Are Phlebotomy Services Completely Satisfying Our Patient Customers?

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Abstract: In today's intensely competitive health care marketplace, it is implicit that all of the customers of any successful health care organization have their needs met, whether they be the health care purchaser, the health care user (patient), or the health care provider. The needs of each of these customers are often disparate and conflicting and are sometimes not well understood. To improve the quality of our phlebotomy services, often the only interface between the laboratory and the patient, we conducted a systematic study of the needs of outpatients who require phlebotomy services. Through the cooperation of our Health Research Department, we designed a 2 part, 3 page survey which measured patient expectations before phlebotomy and the patient experience with the phlebotomy process. We surveyed outpatient laboratories, one was a very large multi specialty group practice clinic (approximately 260 phlebotomies per weekday) and the other at a smaller primary care clinic (approximately 25 phlebotomies per weekday). 100 surveys were filled out at each laboratory. 54% of the respondents were female. Of the 18 different expectations that we surveyed, approximately one half of them scored an average of 4 or better on a rating scale of 1 through 5. The top 5 expectations and their average scores follow: cleanliness of the blood drawing area (4.84), successful blood draw with only 1 needle stick (4.64), ability of the phlebotomist to put the patient at ease (4.44), information regarding when and how results are received (4.37), and friendliness of the receptionist (4.30). While a few differences were identified between those respondents younger than the average age of 51.9 years (younger patients desiring less time in the waiting room and requiring more privacy during the phlebotomy), there were marked differences between the expectations of women and men with 14 of 18 being statistically significant ($p<0.01$) and with women usually requiring a higher service level. When patient experience was tabulated for the two different clinics, the smaller clinical had higher satisfaction for all of the 18 patient expectations, with 8 being significant ($p<0.05$). We are now using the survey results to systematically address the important differences. It is our recommendation that surveys such as that presented here be used to more intelligently initiate quality improvement efforts.

Introduction

The measurement of customer satisfaction has long been used to evaluate and improve products and services. Key to measuring customer satisfaction is identifying and prioritizing customer

expectations.[1] Satisfaction surveys which attempt to measure customer?s satisfaction without the knowledge of customer expectations can yield misleading or uninterpretable results.[1] In order to accurately assess the quality of care and services provided, customer expectations must first be determined and satisfaction with the expectations subsequently evaluated.

In today's intensely competitive health care environment, it is essential that health care organizations satisfy the expectations of their customers. From the perspective of the laboratory, phlebotomists are its most visible emissaries. Often, phlebotomists are the only personnel that patients encounter from the laboratory. As such, patients may perceive the level of care they receive during phlebotomy to reflect the quality of care provided by the laboratory or even the laboratory's clinic or hospital. Excessive delays, poor communication, bruising, discomfort, and other negative phlebotomy experiences may adversely influence a patient's perception of care. Customer satisfaction will be improved if the patient's experience is optimal. Measuring patient satisfaction with our phlebotomy service can thus be an important quality improvement tool for the laboratory.

A 1990 College of American Pathologists (CAP) Q-Probe study attempted to assess overall patient satisfaction with phlebotomy. Howanitz et al measured the complication rates of phlebotomy, based on the number of needle sticks; size and frequency of ecchymoses; length of time required for phlebotomy; and patient satisfaction.[2] This survey found that 98.6% of 23,783 outpatients were satisfied with their phlebotomy experience and only 9.8% of the 630 participating institutions had more than one dissatisfied patient. This high rate of satisfaction does not preclude opportunities for improvement. For example, 16% of the outpatients demonstrated bruising and 35% experienced more discomfort than anticipated. In a 1992 study of bruising of inpatients in a small British district general hospital, the incidence of bruising was reduced from 45% to 25% after phlebotomist training.[3]

Over the past two years, through the cooperation of our Institute for Research and Education, we developed and tested a new patient survey. Our aim was to develop an instrument to assess patient expectations of and satisfaction with the phlebotomy procedure. Patient expectations and satisfaction were surveyed for the three separate phases of the phlebotomy procedure: events before the phlebotomy, the actual blood drawing, and finally, events after blood drawing. The survey contains many more discriminatory and objective questions than the CAP survey and addresses specific patient expectations and areas of satisfaction and potential difficulty. We intend to use the survey results to identify areas for improving the phlebotomy service.

