The Invaluable Improvement Advisor: Building Improvement Capability

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#27forum

Objectives

- Identify the role and core skills of an IA
- Assess capability in their own organizations for identifying, planning and executing improvement projects
Discussion Topics

- Why do we need an Improvement Advisor (IA)?
- The role and function of an IA
- Core skills of an IA
- An IA’s story
- Building capability for quality improvement

Why do we need an IA?

Is life this simple?

X

Patient encounter with physician

Y

A healthy and satisfied patient

(If it was this simple we would not need IAs!)
No, it looks more like this...

There are numerous direct effects between the independent variables (the Xs) and the dependent variable (Y).

Actually, life looks like this...

In this case, there are numerous direct and indirect effects between the independent variables and the dependent variable. For example, X1 and X4 both have direct effects on Y plus there is an indirect effect due to the interaction of X1 and X4 conjointly on Y.
The Challenge of Complexity!

“Some problems are so complex that you have to be highly intelligent and well informed just to be undecided about them.”

--Laurence J. Peter

Dr. Walter Shewhart

“Both pure and applied science have gradually pushed further and further the requirements for accuracy and precision. However, applied science, is even more exacting than pure science in certain matters of accuracy and precision.”
Applied Science requires two types of knowledge

**Subject Matter Knowledge:** Knowledge basic to the things we do in life. Professional knowledge. Knowledge of work processes.

**Science of Improvement (SOI) Knowledge:** The interplay of the theories of systems, variation, knowledge, and psychology.

Knowledge for Improvement

**Improvement:** Learn to combine subject matter knowledge and SOI knowledge in creative ways to develop effective changes for improvement.
The messiness of life requires applied science!

R = residuals or error terms representing the effects of variables not included in the model.

A healthy and satisfied patient

I REALLY do enjoy the messiness of life! Don't you?
What is an Improvement Advisor?

A key to increasing organizational capacity for improvement is the role of the Improvement Advisor. An Improvement Advisor is an effective leader, consultant, and facilitator with deep knowledge of the science of improvement, including the skills, tools, and methods needed to accomplish the improvement strategies of the organization.

Role of an IA

- Brings expertise and experience with science of improvement
- Helps identify, plan, and execute improvement projects throughout the organization
- Builds change packages, measurement systems aimed at getting results
- Spreads changes throughout the entire system
An IA Functions as...

A guide
A coach
A convener
A translator
A measurement expert
A voice for the science of improvement
A term that I do not understand very well!

The Improvement Advisor’s Foundation

Deming’s System of Profound Knowledge

Key Improvement Methods:
Model for Improvement with PDSA
Shewhart charts
Operational Definitions
Analytic Studies
Graphical Data Analysis
Intrinsic motivation
Multi-disciplinary teams

Subject Matter Knowledge

Improvement

Seven Propositions:
1. Grounded in the Scientific Method
2. Foundation of conceptualistic pragmatism
3. Embraces a weak from of psychologism
4. Considers context of justification and discovery
5. Recognizes value of operationism
6. Variation is defined by chance-cause system
7. Systems theory

Characteristics of the Applied Science of Improvement:
1. Bias toward action learning
2. Focus on prediction of future outcomes
3. Multiple testing cycles before implementation
4. Visual display to learn from data
5. Learning from special and common causes
6. Simple and complex study designs
7. Ongoing interaction of scientists and practitioners

The Improvement Advisor’s Roadmap

When you combine the 3 questions with the PDSA cycle, you get... 

...the Model for Improvement.


