

The Jack Spratt Problem: The Potential Downside of Lean Application in Healthcare

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a place of mind



Origins of Lean

- Lean thinking has spread from its industrial origins (Taiichi Ohno, father of the *Toyota Production System*, the precursor of what became *Lean Manufacturing* (1990's) in the U.S.) to healthcare organizations and other public services.
- The *Toyota Production System* developed new methods to manage unconventional ideas: balancing demand (mura, muri) managing flow, to reduce muda (waste) and create value
- These new methods became INCORRECTLY thought of as tools, e.g. 'takt (cycle) time', 'Six Sigma', 'value-stream mapping', 'JIT' andNorth Americans became intrigued with the approach and spent time in Japan studying them to get knowledge ("industrial tourists") (John Seddon, 2008)

WHY LEAN

- Although the avoidance of “wasted time and resources” is not a new idea, with healthcare systems increasingly challenged to deliver better care to more people using fewer resources, it is no surprise that Lean, with its package of “tools” to rid the system of ‘waste’ can be very compelling.

THE PROBLEM

- The uncritical acceptance of Lean in a service context, which in North America tends to be associated more with efficiency than value, has been met with concern from front-line workers about how it is being implemented in healthcare and sustainability.

Experience with Lean

- ‘success stories’ (e.g. Virginia Mason in Seattle) need to be balanced by additional experience & evidence
- few initiatives have been formally evaluated using rigorous designs or analysis (Young and McClean, 2008; Proudlove et al, 2008; Vest and Gamm 2009) Radnor, Hollweg, and Waring 2011).
- critical reflection is needed whether of Lean is relevant to healthcare and if so how – Ohno did not think in terms of tools, targets or plans

A critical look at Lean application in healthcare – basic issues

- Service differs from manufacturing: transferring Lean from a manufacturing environment to a people intensive and highly dynamic & complex environment such as healthcare requires thought
- The challenge of moving from the concept of “value-to-a-single-customer” to multiple values, as there are in healthcare: clinical, operational, experiential.
- Value demand and failure demand
 - Value demand—what we are here to provide
 - Failure demand—demand caused by a failure to do something or do something right (generated by the system)

A critical look at Lean application in healthcare – basic issues (con't)

- Uncontrolled variance in processes or outcomes is often perceived as the major cause of problems and failure in healthcare.
- Control is generally imposed (by senior governance levels- policies and procedures) on those who perform the front-line work.
- Healthcare is a dynamic, complex, socio technical system – where adaptation is often central to creating value as an emergent property

A critical look at Lean application in healthcare – basic issues (con't)

- Performance variability (muri) is a necessary feature of complex adaptive systems.
- There will always be a gap between “the system as designed” versus “the system as found” (Hollnagel, 2009 and 2010; Cook, 1998 and 2012; Dekker, 2008).
- Applying the Lean tools (often rigidly) before first understanding how the work gets done can seriously backfire-an incapacity to adjust to surprise may be hampered (pure muda)

Examples

- The difficulty of identifying the customer – creating value for staff (convenience), organization (efficiency) or patient (appropriate, timely care or satisfaction) may require trade-offs
- The challenge of understanding how everyday work gets done – allocating additional tasks to patient assessment activity (i.e. management made a decision (with substantial potential to impact patient outcomes) based on how they imagined the system is operating (i.e. the system as designed) versus how the work actually got done.
- Uncritically adopting Lean tools without consideration of how local context can interact with the rollout of a recommended practice, e.g. Just in Time delivery of supplies-tracheostomy tubes

Implications

- Need to reflect on how to translate concepts such as “customer” and “value” to complex organizations, such as healthcare
- Understand the value of performance variability and adaptation in complex systems, and recognize that there will always be a tension between developing a robust system, marked by standards, rules and procedures (Lean), with the need for performance variability and the capability to adapt (sometimes quickly) to changing conditions (a Resilient system).
- Recognize that there will always be a substantial gap between the “system as designed” and the “system as found” and invest efforts to better understand how everyday work gets done (Resilience Analysis Grid[©]).

Implications (con't)

- There is a gap in knowledge about the rollout and impact of Lean in healthcare
- There is a critical need for more formal evaluation of effect as well as Return on Investment (Where is the money?)
- Beware of targets-they paradoxically produce waste

Acknowledgements

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School of Population and Public Health



Resilient Health Care Net



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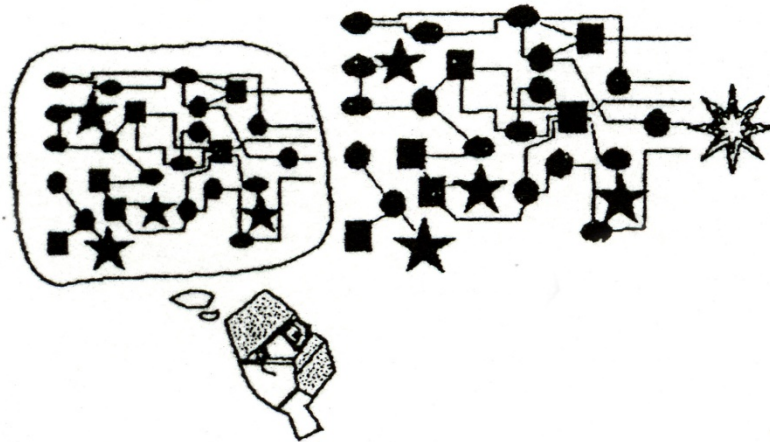
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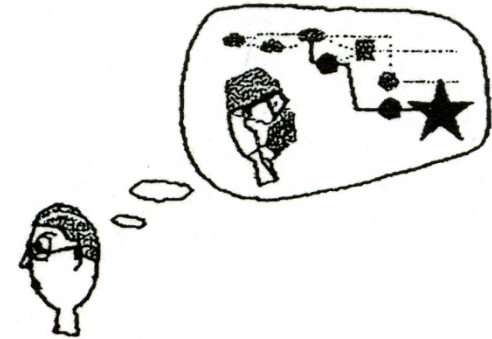
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Hindsight Bias

**Before the
Accident**



Hindsight Bias



**After the
Accident**

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