


## 1C – Determining What To Measure

QHN Summer Camp for QI  
July 14-15 • Alliston, ON  
Richard Scoville, PhD  
Jane Taylor, EdD

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### The Issues

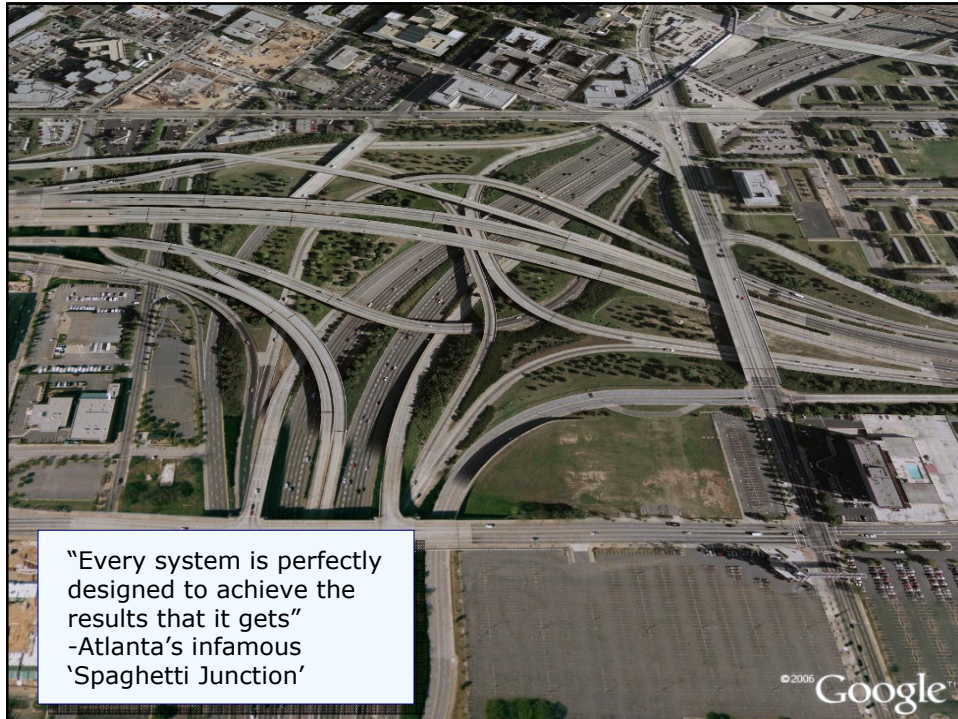


When designing a measurement system:

- How with the measures guide action?
  - ✓ Steering the process
  - ✓ Seeking opportunities for improvement
  - ✓ Assessing improvement efforts
- What should we measure?
  - ✓ Processes? Outcomes?
  - ✓ And how often?
- Who will use the measures? How? How often?
  - ✓ Internal stakeholders
  - ✓ External stakeholders

