

DSO 586. Global Healthcare Operations Management

Units: 3 units. Wednesday from 6.30 to 9.30 PM

Office Hours: Wednesday 2.30 to 4.00 PM

Instructor: Sriram Dasu

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COURSE OBJECTIVE: Across the world, some of the biggest challenges facing healthcare include increasing access and quality of care to large segments of the population. In this course you will learn how Operations Management tools and techniques can be utilized to improve the performance of healthcare delivery systems. Healthcare delivery system is the network composed of facilities such as community centers, clinics, emergency rooms, and hospitals that individually and collectively provide care to the community. You will learn about how to analyze these systems and redesign them so as to better meet the needs of the community. Improvements can be achieved through changes in processes and work design, better use of information and communication technologies, and changes in the role of different facilities in the network. Clearly these changes must be driven by the needs of the community. We will also explore tools and techniques that enable us to get a better understanding of the short term and long term healthcare needs and the differences in how patients consume health services.

A significant component of the course is a field project. These projects are based in **Los Angeles**, and **Brasilia, Brazil**, and **Bocas del Toro, Panama**. If you are working on a project that is based in Brazil or Panama then you will have to **travel during Spring break**. You will work in a team consisting of 4 or 5 students.

EXPECTATIONS

Class Participation: (10 Points) Read the assigned material and analyze the cases. You are encouraged to work in groups. You will be “cold -called” and so make sure you are familiar with the main issues and have a well thought out view. . It is very important that you *prepare yourself for each and every session*. It is not necessary that you know the material “cold” before each class, but it is important that you expend sufficient effort to gain some grasp of the ideas we will be discussing.

Attendance: You are expected to attend all sessions. If you cannot attend for a specific reason then please inform the professor through e-mail that you are unable to attend, or your absence will affect your participation grade. Treat it like a professional meeting at work: if you cannot attend, you are expected to inform the person running the meeting as a professional courtesy.

Home Work and Case Assignments (45 Points): Two case write ups and 2 homework assignments.

Case write ups: Individual assignments. Answer questions for any 2 cases) (10 points each)

Homework set # 1 -- Due on March 9th (13 points)

Homework set # 2 - Due on April 20th (12 points)

Field Project Analysis and Report (45 points – Final report 35 points, Presentations 10 points):

We will form project teams based on student preferences, project requirements, and what the instructor thinks are balanced multi-skill teams. We therefore cannot guarantee that you will get your first preference. Each team will be responsible for organizing itself and gathering further information pertaining to the project. There will be one team project report. Each team member will also be asked to assess the relative contributions/efforts of all the other member of their team in order to reward excellence and avoid free riders.

Teams are required to meet regularly with the project sponsors and provide updates. You have to make a final presentation and the final report is due one week after the final presentation. The report is expected to be about 25-30 double-spaced pages (in addition, appendices can be attached). Apart from being reviewed and evaluated by the instructor, it will also be sent to the sponsoring organizations.

Travel: If you are assigned to a team that is working on projects based in Brazil or Panama, then you will have to visit these countries during the spring break. You will be responsible for making your own travel arrangements and will work with Marshall School's Global Programs and Partnerships Office to ensure that you comply with University Policies and guidelines regarding international field trips. While you are there your local transportation costs and cost of translators will be covered by Marshall.

ACADEMIC ACCOMMODATION FOR DISABILITY

If you have any disability that requires special academic accommodations, please let us know ASAP. Any student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to me as early in the term as possible. DSP is located in STU 301 and is open 8:30 a.m. – 5:00 p.m., Monday through Friday. The phone number for DSP is (213) 740-0776.

STATEMENT ON ACADEMIC INTEGRITY

USC seeks to maintain an optimal learning environment. General principles of academic honesty include the concept of respect for the intellectual property of others, the expectation that individual work will be submitted unless otherwise allowed by an instructor, and the obligations both to protect one's own academic work from misuse by others as well as to avoid using another's work as one's own. All students are expected to understand and abide by these principles. Scampus, the Student Guidebook, contains the Student Conduct Code in Section 11.00, while the recommended sanctions are located in Appendix A: <http://www.usc.edu/dept/publications/SCAMPUS/gov/>

REQUIRED:

