

E-PROCUREMENT IN THE HOSPITAL INDUSTRY:
A FEASIBILITY STUDY

by

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Recent years have seen improvements in the Internet and the ability of individuals to make purchases online. Because of these improvements many companies have looked to the Internet to improve their supply chains. The hospital industry has been one such industry.

In my research I sought to see how materials management officials viewed the incorporation of e-procurement into the procurement process. This was done through the analysis of current literature, but primarily through interviews conducted at four hospitals with people in the materials management departments.

In contrast to my initial thoughts and hypotheses, I found e-procurement in its current state, unlikely to be implemented in today's private hospitals. The changes I feel necessary for e-procurement to be successful in the hospital industry are unlikely to be made because of issues on both the demand and supply sides of the supply chain.

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Chapter I

INTRODUCTION

The estimated value of the medical supply market in 1999 is \$180 billion¹. The average amount a typical hospital spends on supplies in a year has been estimated at \$50 million². While the hospital management is interested in improving quality, it looks to cut costs wherever possible. Doctors, nurses, and other end users of the supplies look to use the best product as soon as possible. The materials management staffs of hospitals must delicately balance the wishes of both the hospital management and end users. This thesis investigates how materials management departments at various hospitals in Oregon are using a new purchasing tool (e-procurement) to continue satisfying the interests of both management and the providers.

In the case studies that follow, I report the results of interviews conducted with materials management departments at four hospitals. As I will discuss later, these hospitals, although confined to Oregon, are representative of most types of hospitals throughout the industry. This thesis is designed to explore the views of a representative, although not scientific sample of individuals working on a day-to-day basis to make purchases. The literature I have reviewed generally recommends the use of e-procurement. However, the move to e-procurement is not progressing as fast as the literature suggests. I felt that the views of those actually involved in the procurement process would provide valuable insight into why this powerful tool was not being implemented at a fast pace rate as suggested by the literature.

¹ Keiser, Barrie. "The Higher Order of E-procurement." Health Management Technology 21.10 (2000): 80-81

² Haugh, Richard. "Revenge of the GPO's." Hospitals and Health Networks 75.4 (2001): 60-64.

Therefore this research was restricted to the following areas of interest. First, what methods do hospitals currently employ to purchase supplies? Second, how extensively has e-procurement been implemented in hospitals? Third, in the eyes of materials management personnel, is e-procurement beneficial to them, and if so, what do these professionals see as impediments to a successful implementation?

Background Information

The process of purchasing supplies, arranging their transportation, receiving the goods, and then warehousing the supplies, is known as procurement³. Companies constantly look at this entire process to lower costs, and ultimately increase profit margins. By finding ways to lower the costs associated with each part of the procurement process, managers can generate better margins. Corporations and healthcare facilities have begun looking at the Internet to find ways to improve supply chain management.

E-procurement has been defined as, “The Internet-enabled purchasing of goods or services by one buyer from many suppliers.”⁴ It allows businesses to implement supply chain management techniques through the use of Internet services. Companies use e-procurement for everything from the purchase of simple everyday supplies, as if they were using a paper catalog, to implementing reverse auctions whereby suppliers can bid on company orders.

One reason companies implement e-procurement models is because they have been presented with benefits that in many cases outweigh the potential costs. This does

³ Pittman, Nanette. When is E-Procurement Successful?. Diss. Boise State U, 2001. 2.

⁴ E-Business Strategies in the Global Marketplace: E-Procurement and Other Challenges. New York: The Conference Board, Inc., 2001. 1.

not mean that the costs are inconsequential. In fact, the downsides to e-procurement can be substantial. Downsides can include:

- High monetary costs associated with the implementation and maintenance of e-catalogues
- Lack of uniformity among a multitude of disparate information systems
- Non-cooperation by suppliers⁵

These costs can be large, and therefore, some organizations have decided either to enter into e-procurement cautiously or not at all. However, many organizations view the potential benefits of e-procurement as too significant to pass up and have proceeded with the implementation of e-procurement models. The potential benefits these companies foresee include:

- Reduced costs in supplies
- Reductions in cycle time (i.e. the time it takes for an order to be completed)
- More organized information
- Tighter control of the supply chain⁶

Companies constantly weigh the costs and benefits associated with e-procurement in their effort to determine the best solution for their organization.

Eli Lilly and Dell Computers are two examples of companies that have implemented e-procurement. While the two organizations have both begun the movement

⁵ E-Business Strategies in the Global Marketplace: E-Procurement and Other Challenges. New York: The Conference Board, Inc., 2001. 16-18.

⁶ Pittman, Nanette. When is E-Procurement Successful?. Diss. Boise State U, 2001. 22.

towards e-procurement, they used in different implementation methods. Eli Lilly has adopted a cautious and selective approach to implementation, while Dell has taken an aggressive attitude towards the adoption of e-procurement. Like Dell, Eli Lilly believes the future lies in e-procurement, however, the Eli Lilly theory on implementation is to begin by laying out a solid foundation. This way, when the company is ready to proceed, the system will be well structured, tested, and not fail. This is exemplified by the following quote:

The company is laying the foundations for e-procurement. One of its most important tasks in Europe is to implement a global ERP system with common business processes and data structures, and to identify more regional suppliers that can meet the company's needs for goods and services at the right price, quality, and service levels.⁷

Eli Lilly has currently invested \$150,000 and plans on spending another \$1,000,000 over the next three years in order to get prepared for e-procurement⁸. In contrast, Dell installed an e-procurement plan in one year, that enables the company to purchase \$15 billion worth of production materials over the Internet⁹. The differences in implementation styles are symbolic of the rest of the major companies in the world. While some are skeptical and cautious, others are enthusiastic about the potential of e-procurement.

Research on e-procurement is quite extensive because many major companies around the world have gone through the decision making process and decided how they plan to proceed. However, the concept of e-procurement in hospitals is much more

⁷ E-Business Strategies in the Global Marketplace: E-Procurement and Other Challenges. New York: The Conference Board, Inc., 2001. 23.