Materials and Methods

To more accurately compare patient expectations with actual experience, the patients completed the survey in two steps. While waiting to have blood drawn, patients were asked to complete and return the first part of the survey which assessed their expectations of the phlebotomy procedure. When the phlebotomy was over, the same patients were asked to fill out the second part which assessed their experience with the phlebotomy. The second part was then returned to the receptionist or phlebotomist. The patients were asked to rate a total of 18 different quality requirements on a scale of 5

Waiting Room

Privacy when talking to the receptionist
Friendliness of the receptionist
Length of time spent in the waiting room
Comfort of chairs
Current magazines
Ability of the receptionist to answer any questions or direct patient to someone who could

Blood Drawing

Privacy during blood drawing
Place to put things (jacket, purse, books)
Cleanliness of the blood drawing area
Ability of the person drawing blood to put patient at ease
Successful blood drawing with only one needle stick
Amount of discomfort from the needle of tourniquet
Cot available for blood drawing lying down
Ability of the person drawing blood to answer any questions or direct patient to someone who could

After Blood Drawing

Information regarding when and how the patient receives his/her results
Information on how to lessen the size of a possible bruise
Size of a bruise from the needle stick
Total visit time for blood drawing

Figure 1. Eighteen quality requirements of the phlebotomy procedure.

to 1, with 5 being the highest and 1 the lowest. Figure 1 shows the different quality requirements surveyed. The questions were asked twice, first in the form of: "How important is the following to you?" before the phlebotomy, and then as: "How satisfied were you with the following?" after the phlebotomy.

The survey was conducted at two outpatient phlebotomy areas, the first in a very large multi specialty group practice clinic located in a first-ring suburb (performing approximately 260 phlebotomies per weekday), and the second in a smaller primary care clinic located in a third-ring suburb (performing approximately 25 phlebotomies per weekday). The phlebotomy area of the larger clinic occupies approximately 300 sq. ft., and has seven drawing chairs (Fig 2). The chairs are located close to one another, extending into the corner. Supplies are in plain view. The other phlebotomy area occupies approximately 72 sq. ft. and has two drawing chairs (Fig 2). Supplies are stowed away out of view; here is also space for patient belongings.