Improvement Advisor Skills

Six Skills to Support the Improvement Model

1. Supporting Change with Data
2. Developing a Change
3. Testing a Change
4. Implementing a Change
5. Spreading Improvements
6. The Human Side of Change
Methods and Tools for Improvement

<table>
<thead>
<tr>
<th>Category</th>
<th>Method or Tool</th>
<th>Typical Use of Method or Tool</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2. Linkage of Processes (LOP) Map</td>
<td>Develop a picture of a system composed of processes linked together.</td>
</tr>
<tr>
<td>Gathering Information</td>
<td>3. Form for Collecting Data</td>
<td>Plan and organize a data collection effort.</td>
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<td></td>
<td>4. Surveys</td>
<td>Obtain information from people.</td>
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<td></td>
<td>5. Benchmarking</td>
<td>Obtain information on performance and approaches from other organizations.</td>
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<td></td>
<td>6. Creativity Methods</td>
<td>Develop new ideas and fresh thinking.</td>
</tr>
<tr>
<td>Organizing Information</td>
<td>7. Affinity Diagram</td>
<td>Organize and summarize qualitative information.</td>
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<td></td>
<td>8. Force Field Analysis</td>
<td>Summarize forces supporting and hindering change.</td>
</tr>
<tr>
<td></td>
<td>9. Cause and Effect Diagram</td>
<td>Collect and organize current knowledge about potential causes of problems or variation.</td>
</tr>
<tr>
<td></td>
<td>10. Matrix Diagram</td>
<td>Arrange information to understand relationships and make decisions.</td>
</tr>
<tr>
<td></td>
<td>11. Tree Diagram</td>
<td>Visualize the structure of a problem, plan, or any other opportunity of interest.</td>
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<tr>
<td></td>
<td>12. Quality Function Deployment (QFD)</td>
<td>Communicate customer needs and requirements through the design and production processes.</td>
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<tr>
<td>Understanding Variation</td>
<td>13. Run Chart</td>
<td>Study variation in data over time; understand the impact of changes on measures.</td>
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<tr>
<td></td>
<td>14. Control Chart</td>
<td>Distinguish between special and common causes of variation.</td>
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<td></td>
<td>15. Pareto Chart</td>
<td>Focus on areas of improvement with greatest impact.</td>
</tr>
<tr>
<td></td>
<td>16. Frequency Plot</td>
<td>Understand location, spread, shape, and patterns of data.</td>
</tr>
<tr>
<td>Understanding Relationships</td>
<td>17. Scatterplot</td>
<td>Analyze the associations or relationship between two variables; test for possible cause-and-effect.</td>
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<td></td>
<td>18. Two-Way Table</td>
<td>Understand cause-and-effect for qualitative variables.</td>
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<td></td>
<td>19. Planned Experimentation</td>
<td>Design studies to evaluate cause-and-effect relationships and test changes.</td>
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</table>
My Journey as an IA Wave 30

Dr. Curtis Smecher
VP Quality and Patient Safety
BC Anesthesiologists Society
Chief of Anesthesiology
Abbotsford Regional Hospital and Cancer Center
Abbotsford, BC, Canada

Objectives

• Why train as an IA?
• Why IHI?
• My Project – Learning and Results
• Where has this brought me

Disclosures:
This space for rent
I have nothing to disclose
I am a consulting Anesthesiologist, a Department Head and a VP of the BC Anesthesiologists Society

The Quality of the Care I provide is incredibly important
  - These are life changing events in my patients lives
  - I have the skill to surprise them in very positive ways

How do I make sure this is the best I can do?

How do I make sure this is the best **my Department** can do?

How do I make sure this is the best **my Hospital** can do?

How can I help **my colleagues** do the best they can do?

I studied to become an IA because…

...**Quality of Patient Care Matters!**
Why train with IHI?

- Proven Track Record
- Internationally known
- The Faculty wrote the books – literally!
- International contacts
- International Context

A personal QI Project is a very important part of IA Training

My Project:

Management of Emergent and Urgent Surgical Cases
The Issues:

- Not meeting access time goals: either clinical or Administrative
- Admin and Clinical Goals misaligned
- Lower Priority cases continually delayed
- Little Oversight of the process
- Accusation of inappropriate case bookings, no resolution
- Priority Classification too course (1, 12, 24 or 72 hrs)
- Unable to monitor access against clinical need
- Overtime used to compensate

Constraint:
- No Increased cost

Aim

1. To make Add-On case Scheduling more responsive to Clinical Need by July 2014 so that established deadlines are met over 90% of the time

