ASSESSING LEAN IMPLEMENTATION: THE LEAN HEALTHCARE IMPLEMENTATION SELF-ASSESSMENT INSTRUMENT

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LITERATURE REVIEW AND CONSULTATION

• Reviewed Lean foundational literature
  • Documents describing lean behaviors of organizational leaders, managers, and other workers to identify categories of essential lean-related work behaviors
    • Focused on Shingo and 4P models of lean
    • Consulted with selected authors and practicing professionals
  • Searched for existing Lean implementation assessment instruments publicly available to hospital staff
  • Examined published reviews of available Lean implementation instruments
“Lean deployment assessment in healthcare is needed to understand the depth of lean deployment, avoid misconceptions of lean, and guide healthcare organizations in pursuing a new management philosophy rather than a fad. Most lean change attempts lack monitoring and continuous double-loop learning, leading to returns to the comfort zone and, therefore, to the absence of lean sustainability.”

(Guimarães and Carvalho, 2014, p.22)

THE TEN SHINGO PRINCIPLES

1. Create value for the customer
2. Create constancy of purpose
3. Think systematically
4. Focus on process
5. Embrace scientific thinking
6. Create flow and pull value
7. Assure quality at the source
8. Seek perfection
9. Lead with humility
10. Respect every individual
THE 4P MODEL OF LEAN

1. Purpose
2. People
3. Processes
4. Problem-solving capabilities

NEED FOR NEW INSTRUMENT

• Determined that existing Lean implementation tools had significant deficiencies
  • Need for site visit – consultation with assessment expert
  • Too many questions – took too long to complete
  • Lack of clear connection to core Lean principles
  • Questions/items do not assess behaviors

• Developed draft of a new Lean Healthcare Implementation Assessment Survey Instrument (LHISI)
  • Initially developed 101 items (behavioral statements) linked to 14 (Shingo and 4P) Lean principles
ITEM SELECTION

• Two rounds of rating the importance of items to assessing the extent of lean implementation (“Somewhat important,” “Important,” or “Very important”)
  • Round 1 (36 responses): **101 items were rated**
    • Reduced to 68 items rated most important
    • Re-wording suggestions were also incorporated
  • Round 2 (39 responses): **68 items were rated**
    • Reduced to 48 items rated most important
    • Simple behavioral anchors were developed for each item, e.g.,

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<td>Q1. Goals are clear and understood, everyone knows if goals are being met.</td>
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<td>Q2. Department and organizational goals are not visible or understood, and performance standards are unclear.</td>
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<td>Q3. Department and organizational goals are sometimes visible and understood, and performance standards are sometimes clear.</td>
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<td>Q4. Department and organizational goals are always or almost always visible and understood, and performance standards are always clear.</td>
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PILOTING OF LHISI v1

• Pilot test surveys with practitioners in multiple healthcare organizations (using 48-item instrument)
  • Pilot 1 (152 responses) – Exploratory factor analysis
    • Seven factor model (subscales described in next slide)
    • Two items did not load on a factor, and were removed from the instrument
  • Pilot 2 (90 responses, 34 retest responses) – Reliability
    • 3 items had low reliability and were removed (leaving 43 items in the final instrument)
    • In final 43-item instrument, subscales showed good reliability
      • Test-retest: Pearson’s r ranged from 0.72-0.85
      • Internal consistency: Cronbach’s alpha ranged from 0.82-0.93
SEVEN SUBSCALES

- Huddles (4 items)
- Coaching and Empowerment (8 items)
- Standard Work (7 items)
- Commitment (7 items)
- Visual Management (6 items)
- Senior Leadership (5 items)
- Communication and Trust (6 items)

SUBSCALE: HUDDLES

- In my unit/department, clinical staff attend daily huddles.
- In my unit/department, management staff attend daily huddles.
- In my unit/department, management staff review performance data trends to enhance their ability to drive improvement.
- Across my hospital/clinic, successes gained and failures are shared.
**SUBSCALE: COACHING AND EMPOWERMENT**

- In my unit/department, goals are visual and understood; everyone knows if goals are being met.
- In my unit/department, everyone is empowered and recognized for signaling problems or defects that occur in their area.
- Lean has a sponsor/champion and clinical management staff who demonstrate visible, active, public commitment and support of lean.
- Across my hospital/clinic, the outcomes desired from using the lean approach are clear and shared.
- In my unit/department, coaching is consistent and evident throughout and at all levels.
- Across my hospital/clinic, leaders at all levels coach to ensure a clear connection between purpose and the work being performed.
- Across my hospital/clinic, leaders at all levels provide employees and staff regular feedback.
- In my unit/department, everyone does improvement as part of work, not an extra activity.