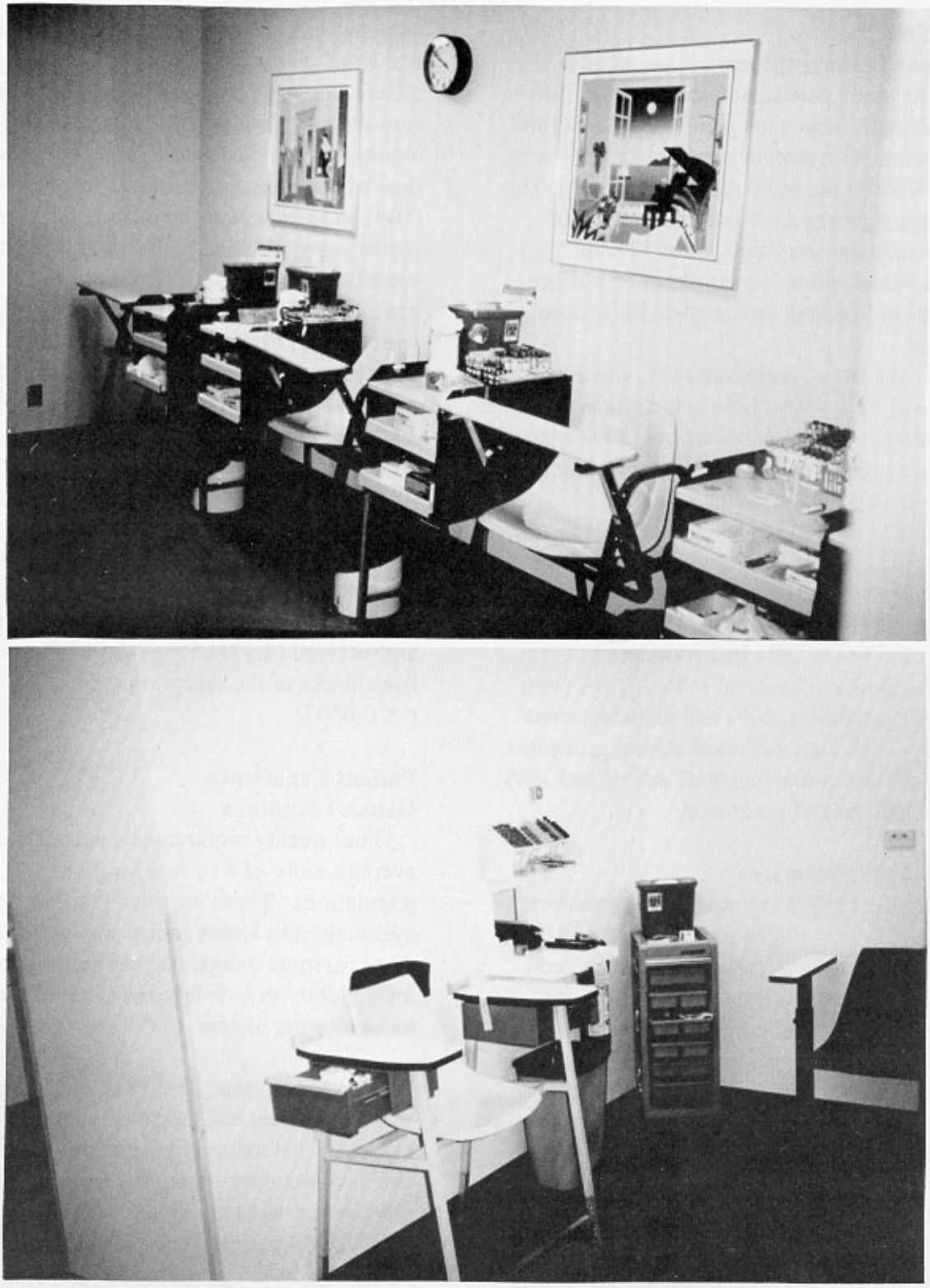

Figure 2. Photographs of the two phlebotomy areas. Top: large phlebotomy area with 7 chairs occupying approximately 300 sq. ft.; Bottom: small phlebotomy area with 2 chairs, approximately 72 sq.ft.

Results:

Patient Demographics

The study participants consisted of 106 females (53 from each phlebotomy area) and 90 males (43 from the large phlebotomy area and 47 from the small phlebotomy area). The average age was 51.9 years. The level of education was very high, with 72% of respondents either having attended college, completed college or completed professional school.

At the large phlebotomy site, the average age was 51.0 years. 16% had completed graduate or professional school, 26% were college graduates, 24% had attended some college, 10% were technical school graduates, 7% attended some technical school, 11% were high school graduates and only 6% had not completed high school. At the small phlebotomy area, the average age was 52.6 years. 20% had completed graduate or professional school, 33% were college graduates, 24% had attended some college, 3% were technical school graduates, 4% attended some technical school and 16% were high school graduates.

