Case: Healthcare 2001 Centre hospitalier de St-Valoir

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Abstract

Impressed by the results obtained at Liberty Methodist Hospital LMH of Hometown, USA during his recent visit with a logistics team, Alain Leroux, has managed to convince his boss, Marc Beaulac, to consider similar systems at Centre Hospitalier de St-Valoir. The goal of reducing stocks has been in place for a few years now. Several systems in place at LMH present interesting opportunities for CHSV. Marc has requested that Alain investigate the feasibility of installing systems similar to LMH . Alain makes recommendations for short, medium and long term actions. Some of his considerations are presented here as well as comments and reactions about it.

Introduction

Cost management of at Centre Hospitalier de St-Valoir (CHSV) in Normandy, France has become an important issue for controlling the growth of the hospital budget. The administrators at Centre Hospitalier de St-Valoir are particularly forward thinking and have pursued, purchased and installed state of the art inventory control systems. They are noted for their willingness to use technology extensively in the continual effort to reduce costs and achieve the goal of stockless and paperless inventory management. Liberty Methodist Hospital (LMH) has a mission similar to CHSV: to manage costs utilizing technology. LMH has recently installed a new inventory management system that significantly reduces costs and improves the overall quality of health care. However, because of the difference in staffing regulations and management styles between the US and France, the administrators want to carefully consider this opportunity and it's possible implications for their hospital.

When Alain Leroux described the LMH inventory control systems, Marc was enthusiastic but was cautious about the possibility of implementing it at CHSV. The over-riding question to any implementation was: could the cost savings realized in the US, translate to CHSV given the different health care systems? "Monsieur Leroux, you have convinced me of the benefits of the best practices in inventory management demonstrated by LMH. With intelligent adaptations to our conditions, we would have the possibility of reducing our stocks by as much as 50% this year! It appears that LMH has been able to install a fairly simple system of cooperation with suppliers and clients that allows for a remarkable maximal level of 4 days of stock in the system. Please begin an analysis to evaluate our system constraints in the short, medium, and long term in the effort to install a similar logistics management system here at CHSV."

A Dynamic Environment: LIBERTY METHODIST HOSPITAL

Liberty Methodist Hospital is situated in Hometown,USA. It is one of several hospitals in a non-profit healthcare network known as the Methodist Healthcare System. It is an important provider of healthcare in the region. Within the system are 5 hospitals specializing in short term acute care with a total of 1500 licensed beds in five towns. (See Figure 1) In addition a non-member hospital in Ericsburg is managed within the system. Ericsburg has 300 beds.

[1] This case results from a research project on hospital logistics realized by CHAINE, a research group on logistics at HEC Businnes School to which the four authors were associated.

TOWN	Lewisville	Hometown	Duquesnie	Croib	Labatteville	Ericsburg	Total
Beds	407	385	370	250	120	300	1832

Figure 1
The Methodist Healthcare System

Since 1924, the vision of the Methodist Healthcare System has been to furnish medical services and to improve the health of the communities it serves. The mission of the system is to be the healthcare server of choice for clients and doctors and to establish and achieve high levels of excellence in the delivery of the service, while working to improve the health of the community. Within this vision and mission Liberty Methodist Hospital has developed its own set of goals as shown in Figure 2.

Liberty Methodist Hospital was established in 1954 in Hometown, USA. In 1998, there were more than 380 beds; 24 of which were intensive care beds, 25 healthcare units and about 200 employees. The medical staff consisted of approximately 600 doctors of whom 240 were considered "active" and 300 of whom were considered "courtesy." Courtesy doctors are allowed to practice at LMH, Initially, the specialty for LMH was obstetrics and this has been improved over the years. LMH has an excellent reputation for newborn care and birthing services. Later, cardiovascular surgery and oncology were added. LMH currently handles a large number of cardiovascular operations in the state. In 1998 more than 1,800 open-heart surgeries were conducted and more than 15,000 heart catheterizations on 7000 patients were conducted in 1999.

Because LMH is part of a larger healthcare system, it is possible for medical supplies to be purchased through a centralized system, thus reducing some costs for acquisition and storage. In order to manage this centralized system efficiently, the materials coordinators are cross-trained and are encouraged to develop and maintain close relationships with the staff in the units they serve as well as the suppliers.

In the report by Alain and his team on the visit to LMH, the logistics group detailed some of the methodology used by LMH. "for the health care personnel at LMH, the replenishment of medical stock is no longer a problem. Stock-outs are rare and the involvement in the management of stock levels is reduced to a minimum. " Besides this, LMH has successfully reduced stock levels down to about 3 days and realized a savings of US$3.5 million dollars (FF24.5 millions) over the last three years on all medical supplies. They have also reported reduced labor usage in the counting and management of inventories up to about 20% of materials adminstration costs.

