMC instructions. NNMC Instruction 6010.3B provides for the PSS results to be monitored as part of the quality assessment/improvement program. NNMC Instruction 6320.6A places the responsibility for conducting the PSS under the patient relations program.

Currently the PSS is being conducted by the PRD on a continuous basis throughout all inpatient areas. The PRD uses a questionnaire to collect information concerning the patients' satisfaction. The questionnaire is a combination of close-ended forced choice and open-ended questions. Content validity was

established using an expert committee review process at the time the questionnaire was created.

The degree to which an instrument has the ability to measure the characteristic that is being studied is referred to as validity. Reliability refers to the instrument's ability to consistently measure the characteristic or concept being studied (Burns & Grove, 1987). An instrument must be reliable to be valid, however, reliability alone does not indicate that an instrument is valid. The instrument must consistently measure the desired characteristic in order to be both reliable and valid (Polit & Hungler, 1985). A reliable and valid patient satisfaction questionnaire would consistently measure those characteristics which have been found to make patients satisfied with the care received at NNMC.

The PRD prepares the PSS questionnaire to be used in the inpatient areas and distributes the questionnaire to the Department Heads of nursing service. The department heads then circulate the PSS to the various division officers in the department. The division officers are tasked with conducting the surveys at the nursing unit level. In some cases the



questionnaire may be given directly to the patient by the PRD staff during a patient visit. No standard procedure ensures the proper distribution of the questionnaire to the patient or determines at what point in the hospitalization the questionnaire is given to the patient. The patient is instructed to drop the completed form into the suggestion box located at each elevator. The elevators are located off the nursing unit, and the suggestion boxes are not always clearly identified for the patient.

The current method of data collection is flawed for the following reasons: (1) there is no formal training program for the staff of the nursing unit concerning the importance of the PSS, (2) there is no emphasis on the importance of staff cooperation in the data collection process, and (3) there is no uniform method used to collect the information. The training provided to the staff of the nursing unit is dependent upon the value that the PSS has to the division officer. Frequently, the PSS questionnaire is distributed on the nursing unit only if the nurse feels that there is extra time to spend with the patient, or the division officer has emphasized the importance of

the PSS to the staff. Information concerning data collection and the survey process is provided from the department head level on an infrequent basis.

PRD does not provide feedback to the nursing unit concerning the patient response rate to the PSS. A final analysis is completed by PRD based on the total number of completed questionnaires received from each unit. No attempt to identify a rate of return by relating the response rate of the questionnaires to the number of discharges on each unit is made.

#### **Statement of the Research Question**

Will providing training to the nursing unit staff and standardizing the survey process increase the inpatient response rate to the PSS at NNMC?

#### **Review of the Literature**

The introduction of the Total Quality Management (TQM) philosophy into the health care industry has increased the importance of listening to the customer (Matthews, 1992). Health care organizations must have access to client information to have a successful quality improvement program (Orme, Parsons, and McBride, 1992; Bausell, 1985). El-Guebaly, Toews, Leckie, and Harper (1983) assert that using the patient

as a source of feedback is important to ensure the congruence of the provider/client objectives in the provision of health care. A system which can be sensitive to identifying the patients' needs in an economical way has been difficult to develop (Attkisson & Zwick, 1982).

The determination of patient satisfaction is important for the successful recovery of the patient once discharged from the hospital. Positive patient satisfaction with inpatient care has been related to the predictability of compliance with treatment after leaving the hospital (Rubin, 1990; Baker, 1983). The PSS needs to accurately identify problems which the patient experiences while receiving care (Ware, 1981).

A PSS with a low response rate limits the usefulness of the information obtained on the questionnaire. Kotsopoulos, Elwood, and Oke (1989); Rubin (1990) found that a low response on the PSS will distort the findings since patients who are satisfied are more likely to respond to a survey. Patients who are nonrespondents are more apt to be dissatisfied with the care received than the respondents to a PSS. The proportion of respondents to nonrespondents should be

considered when evaluating the PSS results. To be of value, a PSS must achieve a response rate which accurately reflects the population being served (Parker & Kroboth, 1991).

There are no set proportions for the size of the sample that will accurately reflect the population being studied. In general, the larger the sample size, the more likely that sample will represent the population being studied. Woods and Catanzaro (1988) report that there are three factors that influence sample size: (1) amount of variance of the phenomenon, (2) the statistical test being used, and (3) effect size.

