Measurement to improve well-being of children and families

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Best Start Victoria
Every illness is a story, and Annie Page's began with the kinds of small, unexceptional details that mean nothing until seen in hindsight. Like the fact that, when she was a baby, her father sometimes called her Little Potato Chip, because her skin tasted salty when he kissed her. Or that Annie's mother noticed that her breathing was sometimes a little wheezy, though the pediatrician heard nothing through his stethoscope.

The detail that finally mattered was Annie's size. For a while, Annie's five-footed prettiness seemed to be just a family trait. Her sister, Lauryn, four years older, had always been at the bottom end of the pediatrician's growth chart for girls her age. By the time Annie was three years old, however, she had fallen off the chart. She stood an excusable thirty-four inches tall but...
Percent of children with cystic fibrosis who are below 5th percentile for weight and are receiving supplemental feedings

First reports reveal significant variability in predicted survival.

Quality Improvement starts to improve predicted survival.

Predicted survival improves from 28 years to 29 years.

Predicted survival improves from 29 years to 37 years.

741 Lives saved.

Source: GT O’Connor/Cystic Fibrosis Foundation
The change works in 100% of the innovation group

The change works in 50% of the implementation group

The change works in 100% of the innovation group

The change works in 90% of an implementation group

Impact of Improvement

- Improve one process
- Improve one type of organization
- Improve one condition, across many organizations
- Improve multiple processes, organizations, and child conditions

To achieve an outcome for a population, we are seeking solutions that...

...work at **scale** *(do not break down when we try it for everyone)*

...will **spread** to others *(all organizations implement the change, not just the most “enlightened” organization)*

...are **sustained** over time *(do not degrade as attention turns to other topics)*
Every system is perfectly designed to achieve exactly the results it gets.
“A system is an interdependent group of items, people, or processes working together toward a common purpose.”

How is improving a system different from improving a program?

• Programs can be planned, implemented and evaluated.
• It is not possible to plan and specify each of the detailed actions necessary for a system to produce better results.
• Optimizing one part of a system does not optimize the overall system.
• Meddling with one part of a system often sets off other problems
• Community systems are complex and are never permanently “fixed”.

To change outcomes for a population, we need an approach that sets a heading but allows for adaptation and adjustment, using testing to learn its way forward.
What are we trying to accomplish? By when?

How will we know that a change is an improvement?

What change can we make that will result in improvement?

Aim (stretch goal)
Measures
Changes

What are we trying to accomplish? By when?

How will we know that a change is an improvement?

What change can we make that will result in improvement?

95% families have a “good” credit score

% with “good” score

- Increased banking
- Risk-based coaching on income/credit/savings/debt
- Risk-based behavioural health supports
- Trusted relationships with families

What are we trying to accomplish? By when?

How will we know that a change is an improvement?

What change can we make that will result in improvement?

Global aim: Increase family self-sufficiency score
Specific aim: Meet all prioritized basic needs of 25 families

% with all basic needs met

- Trusted relationships
- Families with advocacy skills
- Agencies willing to change systems
- “Whatever it takes” service mentality
- Extraordinary customer orientation
- Sustainable solutions

“OK people, listen up! The people upstairs have handed us this one, and we’ve gotta come through. We gotta find a way to make this – fit into a hole for this – using nothing but that.”
**Focus / target group**
Set locally, but focused on all Aboriginal children and families and children and families experiencing vulnerability

**Inputs / resources**
Set locally

**Strategies / high-level actions**
Set locally

**Short-term outcome areas**
- Service accessibility
- Service continuity and collaboration
- Relationship-based practices
- Active outreach and engagement
- Family awareness and beliefs about early learning

**Primary Best Start outcomes (medium term)**
- Children engage and participate in early childhood education
- Children and families actively engage with MCH services at key ages and stages visits

**How are we measuring progress and impact?**
- PDSAs
- Local indicators
- Core indicators
Using plan-do-study-act (PDSA) cycles for sequential building of knowledge

Include a range of conditions in the sequence of tests, before implementing the change

Source: Associates in Process Improvement
Deciding the Scale of Testing

Test small at the outset, when we know less, which make it easier to see cause and effect

<table>
<thead>
<tr>
<th>Current Situation</th>
<th>Readiness to Make the Change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not Ready</td>
</tr>
<tr>
<td><strong>Low Confidence</strong></td>
<td></td>
</tr>
<tr>
<td>that current change idea will lead to Improvement</td>
<td>Cost of failure is <strong>large</strong></td>
</tr>
<tr>
<td></td>
<td></td>
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<tr>
<td><strong>High Confidence</strong></td>
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“I need a flashlight.”