Patient Expectations

Of the 18 different quality requirements surveyed, 9 scored an average of 4 or better on a rating scale of 5 through 1 from "very important" to "not important" . Figure 3 shows the 18 quality requirements rank ordered by average score. The 5 most highly rated requirements and their average scores and standard deviations follow: cleanliness of the blood drawing area (4.84, 0.45), successful blood draw with only one needle stick (4.64, 0.77), ability of the phlebotomist to put the patient at ease (4.44, 0.91), information regarding when and how results are received (4.37, 0.87) and friendliness of the receptionist (4.30, 0.86). Patient expectations were very similar for the large and small phlebotomy areas. A few differences were identified between those respondents older and younger than the average age of 51.9 years (younger patients desired less time in the waiting room [$p< 0.04$] and required more privacy during the phlebotomy [$p< 0.02$]). Marked differences were found between the average expectations of men and women (Fig 4), with women having higher expectations in all 18 categories, 16 of which were statistically significant ($p< 0.01$). The top 5 were (male average /female average: p value): cleanliness of the blood drawing area (4.71/4.96: $p< 0.0001$), successful blood draw with only one needle stick (4.38/4.87: $p< 0.0001$), ability of the phlebotomist to put the patient at ease (4.08/4.75: $p< 0.0001$), information regarding when and how results are received (4.17/4.55: $p< 0.0019$), and friendliness of the receptionist (4.1/4.5: $p < 0.0007$).

Patient Experience

General Findings

Four quality requirements scored at average score of 4 or less for most populations. These included provision of information to lessen bruise size, space to store personal things, current magazines and information on how laboratory results are to be sent to the patient.

Phlebotomy Area

A significant difference was found in the average satisfaction ratings of the large and small phlebotomy areas. The smaller phlebotomy site had higher satisfaction for all of the 18 patient expectations, with 7 being significant ($p< 0.01$). Figure 5 presents the average ratings of the top nine quality requirements for the two phlebotomy

