

INHOUSE, SHARED, AND COMMERCIAL HOSPITAL LAUNDRY SERVICE  
BY SIZE OF HOSPITAL

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A THESIS  
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## CHAPTER I

### INTRODUCTION

In the past ten years, hospital costs have increased. Hospital administrators, along with their Boards of Directors, have been looking for ways for their hospitals to cut costs. One of the ways that is currently being considered by many hospitals to reduce costs is the economic aspect of whether to do their own linen, use a commercial laundry service, or use a shared laundry service.<sup>1, 2</sup>

There has been increasing interest among hospitals in the sharing of services to reduce costs. One service frequently mentioned as a potential area of cost reduction is the laundry. Although sharing laundry services may save a hospital money, the decision to join or not to join a shared laundry is difficult and frequently is based on intuition rather than on a proper financial analysis. . . .

It will be assumed that the objective of the hospital is to provide its services to its patients at the lowest possible cost over the long run and that this objective can best be obtained by minimizing the present value of future cash outflows necessary to provide patient care at a quality consistent with the hospital's objectives.<sup>3</sup>

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<sup>1</sup>Barbara Ellis, "Improved Linen Control Cuts Costs," Hospitals 40 (April 1976):125.

<sup>2</sup>"Which Type of Service is Best for You?" Hospitals 47 (August 1974):64.

<sup>3</sup>Richard Furst and Carl G. Kretschman, "Should You Join a Shared Laundry?" Hospitals 47 (July 1973):174.

In a typical general hospital, many of the costs of the inhouse laundry are buried in the budgets of other departments. For example, the laundry budget may include labor, soaps, and linen replacement. Other operating expenses such as water, electricity, steam, and sewage are usually included in the budget of the engineering department.

The laundry manager, using only his direct budgeted costs, may calculate the cost of processing laundry in the hospital plant at nine cents per pound. The linen replacement cost might be calculated at six cents per pound. The administrator who has considered a change to a central or commercial laundry service might learn that it would cost nineteen cents per pound, including linen replacement costs, to process the same laundry at a central facility.<sup>4</sup>

What is often not made clear to those making the decision is that central laundry cost figures take into account all costs of laundry operations and linen replacement. The inhouse figures rarely reflect costs of power, water, sewage, and space maintenance. Since true inhouse costs cannot be precisely determined, the administrators must rely on estimates.<sup>5</sup>

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<sup>4</sup>Wilbur T. Stevens, "Headache or Money Saver," Hospital Financial Management 21 (December 1975):22.

<sup>5</sup>Ibid., p. 23.

### Need for the Study

During the past few years, rising hospital costs have made the financially oriented hospital administrator explore ways to cut costs without lowering the quality of service. One viable means of cost containment is lowering the costs of processing linen. In that light, the purpose of this descriptive study was to determine the most economical way for Dade and Broward Counties' hospitals in Florida to process their linen. This study should have value to hospital administrators and hospital comptrollers in Dade and Broward Counties in Florida if they investigate the most economical way to process the linen in their general hospital.

### Statement of the Problem

The problem of this study was to determine the cost of laundry per pound when using a shared, commercial, or inhouse laundry service of differing size general hospitals in Dade and Broward Counties.

### Hypotheses

For the purpose of this paper, the hypotheses were:

Hypothesis 1: As the hospital size increases, the cost for laundry per pound will decrease when using an inhouse laundry service for general hospitals.

Hypothesis 2: As the hospital size increases, the cost for laundry per pound will decrease when using a commercial laundry service for general hospitals.

Hypothesis 3: As the hospital size increases, the cost for laundry per pound will decrease when using a shared laundry service for general hospitals.

#### Limitations

The limitations of the descriptive study were as follows:

1. This study did not consider disposable or combination laundry services
2. The survey instrument has not been tested for validity and reliability
3. The study pertained to only those hospitals accredited by the Joint Commission Accredited Hospitals in Dade and Broward Counties, Florida

#### Assumptions

The assumptions for this study were as follows:

1. The participants answered the questionnaire to the best of their ability
2. It was assumed that the Florida Hospital Association Directory, from which the names of the hospitals were taken was up-to-date

## CHAPTER II

### SELECTED REVIEW OF RELATED LITERATURE

In the past few years, many articles have been written concerning the subject of hospital laundries. The literature reviewed will be discussed in two categories: (1) The costs and operations of the inhouse, shared, and commercial hospital laundries, and (2) the advantages and disadvantages of the inhouse, shared, and commercial laundry services.