⁸ E-Business Strategies in the Global Marketplace: E-Procurement and Other Challenges. New York: The Conference Board, Inc., 2001. 24.

⁹ E-Business Strategies in the Global Marketplace: E-Procurement and Other Challenges. New York: The Conference Board, Inc., 2001. 29.

rudimentary. A recent study found “U.S. hospitals currently make less than 3% of their purchases online.”¹⁰ Few hospitals are utilizing e-procurement for two reasons: first, some people fail to see the value in e-procurement; second, some hospitals have long-term purchasing contracts making it difficult to change ordering procedures quickly.¹¹

While many hospitals currently do not participate in e-procurement, the future could see a change. As purchasing contracts expire, and new Internet based companies, like Everything4MDs and Global Healthcare Exchange, become more established, hospitals might re-evaluate the use of e-procurement. Large hospitals, in particular, can be expected to use e-procurement more because in these organizations 50% of orders currently contain errors, and the use of e-procurement would substantially reduce transaction costs. For example, the following quote from a recent study is illustrative:

The average administrative cost per purchase order runs between \$75 and \$150. E-procurement can reduce administrative costs significantly, by 60 percent to as much as 95 percent. It can cut costs down to \$30, and sometimes as low as \$6 per order.¹²

E-procurement is a relatively new phenomenon that companies are beginning to research and implement. Hospitals are still vague and unsure on how to implement this new idea. But more and more hospitals are beginning to investigate how they might benefit from adopting e-procurement. E-procurement offers hospitals the opportunity to drastically cut transaction costs, as well as reduce the number of errors that currently mar the supply chain. From trends in other industries, it can be inferred that the hospital industry will likely take part in this trend as well. Hospitals constantly order supplies, and as in other industries, hospitals are constantly looking at opportunities to cut costs. If

¹⁰ Dash, Julekha. “Health Care Slowly Adopting E-Procurement.” Computerworld. 34.35 (2000): 8.

¹¹ Dash, Julekha. “Health Care Slowly Adopting E-Procurement.” Computerworld. 34.35 (2000): 8.

it can help cut costs, as it has in other industries, then hospitals will look towards the implementation of e-procurement.

¹² Perez, Ken, and David Mayer. "E-procurement for Hospitals... and for Physician Practices." Health Management Technology 21.8 (2000): 28.

Chapter II

RESEARCH AND METHODOLOGY

While the majority of literature in current journals primarily deals with the startup and benefits to entering into e-procurement, I decided to use case studies to investigate the actual implementation of e-procurement in the hospital industry to date, and then explore the future ramifications for e-procurement in this industry. I decided to limit my interviews to only those people involved in the purchasing departments (i.e. materials management). Specifically, I decided to limit my inquiries to those people who had experience in dealing with e-procurement at their respective hospital. In addition to limiting the type of personnel being interviewed, I excluded from my inquiry purchases pertaining to large capital items, drug supplies, and food supplies. While these categories comprise large portions of hospital budgets, different departments (i.e., the pharmacy or food management) normally control the procurement of these items. A more widespread exploration would have sacrificed the quality and timely completion of the research project. As far as capital expenditures are concerned, their total value usually requires extensive investigation and significant consideration by top management before a purchase decision is made. Also, due to the more complex nature of drug purchases, which might involve a lot of external entities, I chose not to study these types of purchases. Finally, food supplies were also excluded, as they were subject existing long-term contracts. In compliance with the Subjects Committee, all personnel that were interviewed and hospitals in the study will remain anonymous.

Case Studies vs. Surveys

When beginning the research process, I was presented with two options: a limited but representative number of case studies or a survey of a large number of hospitals. Surveys would allow me to sample a large number of hospitals and receive a better overview of the healthcare industry. However, by nature these are expensive to conduct and lack the ability to isolate the details behind broad trends that are discovered. Apart from the cost limitation, case studies involving people from materials management departments offer the best opportunity to receive quality data from the personnel directly involved with e-procurement. The case studies allowed material management practitioners to discuss what actually happens in the field. Moreover, it gave me an understanding of their thoughts on the future of e-procurement. According to the literature, surveys of the field had already discovered that the actual use of e-procurement was limited. The case studies held the potential to explain why this was happening.

The people I interviewed were highly knowledgeable in the field. Each person had years of experience. This experience base enabled them to not only discuss the purchasing practices and involvement in e-procurement in their own hospital, but also offer their thoughts on the trends within the industry. Each interviewee understood the current trends of the industry. The buyers knew where to buy and the directors who dealt with suppliers were aware of current trends that affected their hospital.

The Hospitals

In determining the hospitals to be interviewed, I wanted to make sure the hospitals were different from one another were representative of the industry. It was imperative to use various types of hospitals, because this variety offered a better, more balanced view

of the industry. To accomplish this purpose, I chose a small non-profit community hospital, two larger hospitals (one non-profit and the other for profit), and a federal hospital (See Appendix A for a summary of these hospitals). Hospital A manages only 114 beds and had 35,000 Emergency Department visits in 2001. Hospital B contains 432 beds and had over 95,000 visits to its Emergency Department. Hospital C has nearly 420 beds and had just under 90,000 visits to the Emergency Department. Hospital D, meanwhile, was a Veteran's Home with outpatient clinics, but not an Emergency Department. While Hospitals B and C were similar in size, they had different business structures. One, Hospital B, belongs to a system of non-profit hospitals throughout the Pacific Northwest, while, Hospital C operates as a private for-profit operation.

Once the type of hospital needed for the investigation was determined, calls were made to various hospitals. The hospitals finally chosen to participate in the case study were chosen because of their willingness to cooperate and participate, as well as their distinction from the other hospitals already willing to take part in the investigation. Simply calling the Materials Management Offices and discussing the situation began preliminary investigations. The face-to-face interview followed this initial discussion.