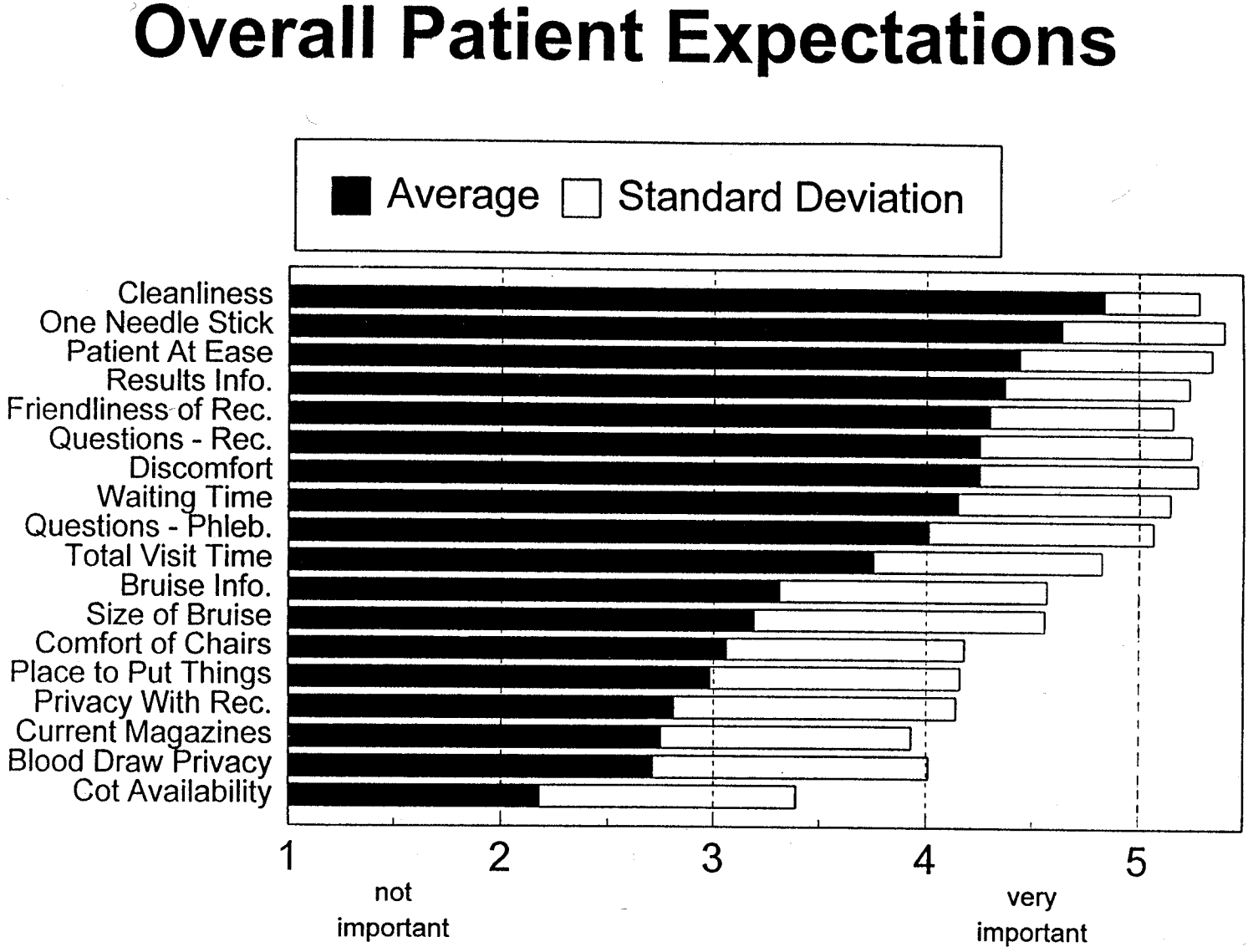

Figure 3. Average patient expectations (all patients) sorted in decreasing order. The magnitude of the white bar represents the standard deviation.