#### Costs and Operations of the Inhouse, Shared, and Commercial Laundry

"Linens and laundry operations have traditionally represented a rather marginal percentage of the total hospital budget."<sup>1</sup> It has been a revelation in many hospitals to discover that this traditionally marginal percentage now comprises approximately 2 percent of total expenses.<sup>2</sup> It is easily understood that "controlling linen

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<sup>1</sup>Donald R. Rizzo, "Nursing and the Efficient Use of Linens," Hospitals 49 (June 1975):92.

<sup>2</sup>Patrick K. Long and Thomas Mara, "Linen Management: One Antidote to Counteract Rising Costs," Hospitals 50 (July 1976):70.

costs is a traditional struggle in hospital housekeeping departments."<sup>3</sup> Costs for the three types of hospital laundry services, commercial, inhouse, and shared, naturally vary. It is important that an administrator should look at the total cost for each type of service and systematically calculate what those figures mean.

Commercial laundries have charged for their services by various methods, the most common being by the pound of clean linen or on a piece count basis. In comparing commercial charges with other types of laundry services, it must be considered that ". . . the price paid to an outside laundry . . . may be subject to large, unanticipated increases."<sup>4</sup>

Comparative costs of inhouse laundries are not so easily determined. They may seem lower than they actually are.

Cost per pound is the traditional measure of inhospital laundry efficiency. Over the years, there has been considerable discussion about the validity of the cost per pound calculation, mainly because the operating cost included in this calculation is often incomplete. Operating cost includes more than labor, supplies and repairs. Depreciation, interest on borrowed money, administrative overhead, and other indirect costs are valid elements of the cost of

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<sup>3</sup>Richard A. McCartney and Sally McCarthy, "Reducing Linen Costs: A Systems Approach," Hospitals 47 (February 1973):94.

<sup>4</sup>Furst and Kretschman, "Should You Join a Shared Laundry?" p. 183.

operating an inhouse laundry. But, assuming that the cost in a cost per pound calculation has been determined accurately, the cost per pound is an inherently inaccurate measure of laundry efficiency. The most meaningful cost measure, from an administrative standpoint, is cost per patient day. The best way to lower the cost per pound is to increase the poundage, which usually increases the cost per patient day.<sup>5</sup>

In order to compare and evaluate the costs of a shared laundry, it is necessary to compare the cost of sharing to the cost of continuing the present laundry activities. In making such a comparison, there is a tendency to compare the direct costs allocated to the existing service with the cost of a shared service. This financial analysis, however, should be concerned only with the difference in the total costs and cash flows.<sup>6</sup> The shared laundry's total cost may appear high, but this cost takes into account all costs of laundry operations and linen replacement<sup>7</sup> while, as stated, inhouse figures rarely reflect costs of power, water, sewage, space, maintenance, and commercial laundries' charges may fluctuate.

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<sup>5</sup>David Giancola, "The Inhouse Laundry and Linen Service," Hospitals 49 (February 1975):99.

<sup>6</sup>Furst and Kretschman, "Should You Join A Shared Laundry?" p. 176.

<sup>7</sup>Wilbur T. Stevens, "Central Laundry: Headache or Money Saver?" Hospital Financial Management (December 1975): 21.



An important factor to consider when concerned with laundry costs is inherent to all three types of services.