***We begin with the System***

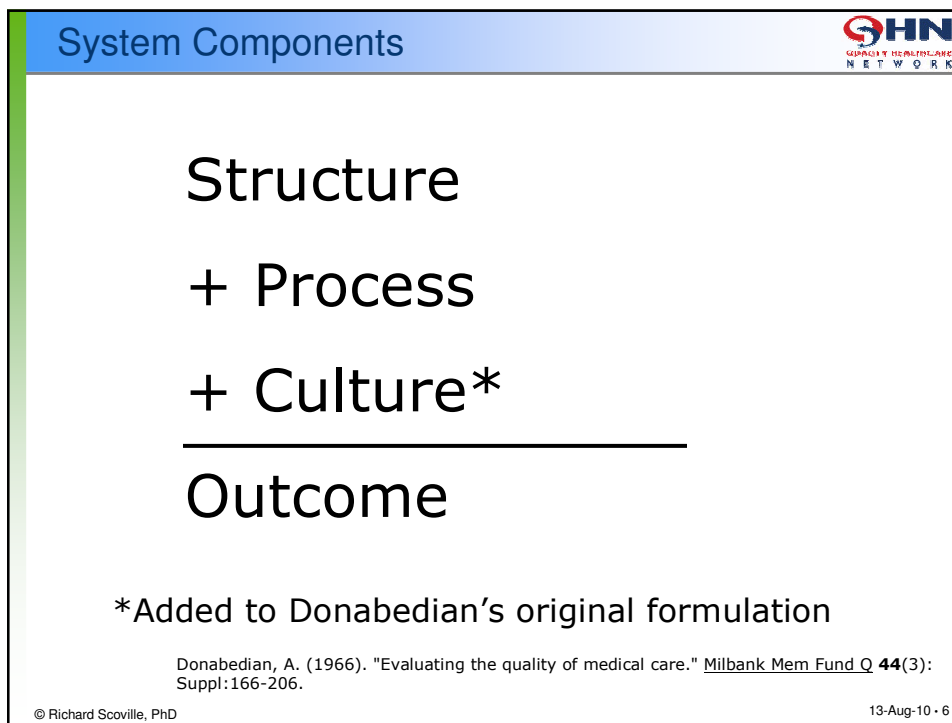
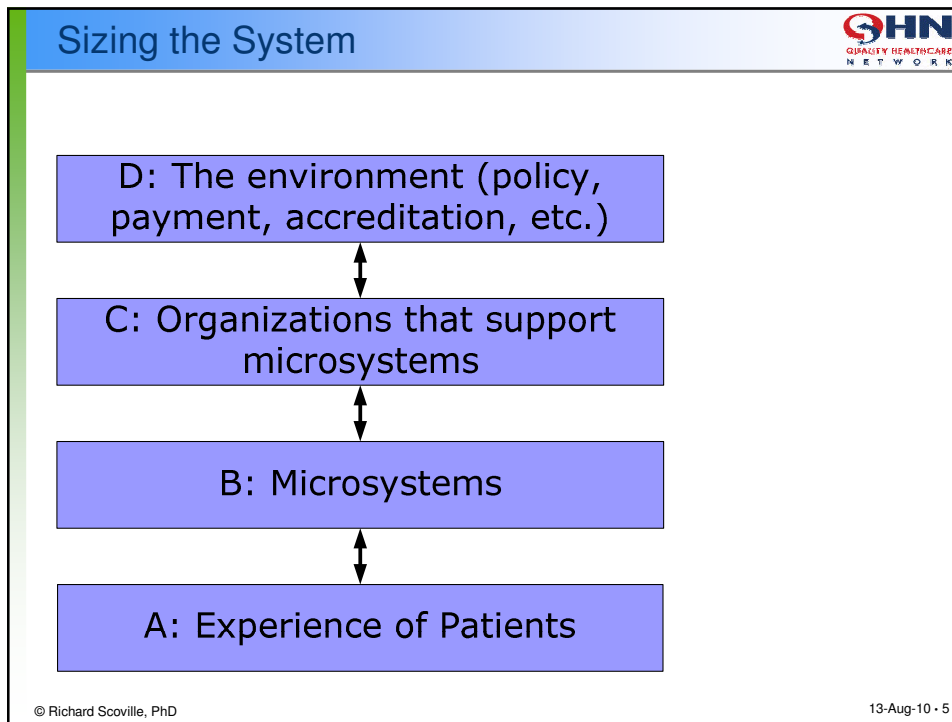
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## A System



- The network of factors that lead to outcomes of value to stakeholders
- Factors comprise structures, processes, culture, personnel, geography, and much more.
- Dynamic: The 'thing in motion'
- The system 'is what it is'
- The system has an aim or purpose
- Improving outcomes requires understanding the components and dynamics of the system



### Process vs. System

**SHN**  
QUALITY HEALTHCARE  
NETWORK

- **Process:** a set of causes and conditions that repeatedly come together in a sequence of steps to transform inputs into outcomes.
  - ✓ Beginning and End. Usually over time.
  - ✓ Processes get the work of the system done.
- **System:** an interdependent group of objects, people, or processes working together toward a common purpose.
  - ✓ Shows relationships. Time may or may not be included.

