Make my day .. . . . .Better!

How Industrial Engineers are Improving Healthcare

Presentation to
University of Michigan

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Henry Ford Health System
Corporate Performance Improvement
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Quick Overview

- About Henry Ford Health System & Performance Improvement & Analytics
- How engineers fit into healthcare / what do they do?
- What career paths can IEs take in Healthcare?
- Recommendations for your Development (e.g. how to ensure you’ll get a job!)
- How to get into healthcare
- Questions?
Henry Ford Health System

- Founded in 1915 by auto pioneer Henry Ford
- 4 Hospitals throughout south eastern Michigan
- Physician Groups
  - Henry Ford Medical Group (employed physician group)
    - 1100 physicians in 40 specialties across 27 different Medical Centers
  - Approximately 1000 private physicians with privileges to our hospitals
- More than 20,000 employees
- 93,000 patients admitted to HFHS hospitals annually
- 3.1 million outpatient visits annually
- Not for profit organization
- Over 35 year history of IE / Performance Improvement presence
Organizational Structure

- System CEO
- Senior Vice President
  Strategic Business Development
- VP Performance analytics & Improvement
- Director, Clinical Analytics
- Director, Practice Management Analytics
- Director, Strategic & Operational Analytics
- Director, Performance Excellence
- Director, Revenue Cycle Performance Excellence
- Director, PMO
Lucy Young

- Bachelor of Science in Industrial & Operations Engineering, University of Michigan, Ann Arbor
- Master in Business Administration (MBA), Oakland University, Rochester, Michigan
- Married
- 6 children
- Lived in Michigan all my life!

Career Experience:
- Detroit Medical Center (15 years)
- Healthcare consulting (2 years)
- Henry Ford Health System (18 years)

Andrea McAuliffe

- Bachelor of Science in Industrial & Operations Engineering, University of Michigan, Ann Arbor
- Board member for the Institute of Industrial Engineers, Detroit Chapter

Career Experience
- University of Michigan Program and Operations Analysis, Junior Engineer
- Bayer Healthcare, Data Analyst
- Henry Ford Health System, Physician Network, Management Engineer

Jack Jordan

- Bachelor of Science in Mathematics, University of Iowa
- Masters of Science in Mathematics, Michigan State University
- Masters of Science in Applied Statistics, Oakland University
- Married

Career Experience
- General Motors Powertrain advanced engineering (7 years)
- Henry Ford Health System (17 years)
- Center for Medicare and Medicaid Innovation (2 years)
Industrial Engineer?
Frank Gilbreth, Jr.
Early Founder of Industrial Engineering

- Frank Gilbreth, Jr. and Ernestine Gilbreth Carey were time and motion study and efficiency experts
- Had twelve children
- Example: reduced the number of motions in laying a brick from 18 to about 5.
  - Hence the bricklayer both increased productivity and decreased fatigue.
- Often made improvements by studying the motions of their children
  - Like how to take a shower
Our Performance Improvement & Analytics Goal

• To provide the safest, highest quality care to the patient that is timely and efficient.
  • Minimize Cost
  • Maximize Quality

Mechanical Engineers make things....but Industrial Engineers make things BETTER!
Redesigning Processes

Why do we need IEs in healthcare?
Typical Day

- We do Projects to help improve!
- We Work with teams
  - Doctors, nurses, support staff, manager, leaders, senior leaders in
    - Clinics
    - Operating Rooms
    - Emergency Department
    - In a hospital patient care floor
    - In the lab
    - In the Radiology or “x-ray” department,
    - Strategic Initiatives . . . And so on!

- Always a new team and new area to work!
What do IEs actually do?

Types of Projects

- Process Design/Redesign: 23%
- Team Facilitation: 15%
- Implementation Support: 40%
- Statistical/Data Analysis: 9%
- Staffing/Scheduling Analysis: 6%
- Capacity Planning/Feasibility Analysis: 3%
- Engineering/Mgmt Tool Development: 4%
- Process Design/Redesign: 23%
- Statistical/Data Analysis: 9%
- Staffing/Scheduling Analysis: 6%
- Capacity Planning/Feasibility Analysis: 3%
- Engineering/Mgmt Tool Development: 4%
Lean Coaches
What career paths can IEs take?

The combinations are endless!
If I were a current student...

- Classes recommended:
  - Lean / Six Sigma
  - Statistical process control
  - Operations Research & Simulation
  - Communication (report-writing, etc.)

- Learn it, don’t just do it for the grade

- Seek internships and/or co-ops or special projects
  - Build your resume

- Develop your project management and change agent skills

- Network
  - Organizations like IIE, Society for Health Systems (SHS), ASQ

- Develop your communication skills in everything you do
How to get into Healthcare?

- Find an internship or volunteer

- Reach out to hospitals with management engineer or process improvement programs

- Join the Society for Health Systems (SHS) – part of IIE
  - SHS Job Board

- Join the Healthcare Management Engineers group on LinkedIn
  [http://www.linkedin.com/e/gis/83522](http://www.linkedin.com/e/gis/83522)
Questions?