Such results are the fruit of a continuous effort to improve inventory management and indeed all operations in the hospital. Over the course of the last 10 years, LMH has managed to become the preferred provider by focusing on excellence of operations and client satisfaction. In the inventory control system particularly, LMH has installed an Armoire storage system, bar coding and Electronic Data Interchange systems (EDI) that have allowed them to establish excellent relationships with suppliers and significantly reduce inventory levels and costs. These savings have not simply been realized by the reduction of inventory that tends to be a one-time cost savings, but because of better control and forecasting of needs using improved information, they have been able to negotiate reductions in supply costs and negotiate for better delivery schedules.

1999 Vision for Liberty Methodist Hospital

«We are the leader and partner of choice in meeting the health needs of our community.
We fulfill this vision by :

- *Maintaining a Christ-centered, value-driven work environment characterized by hospitality, mutual accountability and shared commitment to our mission.*
- *Demonstrating innovation and continuous improvement in the quality of our care and services.*
- *Providing a regional integrated system of delivery of services along the health continuum.»*

"The objectives identified to achieve this vision are:

- Cost reduction
- Improve client satisfaction
- Use technology to improve the management of information
- Achieve high standards in the delivery of all services through the use of employee empowerment, technology and an innovative atmosphere."

Each of these objectives is translated into unit goals and pathways goals.

Figure 2
LMH goals for 1999

This all began during the 80's with a forward thinking materials director. This director had had experience in the manufacturing field where the close interaction with suppliers and management of stocks was considered a strategic and competitive factor rather than an operational detail.

Inventory Management at LMH
Stockless

All items at the department (health care unit) level are managed and replenished using the par level system. Safety stock is held in the central storeroom. Deliveries are made according to individualized requirements for each health care unit five times per week. Friday deliveries cover the needs of Saturday and Sunday usages. (Figure 3). Because of the distance from prime suppliers to LMH (112 KM or 70 miles) the central warehouse holds from 36 to 48 hours of stock on average. If the supplier is local, the stock level is reduced to 18 hours on average except over weekends.

Dedicated Supply coordinators

Management of medical supplies at LMH is the responsibility of the stock clerks and supply coordinators who each have complete control over the stock of their own health care units. The number of units under a clerk (or a supply coordinator) depends upon the size and complexity of the health care units he/she services. A team of four supply coordinators handle the major departments; internal and external surgery, catheter labs, endocrinology, and sterile processes. Each member of the team is cross-trained. The team of clerks handles distribution of supplies to the 23 other units. This team has five members all of whom are cross-trained as well. All stock managers have high school diplomas and one week of training upon entry. Normally new hires have some amount of warehouse experience. Once a clerk has acquired experience enough in the hospital, he might be promoted as supply coordinator. The department has 25 total employees and the wage costs for this department total $500,000 (FF 3,500,000) per year.

All the stock coordinators have a pager. They are in constant contact with the Central Dispatch Telephone Service. When a call arrives, it is immediately transferred to the proper coordinator and the

unit can make a request within minutes. Thus each unit can communicate with someone personally responsible for their efficient operation at any time of day or night. The health care units are very happy with this arrangement and claim to be able to order and receive any stock item within minutes of need. This reduces the need for healthcare workers to search for and pick up items on an emergency basis, thus allowing them to focus on their main task; care for patients. However, stock-outs are rare and normal operations usually provide sufficient materials a majority of the time.

Information management at LMH

Each item received is recorded in the main inventory database using a bar code reader. As much as 90% of supplies are purchased from the main supplier: Presence. Presence handles almost all the necessary supplies for hospitals and negotiates prices with the purchasers of the hospital. Prrsence has been the main supplier since 1997. The stock management system in place at LMH was developed by Acme Medical and installed by SVP, a Lewisville distributer of medical products.

Replenishment Cycle

At LMH**,** the resupply cycle unfolds as follows. In the morning, in each care units, each armoire memory is scanned by supply coordinators or material clerks as well as the stock level of stocked items that are not in the armoires. Non-stocked items, which are used just a few times a year, are requisitioned by nursing or other staff to coordinators or clerks who will order them at the same time as the stocked items.
Order quantities are then determined for each item, for each unit or department through "par level" rules (i.e. order a quantity corresponding to par- quantity on hand) At 12: 30, the Operating Room schedule is available. The supply coordinator looks at it to determine what is needed. Sometimes surgeons warn in advance that they will need greater quantities of some items because they know that the inventory level is usually very low.
At 2:00 p.m., EDI or fax orders are sent to vendors. Vendors deliver during the evening, until 10:30 p.m. During the night, the 3rd shift of the central store receives ordered items in format already packed for each unit and delivers them to care units. Supply coordinators come in early in the morning at 6: 00 to deliver items to major departments (surgery, etc.) Packages that come through UPS or other courier services are delivered in the morning and taken care of by supply coordinators or material clerks.
This cycle occurs Monday through Friday. Friday requires less time due to diminished volume so that the complete cycle from counting to replenishment occurs in the same day.