The Interview

An interview protocol with a flexible outline of questions was designed (see Appendix B). This method allowed for the standardization of questions and issues across all cases that were studied. At the same time, respondents were given the flexibility to introduce ad-hoc comments and provide details on related issues. In accordance with the design of the study, the people interviewed were selected because of their involvement in the purchasing process, as well as their knowledge of e-procurement. These individuals

were able to offer a candid view into how purchasing currently takes place, and how they saw e-procurement affecting the hospital industry. The interviews offered the practitioners in the field a chance to discuss what actually takes place, as opposed to the theory of what should be taking place or what might happen in the future.

Persons on the receiving end of the purchases were not interviewed. While efficiency and the price of goods do affect them, this report was designed to concentrate on the views of the materials management departments, including the future of e-procurement. While quality is imperative in the hospital industry, for the purpose of this paper, I anticipate that the ultimate user in the medical field (the doctor or nurse) will demand high quality. As far as price is concerned, I assumed that the purchasing professional would be aware of the cost in determining the utility of e-procurement.

Despite receiving detailed information from Global Healthcare Exchange, I also decided not to talk with suppliers. While the input from suppliers would have provided a varied perspective, it would have resulted in substantial increase in the costs and time required to complete the research project. Moreover, one of my main research objectives was to examine why hospitals were not implementing e-procurement. Obviously, vendor companies in the e-procurement business are biased in favor of this new technology. However the research question is why don't hospitals accept this technology despite the claims of benefits made by the vendor companies¹³.

E-Procurement Items

When one thinks of the items that a hospital purchases, the following things are likely to come to mind: drugs, sutures, bandages, food, x-ray material. All these things

¹³ Please see Appendix A for a copy of sample questions

are indeed purchased by a hospital. However, as previously noted, this study investigated the use of e-procurement for the purchase of general day-to-day medical items such as sutures, bandages, and x-ray material rather than large capital expenditures, drugs, or food. This is because these items (drugs, food, and large capital expenditure items) usually have different processes and in most instances are not directly purchased by materials management departments

According to the Director of Materials Management at Hospital C, drug purchases, and the pharmaceutical industry in particular, are much more advanced in their techniques than the general hospital industry. Unlike the industry in this study, pharmaceuticals have a detailed bar coding system, along with uniform quantities that are unavailable in the general hospital industry. Along with these issues, the pharmacy rather than the Materials Management Office typically handled drugs and pharmaceuticals.

As for large capital expenditures, I was informed that these items were not purchased: i) as frequently as normal items, and ii) as quickly as other items. Typically when an item falls into this category (i.e. a new x-ray machine), detailed investigations and deliberations go into the purchase process. This is not to suggest that the purchasing done on a day-to-day basis is not detailed, but the investigations for a large purchase item is far more in-depth than for the purchase of smaller items. Secondly, frequently a committee decides on whether the purchase should be made, and if so, with whom the purchase should be made. Because of these two factors, e-procurement was not investigated with respect to large capital expenditures. Speed, which is one of the main advantages of e-procurement is not at issue, nor is this issue of frequent purchases.

Therefore, the general day-to-day item is the main focus of e-procurement in this study.

Chapter III

INDIVIDUAL HOSPITAL CASE STUDIES

Obviously, individual hospitals each have their own processes for purchasing items. The complexity of the process is usually determined by the size of the hospital and the amount of money that the hospital is willing to invest in their purchasing department. The three hospitals investigated are named A, B, C and D in order to ensure confidentiality. All hospitals investigated shared a similar philosophy. In general, when an individual department needs supplies it notifies the purchasing (or materials management) department and then this department orders those supplies from a select list of suppliers. The process for each hospital is described in the following separate sections.

The hospitals investigated participated in e-procurement on a very limited basis. However, this is no different from the pattern in the rest of the industry, where online purchasing has been used sparingly. A recent quote is illustrative:

In 1999, total medical equipment procurement over the Internet was valued at \$114 million, representing only 2 percent of the overall market, with only 32 percent of hospitals currently registered with an online B2B exchange.¹⁴

Despite limited usage in the private hospitals, in all the interviews the respondents had opinions on the benefits and problems of e-procurement. They also provided their thoughts on how e-procurement could be improved and therefore become better adapted for use within their respective hospitals.

Hospital A¹⁵

Hospital A is a small hospital in a small community, which is close to a larger city that has larger hospitals. To this day, Hospital A fights to stay open. At Hospital A, I talked with both the Director of Materials Management as well as a buyer in the department. Each individual had several years of experience in the field, with the Director being in his position for at least the last couple of years, and the buyer had been with the hospital for over seven years. This buyer was more focused on using the Internet and e-procurement than anyone else in the office. Hospital A began using the Internet about seven years ago, and today it uses the Internet to do their purchasing more than the other larger hospitals I investigated.

At Hospital A, the normal process for purchasing supplies begins with a member of the department sending an e-mail to the Materials Management Department (MMD) requesting an item to be purchased. At this point the MMD decides whether to order the item through the Internet or by sending a purchase order through the desktop fax machine. If the MMD is able to use the Internet, then the office needs to create a purchase order in order to pay for the item. On an average, this department makes fifteen to twenty purchase orders per day and of these, three to four orders will be done over the Internet.

Hospital A discussed the problems and benefits that they were having when using the fax and Internet methods. Speed was the most important benefit. By using the

¹⁴ Towne, Jennifer. "B2B Takes a Shape: New report highlights e-procurement industry." MedCenterCity.com. Internet. 23 Apr. 2002.

¹⁵ For general information on each of these hospitals see Appendix B

Internet, the buyer stated that it was much quicker to process an order. All that is necessary is to type in the order and push the send button. There is a duplication of effort by using the Internet, because after the purchase is made on the Internet a purchase order must also be generated. The information contained in the purchase order was the same information that was entered for the Internet purchase. In contrast, using the fax machine presents multiple problems for Hospital A. First, when using the fax the buyer making the purchase has to sit around and wait for a response from the other end, thus creating down time. Secondly, and more importantly, when ordering through the fax machine the orders from the various departments are frequently batched and sent together. Therefore, when the Hospital receives their order, the MMD has to go through the order and redistribute the supplies to the proper department. However, by using the Internet, the MMD can control how the order is processed, and therefore creating less confusion when the order arrives.

