

**Make my day .. .. .Better!**  
***How Industrial Engineers are  
Improving Healthcare***

Presentation to  
University of Michigan

Lucy Young  
Henry Ford Health System  
Corporate Performance Improvement  
March 25, 2015



# Quick Overview

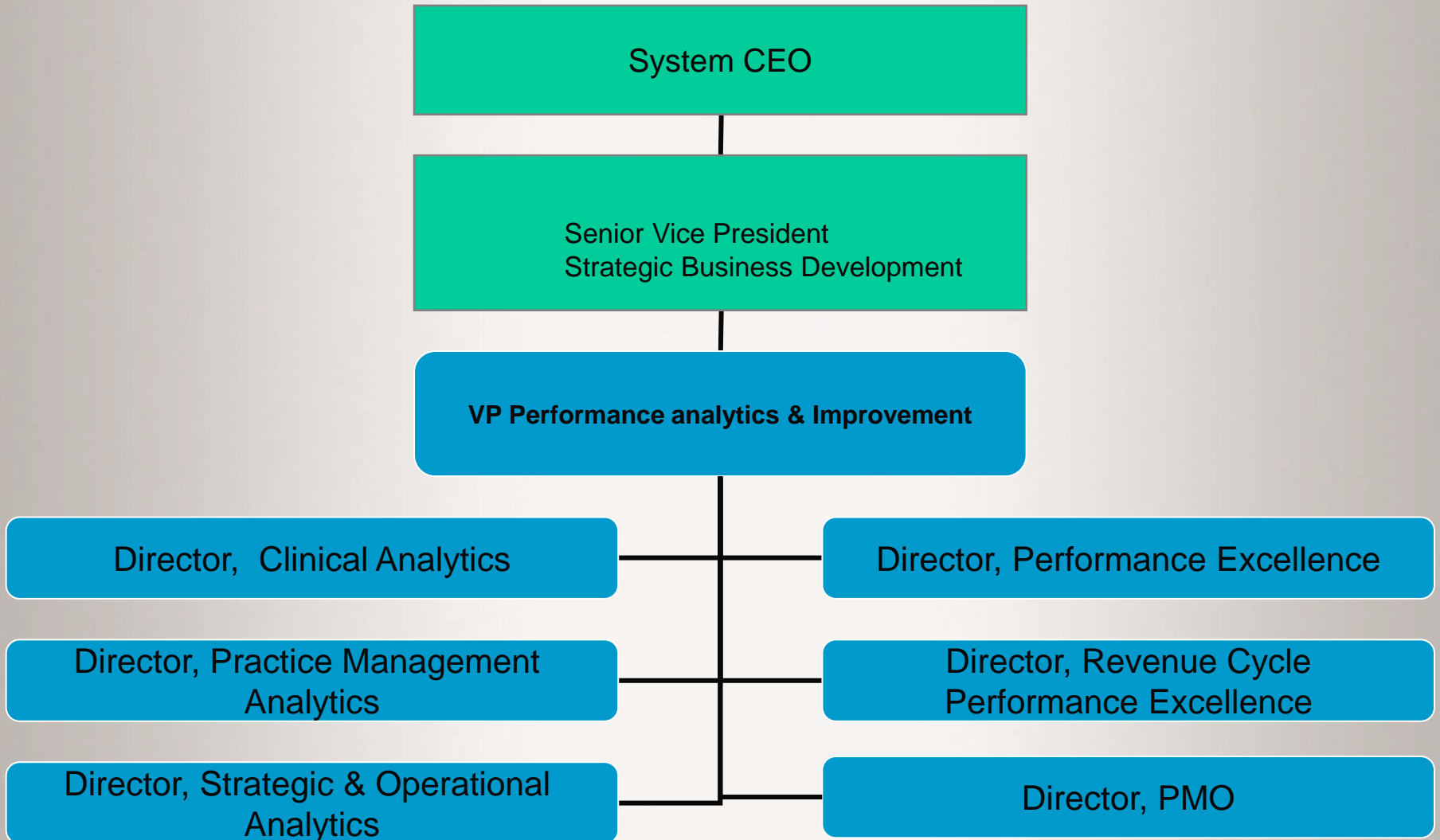
- About Henry Ford Health System & Performance Improvement & Analytics
- How engineers fit into healthcare / what do they do?
- What career paths can IEs take in Healthcare?
- Recommendations for your Development (e.g. how to ensure you'll get a job!)
- How to get into healthcare
- Questions?