8:00 AM	**Stock levels are checked using bar code readers**
10:00 AM	**Out of Stock items are recorded**
After 12:00	**Items that are below the par level are recorded and scheduled for replenishment.**
2:00 PM	**Orders are transmitted to the suppliers via EDI**
2:00-10:30 PM	**Deliveries from suppliers are accepted** **any rush deliveries are handled directly by the stock coordinators for immediate delivery**
10:30PM -2:30 AM	**Receipts are recorded into the central store and packaged for delivery to the units**
6:00 AM	**Deliveries to the individual units are made**

Figure 3
Replenishment Cycle at LMH

Armoire Storage Systems

The Armoire Storage is a large cabinet that has bins for each item. However, instead of drawers, it has shelves. Each shelf is labeled and contains any sterile and non-sterile item the department needs. A two-bin cabinet would contain on average 224 line items. In other words, 224 different types of items and multiple quantities of each can be stored. There are similar systems for pharmaceuticals, but they have not been considered as yet because they are still delivered by the pharmaceutical department. These cabinets lock and must be opened by authorized personnel only. Each staff person with access has his or her own code number. They use that code to open the Armoire. Every time a staff person opens the Armoire, they must code in the patient number for the item they use, count the items on the shelf, input the number, and indicate their usage. This is all recorded and can be transferred directly to the patient record for charge. In addition, when the item is counted, the Armoire verifies that the count is correct for its records and an accurate count is available at all times. This can also be transmitted directly to the inventory control department for planning and purchasing. Now, the inventory control department can know if an item is running low and respond before the health care staff has an emergency. With the correct software, it can automatically generate an order for an item when the safety stock level is reached. A data analysis module that can collect all data from patients, doctors, nurses and inventory usage from the Armoires for analysis and better inventory control is also available. All costs are detailed in Figure 7.

At this point it seems useful to explain how LMH and CHSV compare and differ. Alain says,
"I would like to point out some of the differences between the two hospitals, but that should not deter us from considering the same sort of improvements that LMH was able to achieve. "

Centre hospitalier Saint-Valoir

St. Valoir or CHSV has been in the town of Normandy, France, since 1970. It moved to a new building in 1996. It serves a greater Normandy area of about 150,000 people. The hospital serves a wide range of needs from emergency and critical care to the benign. It has 20 units that have between 26 to 28 beds each. The emergency room has eight portable beds and patients here stay a maximum of 24 hours. It also has a maternity ward and a cancer clinic. CHSV has a total of 490 beds. In addition, there are 120 beds for medium term stays and 180 beds dedicated to long term care. In the US one might label this a nursing home, but we have a goal of returning our patients from this unit back to home if possible, while nursing home clients in the US normally stay until the end of their lives.

CHSV has 1,450 employees of which 170 are doctors. We have an expense budget of FF530 million ($ 74.8 million) (Appendix 2). Employee salaries account for 66% and equipment; medical supplies and outpatient care expenses account for 12%. Out of this about 12 million FF are spent on non-sterile medical supplies. The remainder is divided between general expense (12%) and interest payments (10%). Unions are quite strong in the social affairs sector in France and collective contracts are negotiated at the sector level. A head nurse earns about 60% more than a store clerk does. More detail is supplied in Figure 4. These rates must be increased by some 25 % to take account of social benefits (holidays, pension fund, etc.)

Position	Annual Revenue (FF)	Annual Revenue ($)	Hourly Rate (FF)	Hourly Rate ($)
Head nurse	154,579.62	20,682.75	76.22	10.19
Nurse	125,461.74	16,786.78	61.86	8.27
Nursing Assistant	104,520.46	13,984.83	51.54	6.89
Pharmacists	119,337.49	15,967.36	58.84	7.87
Central store clerk	94,236.48	12,608.84	46.46	6.21

NOTE: an exchange rate of 7FF for 1$ has been used.

Figure 4
Annual and hourly Salaries in French Francs and US dollars

Logistics management

The Purchasing department is under the director of economic services. This position reports directly to the director general. (Figure 5) The Economic Services, managed by Marc Beaulac, consists of eight (8) sub-divisions. (Figure 6). In general the Purchasing department is responsible for the acquisition, management and delivery of the goods and services required for the care of patients by the health care professional with the exception of the pharmaceuticals as well as office departments and support services. The pharmacy takes care of its own buying, storage, preparation and delivery of pharmaceuticals and sterile items to the health care units.

French regulations require that sterile medical supplies be managed and delivered by pharmacy personnel. However, CHSV lacks sufficient personnel in pharmacy for these tasks. An agreement between the Pharmacy and the Economic Service areas allows the supplies to be delivered by the stock clerks.