In general, the buyer and director saw problems in their use of the Internet. The greatest problem they saw was the lack of a central vendor site. Rather than being able to visit one site with multiple companies, i.e., a “Fred Meyer” type-site that offered different brands of the same item, the hospital had to go to numerous vendor websites in order to make purchases. Hospital A feels it would be beneficial to have a website with lots of pricing information, something which was currently unavailable. Hospital A would also like a way to integrate the vast amount of data in the hospital system with that of the vendor to ensure seamless integration. Currently, Hospital A has a lot of money and information tied up in their network system and have trouble using it for online purchasing.

Although Hospital A uses the Internet and has found ways to use it productively, they still use traditional methods of a fax machine for their purchase orders. They see benefits to the Internet, but have also found some drawbacks and feel that with suitable changes, e-procurement in the hospital industry could become much more productive.

Hospital B

Hospital B is a larger hospital with nearly 450 beds, and has considerably more purchasing power and negotiating power with suppliers compared to Hospital A. Therefore, Hospital B uses more of a traditional approach to purchasing supplies (i.e. they negotiate prices with suppliers ahead of time, and make purchases accordingly). In talking with Hospital B, I interviewed a buyer who has worked with Hospital B for the last couple of years. This particular buyer also does more purchasing through the Internet than anyone else in the office (about 25% of all her purchases are done through the Internet).

The purchasing process of Hospital B is much more modernized than that of Hospital A. At B, each department is connected to the Orion ordering system (a computer program), and when the department needs a product they electronically send a purchase order to the Materials Management Department (MMD). This purchase order appears in a list format on each buyer's computer system. The buyer checks the list about five times a day, (which is the typical average for the office) and then chooses a purchase order from the list and completes the order form. If the buyer is not using the Internet, then the order is faxed to the supplier. If the buyer does want to use the Internet then the buyer must either use an American Express or VISA card to make the purchase. At Hospital B, each buyer has an individual American Express card as well as the ability

to use the group VISA card. Purchases made online then necessitate the printing and saving of the receipt for tax purposes.

This buyer stated that although she uses the Internet with a good deal of frequency (compared to others in her office), the hospital and her department did not use the Internet that frequently. However, many of the clinics do their own online purchasing because they are off site and it is much easier for these off site clinics to have supplies directly shipped to them.

Finally, this buyer talked about how it can often be more expensive for Hospital B to use online purchasing than to use faxed purchase orders. This comes in contrast to the belief that online purchasing and e-procurement can save money. According to the buyer, a lot of the companies accepting purchase orders have their own freight trucks, thereby minimizing the cost of shipping. However, the online companies do not have their own trucks so they must use UPS, Federal Express, or another shipping company, therefore making shipping costs much more expensive according to the buyer. However, this pattern might be specific only to this hospital. Finally, with the large companies the hospital can negotiate prices, but with the online companies there is no negotiation, at least not until the large vendor companies get into the game.

Like many hospitals, Hospital B does participate in e-procurement. However, they have not found the advantage of lower costs to be widespread enough to motivate them to do a majority of their purchases online. Rather, they have found it to be cheaper to negotiate prices with larger traditional companies and stick with purchasing via faxed orders.

Hospital C

Like Hospital B, Hospital C is a fairly large hospital with more than 400 beds and has the ability to negotiate with suppliers to help determine prices ahead of time. At Hospital C, I talked with the Director of Material Management who had nearly thirty years of experience in the field. He was genuinely disappointed with the status of e-procurement in the hospital industry. Because of his disappointment with the status of e-procurement, at his Materials Management Office they deal mainly with vendors that they can negotiate with and with whom they have a good working relationship.

At Hospital C, they have a computer system similar to Orion that they use to order supplies. At Hospital C, if an individual department needs a product, a member of the department fills in the template on their computer, and then electronically send this template to the buyers in the Materials Management Department. Once the buyers receive the completed purchase order, they automatically fax the order to the vendors. In the case of two vendors, Hospital C uses what is called electronic data interchange (EDI). EDI is defined as follows:

EDI is an automated and paperless means of transmitting a computer generated purchase order directly into a contractor's computer. That computer generates the order, issues an electronic acknowledgment of the order, and when shipped, issues buyers to submit purchase orders closer to the date that supplies and services are required.¹⁶

The whole purchasing process can take only minutes with the auto fax method and even less by using EDI.

Hospital C has been using EDI for the last six or seven years and enjoys the reports that the program creates. In particular, they like the ability of EDI to deal with

¹⁶ United States. Dept. of Veterans Affairs. VA Acquisition and Distribution: An Integrated Logistics Strategy. Washington: GPO, 1997. 61.

any discrepancies between the vendor and the hospital. It also enjoys the benefits of more direct interaction with the vendor through the use of EDI. However, the problem with EDI is that it is only available from the large vendors. It can also be very expensive to start up, and it generates e-bills rather than the normal paper bills.

In discussing the online procurement of hospital supplies, the Director complained about the lack of uniformity throughout the hospital supply industry. Without standardization of products and units of measures, he feels that it will be hard for e-procurement to take off in the hospital industry. He also said that although the sites with only one product do not have excess costs or fees, the larger vendors who could make the Internet more manageable would not cooperate, and charge extra fees. Finally, he stated that the brokers offering multiple goods (the one stop shopping Hospital A was looking for) are being purchased by various purchasing groups, and then these purchasing groups are forcing the hospitals in those groups to use these brokers if they want to use Internet suppliers. The director said that by doing this the individual hospitals lose the ability to explore other procurement options.

Hospital C appears to be the least confident about e-procurement. However, through their use of electronic data interchange they are at least trying to use modern technology to facilitate their purchasing processes.