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### Process and Outcome

**SHN**  
QUALITY HEALTHCARE  
NETWORK

Inputs

Materials

Participants

Equipment

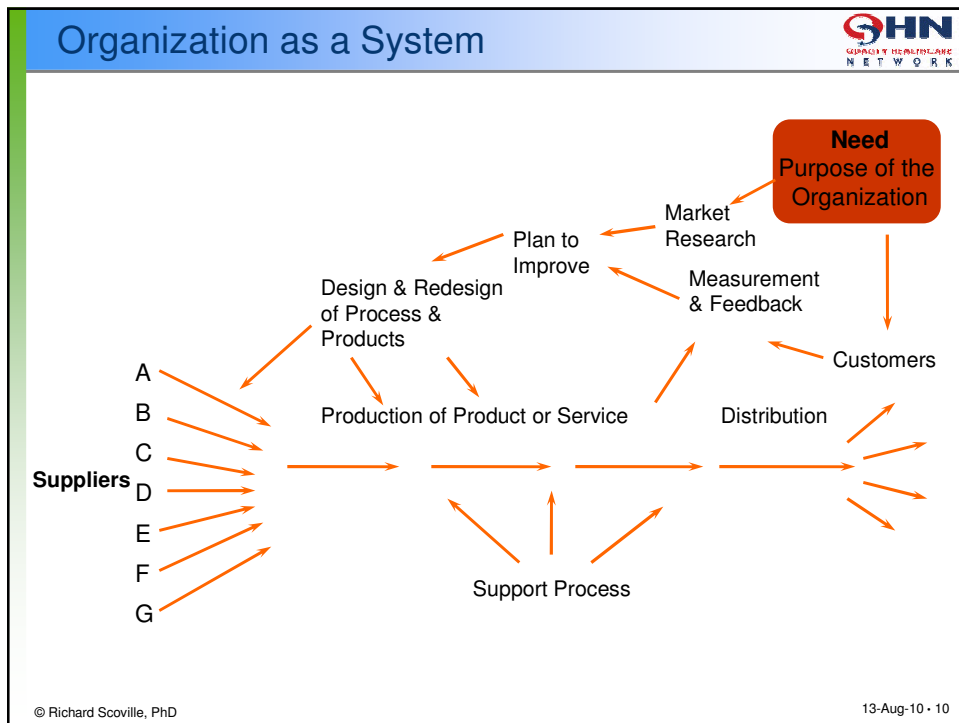
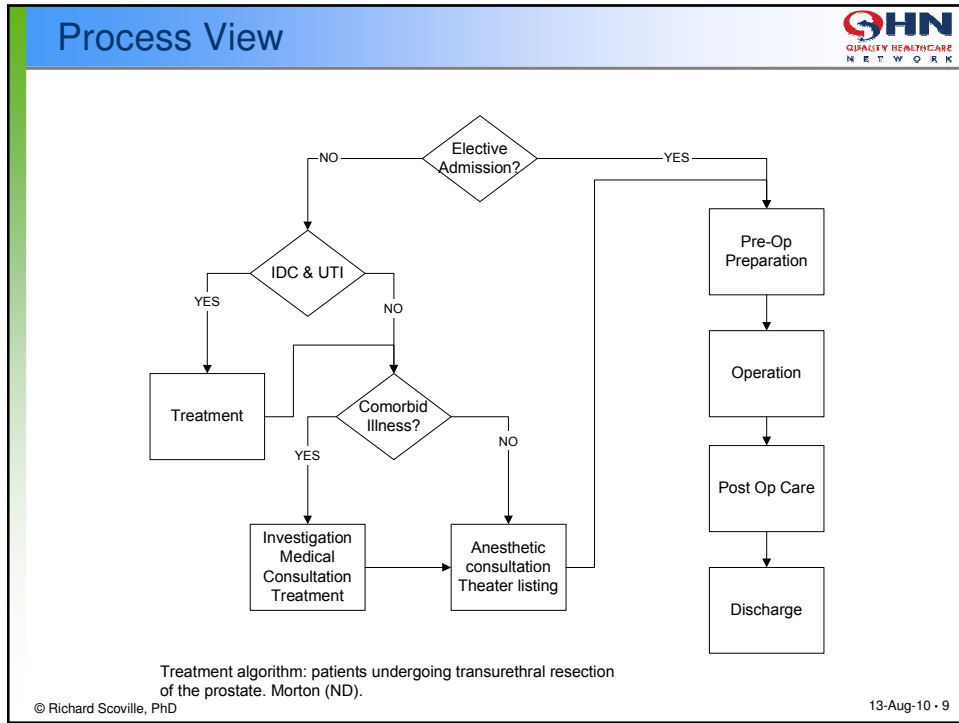
Processes