Highly variable phenomena, such as health care values, require a higher proportion of the population to be sampled (Woods & Catanzaro, 1988) in order to have accurate measurements. Conversely, phenomena with low variability can be represented with a smaller sample of the population being studied.

The sample size needed is affected by the statistical test being used by the researcher (Woods & Catanzaro, 1988). A sample size must be large enough to reach a level of significance that decreases the

risk of rejecting the null hypothesis as a result of error.

The effect size refers to the magnitude of the finding or the level of rejection of the null hypothesis (Woods & Catanzaro, 1988). The greater the effect size is on the population being studied, the smaller the sample can be to obtain meaningful results.

The timing of the survey is important in achieving an adequate response rate. Rubin (1990) reports that the longer the time period between the medical treatment and the PSS, the less likely the patient will respond to a survey. Those patients sampled while still in the hospital or several months after discharge had a higher satisfaction rating than those surveyed shortly after discharge. The advantage of conducting surveys at the time of discharge is that the patient has gained an overview focus of treatment and is still in the facility (Lebow, 1982). A possible disadvantage to a PSS conducted at time of discharge is that any negative information obtained cannot be used to change the system to a more positive image while the patient is still in the hospital (Weiss & Senf, 1990). To obtain the needed information, the data collection

system for the PSS has to be convenient for both the staff and the patient (Parker & Kroboth, 1991). The effective use of resources for distribution and collection of the PSS may facilitate an increasing response rate to the questionnaire (Ware, 1981).

Training is the element of organizational support frequently missing in programs which require participation of the staff (McGraw, 1992). Walton (1986), in writing about TQM, reports that training at the user level is vital to the success of any program requiring user participation. Studies have identified the importance of education in gaining both compliance with and support of programs at both the staff and the patient level (Bird, 1992; Gariti, Greenstein, Olsen, & Harris, 1987; Jones, Jones, & Katz, 1988). An effective training program should increase the value of the PSS to the staff, and therefore result in a higher level of staff participation and a greater response rate to the survey (Leuze, 1990).

The involvement of the staff in quality assessment programs, such as PSS, enhances the effectiveness of the program (Mulcahy & Wagner, 1991). Marketing the survey as a means to identify the contribution which

the nursing staff makes to successful patient care increases the likelihood of their participation in the survey process (Sawyer-Richards, 1990). The PSS can then be viewed as part of patient care versus additional work for the staff. A transition must be made to shift the responsibility of the PSS from a one person or committee function to an all staff involvement mentality (Bevsek & Walters, 1990).

#### **Purpose of the Study**

The purpose of this study is to identify variables which will increase the rate of response on the PSS questionnaire at NNMCC. The null hypothesis for this study is;

$H_0$ : There is no difference in the PSS survey response rate of patients in the training and method standardization group, the training only group, the method standardization only group, and the no treatment group (control).

The alternate hypothesis for this study can be stated as;

$H_1$ : There is a difference in the PSS survey response rate of patients in the training and method standardization group, the training only group, the

method standardization only group, and the no treatment group (control).

### **STUDY DESIGN**

The approach to this study is the experimental model. Beach (1992) describes the experimental method as a way to study the relationship of manipulated variables with the use of a control group.

The study involved eight nursing units of the inpatient area at NNMCC. The eight nursing units were divided into four sections: (1) a no treatment unit, (2) a training only unit, (3) a method standardization only unit, or (4) a training and method standardization unit (see Appendix A). A nonrandomized convenience method of selection (Polit & Hungler, 1985) was utilized for determining which nursing units participated in the study. Convenience sample methodology is the selection of participants merely due to location, timing, or a need for a certain number of participants. The eight units selected for this study are located close to each other and have a high patient turnover. The close proximity of the units and the high patient turnover provided for easier management of the project and a potentially large sample size.



The training was conducted prior to data collection and attempted to reach eighty percent of the staff on the participating nursing unit. An eighty percent level of staff participation was identified due to staff absences resulting from training requirements, illness, and annual leave.

The content of the class included the three elements that Sawyer-Richards (1990) identified as producing the desired outcome for increasing staff support and participation (see Appendix B):

1. Professional accountability
2. Feedback on the usefulness of the activity
3. Acknowledgment of the improved results with staff participation.

