

Systems Approaches to Healthcare Delivery

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Overview

- Focused Projects
- Observations
- Broader Projects
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- Modeling Framework
- Observations

Focused Projects

- Determine why the waiting time in the Emergency Department is five hours and how best to decrease this time by an hour (Emory Healthcare)
- Determine why the average time between a physician signing a discharge order and the patient leaving the room is seven hours and how best to decrease this delay (Piedmont Hospital)
- Determine why Operating Room utilization is 50%, but the ORs always appear overloaded, and how best to increase utilization by at least 10% (Piedmont Hospital)
- Develop means for monitoring elderly patients to anticipate and mitigate opportunities for falling and serious injury, sometimes even death (Hackensack University Medical Center)

Observations

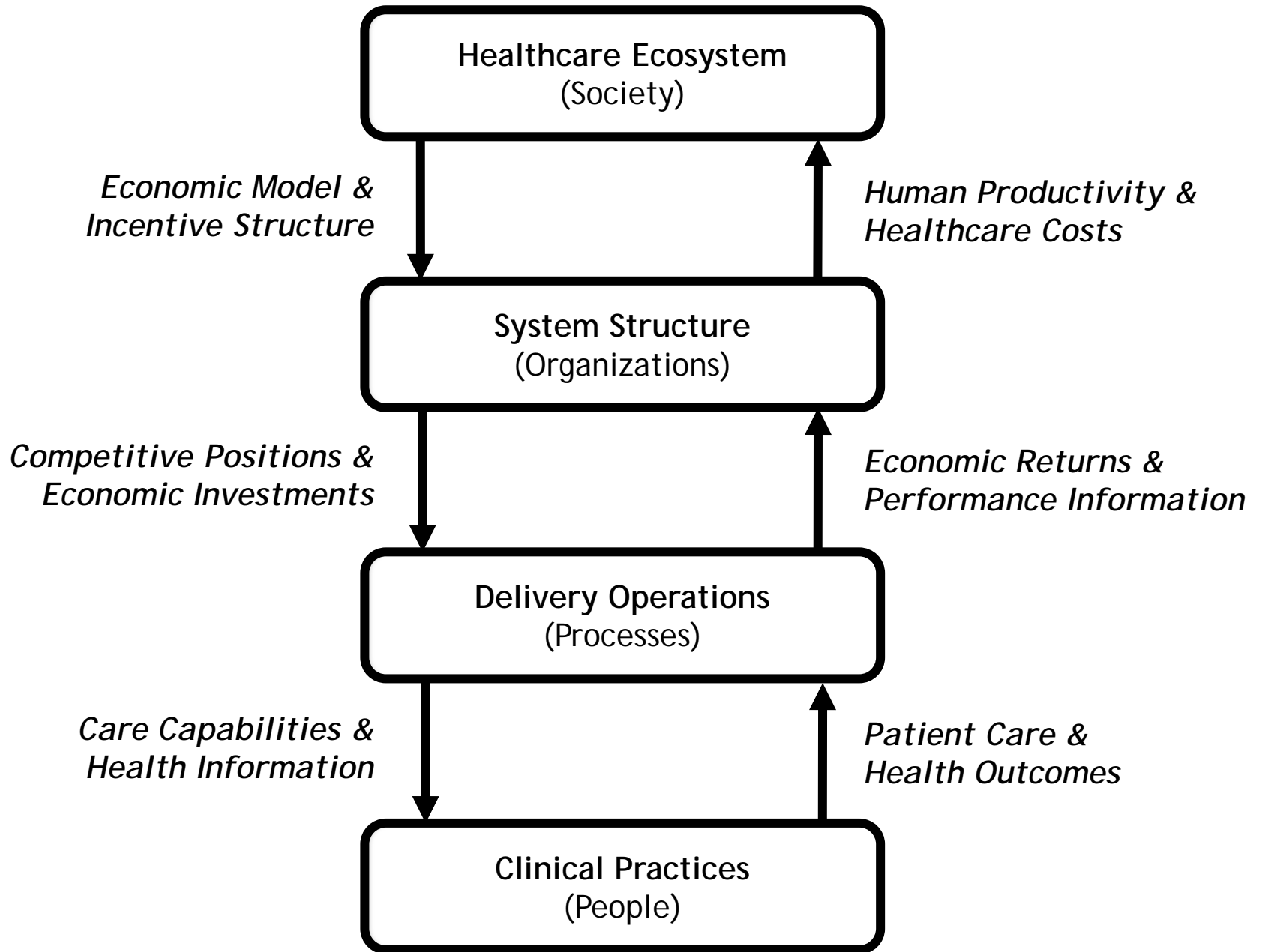
- Demands on ED are random and time varying, disrupting the operations of other scheduled departments, e.g., radiology. Suboptimization is a major problem.
- Inefficient turnover of beds leads to backups in ED, ICUs and ORs. Increasing the throughput of the ORs, for example, exacerbates the bed turnover problem.
- Clinicians have a wealth of ideas for how to improve delivery operations, but they seldom have the means for projecting the consequences of such changes.

Broader Projects

- Determine the most economical way to scale up an employer-based prevention and wellness program to 20,000 employees (Emory University).
- Determine how best to deliver chronic disease management while scaling the population served to avoid under-utilization of hospital resources (Vanderbilt University Medical Center).
- Map overall hospital flow processes using clinical, financial and claims data sets to identify and resolve key bottlenecks (Hackensack University Medical Center).

Observations

- There is an inherent conflict between payers and providers, especially when one organization pays and another organization receives the benefits.
- Alternative payment mechanisms -- fee for service, capitation, pay for outcomes - have enormous implications for how best to organize delivery.
- Appropriate framing of “the system” is critical to understanding sources of problems and improving outcomes - what seem to be exogenous variables may be sources of great leverage.



Observations

- Suboptimization is the natural tendency of functional elements of health delivery processes; a good example is buying “best of breed” incompatible IT systems.
- Global models can provide the means to identifying local changes that can become “tipping points;” small easy to agree-to changes that precipitate later major changes.
- Large interactive visualizations can provide the means for stakeholders to understand the complexity of their processes and commit to fundamental changes.