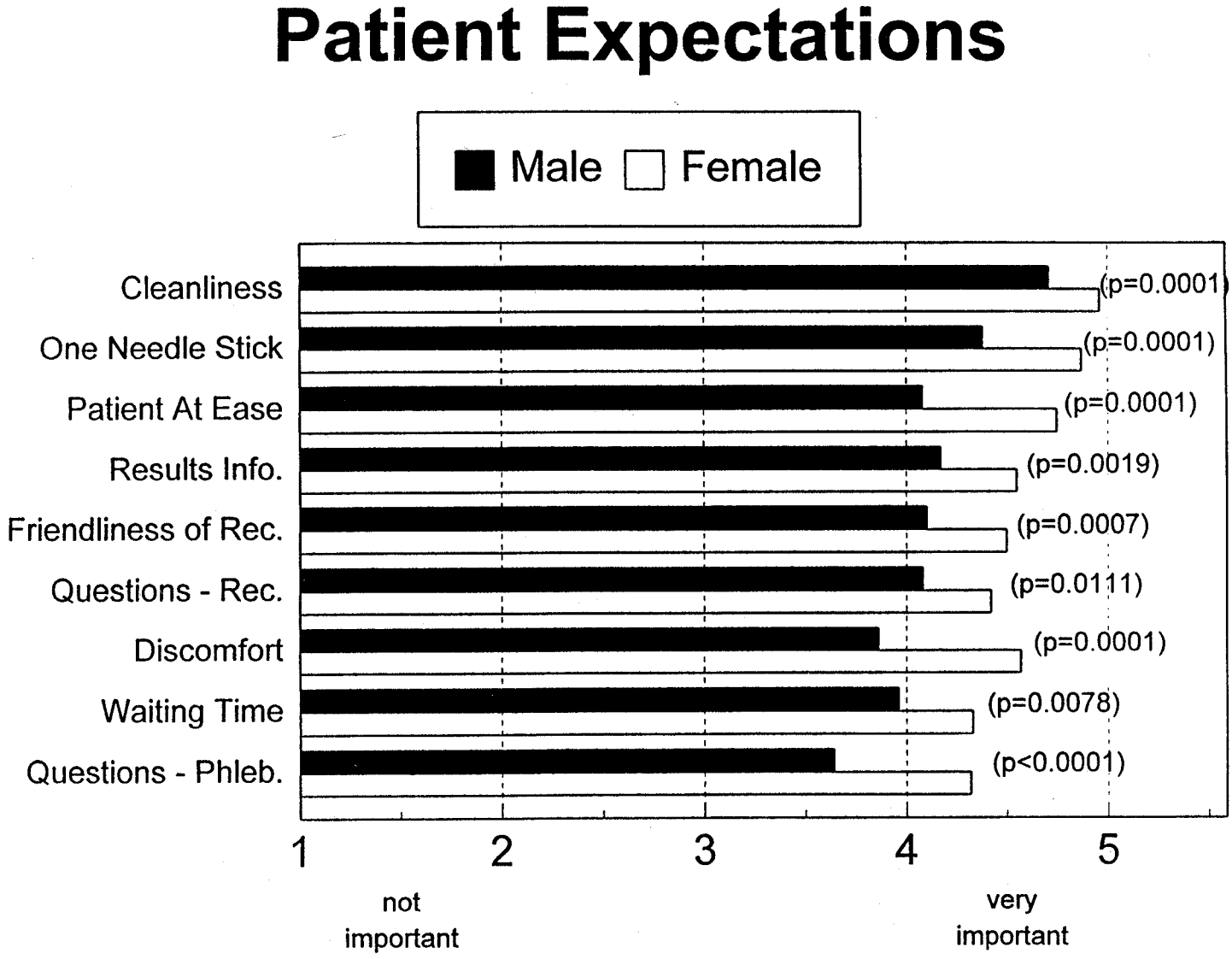

Figure 4. Average patient expectations, male vs. female for the top 9 expectations.