Hospital D

Hospital D is a federal hospital in a small town in Southern Oregon. Rather than a normal inpatient hospital with an emergency room, Hospital D is a facility centered on the rehabilitation of individuals with addiction problems. Hospital D maintains clinics and offers medical care, but unlike the first three hospitals, normal medical care is not the

primary purpose of the facility. The Chief of Acquisition and Material Management Service, who has twenty-seven years of experience in acquisition, was my primary source of information for this project. Although he had knowledge on the private sector, his experience and expertise was in the procurement process for the federal government. His comments were centered on how his hospital uses the Internet for acquisitions.

The entire purchasing process for Hospital D begins with a department identifying a need for a new product and detailing this need with as much specification as possible. The department submits the need electronically to the A&MMS (Acquisition and Materials Management Services) office. A purchasing agent then goes into the Federal Supply Schedule to find a list of all contractors of the product, looks at the vendors, and then the specific contracts negotiated (all of which is done online). If the pricing agent finds a contract matching the specifications of the user, then the order is placed. A bill is then sent to financing and fiscal for approval with the use of electronic signatures. According to the chief of A&MMS in “a perfect world, and a perfect match” this would be the process used. However, if the Federal Supply Schedule has not negotiated a contract, then Hospital D is allowed to go to the open market, and negotiate for the best deal possible. When the option of using the open market is exercised, the office uses Yahoo and other online sources to find sources that provide the product that the hospital is looking for.

Because Hospital D is a federal hospital, there was a major difference between the procurement processes used by D and the private hospitals that were discussed earlier. Hospital D, and other federal hospitals, must use the Federal Supply Schedules when attempting to purchase a good. However, if certain things occur (like the product they

wish to purchase deviates in some reasonable form from the product offered through the Federal Supply Schedule), then the purchasing agent is allowed to stray from the previously negotiated contracts. The Federal Supply Schedule is a list of products to be used by federal hospitals because the federal government has negotiated the price for these products. This is in contrast to the private sector, which is free to look around in the open market to find a product suitable for their specific needs, whereas Hospital D must go directly to the contracted products.

The interviewee at Hospital D liked having the Internet in the purchasing department. One of the greatest benefits he has seen was the amount of information that can currently be accessed for free. For example, before 1995, Hospital D had to purchase the Thomas registry, a book with “every known product manufactured in the world.” The cost was about \$10,000 a year to stay updated with current trends. However, Hospital D has yet to update the registry since 1995 as they have the updated information available through the use of the Internet.

Chapter IV

SYNTHESIS OF THE CASES AND FUTURE TRENDS

Synthesis of the Cases

The analyses of the four cases that were studied revealed several interesting trends. These trends are discussed here.

Negotiating Prices

First and foremost, the ability of hospitals to negotiate prices with vendors takes away many of the benefits of shopping through the Internet. The current status of online hospital suppliers is that they offer a price, which hospitals can either take or leave. The inability to negotiate ultimately hurts hospitals. Usually by negotiating large orders or contracts, a hospital can eliminate many unnecessary fees that are normally present.

Along these lines, shipping costs are currently cheaper with the present vendors. Because these vendors offer cheaper shipping, the overall price can still be less than the prices obtained through the Internet. Whereas an Internet site may offer a lower price up front, the actual total price of a traditional vendor is usually lower than that obtained through the Internet site.

Based on my research, smaller hospitals and clinics might be able to benefit from e-procurement, especially with supplies such as small office equipment. While the larger hospitals are able to better negotiate contracts with vendors, it appears to me that smaller hospitals and clinics are unable to do so. Especially for smaller items, like pens and paper, which can be purchased at low margins, the Internet can be beneficial for smaller

hospitals. Therefore, these smaller buyers are able to benefit from the lower costs presented to them over the Internet, because their shipping costs, or fees, are similar whether they use the Internet or the typical negotiated contract.

The Lack of Large Suppliers

The large suppliers of hospital products currently do not participate in the e-procurement arena, and until they participate, hospitals will not see the benefits of e-procurement as they have been realized in other industries. When small stores were the only place in towns to buy items, they dictated the prices. However, as larger stores (like Wal-Mart and Fred Meyer) enter the town, prices eventually went down for the end user. The same holds true in e-procurement for the hospital industry. While companies that currently utilize the Internet attain a competitive advantage over the large vendors that offer low prices, the lowest prices, and associated benefits, will not materialize until the large vendors bring their economies of scale and other benefits to the Internet.

The reasons for large vendors entering the e-procurement arena are minimal. The costs to update, get ready, and become competitive are expensive for any company. Thus, if a vendor does decide to get involved in e-procurement, it will ultimately pass the costs on to the hospitals, "Each hospital that requests a GHX connection pays the exchange about \$10,000 for the installation work"¹⁷. Costs are passed on to the hospital, whether it is through a subscription or installation fee, or simple transaction fees. Also, the vendors are already sought by the hospitals because they carry a wide product line and can offer better prices. Therefore, for the vendor to become integrated into e-procurement is not practical for them.

Without the large vendors getting involved in e-procurement, the ability for long-term success is limited. Smaller companies may find a niche to fill on the Internet, but e-procurement in the hospital industry will not succeed at a rate seen in other industries.

Standardization Problems

In its current state, the hospital industry lacks the standardization seen in many other industries. “Multiple standards in the industry are already causing confusion and increasing purchasing cost, which undermines the cost savings previously described.”¹⁸ For example, in the pharmaceutical industry each drug has a standard bar code, making it easy to track not only sales, but also compare prices throughout the industry. The pharmaceutical industry has been able to standardize their products for years. However, with one exception, the hospital industry has not been able to do this. Vendors are unwilling to cooperate with hospitals, and hospitals are unable to create a compatible system without the help of the vendors.

The standardization problem goes beyond bar codes or identification numbers; the industry even lacks common measurement sizes. Without this standardization, it will be difficult for e-procurement to perform at its best. The Global Healthcare Exchange (GHX) press kit even considers this to be a large problem facing the industry as can be seen in the following quote:

¹⁷ Werner, Curt. “The end of e-commerce... or the beginning?” Healthcare Purchasing News Online. January 2001.