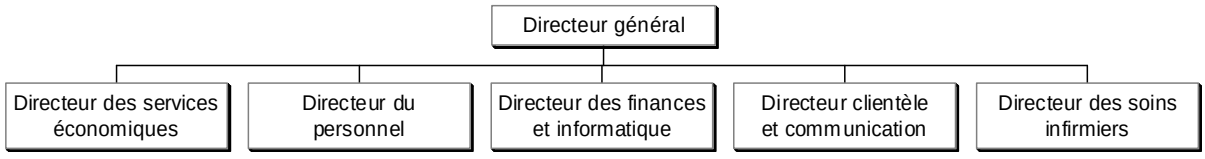


Figure 5
La haute direction du centre hospitalier Saint-Valoir

The Purchasing department covers a diverse number of activities (see Figure 6). There are 7 people responsible for buying and management of supplies. Billing is also done there, having been moved from the Finance Office 10 years ago at the request of employees to reduce duplication of effort. The central store is staffed by four people: one manager and three central store persons. These four manage the medical supplies, office supplies, forms, X-ray films, non-sterile supplies and linens.

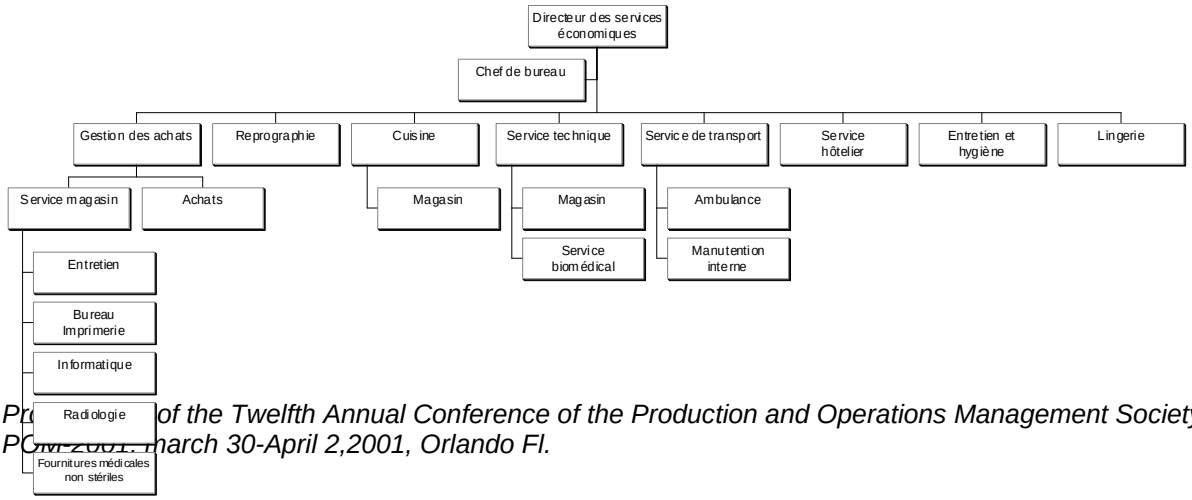


Figure 6
Les activités techniques et logistiques de la Direction des services économiques

An inter-hospital laundry serves 10 hospitals in the health care system for Normandy. CHSV has a small laundry with a manager to handle the short-term needs and distribution of items of the units it serves. Meals are handled by a separate manager in a small kitchen at CHSV and are under the direction of the Economic Services manager.

Regular cleaning services of all areas including the exterior windows, with the exception of the neonatology unit and the operating rooms, are handled by a private cleaning firm. This is unique in French hospitals because government regulations limit the subcontracting of cleaning to business offices. Most other hospitals have in-house departments to handle the cleaning as a consequence

The current inventory system: par level

The replenishment system currently in use for medical supplies is the par-level system, widely used in the United States. Each health care unit inventory is replenished at least once per week according to a pre-established schedule. Some units have a heavy volume of activities, such as the emergency room, and are replenished twice each week. Replenishment activities occur throughout the week, Monday through Friday. Figure 7 indicates the number of units that are replenished each week by day. Each Friday, fewer units are replenished. This policy assures that each unit will be replenished regularly and that the central storeroom and pharmacy storeroom will both be able to maintain sufficient stock levels.
.Certaines unités ayant un fort volume d'activités, comme l'urgence, sont réapprovisionnées deux fois par semaine. Les activités de réapprovisionnement se déroulent du lundi au vendredi. Le tableau 1 présente le nombre d'unités de soins réapprovisionnées pour chacune des journées. Le vendredi, un nombre plus restreint d'unités de soins sont réapprovisionnées et qu'en plus il s'agit d'unité ayant un faible volume d'activités. Cette politique permet d'assurer dans une même journée l'ensemble du cycle de réapprovisionnement, du scannage des quantités jusqu'au rangement des fournitures en passant par le prélèvement au magasin ou à la pharmacie.

