

Capacity and facilities
planning should
hospital limited
assignment



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CASE REPORT Capacity & Facilities Planning Shouldice Hospital Limited

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Advantages⁹ Background Dr. Edward Earle Shouldice founded Shouldice

hospital in 1945.

He also an inventor of the Shouldice Repair, a technique that he developed during the World war II, to help your men who were unable to enlist in the military due to their illness, hernias. This unique method improved surgical results and reduced recovery time, immediately restoring the young recruits to physical fitness for military training. By the time the word spread of his success, the demand was dramatically raised for hernia surgery. But due to the war, the doctors and the space were not adequate enough for high demands and the waiting times for surgery were too long.

Then Dr. Shouldice responded to the problem by founding his own hospital. Started with a single operating room and a waiting list of 300 patients, Shouldice opened his Hospital. With only a nurse, secretary and a cook for support, he conducted his practices to repairs 2 patients a day. The requests for the surgery grew and the hospital was soon expanded. So he was buying a rambling 130 acres estate with a 17, 000 square foot main house in the

suburb of Thornhill, 15 miles north of downtown Toronto. With a 36-bed capacity as initial start the hospital started operating in Thornhill.

And continue to grew with a large wing was added to provide more capacity of 89 beds. Shouldice Unique Method Shouldice running the business with unique method, which preferred by its patients, is the key factor why Shouldice is so famous and well known. These methods are: a) No additional material used such as screens or meshes for new surgeries. Much different than other methods which using a lot of them under the skin. b) Only using a simple sedative / sleeping pills, analgesic / pain relief pills, and local anesthetic. And also if required, some medication also provided.) Wide range of patients between 4 months old to 100 years old. d) Fast recovery, only requires 4 days of recovery from surgery. e) Relatively affordable. The Services Also, other reasons why customers keep coming to Shouldice are: a) The hernia surgery, with Shouldice Method. b) Low risk and low recurrences c) Dignity/Positive environment d) Family environment, fraternity, social experiences e) Reduce guilt from having absence of work f) Vocation The Process DAY 1| 30-34 Patients 1-3pm (20 min)| Examined by MD (15-20 min)| (If Hernia) Check in and Admin (10 min)| Blood and urine test (5-10 min)| 5pm Process explain-ations (30 min)| 5. 0-6. 00pm Dinner| 9pm, tea & cookie time| DAY 2| 5. 30 am Sedation & Local anesthetic (45 min)| 7. 30 am Surgery room (40 min)| Rest in room (2 – 3 hours)| 9pm, Start to eat heavy food & walked, and having tea & cookie time| DAY 3+| Breakfast 7. 45 – 8. 15 am| Loosen & remove stitches | 6. 00 – 9. 00 pm Dinner, tea & cookie time| DAY 4+| Breakfast 7. 45 – 8. 15 am| Remove all stitches| Check out|

The Experiences Nurses The hospital employed 12 full-time surgeons, 7 part-time surgeons and 1 anaesthetist.

The operating load varied from 30 to 36 operations per day and start at 7.30a. m and the surgeon's day ended by 4p. m. Doctors The hospital was staffed 22 full-time nurses and 18 part-time nurses, with three shifts beginning at 7a. m, 3p. m, 11p. m, is much lower nurse-to-patient than the typical hospital for the physical assistance. According to supervisor, Verstraete estimated that the turnover of four nurses in a typical years. Patients The Shouldice patients come from the original country, United States (42%) and the Ontario and European (2%).

The patients could return to work within a week after their operations, but those involved in more strenuous work, whose benefits were insured, received four week of benefit and recuperation. In general, for recuperation were two weeks for those in light job, eight weeks for strenuous job. Facilities The Shouldice Hospital comprised two basic facilities in one building – the hospital and the clinic. First floor there is a large waiting room for 50 people and 6 examination rooms. On the second floor is an administrative office, and in the third floor contained 14 additional Hostel to awaiting the assignment of a room and the operation.