The method standardization was designed to facilitate the participation of the staff and to provide for the convenience of the patient. The questionnaire was placed on each patient chart with other forms utilized during the discharge phase of the patients' hospitalization. The nurse reviewed the questionnaire with the patient during discharge teaching prior to the patient leaving the unit. The patient was instructed to deposit the PSS questionnaire

in collection boxes placed near the nurses station as they leave the unit (for greater detail see Appendix C). The design goal was to increase the response rate of the questionnaire through increasing awareness and convenience to the patient and staff.

### **Subjects**

The participants of this study include both the staff and the patients of NNMC. The Registered Nurses include active duty commissioned officers, civil service, and contract staff. The nonregistered nursing staff is the enlisted hospital corps staff of E-5s or below.

Patients at NNMC cover a wide range of beneficiaries including the following:

- Active Duty
- Retired Military
- Officer
- Enlisted
- Dependents
- Male and Females
- All age groups
- Secretary of the Navy Designates

Due to the nature of this study and for the protection

of human subjects, no attempt was made to identify individual participants in any way. Statistics were compiled to describe group relationships and to determine whether there were any difference among the groups.

#### **Treatment of the Data**

The acceptance or rejection of the stated hypothesis is based on the statistical analysis of the four groups. The four groups under consideration in this study are the training and method standardization group, the training only group, the method standardization only group, and the no treatment group. Hunt (1982) describes the chi-square statistical test as one of the most flexible techniques available for decision makers use. Chi-square is particularly useful with nominal data (Cohen, 1988). The number of responses observed in comparison to the number expected was used in the data analysis. The number of surveys returned versus the number of discharges for each nursing unit was monitored during the six weeks of the project. At the end of a six week period, the total number of surveys returned weekly for each of the groups was compared.

The response rate of the treatment groups was compared to identify whether a significant statistical relationship exists. The chi-square statistic was used to test the null hypothesis for this study.

#### FINDINGS

During the six week period, a total of 105 PSS's were collected. Table 1 details the number of respondents by gender. Active duty and retired individuals were the largest group of respondents (see table 2). The PSS responses represented patients from less than one year old (parent or caretaker completing) to patients greater than eighty years old. Forty percent of the participants were between the ages of twenty-one and fifty years of age (see table 3).

Table 1

#### Respondent by Gender

Gender	Number of Responses	Percent of Response
Male	55	52
Female	37	35
Not Identified	13	13
Total	105	100

Table 2

Category of Respondents

Status	Number of Responses	Percent of Responses
Active Duty	34	33
Active Duty Dependent	18	17
Retired	30	29
Other*	23	21
Total	105	100

\*includes dependents of retirees, Secretary of Navy designates, etc.

Table 3

Age of Respondents

Age in Years	Number of Responses	Percent of Responses
0-10 (Adult Representative)	5	5
11-20	7	7
21-30	13	12
31-40	17	16
41-50	13	12
51-60	9	9
61-70	20	19
71-80	8	8
81 and above	1	1
Not Identified	12	11
Total	105	100

There were 1064 discharges from the eight nursing units participating in the study during the six week period with a total of ten percent of those patients discharged completing the PSS. The nursing units which combined treatments of training and method standardization demonstrated the highest percentage of return among the four groups of nursing units in the study. Sixteen percent of the patients discharged from the training and method standardization nursing units responded to the survey (see table 4) compared to one percent of the no treatment nursing units.

Table 4

Response Rate by Groups

Treatment	Number of Responses	Number of Discharges	Percent of Responses
Training and Method Standardization	48	297	16
Training	20	227	9
Method Standardization	34	273	13
No Treatment	3	267	1
Overall Response Rate	105	1064	10

Based on the results of the chi square test, the null hypothesis for this study is rejected and the alternate hypothesis is accepted  $\chi^2(3, N=104) = 38.518 = p < 4.26 \times 10^{-7}$ . Table 5 displays the chi-square table with row and column values for each of the groups participating in this study.