	Monday	Tuesday	Wednesday	Thursday	Friday
Number of Health Care Units	6	5	6	5	3

Note: The total number of replenishments is greater than the 20 health care units at CHSV because some units are replenished twice per week.
Figure 7 The Replenishment Cycle at CHSV

Nurses are very concerned about stock-outs when the replenishment occurs only once per week. They apply pressure on the stock coordinators to keep the stock levels elevated in their units
Every item carries its own par level and is thus replenished up to different levels. In addition, each health care unit has a different stock level. Thus each small unit carries arount FF 11,000FF worth of inventory (excluding pharmaceuticals) which represents about 22 days of operation. A big unit would carry some 34 000 FF of inventory representing some 14 days of operation.
At CHSV, the replenishment process takes between 24 and 28 hours. The cycle works like this:

At 8 AM, an inventory control clerk from the Economic Service department tours all the health care units scheduled for replenishment that day. The clerk uses a barcode reader to register the inventory and identify those items requiring replenishment. At 10:30 AM the tour is complete and the information from the bar code reader is transferred to the main inventory control system computer.

The current levels of non-sterile medical supplies are automatically compared with the pre-set par level. From this system, any item requiring a new order is identified and a list of these items is printed. Data regarding sterile items are transferred to the pharmacy where the sterile items are managed for comparison to the pharmacy storage levels. At 3 PM the pharmacy orders and medical supplies orders are matched up with the corresponding health care unit. The next day at 8 AM, replenishments from the central store are delivered to the respective health care units. Items are stored in their proper places by the inventory control clerks. By 12 noon the next day, all items identified the previous day are replenished.

This cycle occurs Monday through Friday. Friday requires less time due to diminished number of units served so the complete cycle from counting to replenishment occurs in the same day.

Problems with the current inventory systems

The par level system has some inherent problems that must be considered. However, it must be noted that this system is not only very popular, but also very cheap to institute and has demonstrated considerable cost-savings over other methods of inventory management.

Stock outs

In spite of the constant attention to stock levels, stock-outs occur with relative frequency each week; as many as two to four times per unit each week. In this situation, a nurse must go down to the central store room and request and carry the items back to the health care unit. Each trip takes approximately 20 to 30 minutes. Occasionally, the trip requires much longer because a search for an item must be made or the central store room is out or the item must be taken from another location. These trips, while seemingly short and not too troublesome are quire costly to the individual health care units. Each trip takes a nurse away from the regular duties of caring for patients and requires them to act as stock clerks. Since a nurse earns 30 % more than a stock clerk this is a poor use of their training (see Figure 4). In addition, each stock-out requires extra time in recording and updating the database for the stock clerk. Finally, the inaccuracies that result from taking inventory from other health care units can cause this problem to occur in other units and make recorded stock levels very unreliable. In order to prevent these disruptions, the rational solution seems to be to increase still more inventory levels , thus increasing the cash flow tied up in inventory for the hospital.

The par-level system requires that individuals keep track of the status of the inventory at the health care units either by roving clerks that check levels weekly, or by involving the health care staff in this task. Due to the fact that so many people are using the system, failures occur in the form of miscounts, impatient users who remove and hide inventory to hurry the replenishment, mistakes in replacing items in the wrong drawers, and finally the hoarding of items that are hard to get because par-levels are set too low or high usage creates low supply.

These occurrences are well-documented problems and cause inventory levels to be elevated by as much as 30%. It is not unheard of for nurses or nursing assistants to take several items even if only one is needed and hide the extras in ceiling tiles, in desk drawers and other sundry places. The situation is made worse if the cabinets are not located conveniently to the health care worker. Long walks to the supply cabinet encourage busy health care workers to "stock-up" so they won't have to make numerous, time wasting, walks.

When this is occurring in large hospital the costs can not only be invisible because clerks do not see how the inventory is used, but it requires large amounts of cash to be transformed to supplies that are not truly needed. As for why staff might behave in such costly ways, the explanation is that for the most part they see inventory as either there or not, and do not equate their behavior to costs. In other words, when inventory is missing, the consequences can be so great that in response health care workers may feel they are "saving" the hospital from lawsuits and bad publicity by their actions. In fact, this may be true because potentially, in the worst possible case, a lack of inventory could result in the loss of a patient.

Current considerations for the Armoire Storage system

Purchase of the Armoire Storage system presents a number of implications. Obviously this technology will facilitate the jobs of the health care workers because it maintains an exact count of the medical supplies. With a proper inventory management, it will alleviate nurses from any administrative work of inventory management letting them concentrate on patient care.