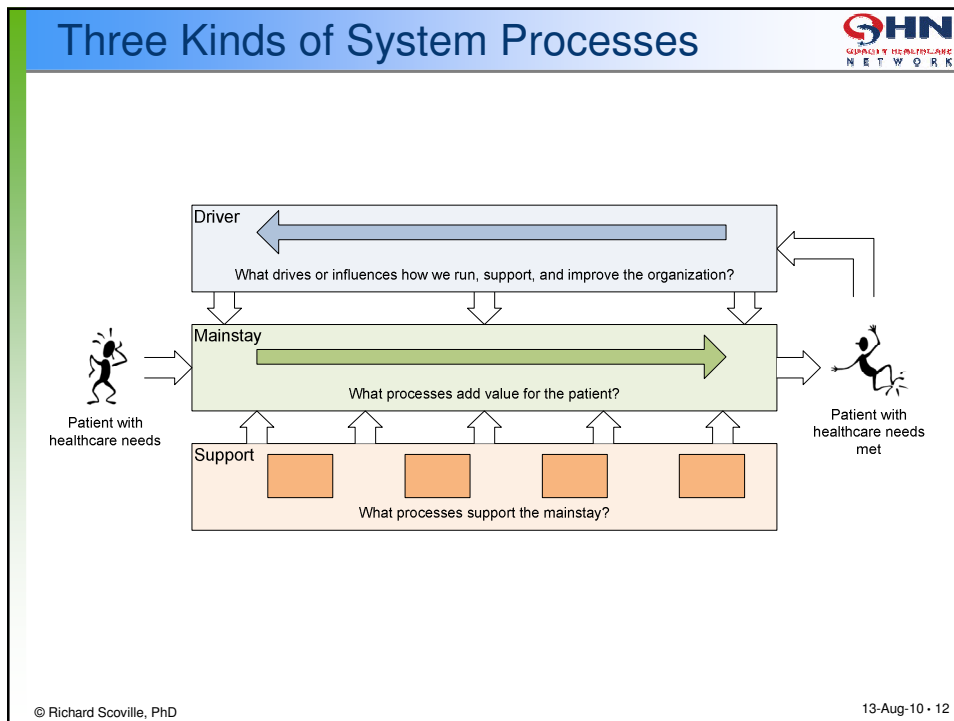
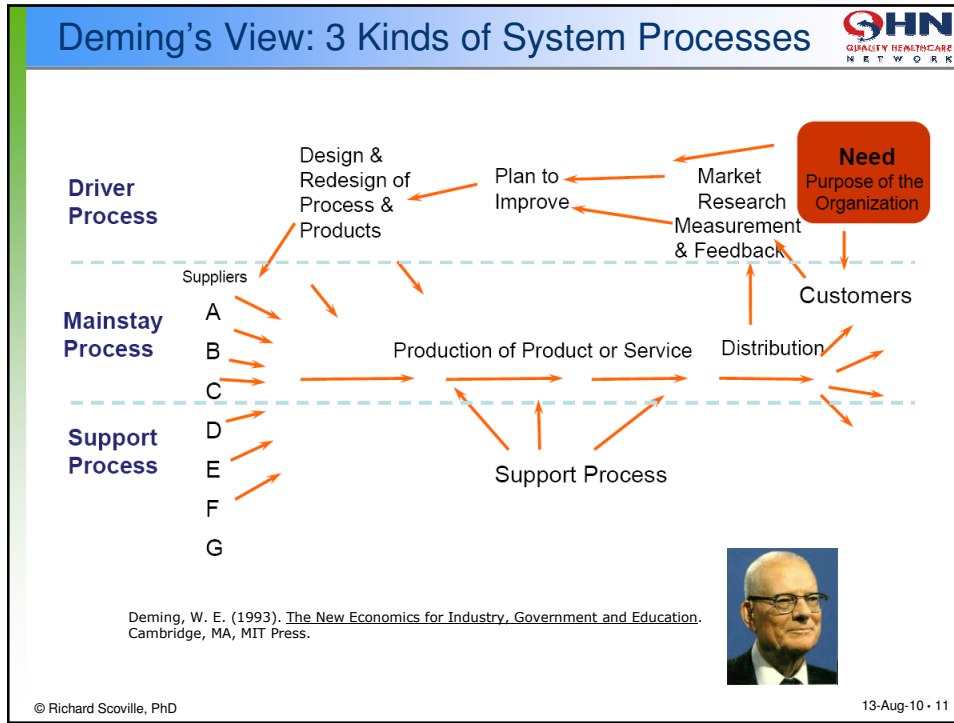
Outcomes