¹⁸ Ageshin, Evgeniy. “E-Procurement at Work: A Case Study.” Production and Inventory Management Journal 42.1 (2001): 48-53.

The lack of universal product numbers (UPNs), uniform units of measure and standard hospital identification numbers (HIN) to the recipient will hamper achieving maximum efficiency in this area [contract management and problem resolution].¹⁹

If the industry were able to create standards that could be widely followed, then there would be a greater possibility of success for e-procurement. In order for this standardization to occur, something similar to the actions taken by Ascension Health System would have to become wide spread across the nation. Ascension was considering using e-procurement purchasing methods in their hospitals, rather than continuing the use of group purchasing organizations. Consistent with the perceptions of respondents in the case studies, standardization was a big problem. Ascension was forced to either standardize the hospital's system, thereby forcing all other hospitals to learn a new system, or create software that could understand everyone's jargon. This trend is exemplified in the following quote:

The lack of industry standards for catalogs led Ascension to develop the product (the software) in-house. "We just were not prepared to wait for the development of industrywide standards for a global catalog. So we bit the bullet and took the time and the effort to develop it."²⁰

However, this is just one health system in an industry where there are numerous health systems. Real progress will only be seen once the suppliers and purchasers can agree on a standardized system. The Materials Management Director of Hospital C does not feel the vendors will cooperate, because he has seen how far behind the field currently is compared to other fields. This feeling is similar to a recent study that noted, "Manufacturers do not have an incentive to develop and use UPN's."²¹ He also felt that

¹⁹ Global Healthcare Exchange. "GHX Press Kit." 2 Nov. 2001.

²⁰ "Hospital Group Trades GPO for E-procurement System." *Purchasing* 130.23 (2001): S12-S14.

²¹ United States. Dept. of Veterans Affairs. *VA Acquisition and Distribution: An Integrated Logistics Strategy*. Washington: GPO, 1997. 20.

without the cooperation of the vendors, it would be next to impossible for industry wide standards to be created.

Lack of Communication

The interviews that I conducted with hospitals and suppliers showed that while the hospitals have a lot of information on their own, the two parties struggle to communicate with each other. Hospital A went so far as to state that each party involved can have different prices for the same item being purchased. For example, the hospital can have a price on their purchase order, the vendor can have another price, and the manufacturer another, with each party claiming they have the right price. On an issue as simple as price, the various parties have trouble with their communication. There is much more information that could be used to further the benefits on either side.

Hospitals have information regarding their history of purchases, when they normally need something, and how much they normally purchase. Vendors have information on seasonal availability, and other product information. By providing the various sides with all of the information, both sides will be able to benefit, as can be seen in the following quote:

The greatest e-commerce potential will be realized when all transactions can be transmitted electronically to the distributor and fully integrated into existing provider systems. Currently, the inability of providers' legacy systems to integrate electronic information is the weak point in the supply chain. Without supply-chain-wide integration, e-commerce benefits are limited.²²

The problem with "integration's" that GHX is asserting can be traced to the source of the integrator. If the individual hospitals institute them, they are going to be costly and not beneficial. If the vendors institute them, the vendor will have to endure the

costs. It would be impractical to absorb the vendors to accrue the costs; as they are likely to pass on the costs to the hospital. Therefore, in any event, the hospitals will assume the responsibility of these costs.

Data Storage

One major benefit of e-procurement that is frequently cited, is the data storage that e-procurement would facilitate. In theory, e-procurement allows users to not only store large amounts of data, but also process this data quickly. Rather than searching through mounds of paper, the computer can quickly organize information, notice any errors, and generally help this process. This can be seen in the following quote:

E-procurement will enable companies to automatically generate accurate data about what they spend and with whom. Some companies have not previously had access to this level of detail. With this information, they may be able to negotiate further volume discounts with key suppliers.²³

However, in practice, most hospitals already have prepared their purchasing departments for the electronic age, and this advantage does not live up to its capability in the billing area.

Today's hospitals use electronic faxes or fill out forms on the computer in order to keep ordering data on the computer. Rather than keeping large amounts of paper receipts, hospitals already computerize their data. Hospital B discussed how they have to print out a record of any online purchase, and keep the paper form for tax reasons. Therefore, in some cases the Internet adds to the paper mess, and the benefit of data storage actually becomes a weakness.

²² Global Healthcare Exchange. "GHX Press Kit." 2 Nov. 2001.

²³ E-Business Strategies in the Global Marketplace: E-Procurement and Other Challenges. New York: The Conference Board, Inc., 2001. 14.

Finally, today's hospitals already realize the benefit of data storage, even without the widespread usage of e-procurement.

Future Trends

After looking at the individual case studies and the literature in the field, my analysis of e-procurement in the hospital industry revealed that the possibility of seeing extensive use of the Internet in the private sector to make purchases is highly unlikely in the near future, despite the claims of the vendors in the e-procurement industry.

In the year 2000, a research group analyzed where e-procurement would be in the upcoming years. By 2001, the amount of online purchasing should have risen to "25 percent, making the e-procurement a fast-growing industry. By 2003, hospital procurement professionals indicated that they expected to perform 64 percent of their purchasing (online)"²⁵. Despite the bold predictions, e-procurement has not grown in the marketplace I investigated. The medical supply market was worth an estimated \$180 billion in 2000²⁶. However, online purchasing in the year 2001 was only \$10 billion²⁷. Using the 2000 estimation for total market worth (this value should only rise in 2001), this means online purchasing took place only 5.5% of the time in 2001, far off the anticipated 25% speculated by some.

Despite the promises of improved efficiency and possible cost savings that was supposed to come through e-procurement, hospitals are not getting involved. "Internet purchasing is not very common among health facility and environmental services

²⁵ Towne, Jennifer. "B2B Takes a Shape: New report highlights e-procurement industry." MedCenterCity.com. http://www.medcentercity.com/default_2home.asp?pageID=3. 23 Apr. 2002.

