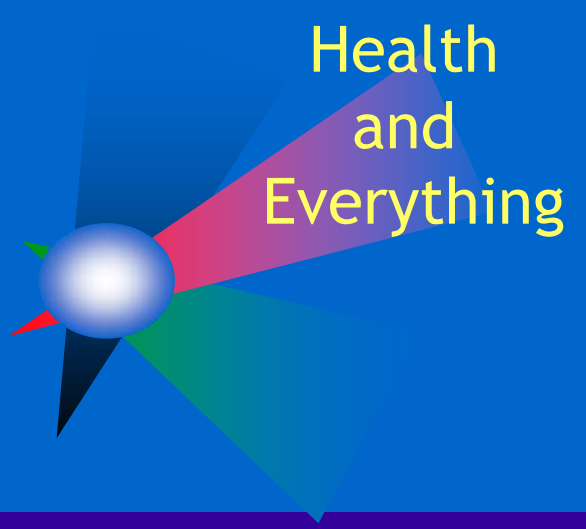


Increasing Efficiency While Improving Patient Experience

Operational Efficiency
and Economies in Health Care
December 10-11, 2007

No need to take notes

- This presentation and a lot more material is on these issues is available on our web site
  - www.healthandeverything.org
- For more information you can write to me
  - sholom@glouberman.com

Operational Efficiencies

- Operational efficiencies will enable a company to function in its market with minimal operating costs.
- Reducing operating costs will allow companies to produce more product for the same overall costs or produce the same product at a lower per unit cost.

Frederick Taylor (1856-1915)

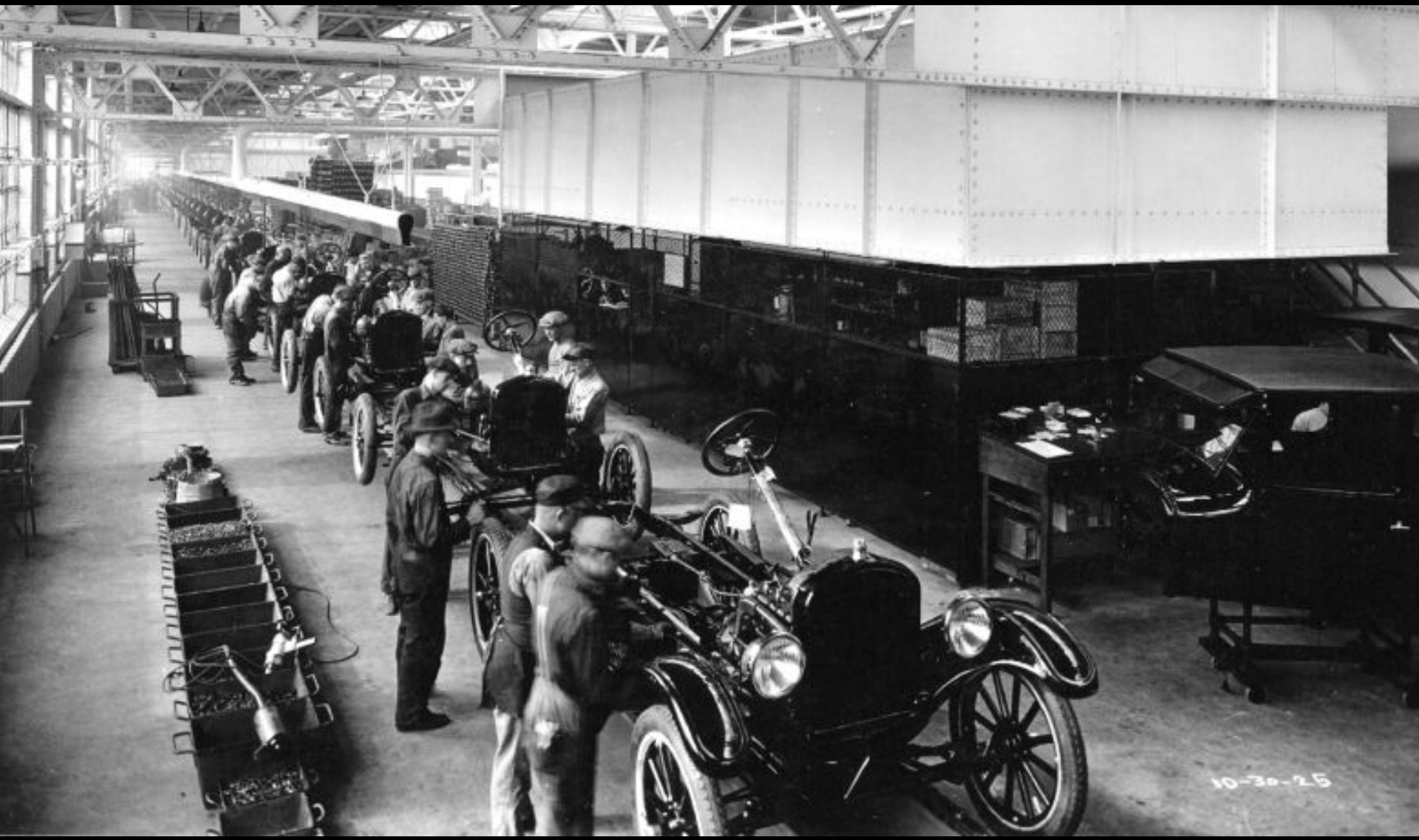
"The Father of Scientific Management."