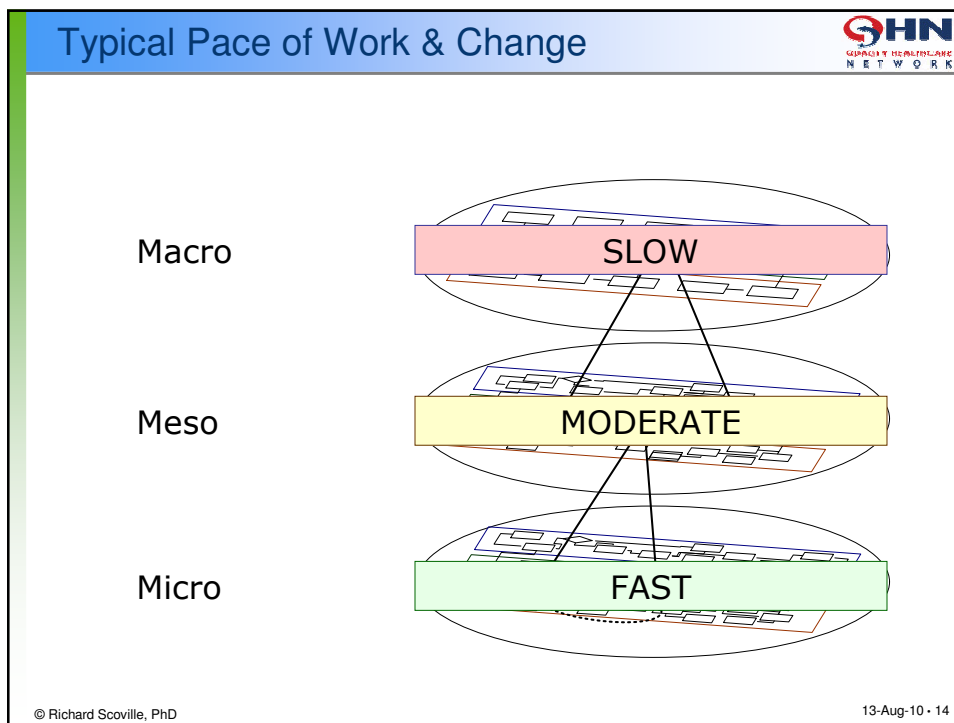
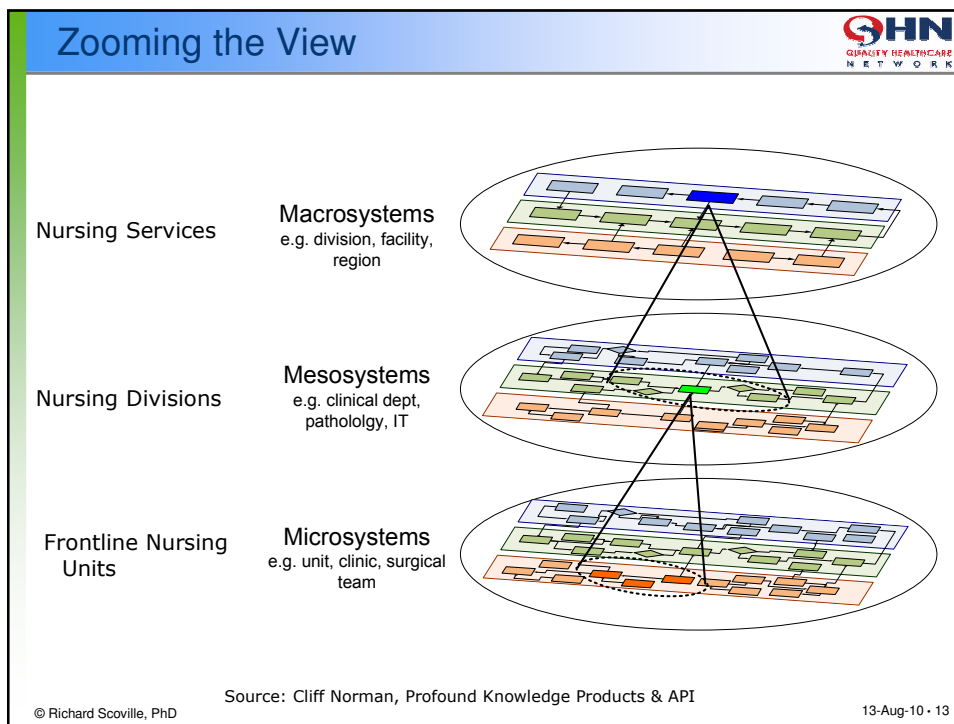
Stakeholders