# 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



# Profiles

## 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)

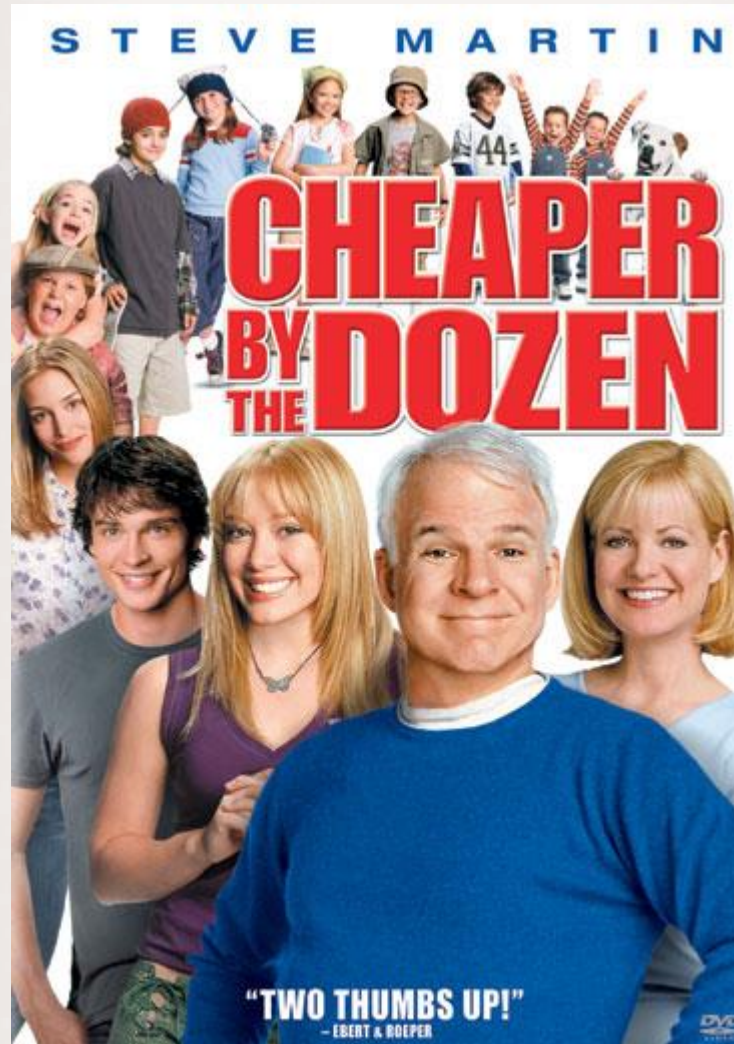
## Andrea McAuliffe

- 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

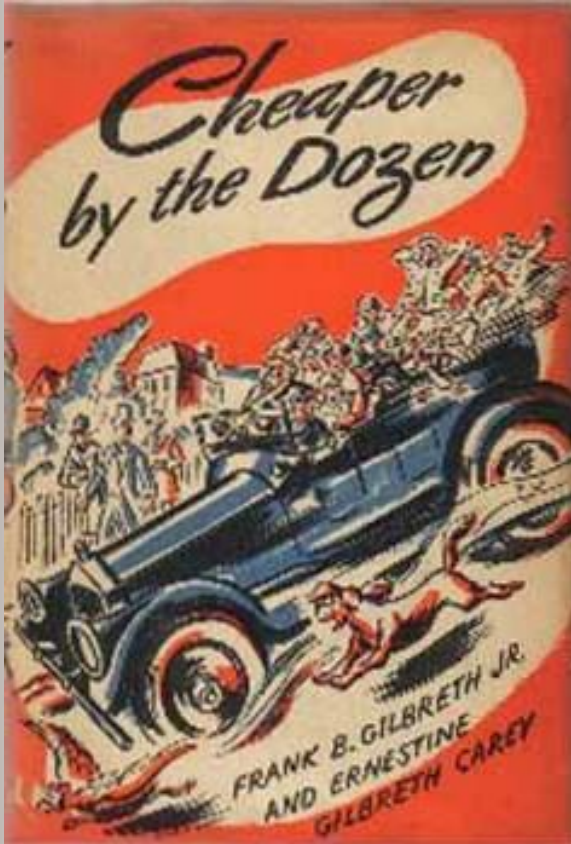
- Bachelor of Science in Mathematics, University of Iowa
- Masters of Science in Mathematics, Michigan State University
- Masters of Science in Applied Statistics, Oakland University
- Married
- Career Experience
  - General Motors Powertrain advanced engineering (7 years)
  - Henry Ford Health System (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