Table 5

Chi-Square Test of Variables

Treatment	No Response	Response	Total
Training and Method Standardization	249* 23.40**	48 4.51	297 27.91
Training	207 19.45	20 1.88	227 21.33
Method Standardization	239 22.46	34 3.20	273 25.66
No Treatment	264 24.81	3 .28	267 25.09
Total	959 90.13	105 9.87	1064 100.0

Chi-Square = 38.518, D.F. = 3, Probability =  $4.267 \times 10^{-7}$

\*Number of responses

\*\*Percent of total response (may not add up due to rounding)

**Discussion**

Previous studies (Nelson, Rubin, Hays, & Meterko, 1990) reported that females are more likely to respond

to PSS. Sixty-one percent of the patients on the nursing units were male during the study. Of the eighty-seven percent who identified their gender fifty-two percent were males and thirty-five percent were females. Thirteen percent of the respondents did not identify gender on the questionnaire.

The patient population at NNMC contains active duty, retired personnel and their dependents. Nelson et al. (1990) reported that younger patients (age <50 years) were more likely to respond to a PSS. The largest response rates occurred in the age groups of thirty-one to forty (sixteen percent of responses) and sixty-one to seventy (nineteen percent of responses). A review of inpatient admissions at NNMC during the study reveals that sixty-four percent of the patients were below the age of fifty and thirty-six percent were above the age of fifty. Eleven percent of the patients did not supply information concerning age. Twenty-nine percent of the sample was reported to be retired military while fifty percent of the sample was reported to be active duty or active duty dependents, while twenty-one percent represented "other" classification (see table two). This mixture of responses of both age



and status reflects both the active duty and retired population which NNMC serves.

The increased rate of response to the PSS on units with both training and method standardization is supported by previous research (Bird, 1992; Gariti, et.al., 1987; Jones, et. al., 1988; Walton, 1986). Nelson and Niederberger (1990) reported a HMO with a response rate of greater than seventy percent using a combination of onsite PSS and trained surveyors. The HMO was compared to other institutions which used onsite PSS and untrained surveyors and reported a response rate of less than twenty percent. The effective use of resources combined with the gaining of organizational support through training resulted in a predictably greater response to the PSS in this study (McGraw, 1992; Ware, 1981).

A factor which might account for the higher response rate on the units being studied is the Hawthorne effect. The Hawthorne effect is described as a reaction occurring when research subjects change their behavior because of the study and not because of the treatment (Burns & Grove, 1987). The Hawthorne effect may occur due to the participants wanting to

please the researchers or trying to guess the outcome of the study (Woods & Catanzaro, 1988).

The frequent interaction of the researcher in providing feedback with method standardization may account for the higher percentage of responses on those units. The effect of perceived higher visibility in the command by the subjects may also account for a higher percentage of return of the questionnaire on the method standardization units.

The response rate to the overall PSS during the study increased from six on previous surveys to ten percent. Gallagher (1989) questions the validity of a survey with low response rate since there is a significant number of people who have not responded (ninety percent in this study). The danger of overreporting or underreporting a narrow spectrum of patient opinion exists (Gallagher, 1989). The factor of non-response bias as reported by Rubin (1990) creates further questions concerning the validity of a PSS with a ten percent return rate. Baker (1983) reported that many of the non-respondents may be dissatisfied with the care received, and therefore, important information may go unreported.

### **Recommendations**

A PSS system which will increase the response rate at NNMC is needed. Nelson et. al. (1990) identified the use of a telephone survey as a method which can provide a high response rate to the PSS. Nelson and Niederberger (1990) reported a nonresponse rate of less than twenty percent when a telephone survey was used. This system could be utilized at NNMC with additional investment of resources on the part of the patient relations department.

A list of recently discharged patients would be forwarded to the PRD. The PRD representative would then call the patient and ask the questions contained on the current PSS questionnaire. As the questionnaire is being answered, the individual conducting the survey would encode the responses on the PSS automated data base. The automated data base is already in place with the current PSS system.

Staffing requirements for the PRD may increase one additional person to manage the program. In the change of PSS methodology, the need to mass print the questionnaires would be eliminated, time would be saved in distributing and collecting the questionnaires, more

efficient use of personnel would result, and collection of more useful information would be accomplished. Any cost savings or increase in efficiency which results from the new system can be used to subsidize the additional manpower requirement of the PSS system.