As Rizzo states,

Most administrative efforts to control linen costs have failed because of preoccupation with the cost of laundering the linen, when the real savings are in controlling the unnecessary use of linen; a failure to develop precise information systems to determine exactly how many of each item is being used where.<sup>8</sup>

On this same point, Giancola writes,

Textile items are expensive and in short supply and are subject to more misuse than ever before. Linen replacement costs presently range from 20 to 40 percent of the total cost of a hospital laundry and linen service. An estimated 80 percent of the linen replaced in a hospital is due to some type of linen misuse, leaving only 20 percent to actual wear-out. Because of today's linen market, hospitals are being forced to reevaluate their linen control systems.<sup>9</sup>

One additional point to remember is that

. . . in the gathering of cost data it is important that the data be placed in a usable form. For example, any costs stated in terms of cost per pound of laundry processed should be converted into dollar cost per year or month in order to be comparable with other costs. In addition, care must be taken to ensure that all costs are stated in terms of the same interval of time, such as a year.<sup>10</sup>

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<sup>8</sup>Rizzo, "Nursing and the Efficient Use of Linens," p. 92.

<sup>9</sup>Giancola, "The Inhouse Laundry and Linen Service," p. 98.

<sup>10</sup>Furst and Kretschman, "Should You Join a Shared Laundry?" p. 174.

Advantages and Disadvantages of the Inhouse,  
Shared, and Commercial Laundry

Commercial

During the past twenty years, an increasing number of hospitals have used commercial laundry services. These commercial laundries are equipped to handle all the needs of a hospital and alleviate laundering responsibilities otherwise placed on hospital management. Most commercial laundries are further responsible for replacement due to wearout of linens. When laundry is done outside the hospital, the hospital also gains from the space retained for other utilization.

One disadvantage of a commercial laundry service is that the charge to the hospital is subject to large increases at the discretion and control of the laundry.<sup>11</sup> Also, using outside laundries could result in an unexpected and uncontrollable shortage of linen supply from time to time. "Hospitals with their own laundries always have a supply of linen on hand, whereas this is not the case with hospitals that rely on commercial vendors."<sup>12</sup> Not a fault of the commercial service itself, but a possible hazard when using their services, is that the commercial service

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<sup>11</sup> Ibid., p. 179.

<sup>12</sup> Mary E. Reilly, "Support Services," Hospitals 48 (April 1974):91.

is involved only in laundering and delivering the linen, with no control over the use or misuse in the hospital. This certainly could contribute to the linen management problems so common in hospitals. The lack of cleanliness of linen due to careless separation of clean and soiled linens is another important disadvantage of the commercial laundry service over which the hospital has no control.

#### Inhouse

Many hospitals have found it advantageous to do their laundry inhouse because of the low cost and the ability to control the costs, prompt service, and infection control. To realize fully these advantages, however, a well controlled inhouse linen service must be established.<sup>13</sup> The inhouse laundry system affords the hospital the best opportunity to establish such service and control. These inhouse laundries employ efficient and effective linen sorting, piece by piece, into discrete categories for processing, thereby reducing problems.

The end result of this type of sorting is a much better quality product, a more efficient laundry, and the all important capability to feed work into the processing system in accordance with varying delivery requirements.<sup>14</sup>

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<sup>13</sup>Giancola, "The Inhouse Laundry and Linen Service," p. 97.

<sup>14</sup>Ibid., p. 98.

Inadequate inventory is probably the most critical problem facing inhouse hospital laundries today. Many hospitals believe that a linen inventory should be conducted only to determine the value of the linen in use. The purpose of a linen inventory, however, should be to determine if there is enough linen in circulation, to determine the specific items that are in short supply, and to determine the number of items to be placed into use to correct any deficiencies. In order to comfortably meet its linen needs, a hospital laundry that is working a five-day, forty-hour week must have a minimum of five times its average daily usage in circulation. Items that are used on a limited basis require more than a five-day inventory.<sup>15</sup>

Another disadvantage of an inhouse laundry is the enormous capital outlay needed to equip a hospital laundry.

#### Shared

In order to save valuable hospital space and to avoid costly duplication of services, many hospitals, particularly those in urban areas, have established cooperative laundry arrangements . . .<sup>16</sup>

The basic appeal to the central laundry is that volume operations permit greater operating efficiency, thus reducing costs to participating members.<sup>17</sup>

At the same time, administrators usually want to centralize linen service needs along with central laundry questions. It is logical to assume that volume buying of linen will result in lower prices.<sup>18</sup>

Along with lowering costs, it has been previously mentioned that a coordinated linen and laundry system should

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<sup>15</sup>Ibid., p. 97.