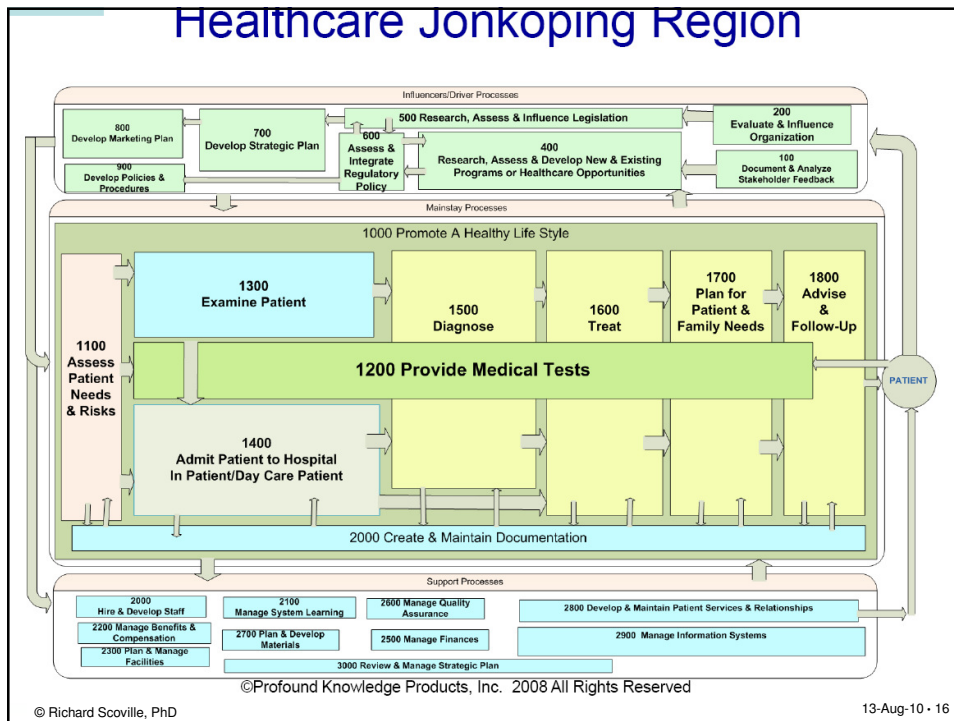
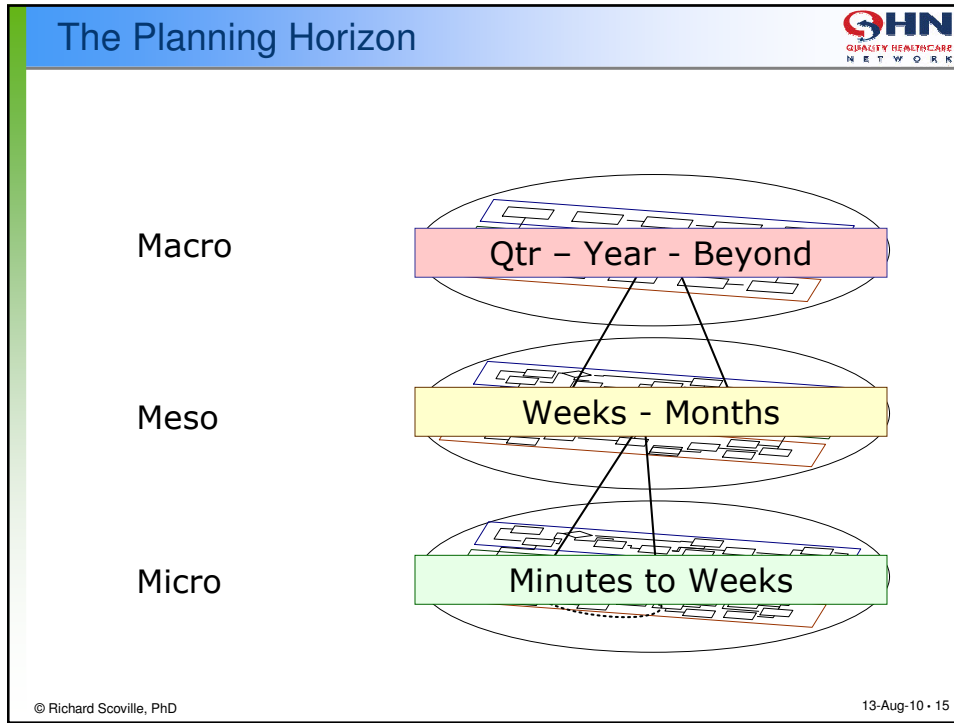
Process = a sequence of decisions and actions that delivers outcomes of value to stakeholders