Principles of Scientific Management

- Replace rule-of-thumb work methods with ones based on scientific study of tasks. (An atomic theory of work)
- Select, train, and develop each worker to perform specific tasks
- Provide "Detailed instruction and supervision of each worker in the performance of that worker's discrete task"
- Divide work between managers and workers: managers plan the work and the workers actually perform the tasks

Coordinating Mechanisms

- Direct Supervision
- Standardization of Process
- Standardization of Output
- Standardization of Skills
- Mutual Adjustment
- Shared Norms


10-30-25

Application of Taylorism

- Dell Computes known for direct sales also uses extreme Taylorism in manufacturing
- Dell Computers growth also due to how it designs and assembles microcomputers
  - Saving seconds in the assembly of each computer saved $ in the overall expenses of the company
  - Changes in the “detailed instruction and supervision of each worker in the performance of that worker's discrete task” is one basis for increased operating efficiency at Dell

Michael Dell (1963-)

1999 Optiframe

- Final Optiframe design exceeded original design goals:
  - Mechanical assembly time reduced 32% exceeded goal of 25%
  - Purchased part count was reduced 50% exceeded goal of 17%
  - Screw type count reduced 67% = goal.
  - Screw min/max count reduced 55% exceeded goal of 20%
  - Average service time reduced 44% exceeded goal of 25%
- Substantial gains in productivity:
  - Factory throughput/hr/ft^2 rose by 78% from 0.009 units to 0.016 units/hr/ft^2
  - Throughput/hr/operator rose by 84% from 1.67 units to 3.07 units/operator
- Redesigned Optiframe saved Dell $15 million dollars in reduced direct labor costs.


DELL

Consequences

- Dell computers operational efficiency gave the company an extreme advantage over their competition at the time from IBM and HP/Compaq.
- Cheaper unit costs and higher profits
- Dell quickly gained lead in sales and profits world wide

Even More Extreme DELL 2003

- Development of Design for Assembly (DFA) software
- “Every screw you design out of a product reduces assembly time by approximately 8 seconds.”
- The final assembly area of Dell is virtually tool-free.
- To assemble a customized Dell PC, an operator
  - Picks up the motherboard and snaps it into place.
  - Picks up each requested component,
  - Slides it along rails into the bay on the chassis
  - Snaps the rail tabs in place
  - Plugs in a pre-installed cable
  - Operator selects the next component & repeats process.
- Assembly time is reduced by 25%-40%, depending on the configuration of the PC.

Manufacturing 2006

- Winston Salem factory
  - Built in 9 mos
  - Produces 1 computer every 2.5 -3 seconds
  - Every unit built to order (customized)
  - Shipped 1,000,000 computers in first 8 mos
- 7 Manufacturing sites worldwide
  - Just in time delivery of components
  - Use same standardized assembly processes to produce highly customized computers
- Worldwide increase sales by 19%
- Ship 10,000,000 systems in 3 months

Coordinating Mechanisms

- Direct Supervision
- Standardization of Process
- Standardization of Output
- Standardization of Skills
- Mutual Adjustment
- Shared Norms


DELL


DELL


DELL


DELL

Health Economics is Different

- Health care is supply driven not demand driven
  - Increase of supply drives demand
- Economies are not driven by competition for operational efficiency but by payers
  - Reduced funding drives economic reductions
- Prices can be recorded. Costs are very difficult to assign
  - Even in US prices are used as indicators of costs
  - True costing is widely recognized as difficult if not impossible in health care
- Nonetheless operational efficiencies are attempted

Materials Management at Baycrest

Enriching Care
Enhancing Knowledge
Enlightening Minds

- An area where “just in time” might work
  - Historical assessment of scale of disposable glove use
  - Institute just in time delivery of appropriate number of gloves
  - Tightly monitor budget of each unit to assure appropriate use

Coordinating Mechanisms

- Direct Supervision
- Standardization of Process
- Standardization of Output
- Standardization of Skills
- Mutual Adjustment
- Shared Norms