HOSPITAL OPERATIONS: PRINCIPLES OF HIGH EFFICIENCY HEALTH CARE: Wallace Hopp and William Lovejoy, ISBN-10: 0132908662, 2012, Pearson Education (Hard bound or Kindle Edition)

Reference Books:

- Customer Service Solution: Managing Emotions, Trust, and Control, S. Dasu and R. Chase, 2013, McGraw Hill, ISBN-10: 0071809937

COURSE OUTLINE

January 13th

OVERVIEW

- Gaps in access and quality of care
- Types of diseases and their implications for healthcare delivery
- Descriptions of the projects

Reading:

1. Chapter 1: from Hospital Operations
2. Oberlander, J. (2012). Unfinished journey: A century of health care reform in the United States. *New England Journal of Medicine*, 367, 585– 590. (posted on blackboard)
3. Brazilian health systems, history, advances and challenges, *LANCET* 2011 (posted on blackboard)
4. Health System Profile Panama 2008, PAHO (posted on blackboard)

January 20th

SYSTEM DESIGN: MATCHING SYSTEM TYPE WITH SERVICE NEEDS

Characteristics of demand determine the trade-offs among costs, access, and quality, and ultimately the optimal structure of the systems. We will revisit the relationships between volume or scale, uncertainty, process flows, human resource requirements, and capacity. The Shouldice case illustrates a prototypical high volume – low uncertainty operation.

Cases: Shouldice Hospital HBSP Case 805002-PDF-ENG

Reading:

1. Different service firms different core competencies T.R.V. Davis, *Business Horizons*, (on Blackboard)
2. Linking manufacturing process and product life cycles, HBR reprint # 79107
3. Fixing healthcare on the front lines: R.M.J. Bohmer, HBSP reprint # R1004D
4. Appendix: Management Principles; Introduction to Hospital Operations, pp 497 to 502.

Case Questions (Shouldice):

1. Calculate the capacity of the hospital and identify the bottleneck. A set of assumptions you can use are given below.
2. What will be the capacity of the hospital if a new floor is added?
3. What will be the capacity of the hospital if they perform surgeries on Saturday?
4. How successful is the Shouldice Hospital? Compare the Hospital to its competitors from the perspective of the customers, employees, and owners. What are the relevant measures?
5. What are the risks and challenges of franchising?
6. What are the risks and challenges of opening a new unit?
7. Which option, if any, would you recommend? Why?

Additional Assumptions: Do not worry about the impact of assistant surgeons and nurses on the capacity of the hospital. **Spreadsheet:** Shouldice.xls

Shouldice Hospital web site: www.Shouldice.com.

January 27th:

PROJECT MEETINGS

Project status Updates

February 3rd

TACTICAL SOLUTIONS: DEMAND MODELING

In the next few sessions will focus on analyzing healthcare flow and transaction data to determine arrival patterns, demand levels, resource utilization and processing times. This data is needed to develop analytic models. **Bring your laptops to class.** We will use Excel to do much of the data analysis.

Required Reading:

1. Time series forecasting
2. Note on probability and queues (*on Blackboard*)

February 10th

PROCESS MODELING: SIMULATION TOOL

- Simulation tools for modeling patient flows
- Fitting Distributions to Data
- **Bring your laptops to class**

Reading:

1. Simul8 : Simulation Software Overview
2. Note on Process Analysis (*On Blackboard*)

February 17th:

SIMULATION TOOL (Cont'd)

- Mapping patient flows and measuring performance of facilities.
- Information flows
- Techniques for auditing healthcare facilities and networks
- **Bring your laptops to class**

Case: Emergency Department Saintemarie University Hospital

Case Questions:

1. Estimate the waiting time for a patient arriving around 11 AM?
2. What is your current assessment of the ED? What are the performance metrics you would use to assess its performance?
3. Should the ED be divided into two parts – one for acute care (those requiring hospitalization) and the for non-acute care?
4. What other changes would you recommend?
5. What changes would you recommend and why?