2. To reduce Nursing Overtime by at least 25%
Measures and Goals

1. **Make Add-On case Scheduling more responsive to Clinical Need by July 2014**
   - Marker 1: Obstetric Emergency Response Time:
     - reduce average response time below 30 minutes
     - No case beyond 60 minutes
   - Marker 2: Hip Fractures Time to OR:
     - In OR by 48 hrs from admission in 90% of cases

2. **Reduce Nursing Overtime by at least 25%**

The Team

Anesthesiology (me)
Surgery
OR Management
OR Nursing
Driver Diagram

Aim

Make Add-On Scheduling more responsive to Clinical need

Primary Drivers

- Available Time
- Prioritization of Work
- Clear Expectations
- Enforcement of Rules

Secondary Drivers

- Daytime Trauma Room
- Clear Rules for preemption of Elective Cases
- Scheduling Algorithm
- Trackable, Monitorable Priorities
- Define "usual" Response time Requirements
- Review Process and Committee

Change Concepts

1. Daytime Trauma Room
2. Deadline based Scheduling (vs Priority Scheduling)
3. Daily Slate reviews
4. Written and agreed Access goals
5. Defined Case Review process
**Change Ideas: Trauma Room**

- Primarily Orthopedics cases
- Move longer, more complicated cases to Daytime hours

**Theory:**
- More Hours to get the work done -> more timely access
- Longer cases done when they did not block the OR for extended periods -> more timely access for OB Emergencies

**Requirements for sustainability:**
- Effective use of Time
- Fee-for-Service Staff adequately paid

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**PDSA Ramps**

<table>
<thead>
<tr>
<th>Trauma Room</th>
<th>Scheduling Algorithm</th>
<th>Agreed Goals</th>
<th>Case Reviews</th>
</tr>
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<tbody>
<tr>
<td>P D A S</td>
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</table>
Hip Fracture Response
- Consistently better than 97% within 48 hrs.

Obstetric Emergency Response
- Mean reduced from 39 to 25 minutes (36%)
- Fewer long waits
- Process brought into control

Trauma Room Sustainability
Add On Case Hrs – Average 7.5 hrs
Total Case Hrs – Average > 8 hrs

Reduced Nursing OT
- 32% reduction
Satisfaction

Overall Positive!

**Surgeons**
- Better access for all, regardless of Trauma room access
- Everyone wants access to new time
- Competition for OR time still a driver

**Staff**
- Mixed reaction
  - Slow to change from Priority Scheduling
  - Surgeons push whatever system favors them at that time

Holding the Gains

- Overtime has been steadily creeping up
- Trauma Room hours holding
- Overall Volume of work increasing

*Gains sustained!*
Results

- Overtime reduction of Nursing OT by 32%
- Reduced Penalties for missed deadlines
- Improved patient care = no added costs
  - Fractured Hips done within 48 hours more than 97% of time
  - Emergency C Sections
    - response time improved by 36%
    - Variability decreased
    - Process brought into control
- Project cost = no added incremental cost

What did I gain from the IA Programme?

1. **Skills**
   - Changing Systems
   - Working with Variation and Data
   - Better Understanding of People and Leadership
   - Ability to use the theory that drives the learning in these systems

2. **Credibility**
   - New Projects
   - Larger Scope of Projects

3. **Confidence**
   - Engage in Major Change
My Roles

- Leading Local Projects in my Hospital.
- Leading Physician Engagement within the Health Authority by:
  - teaching these skills and
  - helping Physicians lead their own QI projects
  - Setting up processes to allow Physicians to engage with the Health Authority
- Working at a Provincial Level.
- Teaching as an “IA Grad” in the IA Program!
- Keeping in touch with the many friends and mentors I have met on this journey.

So, what path do I follow to become an IA?
Many Pathways to Gaining Knowledge and Skills

**Formal Programs**
- Variety of industry Six Sigma “Black Belt” programs
- American Society for Quality (ASQ) certification programs
- Lean Certification (various sources)
- University degree programs
- IHI’s Improvement Advisor Professional Development Program
- Others?