According to Thierry Fleury, the Finance Director, the acquisition cost to equip all the health care units that would use the Armoires is considerable. Each unit will hold 124 different line items in sufficient quantity for each health care unit. The value estimate of the inventory held by each Armoire cabinet is estimated to be FF 82,000. Costs for each Armoire cabinet are shown in Figure 7. The cabinets interface with the Database manager. Use of the database manager to track costs is expected to reduce administrative costs by 2%. Savings are also expected to result from the reduction of nursing staff trips to the storeroom due to improved inventory control and response. Although LMH has reported improved cost tracking by patient and thus reduced costs to patients, this is not a concern in the French system. Alain estimates that 15 of the health care units could use the Armoires successfully for their most important items in non-sterile medical supplies. The costs for counting inventory should also be reduced because the inventory levels would be automatically transmitted to the central storeroom via the database manager.

The costs for each item for installation are detailed below in Figure 8. Only 50% of all inventory would be transferred to this system because pharmaceuticals account for a large part of supplies costs. Of that 50% between 20 to 33% reduction can be expected using the Armoire storage system. If the Data Analysis Module is purchased, as much as 6% reduction in general and supplies costs combined per annum is reported.

Item	Cost (FF)
Drawer units (similar in shape to 2 bin cabinets)	143,722
Cabinets (shelves)	143,722
Database manager (required with the cabinets and drawer units)	194,220
Installation per unit	7,470
Data Analysis Module (optional)	776,880

Figure 8: Armoire Storage Cost Estimates
(Based upon several suppliers)

In addition, some of the savings claimed by LMH are not recoverable with the French system. Appendix 1 contains some information about the French healthcare system as compared to the US. The main things to consider are that any labor savings claimed in the US are virtually unattainable in the French system. The French labor system requires any employer wishing to release an employee for any reason to appear before an outside board to justify the action. Even if the action is approved, the employee who is released is often awarded an extremely generous severance paid for by the employer. Several months pay along

with cash awards is not unheard of even in the case where employees are released for non-performance. For this reason there is a faction of the population that is eager to obtain severance.

Another issue is that French hospitals are highly regulated and funded with public funds at 98%. Limitations on equipment purchases to reduce duplication in a region are handled by the government. Also major equipment purchases must be integrated in a three-year development plan that must be reviewed and approved by a regional agency controlled by the government. Reviews can take several months, however, reasonable requests and opportunities to reduce costs are almost always favorably viewed. If CHSV goes ahead with the Armoires program, it will have to revise its current development program and submit it for approval again.

Unfortunately, the savings reported by LMH for improved cost management due to more accurate billing cannot be readily claimed at CHSV due to the fact that patients are not billed for services. Some procedures require patient payment, but at an extremely low level, 2% or less. While there is a strong focus on reducing costs in the health care system, mostly because the costs are exceeding the available government funds for support, public opinion limits the amount of financial responsibility the individual must pay through strong public pressure on the governmental representatives. Therefore, the only real savings that can be reasonably realized in this analysis are due to reductions in material usage and perhaps more efficiency of health care and supplies staff allowing them to further improve other areas of the process.

Questions

1. Without calculating the costs and savings of the proposal, what is your initial reaction to the technological improvements? How would you propose justifying purchase of new technology for CHSV to the government in light of the current environment in which all French hospitals operate? Can you describe future potential savings that might not be realizable without this system? What disadvantages might result from the adoption of this system? How long might it take to install this system? Why?

2. If you are Alain, what concerns might you have with the approval of this system? Would there be any personnel issues you might have to anticipate in order to assure a successful installation? Which personnel might cause you the most concern? Which personnel might adapt readily?

3. Compare the costs for both hospitals. What is the cost/bed for each? What conclusions might you draw from this difference? Where else might you look for savings in the operation of the hospital as a whole? Where should Alain look for potential savings?

4. Develop a summary of the potential costs and savings that might occur with the new system. Using an interest rate of 8%, calculate the NPV of this project over the next 10 years. Does this project appear to be a good investment? How might you be able to justify the expenditure even if the NPV analysis does not look good? Assume that any major expense will be reimbursed in one to three years, requiring the use of debt to finance the project.

5. Make a recommendation to Marc. How many units should adopt this new technology? Are there places where it makes sense to retain the existing, low-tech systems? Why? What organizational structure changes might you make to make this project even more appealing? What evidence can you provide to encourage Marc to consider making these changes?

6. Do you think the French hospital system has any advantages? What are they? What about the US system? What could each system learn from the other?

NOTE: Our special thanks go to the hospitals and businesses that supplied supporting data for this case. They are Central Baptist Health System, Washington County Health System, Le Centre Hospitalier François Quesnay, Le Centre Hospitalier Universitaire de Montpellier, and Omnicell Incorporated and other suppliers who wish anonymity.

The authors were working across cultures through the development of this case. Much of the information about the French hospital was translated from French and many discussions regarding focus and style occurred over 6 months of effort in the development of this case. In fact, the authors experienced quite a few cultural situations that they will develop and publish as another case in organizational behavior.