“That’s not what they have up there. Don’t give me anything that they don’t have on board.”
Indicators versus PDSA Data

**Indicators:**
- Overall results related to the project stretch goals - are we getting better on the goals of the initiative?
  - Dashboard
  - Indicators

**PDSA Data:**
- Specific to the idea that is being tested
  - Quantitative or qualitative data on the impact of a particular test/change

Example: How much time did it take?
Simple tally of “liked” and “didn’t like”. How many people completed the process?
Successful Cycles to Test and Adapt Change Ideas

- Scale down the size of test (# of people who try it, who receive it)
  “Cycle of 1” - conduct the test at one meeting, with one caller, with one potential participant.
  Think of the smallest possible test that would be useful to you. Then reduce it by half, and by half again!
- Conduct the test over a short time period
- Test with volunteers
- Do not try to get buy-in or consensus for the test
- Collect useful data during each test
- Think a couple of cycles ahead
- Plan multiple cycles to test and adapt change
- Share results and discuss with the full team (don’t keep results secret)
- Create space for the team to test the idea

In later cycles, test over a wide range of conditions

How We Collaborate to Innovate

Extraordinary family orientation
Put families at the center of care

Clarity of purpose
Produce a coherent vision out of many problems

Solutions that scale
Create solutions that customize to work for all, spread, and sustain

Bias toward action
More “creating and doing”, than “meeting and planning”

Embrace experimentation and use of data for learning
Build to think and learn

Embrace ambiguity
Expect fog and take small steps to get unstuck

All contribute and take ownership
Bring together partners with diverse roles and viewpoints

Sources: StartStrong Co-Creation Session, February 25, 2014 (Business Innovation Factory), and IDEO
“There’s 1,000 things that have to happen, in order. We’re on number 8. You’re talking about number 692.”

Embrace ambiguity
Expect fog and take small steps to get unstuck
<table>
<thead>
<tr>
<th>Purpose of Indicators</th>
<th>Accountability</th>
<th>Improvement</th>
<th>Research</th>
</tr>
</thead>
<tbody>
<tr>
<td>Key question</td>
<td>“Are we better or worse than...?”</td>
<td>“Are we getting better?”</td>
<td>“What is the truth?”</td>
</tr>
<tr>
<td>Penalty for being wrong</td>
<td>Misdirected reward, penalty, resources</td>
<td>Misdirection for an initiative</td>
<td>Misdirection for the profession</td>
</tr>
<tr>
<td>Requirements and characteristics</td>
<td>Risk adjusted, with denominators, validity</td>
<td>Real time, raw counts, consistent definitions, utility</td>
<td>Complete, accurate, controlled, glacial pace, expensive</td>
</tr>
<tr>
<td>Typical displays</td>
<td>Performance relative to benchmarks and standards</td>
<td>Run charts, control charts, time between events</td>
<td>Comparison of control and experimental populations</td>
</tr>
<tr>
<td>Social conditions for use of indicator</td>
<td>Neutrality; leaders are the primary users</td>
<td>Data shared in low-stakes, safe environment that is conducive to change</td>
<td>Meets scientific standards of discipline; utility to participants is usually secondary</td>
</tr>
</tbody>
</table>

Don Berwick – The “Moral Era”

Era 1 – The authority of the profession
• The profession judges the quality of its own work
• This was shaken by unexplained variation in practice, errors in care, injustice by race and social group

Era 2 – The present
• Accountability, scrutiny, use of rewards and punishment and pay for performance

Era 3 – The “moral era”
• Do less of: excessive measurement, complex incentives
• Do more of: use improvement science; measure only what matters, and mainly for learning; listen to people/families

A “Perfect Family Outcome at 1 Month of Life”

<table>
<thead>
<tr>
<th>KEY INDICATOR</th>
<th>Y or N</th>
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<tbody>
<tr>
<td>Basic needs stably met (housing, safety, food, transportation, income)</td>
<td></td>
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<tr>
<td>Parents have hope and aspiration for baby and themselves</td>
<td></td>
</tr>
<tr>
<td>Mom attending to own well-being, sees herself as important, in addition to baby</td>
<td></td>
</tr>
<tr>
<td>Fathers feel important, valued and contributing effectively</td>
<td></td>
</tr>
<tr>
<td>Parent trusts us ALL as a functioning ‘team’</td>
<td></td>
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<tr>
<td>Baby sleeping only on his/her back, has crib/bassinet</td>
<td></td>
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<tr>
<td>If a smoker, mom quit smoking and no relapse after delivery, partner counseled</td>
<td></td>
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<tr>
<td>Parents have plan for next pregnancy, postpartum visit, reproductive health</td>
<td></td>
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<tr>
<td>Parents identify 1-2+ trusted people to turn to for help for stress, hardship</td>
<td></td>
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<tr>
<td>Services are centered around what the family needs</td>
<td></td>
</tr>
<tr>
<td>Mother and father know where to turn to for help and for what issues</td>
<td></td>
</tr>
<tr>
<td>Excellent, structured, efficient ways to communicate across all elements of team</td>
<td></td>
</tr>
<tr>
<td>Breastfeeding successfully</td>
<td></td>
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</table>
Measuring Experiences in a Process