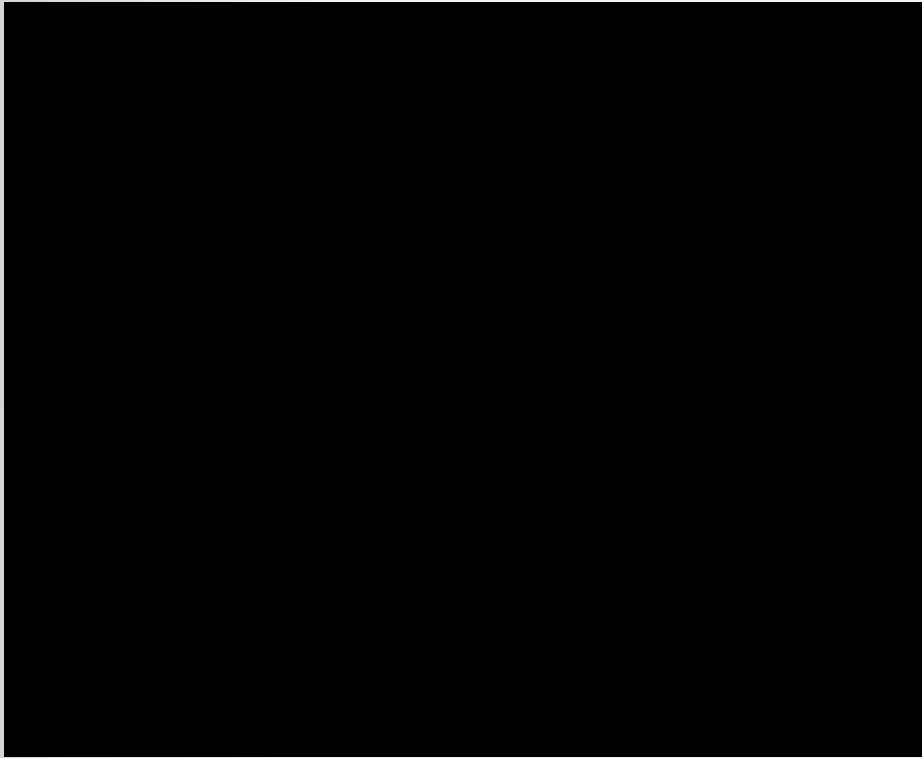
## Our Performance Improvement & Analytics Goal

- 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



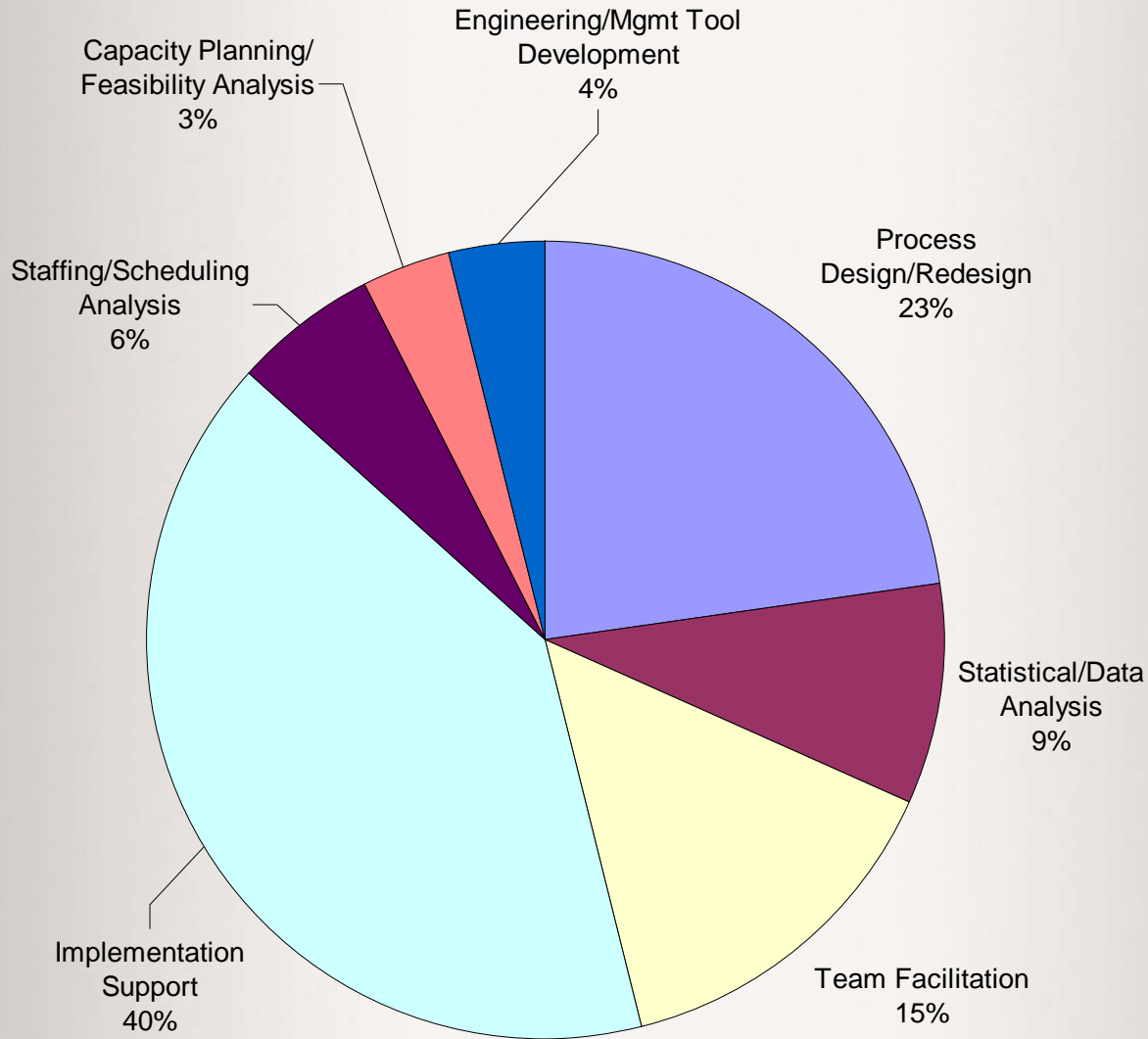
Why do we need IEs in healthcare?