<sup>16</sup>Ibid.

<sup>17</sup>Stevens, "Central Laundry: Headache or Money Saver?" p. 21.

<sup>18</sup>Ibid.

result in more efficient service, facing the problems of linen misuse. Further advantages in establishing these shared laundries include the fact that they can be erected in relatively low cost land areas near convenient sources of labor; they include centralized purchasing and can be more easily managed than four or five separate, small laundries;<sup>19</sup> they are large enough and create enough volume to justify sophisticated equipment which smaller laundries could not. Equally attractive, if not more so, is the ability of each hospital to dictate the quality of service. Because the shared laundry works for its member hospitals, they can specify the exact linen quality and type they desire; they schedule delivery times; and control inventory levels.<sup>20</sup>

When coordinating the shared laundry with the linen service, however advantageous, certain problems can arise. Stephens said,

Unfortunately, the headaches are often just beginning at this point. . . . The overall linen inventory of the system erodes. Some linen wears out and needs replacement. Some is stolen. Some is misused or lost. Less linen returns to the laundry for processing than is sent out. Linen cannot be replaced as fast as it disappears because the central laundry's linen replacement budget is limited, and linen prices steadily increase. . . . Members scream

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<sup>19</sup>"NAILM, IFI Meet," Hospitals 47 (June 1973):109.

<sup>20</sup>McCartney and McCarthy, "Reducing Linen Costs: A Systems Approach," p. 94.

for more linen, and the central laundry replies that it cannot process linen that is never returned to it by the members. . . . The central laundry accuses the participating hospitals of wasting and losing linen, and they in turn claim that the fault lies with the central laundry.<sup>21</sup>

Too often the feeling is,

When a central laundry is used, the linen belongs to some distant corporation, one that has caused each hospital to make some unwanted adjustments in its linen routines, and the hospital employees tend to regard linen misuse as something that is no longer their problem. This attitude has caused linen replacement costs in central laundries to skyrocket.<sup>22</sup>

Further detriments include the facts that hospitals in shared laundry systems are bound by contracts for a specified period of time whether the service is satisfactory or not; contaminated linens from all hospitals are treated in one location, thereby increasing the risk of an infection outbreak; there are regimented, rigid delivery schedules that must be met and enforced; and major utility failures could interrupt service to one or several hospitals as the delivery trucks are subject to bad weather, bad traffic, and breakdown.<sup>23</sup> In fact, for hospitals located in outlying areas, participating in a shared laundry facility may be

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<sup>21</sup>Stevens, "Central Laundry: Headache or Money Saver?" p. 21.

<sup>22</sup>Don Pertl and David Giancola, "Central Laundry Irons Out Linen Control Problems," Hospitals 48 (May 1974):96.

<sup>23</sup>"NAILM, IFI Meet," p. 109

highly impractical because of transportation and delivery problems.

Another disadvantage is that joining a shared laundry will require that time be devoted to the administrative details of setting up and operating the shared service. Also, there is the frustration that can be expected when one's opinion differs from that of the majority of the group on policy matters involved in the operation of the shared laundry.<sup>24</sup>

One last problem which might occur and should be mentioned is seen at the Baltimore City Hospitals shared laundry where costs are running higher than estimated. The problem is that the amount of laundry the plant was built to process has not materialized.<sup>25</sup>

### Summary

The literature reviewed appears to indicate a trend away from the use of inhouse and commercial laundry services to the shared laundry. The growth of the shared laundry service has continued as feasibility studies have indicated advantages for joining. However, some hospitals have been disappointed with the actual results of shared service.

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<sup>24</sup>Furst and Kretschman, "Should You Join a Shared Laundry?" p. 184.

<sup>25</sup>Robert Timberg, "If We Don't Get More Laundry, We're Going to the Cleaners," Baltimore Evening Sun, 6 May 1973.

## CHAPTER III

### PROCEDURES

The purpose of this descriptive study was to determine the most economical way for hospitals in Dade and Broward Counties of Florida to process their linen. To facilitate this study the hospitals were divided into three discrete groups. The division was based upon the number of licensed patient beds available. The breakdown was according to the size of hospitals as follows: small--0 to 149; average--150 to 299; and large--300 and over.