**SUBSCALE: STANDARD WORK**

- In my unit/department, senior leaders use PDSA thinking with the operational units they lead.
- In my unit/department, use of standard work is monitored for compliance.
- In my unit/department, clinical staff use standard work.
- In my unit/department, management staff use standard work.
- In my unit/department, senior leaders use standard work.
- In my unit/department, work processes are standardized.
- In my unit/department, management staff use value stream mapping.
**Subscale: Commitment**

- In my unit/department, management staff use PDSA thinking with the operational units they lead.
- In my unit/department, employees are provided time and resources for improvement work.
- In my unit/department, senior leaders are committed to lean.
- In my unit/department, management staff are committed to lean.
- In my unit/department, physicians are committed to lean.
- Across my hospital/clinic, leaders at all levels create and sustain an environment of continuous improvement and continuous learning.
- In my unit/department, management staff practice A3 thinking.

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**Subscale: Visual Management**

- In my unit/department, frontline staff use visual displays to understand their unit's performance.
- Clinical staff use visual displays to understand their unit's performance.
- In my unit/department, administrative and support staff use visual displays to understand their unit's performance.
- In my unit/department, management staff use visual displays to understand their unit's performance.
- In my unit/department, a daily management system (e.g., daily huddles, gemba walks, etc) is used.
- In my unit/department, clinical and frontline staff use real time, actionable metrics to facilitate problem-solving, problem escalation, and process improvement at all levels.
**SUBSCALE: SENIOR LEADERSHIP**

- Across my hospital/clinic, senior leaders practice humble inquiry when interacting with employees at all levels of the organization.
- In my unit/department, senior leaders have made an explicit commitment to patient-centered care.
- In my unit/department, senior leaders follow a process for strategy definition and deployment that provides focus at all levels.
- Across my hospital/clinic, the organization’s True North vision guides its lean transformation.
- In my unit/department, senior leaders make data driven decisions.

**SUBSCALE: COMMUNICATION AND TRUST**

- Across my hospital/clinic, senior leaders at all levels create a safe environment for exposing problems.
- Across my hospital/clinic, leaders at all levels engage employees where the work happens.
- In my unit/department, patient/customer needs drive healthcare work.
- In my unit/department, those who provide care to patients/customers communicate with each other.
- In my unit/department, the communication that occurs among those who provide care to patients/customers is focused on problem-solving rather than blaming each other or others.
- In my unit/department, those who provide care to patients/customers share common goals.
LHISI v2 HAS BEEN DEVELOPED

• Modified some statements to clarify that the focus of the question is on (a) the organization or (b) the respondent’s work unit
• Switched from behavioral response categories to Likert-type response scale to streamline the instrument
• Continuing to pilot test LHISI v2
• LHISI v2 is publicly available
  • pdf version is available on our website (clear.berkeley.edu), and in your attendee packet
  • will soon be available through the REDCap library, or you can format a web survey on a different platform of your choice

LHISI V2 HAS BEEN DEVELOPED

ON-GOING RESEARCH USING LHISI

• The Lean Action Research Learning Collaborative
  • Includes 7 hospitals and health systems
  • Lean implementation benchmarking study
  • Lean implementation and clinical staff burnout/well-being study
• International applications
ACKNOWLEDGEMENTS

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  • DAVID FOSTER, PhD

• CATALYSIS

• LEAN ENTERPRISE INSTITUTE

• RONA CONSULTING GROUP | MOSS ADAMS

• VALUE CAPTURE

THANK YOU

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