DRGs and Operational Efficiency

- Introduction of DRGs 1980s
  - Identified and standardized classification of completed hospital episodes (output)
  - Drove standardization of payments/DRG by public and private funders
    - Payment reductions per output forced internal economies
  - Increased operational efficiency was the result of reducing length of stay (Lower cost per DRG)

Coordinating Mechanisms

- Direct Supervision
- Standardization of Process
- Standardization of Output
- Standardization of Skills
- Mutual Adjustment
- Shared Norms

Operational Efficiencies at UHN

UNIVERSITY HEALTH NETWORK

- Tight Hospital Budgets forced economies
- Identify nursing skills for throughput
- Match permanent staff to overall figure and skill mix
- Change other staff to temp status for periods of more intense activity and hire by skill mix
- Savings in overheads and reduction of staff in “ready for action” mode

Coordinating Mechanisms

- Direct Supervision
- Standardization of Process
- Standardization of Output
- Standardization of Skills
- Mutual Adjustment
- Shared Norms

Efficiency in health care is Different

- Health economists admit this
  - Pricing is distinct from costing
- Products are not clearly identifiable
  - Successful procedures are not like computers
- Components are not easily measurable
  - Which components are a necessary part of an episode?
- Service units often do not have clear boundaries
  - Is the episode over at discharge?
- Difficult to standardize some human elements
  - Most efforts to do this have not been transferable to other institutions or to the same institution in other units or times

Unintended Consequences at Baycrest

Enriching Care
Enhancing Knowledge
Enlightening Minds

- Baycrest disposable gloves
  - New CEO tells story of gloves
  - No gloves on unit therefore no service
  - No borrowing from other unit
  - Relative finds and steals extra gloves
  - Hoards what she finds

Unintended Consequences of DRGs

- DRG drift
  - Raising level of diagnosis for higher price
- Quicker is sicker
  - Discharge patients earlier and less well
- Multiple prices
  - Negotiate DRG prices with different payers
- US Medicare exclusions
  - Medicare pays less and some hospitals no longer accept some medicare patients

Unintended Consequences at UHN

- Nursing staff less secure and less loyal
- Nurses leave for USA and will not return due to lower job security
- Part time nurses work at multiple jobs and cannot be there for SARS
- More works disruptions
- Agency nurses cost more so savings erode
- Patient confidence in hoapital deteriorates

University Health Network


We can save
ONTARIO HEALTH COALITION
P3s?
NOT IF WE CAN HELP IT
ONTARIO HEALTH COALITION
PUBLIC CONTR
PUBLIC
ONTARIO HEALTH COALITION
We SAY NO
KEEP YOUR P3s OFF OUR HOSPITALS!
ONTARIO HEALTH COALITION
SAVE PUBLIC MEDICARE
PROUD CANADIAN STEELWORKERS
AFL - CIO - CLC

Unintended Consequences at Dell

- Between 2000 and 2007, public confidence in Dell computers eroded.
- Dell has fallen behind HP in sales
- Company capital value has suffered (stock $ ↓)
- Michael Dell forced to return as CEO
- Though some corporate clients would like to leave Dell many are so far locked in through their IT department

Computer Repair


DELL
HELL
...with computers!


STRIKE FORCE
HELL
...with computers!

Michael Dell (1963-)

Human Factors Intrude

- What happened?
- Missing impact on work experience of worker, assembler etc.
- Missing impact on experience of patient/family, user, purchaser, consumer, client etc.
- Missing recognition of critical nature of these experiences

Worker Morale

- Many unhappy workers in USA
  - Micro-management
- 80% hiring through temp company to avoid benefits costs and reduce employee numbers
- This year moved 10,000 jobs offshore
- Growing international employee dissatisfaction
- High turnover rate (e.g. 1,000 per month at Chinese site)
- No organized labour (Shades of Ford)

Coordinating Mechanisms

- Direct Supervision
- Standardization of Process
- Standardization of Output
- Standardization of Skills
- Mutual Adjustment
- Shared Norms