Three primary methods of laundering linen were studied: 1) inhouse, 2) commercial, and 3) shared services. Once identified, these various methods of service could be compared within each size range of hospital. Based on the factors delineated in the questionnaire, the comparative analysis was designed to lend insight into the financial impact of each method.

#### Population

The population for this study consisted of the forty accredited hospitals of Dade and Broward Counties, Florida. The names of the hospitals were taken from the Florida Hospital Association Directory which indicates those



hospitals accredited by the Joint Commission on Accreditation of Hospitals.

### Instrument

A survey questionnaire (see appendix A) was utilized as the method of collecting data pertinent to this study. When mailing out survey questionnaires, two things were determined to be imperative: 1) the person answering the questionnaire knew what was expected of him, and 2) the questionnaire was returned for data tabulation.

To ensure that the questionnaires were filled out appropriately a number of safeguards were taken. The survey questionnaire was sent with a cover letter explaining its purpose and instructions were given for answering the questions (see appendix B). The hospital administrators were given fifteen days to complete and return the questionnaire. Lastly, the writer's telephone number (available collect) was included in case any questions arose which were not adequately answered.

To ensure that the questionnaires were returned, a return-addressed stamped envelope was enclosed. This allowed the survey to be returned with minimal effort and no cost to the participants. Addressees who did not return the questionnaire by the designated date of May 30, 1977, were sent a second request (see appendix C) and survey with

a due date of June 30, 1977. No attempts were made to contact addressees not responding after two requests.

### Design

This study was designed as a survey analysis. Receiving an objective response from the individuals surveyed was important.

Upon designing the survey questionnaire a plethora of pertinent questions pertaining to linen service were immediately apparent. The number of questions needed to be limited because, as a rule of thumb, the length of a survey and the number of responses are inversely related.

Therefore, the survey had to be short, yet contain sufficient information upon which to test the hypotheses. Of the original maze of questions, the nine most essential were chosen. In essence, the survey was kept short and concise. This design was determined to be an effective means of gathering data based on objectivity and ease in responding.

### Data Analysis

The questionnaire data received were tabulated by hand. Tables were constructed to indicate the frequencies and percentages of these responses. The next chapter contains the findings and analysis.

## CHAPTER IV

### FINDINGS AND ANALYSIS

Upon return of the questionnaires from the respective facilities, analysis had to be done. This chapter contains both the analysis of dependent and independent variables, as well as the tabulated data upon which that analysis was performed.

#### Background Information

The findings for the first four informational questions were used to help categorize the data. The hospitals were categorized by 0 to 149, 150 to 299, and 300 and over. These questions related to: 1) name of the hospital, 2) bed size, 3) average census, and 4) title of person completing the questionnaire.

Out of the forty hospitals sent questionnaires, 25 were returned (62.5 percent); 4 were from hospitals using a shared laundry service, 19 were from hospitals using a commercial laundry service, and 2 had established their own inhouse laundry service. The percentage of returned questionnaires by size of hospital increased as the bed capacity increased (see table 1).

TABLE 1  
QUESTIONNAIRES SENT AND PERCENTAGE OF  
RETURN BY SIZE OF HOSPITAL

	Size of Hospital		
	0-149	150-299	300-Over
Questionnaires Sent	15	13	12
Questionnaires Returned	6	9	10
Percent Returned	40.0%	69.2%	83.3%

The average census (average number of patients per day) by size and county is illustrated in table 2. These figures were used to determine the cost per pound of linen processed if question number 3 (cost per pound) was not answered.

The other two questions (hospital name and preparer's title) were used to identify which of the facilities had returned the questionnaires and who had filled them out. Upon return of the questionnaires it was found that 10 had been filled out by the administrator, 5 by the controller, and 10 by the director of housekeeping, or laundry manager.