²⁶ Keiser, Barrie. "The Higher Order of E-procurement." *Health Management Technology* 21.10 (2000): 80-81.

²⁷ Please see Chart 1 for this data

managers.”²⁸ Although many online firms are analyzing the hospital industry, it has been a struggle to acclimate the private sector to the idea of e-procurement. This trend can be seen in the following quote:

Loads of electronic-procurement firms are targeting health care. But despite the promise of improved efficiency, few hospitals want to struggle with the integration burden, and others say they doubt there will be any savings in the new approach.²⁹

This is especially evident and true for the larger hospitals, which can negotiate prices and better deals for themselves with the current methods. Although many companies, like Global Healthcare Exchange (GHX), believe that they can help hospitals save money, there are many obstacles preventing the widespread usage of e-procurement.

1. Large hospitals can negotiate prices with suppliers and create better prices.
2. Unless the large suppliers get into the game, hospitals will continue to want to use these suppliers, because of what they offer. Because of the high start-up costs associated with getting into e-procurement, it is unlikely they will get into this market.
3. Without product standardization, the efficiency hoped to be created will not be generated.
4. The inability of hospitals and vendors to share information with one another will hamper the widespread diffusion of e-procurement’s ability to succeed.
5. The benefit of data storage is already computerized through current purchasing methods, and therefore this advantage is no longer as large as previously imagined.

²⁸ Sandrick, Karen. “E-commerce is here.” Health Facilities Management 14:4 (2000): 16-19.

²⁹ Dash, Julekha. “Health Care Slowly Adopting E-Procurement.” Computerworld. 34.35 (2000): 8.

Chapter V

RECOMMENDATIONS FOR THE FUTURE

Although, I do not currently see a bright a future for e-procurement in the hospital industry, as assumed initially, there are ways in which the industry could benefit from the usage of the Internet. My recommendations for the future of e-procurement are as follows:

1. Large hospitals should continue with their current processes, by negotiating prices with large vendors whenever possible, and using the Internet for investigating prices or for purchasing smaller items.
2. Small hospitals should use the Internet at a higher rate, especially if they are able to find sites that offer multiple products.
3. Suppliers using the Internet as their primary vending site should enter the niche market of the small hospitals, and/or hospital clinics, and market to this group.
4. The creation of an information gathering web site that offers information like various prices, sizes, and the actual appearance of an item, would be a valuable service to hospitals.

Large Hospitals

In its current state, e-procurement is not a feasible or beneficial option for large hospitals, beyond information gathering and purchasing smaller items. This is because of the ability of the large hospitals to negotiate and set prices off line. This is a benefit far greater than what e-procurement can currently offer. Although some websites may be

able to offer a product at a better price, or offer a product otherwise unavailable, the large hospital will be able to better conduct business with a reliance on current practices.

Small Hospitals

Because smaller hospitals have less ability to negotiate prices, the opportunity for using e-procurement for smaller hospitals exists. By investigating opportunities offered by the Internet, these hospitals can find better prices and suppliers than normally offered to them. The process is also much easier to implement for the smaller organizations as can be seen in the following quote:

The process is easier. Office staff need to set up an account the e-vendor, provide a DEA number, and access the e-procurement site with an Internet connection. Ordering can begin immediately, with payment by credit card or from an ongoing account statement.³⁰

The ease of the system as well as the lack of negotiating power in the traditional marketplace means that e-procurement offers benefits to smaller hospitals that the larger hospitals would not see. Also, if larger suppliers do enter the Internet, the smaller hospitals will be able to find much better prices.

Attract the Smaller Clients

In its current state, Internet providers have trouble competing with the large suppliers that are not using the Internet. However, the advantage that the large suppliers have is the ability to negotiate with the hospitals. If the small hospitals are not enjoying the same benefits as the large hospitals, there could be a market for the vendors that cater to the smaller hospitals over the Internet. Although the profits would not be as high

³⁰ Carabello, Laura. "E-Procurement Can Reduce Expenses." Healthcare Financial Management 55.12 (2001): 82-83.

initially, this offers a niche market to enter and fill, and eventually could be expanded to attract a larger clientele.

Sell Information

In the past, hospitals of all sizes spent thousands of dollars a year on purchasing manuals that offer information concerning the price and details of a particular product. However, these manuals are becoming increasingly less common because hospitals are able to go online to look at products on the Internet. This can be seen in the following quote:

Eisenhardt (the buyer) believes that online buying has helped him make better purchasing decisions. He can run an online search for a one-time purchase, such as a garbage can that complies with the fire code, and with a standard search engine provided by most Internet services and pull up dozens—sometimes hundreds or thousands of vendors. Then he can comparison-shop in a fraction of the time standard off-line vendors would take.³¹

Although they will likely not buy the product over the Internet, hospitals will spend the time researching the details about a product on the Internet.

If there were a site that offered this information, it could be valuable to hospitals of all sizes. The site would not have to sell any of the items, but rather provide the information. To make a profit, the site would sell subscriptions to the site. These would be at a determined price based on what they need to cover costs, and what the market would pay.

Many hospitals are using the Internet as an information resource already. Therefore, there would appear to be a market for this information if it were provided in an easily accessible form.

³¹ Sandrick, Karen. "E-commerce is here." Health Facilities Management 14:4 (2000): 16-19.

Chapter VI

CONCLUSION

At the beginning of this project I thought e-procurement would definitely be beneficial to the hospital industry. I envisioned lower costs, higher quality, and better information for all parties involved. However, to my surprise, I found this was not the case. Hospitals have processes in place that appear to be effective. In my estimation e-procurement does not have the future that I previously assumed. However, although the implementation of e-procurement may not be widespread, I do feel there is a place in the smaller hospitals for Internet purchasing, and the Internet could offer a place to sell the information that are sought after by hospitals.