Appendix 1

French Health Care System

"In 1975 the national health expenditure per person was 1,844 FF, but by 1981 this figure had increased to 4,506FF. During the same period, the amount of the GNP spent on health care increased from 6.7 to 7.8%. The rise has mostly been due to a continual rise in the volume of activity. An annual rate of increase of around 7% is reported. With the intent of assuring equal health protection to all, the national health insurance plan has progressed in recent years to cover the majority of the French population, including migrant workers. Another factor has been the increase in prices. Price increases of 11% on average are reported. Nurses and medical staff have demanded higher wages, claiming that the level of their technical expertise merits higher pay. Conversely, the government has focused on increasing revenues and reducing costs.

Private and public hospitals are equally open to patients. In both cases, the patient participates by a moderate out-of-pocket payment. A maximum of 30% co-payment is the limit for the first thirty days in the hospital. In most cases, co-payments are reimbursed by an extra mutual-aid fund. Thus the most important part of the hospital expense is covered by the social security, which reimburses the clinics and hospitals directly. There is no limit on the utilization of the hospitals and the control exerted by the social security is quite limited. However, the quality of care in the public sector is quite high and can be compared with the most advanced countries.

The French health system is highly centralized. The administration of the health services relies on a hierarchical system led by the ministry of health for its managerial component, and by the ministry of social affairs and the national solidarity for its financial component. As can be expected, numerous coordination problems are caused by this double headed authority. Each department has a Departmental Directorate of Health and Social Services (DDASS) which serves a branch of the two ministers, thus bringing about local coordination of the two national agencies. A DDASS can be composed of 200 to 600 civil servants, among which are several medical officers. It holds an authority over public as well as private hospitals, approves the budget, and sets the hospital-day rates.

The creation or modification of any hospital bed (public or private) or of any costly equipment should be submitted for authorization by the ministry of health. This authorization would be delivered according to certain criteria, including national norms and local environment data (carte sanitaire). The major objective of the Loi Hospitaliere (hospital law) has been to avoid costly duplication and correct uneven distribution of health facilities. Thus it has gained the reputation of a negative regulation since it more often refuses an authorization than facilitates change.

The Loi Hospitaliere also defines the rules for the internal management of hospitals and establishes the respective responsibilities of the director (an administrator in most hospitals and the board of trustees. This part of the law is intended to give much more initiative to the director and the hospital staff. It is indisputable that it works quite well and the staff often shows a great deal of interest in the management of the hospital.

Control of hospitals is also managed through accreditation bodies that regularly inspect and certify proper operation of the facilities." ~ Comparative Health Systems, Marshall W. Raffel, 1984, The Pennsylvania State University Press.

"Health insurance covers over 99% of the population. Critics say the system encourages doctors to see patients often and over-prescribe medicines. As a result, the French take more medicine than anyone else

on earth. And France has the highest rate of combined public and private health spending in Europe and the second highest in the world.
Spending on the governmental health care system has surged at a real annual rate of more than 5% over the past 15 years. "
"A Headache", Economist, March 18, 1997