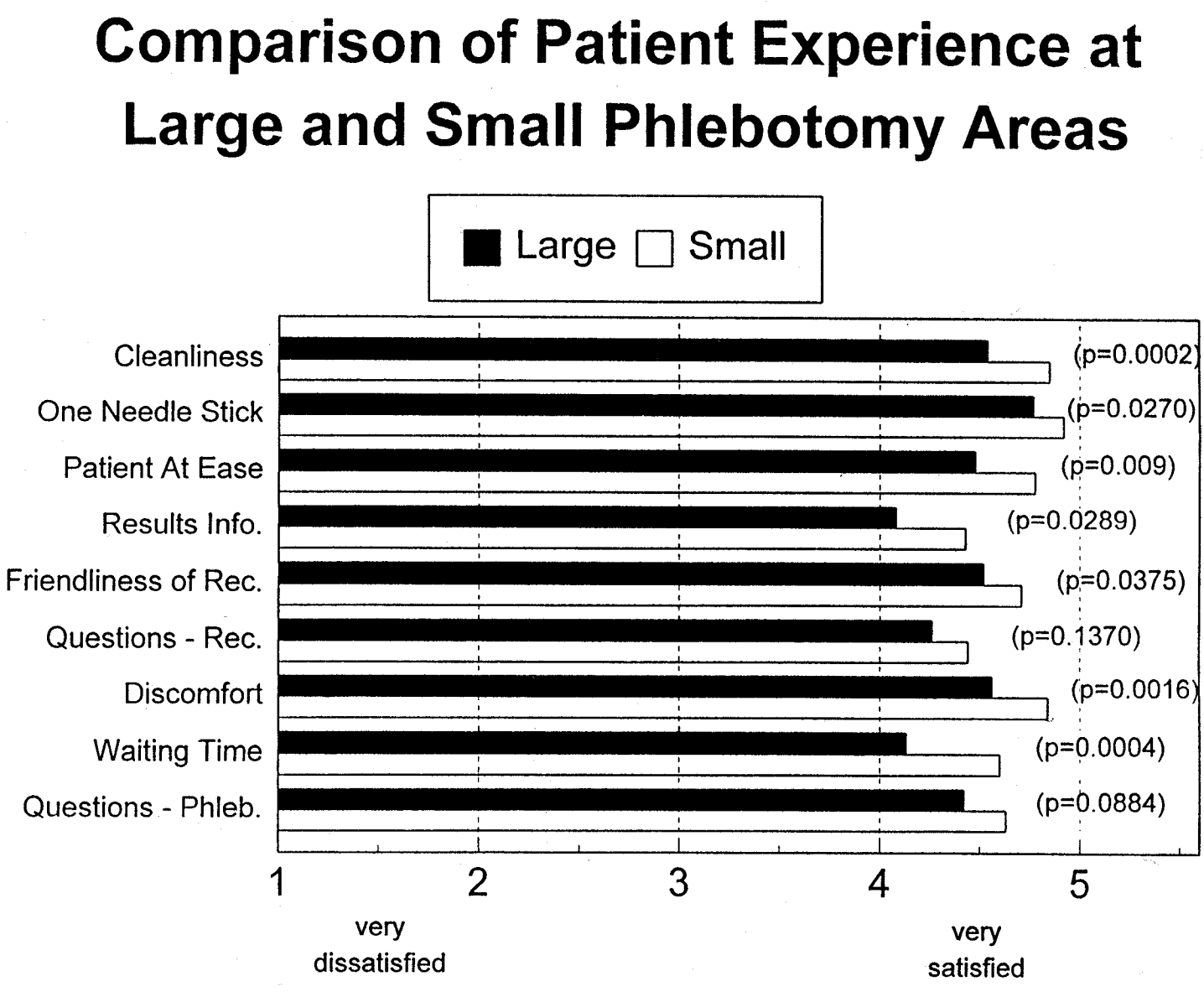

Figure 5. Patient experience, large vs. small phlebotomy areas for the top 9 expectations.

areas as well as the statistical significance of the differences. The quality requirement with the highest statistical difference was space to store things ($p<0.001$), where 48.2% at the small phlebotomy area were "very satisfied" (score of 5) versus 30.5% at the large phlebotomy area. Second highest was total visit time ($p<0.001$), where 82.5% of those at the small phlebotomy area were "very satisfied" as compared with 51.8% at the large phlebotomy area. Cleanliness of the blood drawing area ($p=0.001$) followed with 86.7% at the small phlebotomy area being "very satisfied" versus 62.9% at the large phlebotomy area Fourth was privacy of the blood drawing area ($p=0.001$), where 74.2% of those at the small area were "very satisfied" as compared with 45.4% at the large phlebotomy area. Satisfaction with time spent in the waiting room differed as well ($p=0.003$), with 70.4% of those at the small area being "very satisfied" versus 46.5% at the large phlebotomy area.

Patient Age

Patients older than the average age of 51.9 years were more satisfied with the service than their younger counterparts, with significantly higher satisfaction scores ($p < 0.01$) for 9 of the 18 quality requirements: friendliness of the receptionist, length of time spent in the waiting room, comfort of chairs, privacy during blood draw, place to store personal things, cleanliness of the blood drawing area, ability of the phlebotomist to put patient at ease, ability of phlebotomist to answer questions, and the total visit time for blood drawing.

Patient Gender

Men had an average satisfaction score of less than 4.0 only for the current magazines. Women, overall, had scores under 4.0 for a place to put things, information on how to lessen the bruise size and the current magazines. Women younger than the average age also had an average satisfaction score of 4.0 for the length of time in the waiting room.