February 24th

PROJECT WORK

March 2nd

PROCESS IMPROVEMENT & LEAN

- Process improvement
- Lean
- Six Sigma
- Organizational culture and employee satisfaction

Readings:

1. Six Sigma: What it is and how to use it. HBSP Reprint Number U9906C
2. Lean Knowledge Work: Staats and Upton, HBR October 2011, R1110G
3. Decoding the DNA of the Toyota Production System: Spear and Bowen , Sept- Oct 1999, R 99509
4. Chapter 2 from Hospital Operations – Skim, pay attention to Table 2.2

Case: Cincinnati Children’s Hospital Medical Center 9-609-109

This case illustrates how an organization implemented the “science of improvement” to systematically improve operations. These techniques were developed by manufacturing organizations and need to be modified to apply in a hospital.

Case Questions:

1. What are the key elements of the process improvement approach adopted by the Children’s hospital?
2. What are the pros and cons of the transparency policy? Are they being too transparent with their data?
3. What are the challenges in identifying improvement opportunities in a hospital?
4. What do they have to sustain the improvement efforts?
5. What if any are the limitations of their approach to continuous improvement?

March 9th: PATIENT EXPERIENCE MANAGEMENT

The new healthcare law bases reimbursements to hospitals on patient satisfaction scores (HCAHPS). In this section we will discuss how hospitals can improve patient experiences.

Readings:

1. Development, implementation, and public reporting of the HCAHPS surveys. (*On Blackboard*)
2. Designing the soft side of customer service, Sloan Management Review, Fall 2010 Vol 52, No 1., Reprint # 52104
3. The relative importance of physician communication, participatory decision making, and patient understanding in Diabetes self-management., M. Hiesler, et. al., *J Gen Intern Med.* 2002 April; 17(4): 243-252 (*On Blackboard*)

March 16th: SPRING BREAK

March 23rd LEARNING ORGANIZATIONS & PROCESS STANDARDIZATION

High levels of variability in processing times and process flows make it difficult to manage flow, increase throughput rates, decrease throughput times, and creating an environment for continuous improvement. One approach for reducing internal sources of variability is to standardize how care is delivered. The Intermountain case illustrates a disease focused approach to improving quality of care, physician productivity, and reducing costs. It illustrates the structures and processes needed to achieve the right balance between standardization and flexibility:

- Process standardization
- Clinical pathways

- Learning organizations
- Role of incentives

Readings:

1. Critical pathways : A review, *Circulation*, 2000, vol 101, pp 461-465 (*posted on blackboard*)
2. Is yours a learning organization? Garvin, Edmondson, and Gino, HBSP Reprint R0803H-PDF-ENG.

Case: Intermountain Health Care. HBSP Case 9-603-066

Questions:

1. How well is the Intermountain Health care performing?
2. What is Intermountain's approach to the management of health delivery?
3. What are the pros and cons to this approach?
4. Can this approach be adapted by Emergency departments? Primary care clinics? Where would it apply and where would it not?

March 30th CHRONIC DISEASES

- Coordinated care systems
- Factors that influence patient behavior
- Evaluating the value of preventive care

Readings:

1. Social cognition models and changing health behaviours (*on Blackboard*)
2. The Role of behavioral science theory in development and implementation of public health interventions (*on Blackboard*)

Case: Joslin Diabetes Center HBSP Case 9-710-424

1. How would you define the medical condition of diabetes? What traditional medical specialties should be included? Does diabetes represent one medical condition or more than one?
2. What is distinctive about the JoslinCare model of diabetes care?
3. How does the model create value for patients versus prevailing approaches?
4. How could the model be improved?
5. How can the Joslin improve its financial viability and grow its services?
6. What sort of hospital partnership would maximize value?

April 6th INCENTIVES AND PERFORMANCE OF THE HEALTHCARE SYSTEM

One of the challenges in managing healthcare systems stems from the difficulty in measuring outcomes. This in turn makes it difficult to provide the right incentives. We will discuss incentive issues in general and incentive issues in the Affordable Care Act.

Readings:

1. Theory and practice in the design of physician payment incentives (*on Blackboard*)
2. Accountable Care Organization, by Burke, Law and Public Health (*on Blackboard*)
3. Can Accountable Care Organizations improve the value of health care by solving the cost and quality quandaries? By Devers and Berenson (*on Blackboard*)

<u>April 13th</u>	<u>PROJECT WORK</u>
<u>April 20th</u>	<u>COURSE WRAP UP & PROJECT PRESENTATIONS</u>
<u>April 27th</u>	<u>PROJECT PRESENTATIONS</u>
<u>May 7th</u>	<u>FINAL PROJECT REPORT DUE</u>