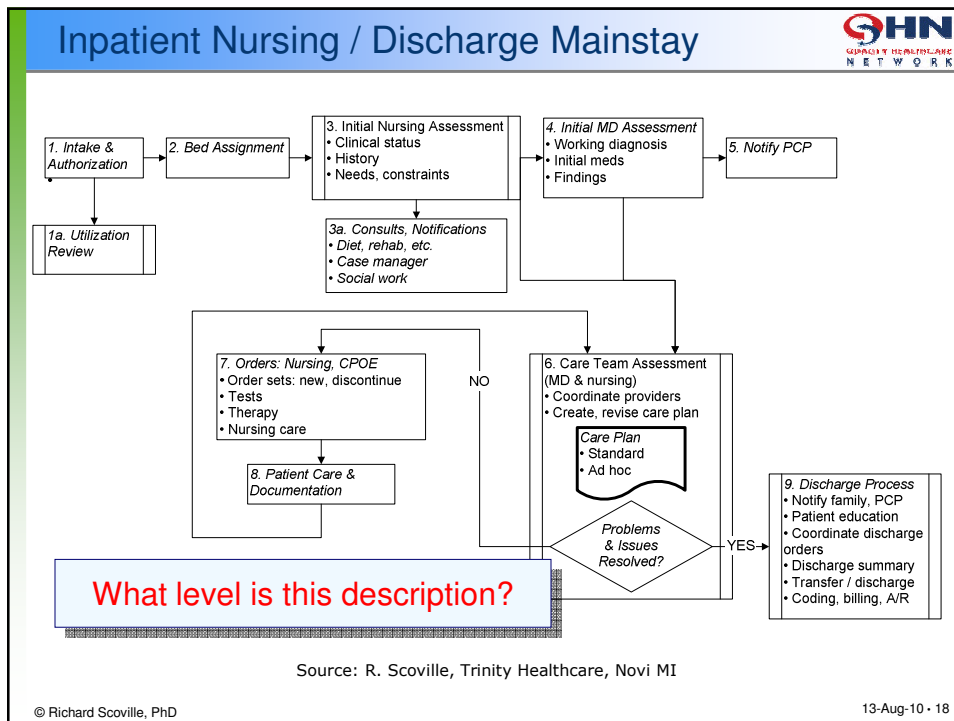
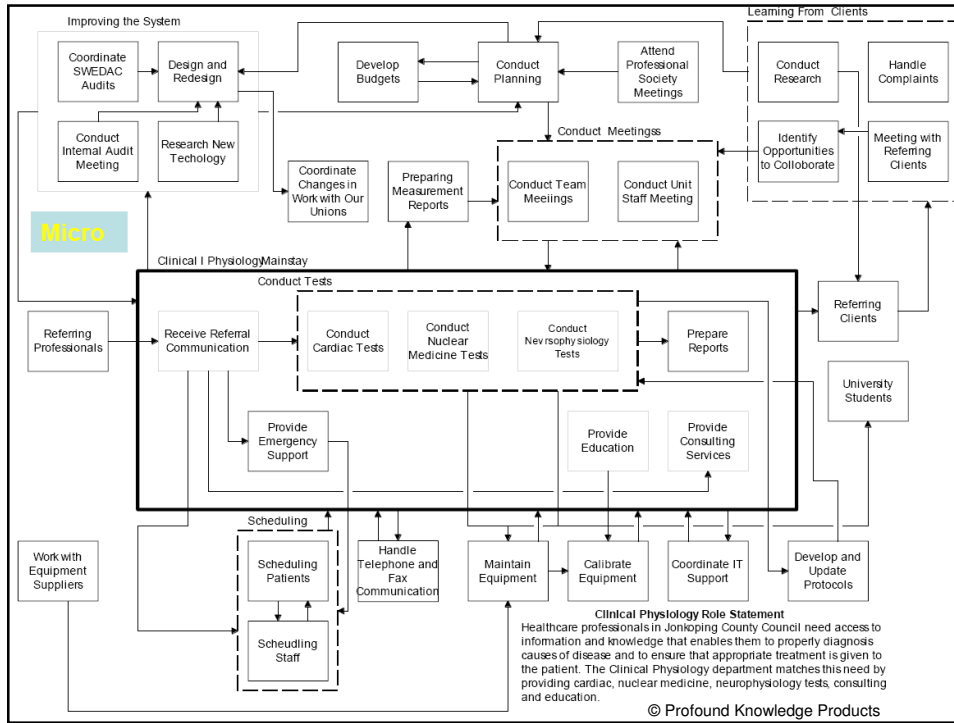
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## Orientation to Exercises



- Roles & badges for exercise work:
  - ✓ Participants seated at tables in cross-continuum groups
  - ✓ Badges identify roles: acute, LTC, HC, etc.
  - ✓ You may regroup themselves by Role for some exercises
- Worksheets
- Building a storyboard
  - ✓ Use the flip charts & tape to post your exercises.
  - ✓ We will photo for presentation & distribution
- Ground rules for discussion

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## Types of Measures



- *Outcome* (or Proxy) Measures
  - ✓ Point to qualities that are valuable to stakeholders
  - ✓ Proxy measures point to outcomes that are difficult to assess
- *Process* Measures
  - ✓ Track progress on drivers and changes
  - ✓ Help us identify effective changes
- *Balancing* Measures
  - ✓ Assess multiple quality dimensions of the system
  - ✓ Respect the values of multiple stakeholders
  - ✓ Avoid suboptimization

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## Exercise: Describe Your System



- Choose a system of care that frequently suffers from hospital readmissions
  - ✓ One in which you have experience
  - ✓ Must include cross-continuum patient experience
- Create a flow diagram to describe the mainstay process
  - ✓ You may select micro-, meso-, or macro-system level
  - ✓ Identify important support and feedback processes
- Questions to consider
  - ✓ What are patient characteristics that predict the risk of readmission?
  - ✓ Are different processes required for patients at different levels of risk?
- Post on your storyboard

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## Reliability Gets Results



### Cal Ripkin

- Baltimore short stop, 3<sup>rd</sup> base
- 2,632 games over 17 seasons
- Hall of Fame, 2007