Administration The hospital was operating on a non-profit basis and the clinic on a profit basis. For the budgets for hospital and the clinic were close to \$2.8 million and \$2million. Problems Dr. Shouldice desire to seek ways of increasing capacity the hospital's capacity while at the same time maintaining control over the quality of the service delivered, the future role

of government in the operations of the hospital, the use of Shouldice name by potential competitors, and the selection of the next chief surgeon. Cost Comparison Shouldices vs. Other Hospitals| Shouldice| Others|

Costs of typical operations Transportation Time Lost from work in Hospital Time lost from work while recovering Value of time lost (ranging from \$50 to 500 per day)| \$954 \$200-600 4days 5days \$450-4500| \$2000-

4000 \$05days 10days \$750-7500| Total before Allowance for recurrence (1 = (sum above)) Probability of Recurrence (2) Expected Cost of Recurrence (3 = 1*2) Total cost to patient, employee and insurer (4 = 3+1)| \$1604-60540.

80% \$13-48 \$1, 617-6, 102| \$2750-1150 10. 00% \$275-1150 \$3, 025-12, 650|

Shouldice's Profit| Hospital: Revenues (4 days X \$111/day x 6, 850

patients/year) Cost (Budget) Profit (1) Clinic: Revenues (((\$450+ 60 + 75 X 0.

20 (average based on uestionnaire)) X 6, 850) Cost (Budget) Profit (2)| \$3, 041,

400 \$2, 800, 000 \$ 241, 400 \$3, 596, 250 \$2, 000, 000 \$1, 596, 250| Total

Profit (1+2)| \$1, 837, 650| *6850 assumed from operations in 1982. 6, 850

Operations/50 weeks = 137 operations/week (with a peak of 165/week) page

2 *Probability based on information notification two page 2. *Time lost work

based on example charge (see on case-The Market page 10) and comparable

operation page 5 *Cost of typical (((\$111*4days)+\$450+\$60), 75 is for

additional fee if required anesthetic. (see on case-The Market page 10)

*Value time lost (\$50 x (4days+5days) and \$500 x (4days+5days).

Current Throughput * 6, 850 Operations/50 weeks = 137 operations/week

(with a peak of 165/week on page 11) Capabilities * Examination Rooms: * (6

rooms x 3 hrs (1-4 PM) x 5 days x 60 min/hr) / (20 min / exam) = 270

patients /week * Admitting Procedure: * (2 people x 4 hrs (1-5 PM) x 5

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$\text{days/week} \times 60 \text{ min/hr} / (10\text{min/patient}) = 240 \text{ patients/week}$ * Nursing Station: * $(2 \text{ stations} \times 4 \text{ hrs (1-5 PM)} \times 5 \text{ days/week} \times 60\text{min/hr}) / (10 \text{ min/patient}) = 240 \text{ patients /week}$ (see on page 4) * Operating Rooms: * $(5 \text{ rooms} \times 8 \text{ hrs/room/day} \times 5 \text{ days/week}) / 1. \text{ hrs/patient} = 181 \text{ patients /week}$ (average from $(5 \text{ rooms} \times 8 \text{ hrs (7. 30am-16. 00pm (30minutes break))} \times 5 \text{ days/week})$: $1. \text{ 1 hrs/operation (operating average on page 6)}$) * Surgeons: * 11 surgeons (average $36/353 \text{ operation/day}$ page 6) $\times 3.5 \text{ operations /day (operating average on page 6)} \times 5 \text{ days} = 178 \text{ patients/week}$ * 89 rooms : $((89 \times 6 \text{ days}) / 4 \text{ days stay}) = 134 \text{ patients per week}$ (assuming use of weekends for convalescence and 4 days average stay (page 10)) * 103 rooms = $(134 + 14) = 148 \text{ patients}$ (assuming use of weekend for convalescence, 4 days average stay, and use of 14 "hostel" rooms for two nights each week)