Source: Future State Mapping, Veterans Engineering Resource Center (VERC)
Identify reliability problems, and co-design how processes are going to work
Measuring progress for a population

- Children’s developmental progress at school entry (AEDC)
- Conditions for families: Social capital (MEYP)
- Parent behaviour: Reading to children (survey)
- Children’s 3rd grade reading proficiency (NAPLAN)
- Experiences with care (survey)
- Reach of the service system (surveys)

Adapted from Inkelas (2012)
Understanding Family and Community Conditions

- 19% Safe neighborhood
- 37% Not depressed
- 38% Food has not run out
- 21% Have control over life

Social... Parent... Economic...Parenting

% who have all assets in the condition category
% who have a sample asset in the condition category
Measurement for Learning

“The provider/staff shared with me local resources for social support”

Opportunities for learning across sectors

Opportunities for learning within sectors
### Displaying Data for Learning

Average of 12 data points before and after a change

<table>
<thead>
<tr>
<th>Cycle Time (min.)</th>
<th>Avg Before Change</th>
<th>Avg After Change</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>70</td>
<td>50</td>
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</table>

What is our confidence that the change led to an improvement?

What if the underlying pattern is:

Displaying Data for Learning

• Summary statistics hide information
• In improvement efforts, changes are not fixed, but are adapted over time
• Run charts annotated with changes and other events provide evidence of sustained improvement and help generate support for change efforts
Run charts help us to....

• Understand what “better” means.
• Distinguish between special cause (events outside a system that influence a result) and common cause (problems built into the system, such as mistakes, waste, and rework).
• Learn what to do to improve processes.
• Track the new process to make it reliable.
• Make sure we don’t lose our gains as soon as we turn our back for a minute.
Example of Learning Cycles

What are parents experiencing now?

| % of parents reporting depression: 19% | % of parents reporting being asked about depression in past year: 50% |

(Source of information: Community survey)

Change Idea: Ask our clients if they need support for depression

Are we ready to implement?

• How do we raise the topic?
• How do we fit this question into our workflow?
• How can we reliably respond (have something to offer) if the parent wants support?
Planning for Multiple PDSA Cycles

**Question:** Will clients react well to being asked about depression?

**Prediction:** Clients will not mind being asked.

**Plan:** One staff member from each of two departments will ask clients one of the two items from the PHQ-2 depression screener.

**Do:** Each staff member will ask one client, next Tuesday.

**Study:** Both clients answered the question readily. One client shared that it showed we care about how she’s doing. The wording of the item seemed formal instead of conversational so it didn’t really fit into the nature of the discussions we were having.

**Act:** We will create a 2 sentence script to explain why we are asking about depression. Instead of reading the item, we will put the question into our own words. Also, we will ask the question at the end of the encounter, not at the beginning or middle, as more of a “wrap up” question. We predict that this way, the question will seem more empathic. On Thursday, two staff members will each test with 2 clients.
IDEA: Asking all clients about depression will identify people needing support

Our measure tracks the impact of improvement cycles

90% of clients are asked about depression

Cycle 1: Week 1: Two staff ask one client each, using PHQ-2 item

Cycle 2: Week 2: Two staff ask clients, using a 2-sentence script and a question in their own words

Cycle 3: Week 3: Client responds but flow isn’t right; two staff asks clients at end of the visit

Cycle 4: Week 4: Test variation for asking the question – to ask in the same and “best” way

Cycle 5: Week 5: Document the protocol (2 sentence script, and question wording)

Cycle 6: All staff begin the protocol

Cycle 7: All staff begin the protocol; analyze failures

Examples of learning cycles
Effective Use of Data for Learning

• A “family” of indicators that represent the key influences on the outcome
• Indicators that help partners examine their contributions and actions
• Indicators that are feasible to collect – considering what can be scaled and spread
• Providing information about the system in “real time”
• Include expectations for change (numeric goal targets)
• Include feedback reported by people who use the service, who are the “voice of the system”
• Embedded in a learning system
Summary

• Feedback supports learning by:
  – offering a visual display of what matters;
  – seeing the system we are trying to put in place;
  – showing expectations for change;
  – inspiring and tracking progress overall, and for each sector and partner.

• Indicators need to be embedded in improvement, to help move from planning to action