TABLE 2  
AVERAGE CENSUS BY SIZE OF HOSPITAL  
WITHIN DADE AND BROWARD COUNTIES

	Size of Hospital		
	0-149	150-299	300-Over
Dade County Average Census	63	177	348
Broward County Average Census	71	178	453

Hospital Location by County

The first question of the survey was designed to determine in which of the two counties the hospital was located. The data indicated that 52 percent of the hospitals were located in Broward County. The remaining 48 percent of the facilities were located in Dade County (see table 3).

Type of Laundry Service Used by  
Various Size Hospitals

The size of the institution could be a variable in determining the type of laundry service used. This information was gathered to determine which type of laundry service would yield a reduction in cost per pound as the hospital size increased.

TABLE 3  
COUNTY IN WHICH SURVEY HOSPITALS WERE LOCATED

Location	Number	Percent
Dade	12	48
Broward	13	52
Total	25	100

Nineteen of the 25 surveyed hospitals (76 percent) used a commercial laundry service. All hospitals in the 0 to 149 bed size used a commercial service. Of the nine responses from those of the 150 to 299 bed size, approximately 89 percent (8 hospitals) used a commercial service, and the remaining 11 percent (1 hospital) was involved in shared services. In the 300 and over bed size hospitals, 50 percent used a commercial service compared to 30 percent shared services and 20 percent inhouse laundry services (see table 4).

#### Laundry Cost Per Pound Processed

When asked, "What is your laundry cost per pound, not including linen costs?", the answers followed a pattern when compared with hospital size. The price paid for processing linen by commercial services in both counties ranged from

TABLE 4

TYPE OF LAUNDRY SERVICE BY SIZE OF HOSPITAL  
IN DADE AND BROWARD COUNTIES

Size	Number of Replies	Inhouse	Shared	Commercial
0-149	6	. . .	. . .	100.0%
150-299	9	. . .	11.2%	88.8%
300-over	10	20.0%	30.0%	50.0%

13.61 cents to 21.30 cents per pound. The hospitals utilizing shared laundry services all indicated paying 19.50 cents per pound of linen processed. The hospitals with inhouse laundry facilities averaged 8.31 cents per pound for the processing of dirty linen. To facilitate a comparison, hospital size, location, and cost per pound processed are delineated in tables 5 and 6.

In Broward County the price paid ranged from 13.61 cents per pound in the small hospital to 21.30 cents paid in the large hospitals using a commercial laundry. Dade County prices per pound ranged from 13.99 to 18.81 cents for hospitals using commercial laundries. It should be noted that both hospitals utilizing an inhouse service were located in Dade County and both of these hospitals were 300 and over beds in size.

TABLE 5

AVERAGE LAUNDRY COST PER POUND BY SIZE OF  
HOSPITAL AND LOCATED IN DADE COUNTY

Size	Inhouse	Shared	Commercial
0-149	. . . .	. . . .	18.81¢/lb
150-299	. . . .	. . . .	15.50¢/lb
300-over	8.31¢/lb	19.50¢/lb	13.99¢/lb

TABLE 6

AVERAGE LAUNDRY COST PER POUND BY SIZE OF  
HOSPITAL AND LOCATED IN BROWARD COUNTY

Size	Inhouse	Shared	Commercial
0-149	. . . .	. . . .	21.30¢/lb
150-299	. . . .	19.50¢/lb	17.10¢/lb
300-over	. . . .	. . . .	13.61¢/lb

Average Pounds of Linen Processed  
Per Month

The pounds of linen processed per month is a highly significant value. Pounds per month divided by patient day enable one to compare total linen per patient day. The



larger the hospital, the greater the pounds of linen processed per patient day (see Figure 1).