Expectation scores can be used as a baseline for comparing satisfaction scores; dissatisfaction is indicated if a satisfaction score is lower than the expectation score. Overall female satisfaction scores were lower than expectation scores for three quality requirements, the cleanliness of the blood drawing area, ability of the phlebotomist to put the patient at ease and information regarding when and how results are received for satisfied as their expectations. On the other hand, male satisfaction scores exceeded their expectation scores for all requirements. Younger females had lower satisfaction than expectation scores for seven requirements (length of time in the waiting room, cleanliness of the blood drawing area, information regarding when and how results are received, ability of phlebotomist to put patient at ease, amount of discomfort from the needle or tourniquet, information on how to lessen the bruise size and successful blood draw with only one needle stick. Younger females at the large phlebotomy area had a total of 10 requirements for which average satisfaction was less than expectation (the same 7 categories for younger females as well as a place to store personal things, total visit time and friendliness of the receptionist).

Overall Patient Satisfaction

When asked about overall satisfaction with the phlebotomy area, 89.8% were "very satisfied" (score of 5) and 7.2% were "somewhat satisfied"(score of 4). 94.4% of those seen at the small phlebotomy area and

84.2% of those at the large phlebotomy area were overall "very satisfied" with Park Nicollet Clinic services. 87% of those at the small phlebotomy area and 69.2% of those at the large phlebotomy area said they would "definitely" return to Park Nicollet for blood drawing (score of 5) and 77.2% of patients (small phlebotomy area) versus 62.8% patients (large phlebotomy area) said they would "definitely" recommend our clinic to a friend.

Discussion

Only a few studies have attempted to systematically evaluate patient satisfaction with the phlebotomy experience. None of these has measured patient expectations which are needed to provide the base line for the assessment of satisfaction. This survey is unique in its ability to compare patient expectations and experience.

The patient population was represented by roughly equal numbers of males and females of similar age from both large and small phlebotomy areas. The high level of education observed among participants is due to the suburban location of the laboratories used for the study.

For the overall population, one half of the 18 quality requirements expectations had average scores above 4 on a scale of 5 through 1. This demonstrates the high expectations demanded by the patient population. The fact that the overall patient expectations are similar in both the large and small phlebotomy areas indicates that patients do not alter their expectations of quality of care according to the size and nature of the phlebotomy area. The significant differences between the expectations and experiences of men and women may be useful in targeting population subsets to implement improvement. The subset which showed the most room for improvement was younger women, most likely due to the higher service level that they require.

Differences in satisfaction were most apparent in patients having blood drawn in the large and small phlebotomy areas. Interestingly, the five most significant differences revealed problems that were associated with space limitations in the large phlebotomy area: a place to store things, total visit time, cleanliness of the blood drawing area, privacy of the blood drawing area and time spent in the waiting room. A larger phlebotomy area would improve the perceptions of cleanliness and privacy due to a greater separation of phlebotomy chairs and decreased clutter of the phlebotomy supplies. Additionally, a larger area would permit closer placement of patient belongings. The other two major differences dealt with long waiting room and long total visit time. More room could be made by removing one drawing chair, resulting in improved patients' perceptions of privacy and cleanliness. Since all drawing chairs can be in use at one time, removing even one would lengthen waiting times. We hope to creatively redesign our phlebotomy area so that patients' perceptions can be positively affected without increasing waiting time.

Four quality requirements did not achieve average scores greater than 4 for most population subsets. By providing information on how to lessen bruise size and when and how results will be sent to the patient, patient satisfaction can be increased. By redesigning the phlebotomy area, certain quality improvements can be implemented to positively affect the patient's perception of cleanliness and provide space to store things. Still other categories will require continuous attention, such as offering current magazines

in the waiting room.

Results indicate that our phlebotomy service can be significantly improved. According to post-survey suggestions by Cassell[4], we are reviewing these findings with all of our phlebotomists. Issues such as providing information to lessen bruise size can be addressed rather easily. Other issues, such as improving the perceptions of cleanliness, will probably require group processes to design, test and implement solutions.

We hope to take the findings of this comprehensive survey and shorten the survey so that we can use it at all of our 17 different phlebotomy areas. Self assessment through such surveys will identify further improvement opportunities.

Acknowledgments

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