An additional advantage of a centralized telephone PSS system includes the continuity of the process. The frequent changing of nursing unit staff requires frequent training of personnel concerning the PSS. Less impact of nursing unit staff changes would be felt on a centralized PSS system. The process would be independent of the nursing unit staffing levels providing for a more consistent level of rate of return for the PSS.

A mail-out system of PSS could be used to increase the effectiveness of the phone system. The mail-out system would be used to compensate for the portion of the population who may not have telephones, may provide wrong telephone numbers, may have a physical impairment which impedes the use of a telephone or who wants greater anonymity than is provided in a telephone survey (Press & Ganey, 1989).

The impact of the nursing unit's opinion leader

was not a consideration of this study. Opinion leaders are those individuals that exert a significant amount of social influence over other members of a group (Myers & Robertson, 1972). Seto, Ching, Yuan, Chu, and Seto, (1990) found that the success of a program on the nursing unit can be impacted by the opinion leader. Further studies should look at the impact of the opinion leader in the relation to the response rate of the PSS.

The generalizability of this study is limited to the population represented in this project. The content validity of the current PSS questionnaire used at NNMC should be reviewed once the response rate is increased. The check of content validity would ensure the questionnaire is collecting the desired information.

### **Conclusion**

The PSS is important in maintaining and enhancing the institution's status within the community served (Swan, Sawyer, Van Maire, and McGee, 1985). The purpose of this study was to identify a method which will increase the response rate to the PSS. An increased response rate is needed to gain a more

accurate picture of the population being served. This study found that within this sample, training and method standardization made a significant difference in the response rate of the PSS.

This study identified important shortcomings of the current inpatient PSS system at NNMC. The rate of return for the PSS was not being considered when reporting the results of the PSS. The results of the current PSS system cannot be assumed to represent the opinions of inpatients at NNMC. The current PSS system at NNMC needs to be improved in order to gain a higher response rate that is more representative of the patient population.

As the twentieth century comes to a close, health care organizations find themselves scrambling to stay alive. Health care organizations can no longer egocentrically offer a service with the expectation that clients will use the service without regard to need, satisfaction, or quality. The organization must be proactive in identifying client needs and client problems with the system. Those health care organizations which effectively use a PSS system will not just be surviving, but will be leading their peers

into the twenty-first century.

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## Appendix A

Participation of the Nursing Units

UNIT	NO TREATMENT	TRAINING ONLY	METHOD ONLY	TRAINING AND METHOD
5W Medicine	X			
3W Cardiology C-T* Surgery	X			
6E Neurology Neurosurgery		X		
6W Oncology		X		
4W Plastic Surgery Orthopedics			X	
7E Pediatrics			X	
5E Urology General Surgery				X
5C Oral Surgery Gynecology				X

\*Cardiothoracic surgery

## Appendix B

### Class Outline for Unit Training

Length: 7-10 minutes

Time: To be Conducted During Shift Change Report

Location: Unit Report Room

Content:

1. Importance Of Patient Satisfaction Survey

- A. Survey Mandated by JCAHO
- B. Hospital Commander wants to know how patients feel about the care they are receiving.
- C. Helps to identify system problems.
- D. Helps to identify the good things that are being done for the patient.
- E. There is a need for all staff members to encourage the patients to complete the questionnaires.

2. If the unit was participating in the method change:

- A. Review of the method standardization process

## Appendix C

### Method Standardization for the PSS

#### 1. Methodology for the PSS

- A. The researcher meets with the Division Officer of the participating unit and explains procedure.
- B. The PRD representative brings the questionnaires and collection box to the unit and reviews the procedure with the senior corpsman.
- C. The PSS questionnaire will be placed on the patient chart after admission with all forms that the Nurse reviews with the patient at time of discharge.
- D. The nurse takes the questionnaire to the patient and gives it to the patient as part of discharge teaching.
- E. The patient is instructed to drop off the completed questionnaire at the nurses station prior to leaving the unit.
- F. The patient receives a second reminder to drop off the questionnaire when checking out at the nurses station prior to leaving the unit.
- G. The PRD representative will collect the completed questionnaires from the nursing units every Friday for the previous week and document how many are from each unit.
- H. The researcher will then calculate the percent of completed questionnaires to the number of discharges for the unit.
- I. The nursing units which received training will get feedback concerning the response rate of the PSS every two weeks during the study.

J. At the end of the six week period the data will be used for statistical calculations.