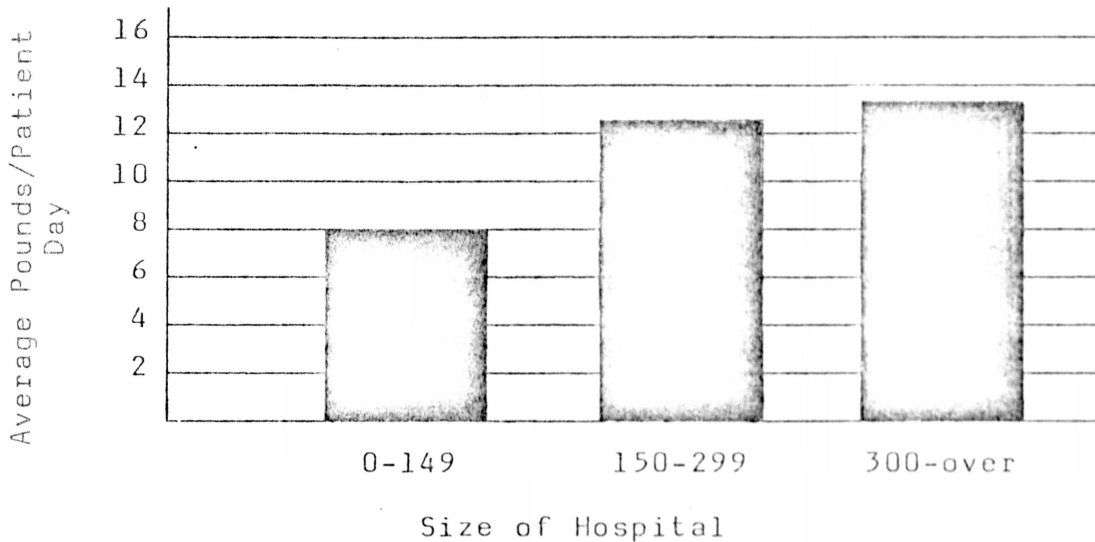


Fig. 1. Average pounds of linen processed per patient day in Dade and Broward County hospitals by size of hospitals.

The average pounds processed in the 0-149 bed hospital was 8.12 pounds per patient day with a range of 5.05 to 10.17 pounds per patient day. The average pounds processed in the 150-299 bed hospital increased to 12.22 pounds per day with a range of 9.82 to 14.16 pounds per patient day. These two totals can be compared to the poundage per patient day in the 300-over bed hospital which was 13.86 pounds with a range of 10.78 to 20.11 pounds per patient day.

### Inhouse Laundry

The remaining questions 6, 7, 8, and 9 were only to be answered if an inhouse laundry was used. The answers to these questions would enable a comparison of inhouse processing costs with commercial and shared processing costs.

### Full-time Equivalent

The two hospitals that used an inhouse laundry reported 34 and 57 full-time equivalent employees being used in their hospital laundry. This information was not used in any other finding in the study.

### Average Laundry Cost Per Pound and Depreciation

The two responses to the question indicated that one included depreciation at a rate of .0418 cents per pound of linen processed and the other excluded depreciation altogether. This information was used as part of the data needed to establish the cost of processing a pound of linen. By using the approximate cost reported in question 9 a cost per pound of linen processed could be determined. This was done by dividing the average life of the equipment into the approximate cost of the building and equipment. This gave the yearly depreciation amount. The yearly depreciation was then divided by the pounds of linen processed per year.

The results of the preceding step will give the cost of depreciation per pound of linen processed.

#### Average Life of Equipment

The average life of the laundry equipment was reported using two differing life expectancies. The first hospital reported that a twenty-year life was used in determining depreciation. The other responding facility used a twenty-five-year life in determining its depreciation. These two responses were used along with responses to question 9 to determine the hospital cost to process a pound of linen. In determining depreciation a like base for life of the equipment must be used. A base of twenty years was used for both hospitals. The formula used in the section above was then used to as part of the data needed to establish the cost of processing a pound of linen.

#### Cost of Laundry Including Building and Equipment

The two hospitals that had an inhouse laundry reported that the approximate cost of their laundry facility was 300,000 dollars and 748,000 dollars. These figures were used in determining their cost of laundry processed by dividing the estimated life of the equipment into its cost to establish a yearly depreciation.

The two hospitals that indicated that an inhouse laundry was used reported the response to question three in two different ways. One response reported using depreciation and the other without depreciation. By using questions 7, 8, and 9, the depreciation cost per pound of laundry was established and added to the cost reported in question three. These two facilities now had a like base in which to compare cost per pound of clean linen processed.

This chapter contains findings and analysis of the questionnaires received. Upon evaluation of this data, conclusions can be drawn.