**Self Study**
- API reading list keyed to topic area (apiweb.org/Bibliography.htm)
- IHI Open School, On Demand videos, Whiteboard videos (IHI.org/IHI/Topics/Improvement/Improvement Methods)

Pathway Options for Learning

**Traditional Training Path**
- Case Studies
  - Predictable Solution leads to a defined set of tools & methods
  - Learn by example, practice with case studies. Known outcomes.
  - Answers are available
- Passive Learning
- Lecture book, or listing of presentation slides
- Subject/Instructor Focus
- Understanding topics

**IA Program Path**
- Real Project
  - Project influences which tools and methods will be emphasized.
  - Theory Based Approach; Outcomes are unknown.
- Unknown Solutions
  - Active Learning
  - Reference Materials
  - Adult Learning Focus
  - Learning to consult
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Institute for Healthcare Improvement
National Forum 2015

Foundation for the IA’s Learning

Deming’s System of Profound Knowledge

- QI
- Combines with
- Provides the Philosophical and Theoretical Base for

- Understanding System
- Understanding Society
- Understanding Variation
- Understanding Human Behavior

Key Improvement Methods:
- Model for Improvement with PDSA
- Shewhart charts
- Operational Definitions
- Analytic Studies
- Graphical Data Analysis
- Intrinsic motivation
- Multi-disciplinary teams

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The Lens of Profound Knowledge

Appreciation for a System
- Interdependence, dynamism
- World is not deterministic
- Optimization, interactions
- System must have an aim
- Whole is greater than sum of the parts

Theory of Knowledge
- Prediction
- Learning from theory, experience
- Operational definitions
- PDSA for learning and improvement

Psychology
- Interaction between people
- Intrinsic motivation, movement
- Beliefs, assumptions
- Will to change

Understanding Variation
- Variation is to be expected
- Common or special causes
- Ranking, tampering
- Potential mistakes

Subject Matter Knowledge
- PDSA for learning and improvement

The Lens
- Beliefs, assumptions
- Whole is greater than sum of the parts

How an IA approaches improvement

"The system of profound knowledge provides a lens. It provides a new map of theory by which to understand and optimize our organizations."

(Deming, Out of the Crisis)

IA Program Design is Spiral and Continuous
The Leadership Challenge

To build a renewable infrastructure that produces a highly reliable quality and safety system by (fill in the date).

How good?
By when?

Components needed to build capability

Structure …
+ Process …
+ Culture* = Outcome

What are you doing to create these?

- *Added to Donabedian’s original formulation by R. Lloyd and R. Scoville.
Building Capability at *PQRST: Mission

- Promote a culture of Quality and Safety
- **Promote the IHI Triple aim:**
  - Improve the patient experience of care (including quality and satisfaction)
  - Improve the health of populations; and
  - Reduce the per capita cost of health care.
- **Align** with Provincial and FH Quality Initiatives
- **Provide learning opportunities for the Physicians of FH to increase their capability** for Quality Improvement
- **Provide learning opportunities** for the PQRST members to enable them to better carry out their duties in **leadership and Change Management**
- **Facilitate Physicians and Teams in Quality Improvement**
- **Provide infrastructure, where possible, to assist with Physicians Quality Improvement projects**

*Patient Quality and Regional Safety Team*

Building Capability at *PQRST: Governance

Is Autonomous in terms of,
- Membership selection
- Funding
- Control

But, it **must Cooperate closely** with the Health Authority to
- Work as a Multidisciplinary Team
- Create Trust on both sides
- Work under an agreed process
- Evolve over time to incorporate with the HA

*Patient Quality and Regional Safety Team*
Science of Improvement Self-Assessment

**Instructions:**
This self-assessment is divided into six skill categories, which have been adapted from chapter 2 of the Improvement Guide, written by our friends at Associate in Process Improvement (API). These skills are referred to as the “Skills to Support Improvement” and serve as the foundation for much of what we teach in our improvement science programs. Each of the skill areas is listed below with key concepts and tools that demonstrate knowledge of and ability to apply the concepts. For each concept or tool select the one response that best describes your skill level. The response options are:

A. I have no knowledge of this concept/tool.
B. I have heard of this concept/tool but could not explain it or apply it.
C. I have a working knowledge of this concept/tool and could at least explain what it is.
D. I have a working knowledge of this concept/tool and could explain how to apply it if there was someone with deeper knowledge in the room to back me up.
E. I have a solid working knowledge of this concept/tool and could demonstrate how to apply it to daily work.
F. I am confident and comfortable in explaining, applying, and teaching this concept/tool.
### Skills to Support Improvement

<table>
<thead>
<tr>
<th>1. Supporting a Change with Data</th>
<th>Response Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Develop a family of measures (i.e., process, outcome and balancing measures)</td>
<td>A B C D E F</td>
</tr>
<tr>
<td>Build clear and unambiguous operational definitions for measures</td>
<td></td>
</tr>
<tr>
<td>Develop practical data collection plans</td>
<td></td>
</tr>
<tr>
<td>Construct and interpret a run chart</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>2. Developing a Change</th>
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<tbody>
<tr>
<td>Decide how much change is actually needed (e.g., do you merely need to reduce variation in the process or fundamentally create a new process through redesign?)</td>
</tr>
<tr>
<td>Apply Deming’s ideas about systems thinking to an improvement opportunity</td>
</tr>
<tr>
<td>Use driver diagrams to define the system of interest and theories on how the system works</td>
</tr>
<tr>
<td>Use flowcharting techniques to break a system down into the numerous processes that define how work gets done</td>
</tr>
<tr>
<td>Identify specific ideas that we believe will achieve the results we desire</td>
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</tbody>
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<table>
<thead>
<tr>
<th>3. Testing a Change</th>
</tr>
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<tbody>
<tr>
<td>Design, set up, and run PDSA cycles (i.e., tests of change)</td>
</tr>
<tr>
<td>Run tests on a small scale initially and then increase the scale and scope of testing as learning occurs</td>
</tr>
<tr>
<td>Develop qualitative and/or quantitative data collection plans for the PDSA cycle</td>
</tr>
</tbody>
</table>

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### Skills to Support Improvement

<table>
<thead>
<tr>
<th>4. Implementing a Change</th>
<th>Response Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explain why implementing a change is fundamentally different from testing a change</td>
<td>A B C D E F</td>
</tr>
<tr>
<td>Developing new structures and procedures to support the implemented change (e.g., training, new policies and procedures, job descriptions, or new equipment)</td>
<td></td>
</tr>
<tr>
<td>Create measurement systems to determine if the improvements observed during the testing stage have been sustained during implementation</td>
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<thead>
<tr>
<th>5. Spreading a Change</th>
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<tbody>
<tr>
<td>Distinguish clearly how testing, implementing, and spreading a change are all different steps in the sequence of improvement</td>
</tr>
<tr>
<td>Explain adoption and diffusion principles</td>
</tr>
<tr>
<td>Build communication strategies that foster and support spread</td>
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</tbody>
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<thead>
<tr>
<th>6. The Human Side of Change</th>
</tr>
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<tbody>
<tr>
<td>Organize effective team meetings (e.g., setting agendas, assigning team meeting roles such as recorder and time keeper, and establishing ground rules for behavior)</td>
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<tr>
<td>Model behaviors that reflect active listening</td>
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<tr>
<td>Handle difficult conversations when individuals express opposing views</td>
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The Primary Drivers of Organizational Improvement

Having the **Will** (desire) to change the current state to one that is better

Developing **Ideas** that will contribute to making processes and outcome better

Having the capacity and capability to apply QI theories, tools and techniques that enable successful **Execution** of your ideas

Fitting all the pieces together!
How prepared is your organization?

<table>
<thead>
<tr>
<th>Key Components*</th>
<th>Self-Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Will (to change)</td>
<td>Low  Medium High</td>
</tr>
<tr>
<td>Ideas</td>
<td>Low  Medium High</td>
</tr>
<tr>
<td>Execution</td>
<td>Low  Medium High</td>
</tr>
</tbody>
</table>

*All three components MUST be viewed together. Focusing on one or even two of the components will guarantee sub optimized performance. Systems thinking lies at the heart of QI!

Thanks for joining us today. Please contact us if you have any questions.

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