Decision Analysis How to expand the capacity but the whole things that Dr. Shouldice proposed can run together? We propose some alternatives:

- * Add Saturday operations
- * Add a new floor (45 more hospital beds)
- * Establish a new facility for hernia

Based On Managerial Elements, that are elements in the service system to support the service concept that Shouldice have and it is the strength and the opportunities to counter the weakness and the competitors:

- * Shouldice have good service package and distinctive characteristics
- * Service encounter Doctors and nurses are carefully recruited
- * Employees trained to help / counsel patients
- * Communal dining for doctors, nurses, staff and patients
- * Quality
- * Adherence to Shouldice method
- * Opportunity for surgeon to observe ; advise one another
- * Managing capacity ; demand
- * Admission by appointment: scheduled service
- * Screening patients: easier to estimate the service time
- * walk-in patients or local residents on waiting list to make up

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cancelled reservation * Information * Medical Information questionnaire Free annual check-up -; unique data base on the result of the surgery * Annual reunion to keep alumni informed and gather customer feedbacks-; loyal customer base -; effective word-of-mouth * Delivery system * Maximum degree of customer participation * Efficient and low cost * Avoid a typical hospital atmosphere * Facility design * Acres of gardens to encourage exercise ; rapid recovery * minimize hospital feeling (carpeting and odorless disinfectant etc) * Stairways are designed for patients to use right after operations * No TVs and Telephones in rooms to encourage walking Operating rooms are located in semicircle to encourage doctors to help each other and use the same anesthetist * Location * large city near air port -; access to worldwide market * large local population to fill up cancelled bookings * Capacity planning * Elective procedures -; scheduled operations * Balancing Capacity and improving capacity utilization * Needs to increase capacity Add Saturday Operation Dr. Shouldice propose * Use 89 room + 14 rooms, 4days average stay * Total number of patients per week = 181 New throughput: $181 \times (137/148) = 168$ patients / week * Additional patients per year: $(167-137) \times 50$ weeks = 1450 * additional revenue for the clinic: $1450 \times (450+0.20 \times 75) = \$674,250$ * Less cost: \$124,250 * Net increase in profit: 550,000 for no additional investment Disadvantages * Require to schedule 23-25 operations on Saturday * Six surgeons and a supervising surgeon have to work on Saturdays * Additional other personnel * Violates the implied contract that Shouldice has with its surgeons, strong opposition by the senior doctors * Operating close the the theoretical capacity of the facility

Advantages No investment is needed * Can still maintain quality Add-in A

New Floor (45 Beds) * Total Number of Rooms: $89 + 45 = 134$ * Total
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number of patents per week: 193 (148 room + 45 room additional) * New throughput: $193 \times (137/148) = 179$ patients / week * Additional patients per year: $(179-137) \times 50 = 2100$ * additional revenue for the clinic: $2100 \times (450 + 0.20 \times 75) = \$976,500$ * Less cost: \$176,500 * Return on investment: $\$800,000 / \$2,000,000 = 40\%$ Disadvantages Require to schedule doctors to the full capacity of five days per week * Increase work load on admissions, kitchen, laundry, housekeeping and accounting * Further staggering of meal hours for patients (100 seat dining room) * Disruption during construction Advantages * Easy to control and maintain quality * Retain the culture and environment A Second Facility for Treating Hernia Disadvantages * Requires a significant investment and Dr. Shoudice's time * Control of quality * It is difficult to create the same culture and atmosphere * Potential competition with the existing facility

Advantages * New location close to the customers * Improve its competitive position and increase its profits * Operate in a less restrictive environment * New Opportunities for existing personnel * Transfer of knowledge and expertise to the new facilities So we try to help the Dr. Shouldice to make decisions about his topic to increasing the capacity without leaving the managerial elements that has been run till now, so we think we decided to take the first option. " START OPERATIONS ON SATURDAYS" * No Fresh investment is needed. * Can still maintain quality. * New surgeons not required.