## CHAPTER V

### SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

#### Summary

The purpose of this study was to determine if the cost of linen processed per pound decreased in inhouse, shared, and commercial hospital laundry services in Dade and Broward Counties of Florida, as the bed size increased. To determine this the study was designed as a survey analysis.

The study was designed to test the following hypotheses:

Hypothesis 1: As the hospital size increases, the cost for laundry per pound will decrease when using an inhouse laundry service for general hospitals.

Hypothesis 2: As the hospital size increases, the cost for laundry per pound will decrease when using a commercial laundry service for general hospitals.

Hypothesis 3: As the hospital size increases, the cost for laundry per pound will decrease when using a shared laundry service for general hospitals.

#### Conclusions

Hypothesis number one was not tested by the data received. Of the twenty-five questionnaires returned, only two indicated the presence of inhouse laundry services. Both of these were from 300-over size hospitals in Dade County.

Hypothesis number two was accepted. Of the 25 questionnaires returned, 19 hospitals used a commercial laundry service. As hospital size increased, commercial costs per average pound of laundry decreased.

Hypothesis number three was rejected. The reason for Hypothesis number three being rejected was that all four of the questionnaires that were returned that indicated that a shared laundry service was used, used the same shared service and they all paid the same rate regardless of size.

#### Recommendations

The following are a few of the recommendations that should be included in any future study:

1. Any future study in the area of laundry and linen should be expanded to include a larger sample of participating hospitals
2. That the study include different types of hospitals
3. That they include disposable linen

## APPENDIXES

## APPENDIX A



## QUESTIONNAIRE

Name of Hospital \_\_\_\_\_

Bed Size \_\_\_\_\_

Average Census \_\_\_\_\_

What is your hospital title? \_\_\_\_\_

1. In which county is your hospital located?
  - A. Dade County \_\_\_\_\_
  - B. Broward County \_\_\_\_\_
2. What type of laundry service does your hospital use?
  - A. Inhouse \_\_\_\_\_
  - B. Shared \_\_\_\_\_
  - C. Commercial Service \_\_\_\_\_
  - D. Other \_\_\_\_\_
3. What is your laundry cost per pound, not including linen cost? \_\_\_\_\_
4. How many pounds of laundry do you use per month?  
\_\_\_\_\_

Answer the following questions ONLY if you have an inhouse laundry.

6. How many full-time equivalent employees do you have working in the laundry?  
\_\_\_\_\_
7. Does your laundry cost per pound include depreciation?
  - A. Yes \_\_\_\_\_
  - B. No \_\_\_\_\_
8. What is the average life of your equipment?
  - A. 10 years \_\_\_\_\_
  - B. 15 years \_\_\_\_\_
  - C. 20 years \_\_\_\_\_
  - D. Other \_\_\_\_\_
9. What is the approximate cost of your laundry including building and equipment?  
\_\_\_\_\_

## APPENDIX B

FORM LETTER

April 15, 1977

Dear Administrator:

Enclosed is a questionnaire concerning laundry facilities that your hospital is presently using.

The information received will be used in preparation of my thesis dealing with the economic comparisons of different size general hospitals in Dade and Broward Counties that use inhouse, shared, or commercial laundries.

All information will be held in strict confidence, and all reportings will only be used as composite figures.

Please use the stamped, return-addressed envelope to return the questionnaire to me no later than April 30, 1977. If you have any questions, please call me collect at (305) 325-5499 in Miami, Florida.

Your cooperation is appreciated.

Sincerely yours,

Roger W. Long

## APPENDIX C

SECOND REQUEST

June 17, 1977

Dear Administrator:

Enclosed is a questionnaire concerning laundry facilities that your hospital is presently using.

The information received will be used in preparation of my thesis dealing with the economic comparisons of different size general hospitals in Dade and Broward Counties that use inhouse, shared, or commercial laundries.

All information will be held in strict confidence, and all reportings will only be used as composite figures.

Please use the stamped, return-addressed envelope to return the questionnaire to me no later than June 30, 1977. If you have any questions, please call me collect at (305) 325-5499 in Miami, Florida.

Your cooperation is appreciated.

Sincerely yours,

Roger W. Long

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