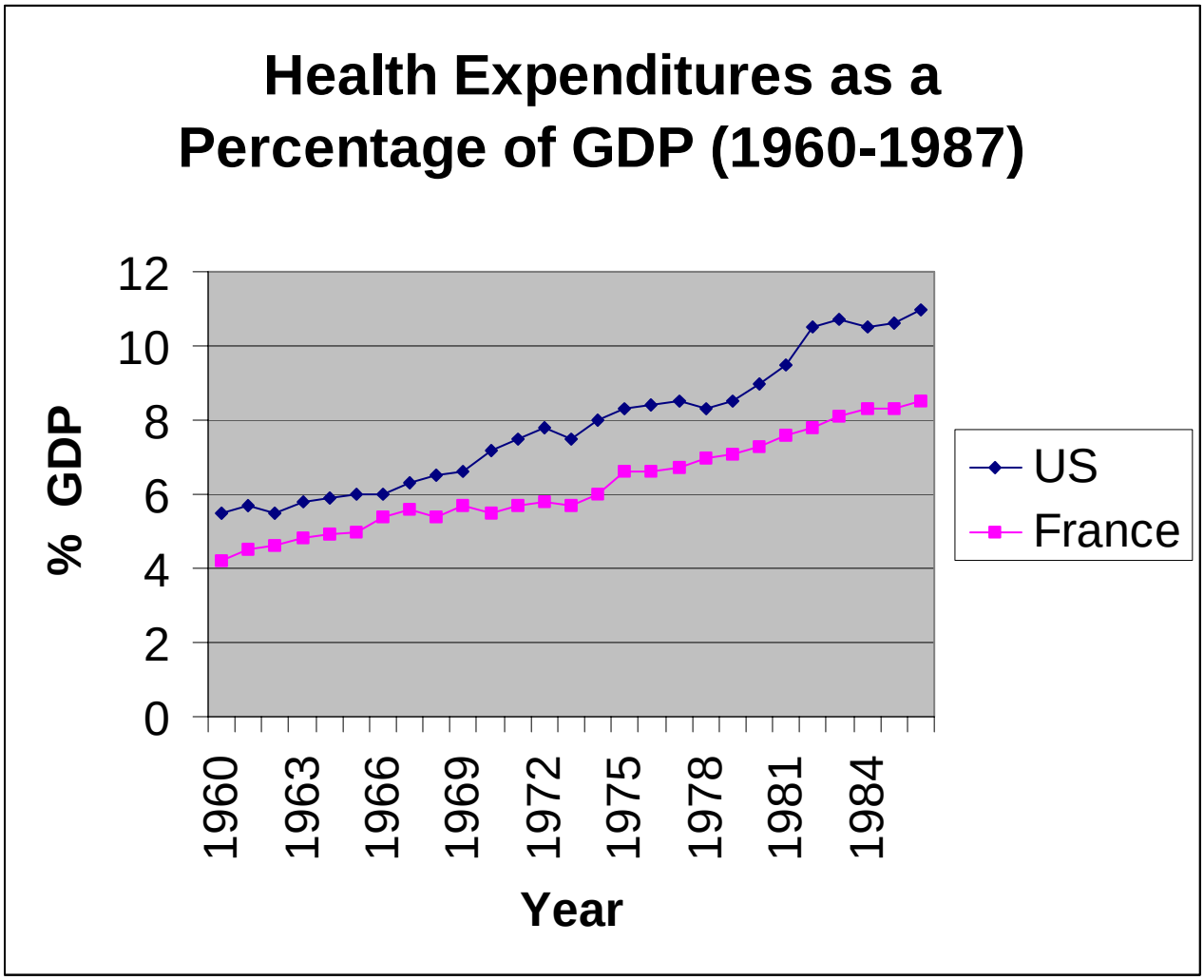
US Hospitals

US Hospitals are restricted by the government in their size, beds, and equipment purchases. However, decision making and revenue management and cost control is not as controlled by the government in the US as in France. Public Medicare and Medicaid can limit costs somewhat by refusing to pay for services in part or in whole. The administration of each individual hospital must decide what services will be offered and delivered and at times cover the overages within their own budget. For profit or not-for-profit hospitals must manage their costs very closely in order to be able to continue to invest in technology and remain current and competitive. Margins for many hospitals in the US are extremely tight. A 2% margin is considered reasonably good in today's climate. A 6% margin is very good. About 50% of all US hospitals are running in the red and are in danger of bankruptcy. Many of these hospitals remain open due to public outcry against their closure. It is difficult to close a hospital that serves a remote region when no other alternative would remain, despite severe losses to the owner. Thus US hospitals have a double focus of cost containment and competition. While the number of beds and medical equipment is somewhat regulated by the state, there is a large over supply of hospitals in the US. This situation combined with the limitations on prices for services applied by the government via Medicare and Medicaid and HMO's and PPO insurers have made it quite difficult to manage a profitable or "financially healthy" hospital. Health care costs are also rising steadily in the US as in France.

Public Expenditure as a Percentage of Total Health Expenditure, 1960-1987

Year	France	United States
1960	57.8	24.7
1965	68.1	26.2
1970	78.1	37.0
1975	78.9	42.5
1980	80.8	42.4
1985	79.4	41.8
1987	78.0	41.4

Source: CREDES, Eco-Santé (Paris-1989)



Source: CREDES, Eco-Santé (Paris, 1989)

APPENDIX 2

Expenses	**LMH (385 beds) Actual** (US $)	**Budget** (US$)	Expenses	**CHSV (790 beds) Budget** (FF)
Administration	$985,520.00	$506,825.00	General Administration	63,600,000
Dietary	$222,826.00	$209,947.00		
Emergency services	$385,574.00	$322,285.00		
Employee benefits	$1,229,010.00	$1,190,850.00	Salaries and benefits	349,800,000
Interest	$33,439.00	$33,439.00	Interest	53,000,000
Laboratory	$555,618.00	$495,097.00		
Clinical Services	$372,655.00	$322,301.00		
Materials Management	$908,139.00	$733,865.00	Materials and supplies	63,600,000
Nursing	$2,414,724.00	$2,087,290.00		
Operations	$426,627.00	$413,556.00		
Personnel/Training	$130,508.00	$110,963.00		
Radiology	$504,932.00	$426,425.00		
Surgery	$763,609.00	$812,213.00		
All other	$2,000,000.00	$2,000,000.00		
Total	$10,933,181.00	$9,665,056.00		530,000,000.00

Supplies account for about 30% of all revenue at LMH. Revenue is reported to be $12,300,000. Individual health care unit costs include material costs for that unit. Therefore a direct comparison of materials costs on the expense statement between LMH and CHSV is not possible. Pharmaceuticals are also included in the materials costs therefore the amount of material cost reduced by technology is based upon 70% of the inventory total.