# 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!

# Types of Projects

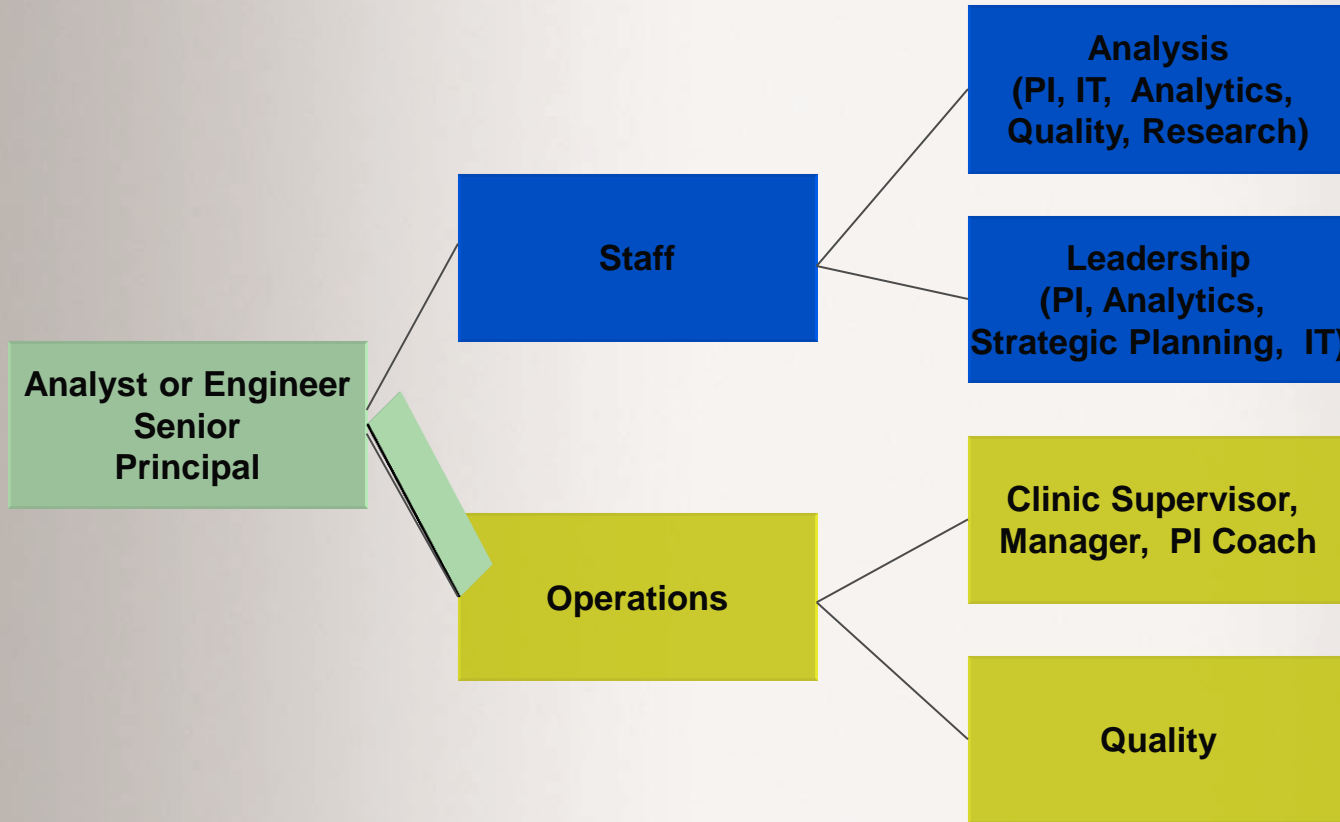
What do IES actually do?



# 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  
Visit <http://www.shsweb.org/> for more information.
  - SHS Job Board
- Join the Healthcare Management Engineers group on LinkedIn  
<http://www.linkedin.com/e/gis/83522>

# Questions?