But Operational Efficiency can work

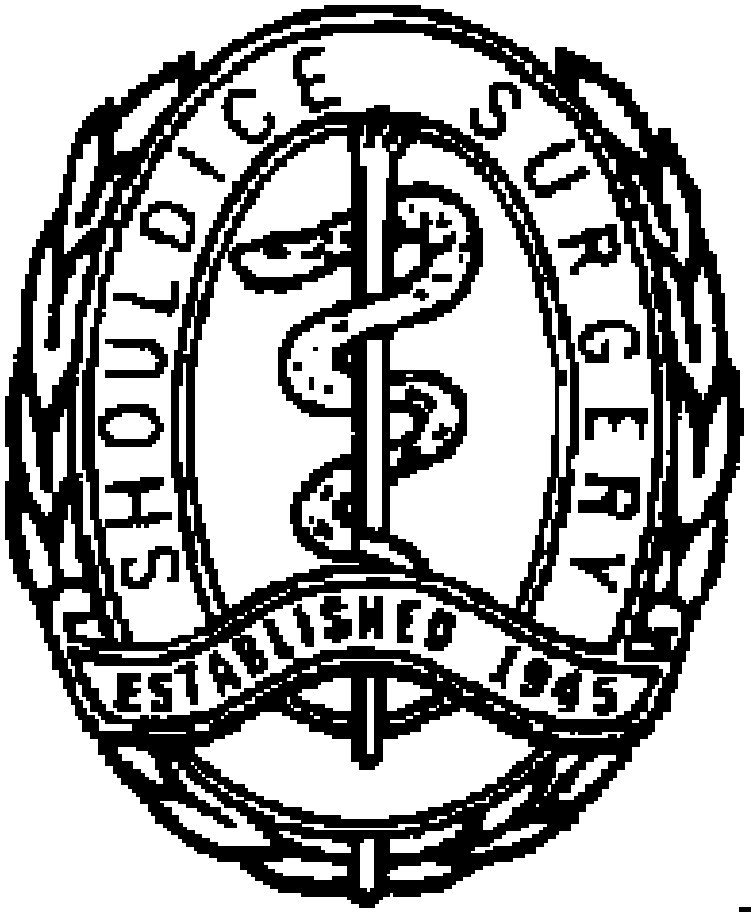
- By focusing on human factors as well
  - Client/patient experience
  - Worker satisfaction

NHS “Good Patient Experience”

The emotional experience of patients is a key driver for overall patient satisfaction. The Definition below will be used to improve the patient experience. Via detailed case studies of healthcare settings, we plan to identify those behaviours that lead to high levels of patient satisfaction, and disseminate these more widely across the NHS

- getting good treatment in a comfortable, caring and safe environment, delivered in a calm and reassuring way
- having information to make choices, to feel confident and to feel in control
- being talked to and listened to as an equal; being treated with honesty, respect and dignity.

Shouldice: Focused Factory



Coordinating Mechanisms

- Direct Supervision
- Standardization of Process
- Standardization of Output
- Standardization of Skills
- Mutual Adjustment
- Shared Norms

Focused Factory

Focused Factory

Focused Factory Case Study

Best Seller Harvard Case Study

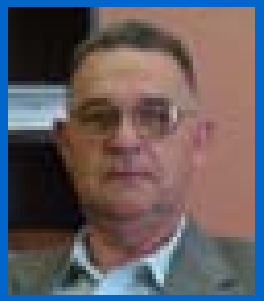
- Standardized focused patient selection
- Standardized surgical procedure
- Standardized Materials
- Low Cost per episode

- Patient Experience
- Doctor Experience
- Nurse Experience

Dr. Edward Earle Shouldice (1890-1965)

Shouldice Clinic Case Study

- Standardized Selection
  - Drop in GP assessment
  - Confirmed appointments
- Standardized procedure
  - Trained surgeons on annual pay
  - Long standing self selected
- Standardized Materials cost
  - Using patient tissue
- Lower cost per episode ($900)
- Aftercare
  - Gardens
  - Hotel accommodations
  - Annual conference (1000 returnees)
- Stable happy work force
  - Low turnover
- Adherence to Shouldice values



Alan O'Dell

Coordinating Mechanisms

- Direct Supervision
- Standardization of Process
- Standardization of Output
- Standardization of Skills
- Mutual Adjustment
- Shared Norms

Statistics

- 5 O.R.s, 89 beds, 7500 operations/yr
- 310,000 patients from115 countries
- Back at work 8 days
- 1500 at largest reunion
- Staff size 170 (Avg stay 10.5 yrs)
- Site 23 acres, park, gardens, greenhouse etc.

Shouldice and Cochrane

	Shouldice Procedure at Shouldice	Open Mesh Procedure	Laparascopic mesh Procedure	Shouldice Procedure In RCTs
Recurrence after 2 years	1% (ever)	4.9%	10.1%	~10%
Complication Rate	0.5%	33 %	39%	~37%
LOS	3 Days	1 Day	Same Day	~1 Day

Struggles at Shouldice

- Inappropriate application of case study
- RCT of screen procedure vs Shouldice
- Government pressure to reduce LOS
- Public Private prejudices
- Application to other procedures

Lessons

- Operational Efficiencies work best with focused procedures
- Worth thinking about impact of orgs like this on rest of system
- Human factors are critical even there
  - Worker happiness
  - Client/patient experience
- Economies should be measured by longer term outcomes
- Beware searching for efficiencies in messy services with unpredictable outcomes