Appendix A

Hospital A Fiscal Year 2001

- Not for profit hospital
- 114 acute care beds
- Outpatient visits- 181,204
- Emergency Department visits- 35,000
- Surgeries- 5,600
- Delivered babies- 1137
- Supported 391 employees
 - This includes 54 allied health providers (nurse practitioners, physicians assistants, psychologists, etc.)
- Over 50 years old

Hospital B Fiscal Year 2001

- 432 beds
- 543,410 outpatient visits
- 3810 full and part-time employees
- Emergency Department/Urgent Care visits- over 95,000
- Surgeries- close to 18,000
 - 943 open heart operations
- Inpatient service days- 93,539
- Nearly 70 years old

Hospital C Fiscal Year 2000

- 419 acute care beds
- 35 skilled care beds
- 2700 full and part-time employees
- 390 physicians
- 7 outside clinics
- Admissions- 17,333
- Emergency Department/Urgent Care visits- 89,744
- Births- 3,456
- Surgeries (58.8% outpatient)- 14,225
- Over 100 years old

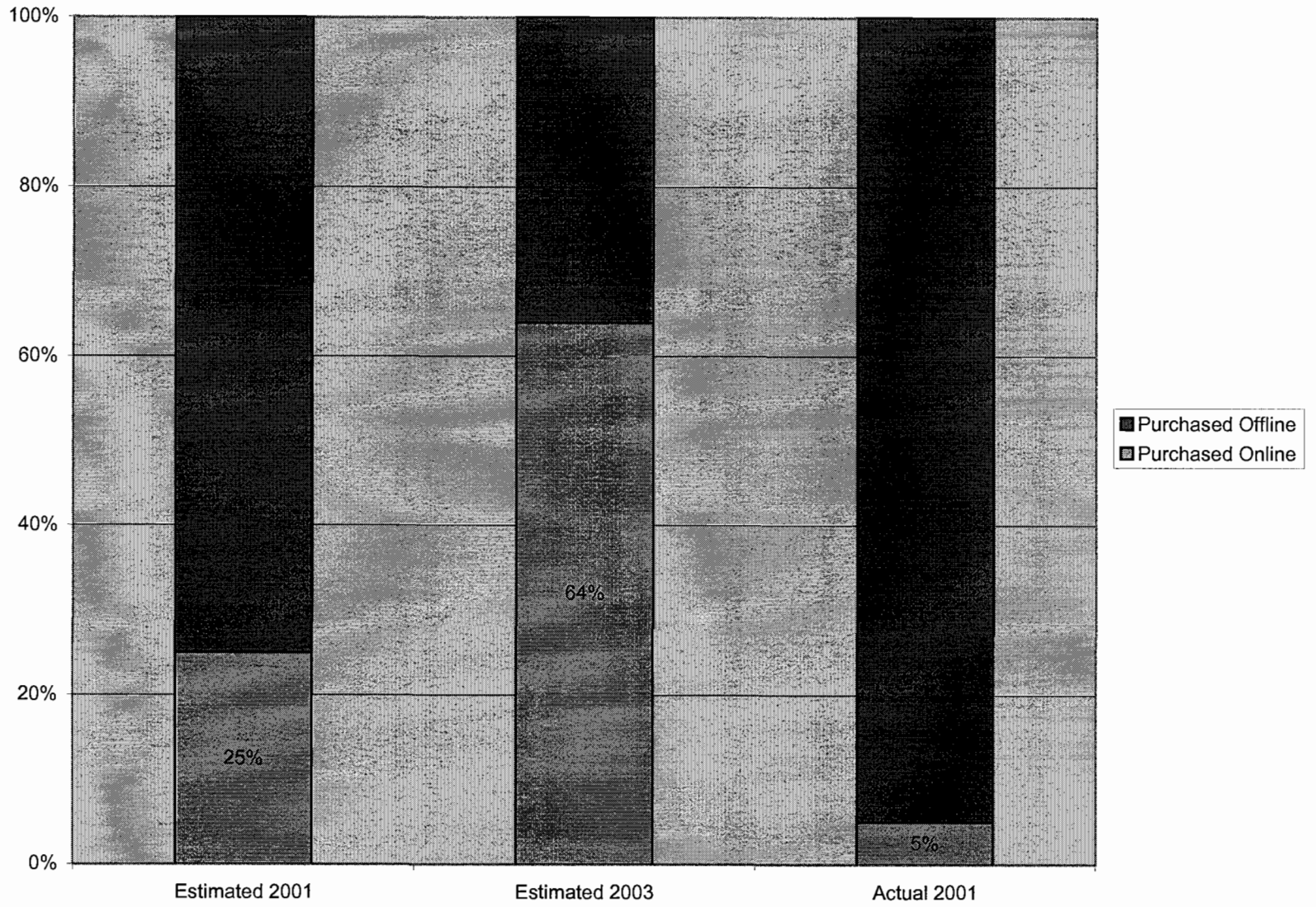
Hospital D Fiscal Year 2000

- 917 beds
- 23,428 visits
- Variety of patient wellness clinics
- Provide care for over 5,000 Veterans
- 100 Bed Substance Abuse Center
- 31 Bed Infirmary
- In operation since after WWII

Sample Questions

- 1) How does your hospital currently purchase its supplies?
- 2) Is your policy congruent with the industry standard (is this pretty much the same with other hospitals)?
- 3) What is different about your way of doing business?
- 4) How long is the wait time for supplies (different examples of types of inventory)?
- 5) How much money do you typically have tied up in unused inventory?
- 6) What are your storage costs?
- 7) Do you participate in just-in-time inventory purchasing?
- 8) If so, how has this benefited your organization, or hurt the organization?
- 9) If not, have you thought about it? What were the thoughts about it?
- 10) Have you heard of e-procurement?
- 11) In your opinion do you think that it would be feasible for your organization? How about the rest of the industry?
- 12) How is your organization keeping up with Internet technology?

Estimated Online Purchases vs Actual Online Purchases



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