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Levels of Process Reliability			
Level	Process Characterization	Typical % Receiving Appropriate Care	Example
0	CHAOS: No standardized 'system' of care; great individual variation in procedures. Response to failure is to 'try harder next time'.	< 80%	Much of preventive and chronic disease care
1	There is a standard process, but not everyone understands or follows it consistently; consistent execution still depends on memory and initiative.	Between 80 and 95%	Administration of beta blockers on arrival for AMI Medication reconciliation at patient discharge
2	Almost all staff understand process and attempt to follow it. Process incorporates 'early warnings' and redundancy to identify defects and enable corrective action before harm occurs. Participants are aware of failures and analyze them in order to avoid similar occurrences in future.	Greater than 95%	Medication errors resulting in patient injury Surgical site infections
>=3	Processes are well defined, and include multiple checks to identify and fix incipient failures. Preoccupation with failure: <i>every</i> failure is investigated using formal processes.	Greater than 99%	General surgery deaths for low risk patients

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### Measuring Microsystem Process Reliability


- Microsystem of care: Applying dental sealants to high risk children at a community health center
- System Aim: *All active pediatric patients 5-14 years old in the Center's dental population will have dental sealants applied to all indicated teeth.*
- Key mainstay process: assessing the need for sealants when children arrive for a visit, then apply the sealants to the teeth

Source: Dentaquest Institute, Westborough, MA

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Combining Measures



- Assessing system quality may require a combination of several measures (aka a 'bundle').
- Needed when optimal care requires reliable provision of multiple services
- Examples
  - ✓ **Diabetes:** medications, assessment, counseling
  - ✓ **VAP:** Elevation, "Sedation vacations," Extubation on time, Peptic ulcer prophylaxis, DVT prophylaxis, Chlorhexidine oral care
  - ✓ **Central line infections:** Hand hygiene, Barrier precautions at insertion, Chlorhexidine skin antisepsis, Catheter site selection, Prompt Removal
  - ✓ **SSI:** Antibiotic selection & timing, normothermia, glycemic control, clippers, etc.

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Example: Diabetes Care Measures



Outcome	% of patients with A1c < 7 % of patients with BP <= 130/80 % of patients with LDL < 100
Process	% of patients with >= 1 LDL % of patients with >= 2 A1c % of patients with foot exam % of patients with eye exam % of patients with microalbumin screen
Balancing	Annual cost / patient Cycle time Staff satisfaction

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## Measuring Process Reliability




Single measure	% of patients with $\geq 1$ A1c Etc.
All or nothing measure	% of patients with <u>all</u> of the following care components: <ul style="list-style-type: none"> <li>• LDL test</li> <li>• A1c test</li> <li>• Microalbumin screen</li> <li>• Foot exam</li> <li>• Eye exam</li> </ul>
Composite ('opportunities') measure	$\frac{\text{Number of successful opportunities for appropriate care across all patients}}{\text{Total opportunities (i.e. \# measures * \# patients)}}$

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## Calculating Reliability Bundle Measures



Pt	A1c test	LDL screen	Eye exam	Foot exam	Microalb	# Successful opportunities	All components?
1	Yes	Yes	Yes	Yes	Yes	5	Yes
2	Yes	No	Yes	Yes	Yes	4	No
3	Yes	Yes	No	No	No	2	No
4	Yes	Yes	Yes	Yes	No	4	No
5	Yes	Yes	Yes	No	No	3	No
6	Yes	No	Yes	No	Yes	3	No
7	No	Yes	Yes	No	Yes	3	No
8	Yes	Yes	Yes	Yes	Yes	5	Yes
9	Yes	No	No	Yes	No	2	No
10	Yes	Yes	Yes	Yes	Yes	5	Yes
Reliability	9/10 (90%)	7/10 (70%)	8/10 (80%)	6/10 (60%)	6/10 (60%)	36/50 (72%)	3/10 (30%)

**Composite measure** = (# successes) / (# opportunities) = (5+4+2+4+3+3+3+5+2+5) / (10x5) = **72%**

**All-or-nothing measure** = 3/10 = **30%**

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## Exercise: Identify Key MicroSystem Measures



- Identify key outcome measure(s) for your overall system
  - ✓ Must reflect stakeholder values
  - ✓ Include balancing measures
- For your mainstay process:
  - ✓ Risk assessment measure (if required)
  - ✓ Process reliability (including bundle measures if appropriate)
  - ✓ Effectiveness
- For support and feedback processes
  - ✓ Reliability
  - ✓ Effectiveness
  - ✓ Cost
- Identify critical points in the cross-continuum process flow where failures are most likely.
- Post on your storyboard