Quality Improvement for Rehabilitation Intensity

CESN Stroke Rehabilitation Forum
March 21, 2017

Part 3 of 3
Rehab Intensity Data

Central East Stroke Network
RI Forum
Summary

• Provincial trend of increasing RI time from Q1 2015-16 to Q3 2016-17
• Much variation in RI time in hospitals across Ontario
• OSN calculation (to ensure max 33% of RI time by assistants) has an impact on the RI time for a relatively small number of hospitals provincially
• Some hospitals made big improvements to their RI time between 2015-16 and 2016-17
• For 2016-17 all CESN organizations are amongst the hospitals in Ontario that provided lower amounts of RI time (i.e. on the left half of the graph).
Rehab Intensity
Site Meeting Outcomes
Site Meetings

Occurred with the 10 hospitals in CESN that provide inpatient rehabilitation for stroke patients between August 17th, 2016 – December 15, 2016

OBJECTIVES

• data quality improvement plan - measuring and recording our rehabilitation intensity time accurately

• identify factors (causes) that could be contributing to stroke patients not receiving 3 hours per day, 6 days per week of rehabilitation intensity (effect).
Outcomes

Quality Assurance Framework

<table>
<thead>
<tr>
<th>Factors that Influence the quality of the data</th>
<th>How can we measure this influence?</th>
<th>How can we address this influence?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rehabilitation Intensity (RI) data not entered.</td>
<td>- Audit/monitor whether RI information is being entered for all stroke patients to ensure no one is missed.</td>
<td>- Use a continuous quality improvement process where RI data is routinely audited, staff provided with feedback, and audit repeated.</td>
</tr>
<tr>
<td>- Therapists may not have the time to enter data.</td>
<td>- Incidence of days with blank RI values, or zero value entries by discipline.</td>
<td>- Therapists provide clear documentation when no RI is provided.</td>
</tr>
<tr>
<td>- Covering therapists may not know how to collect RI time and enter the data.</td>
<td>- Number/percentage of code 99999.</td>
<td>- Include training on RI and how to enter data in staff orientation.</td>
</tr>
<tr>
<td>- Therapists providing therapy on weekends may not know how to capture RI.</td>
<td>- Compare workload measurement vs RI by discipline.</td>
<td>- Ensure staff have access to RI education, pocket cards, FAQs, and other resources from Ontario Stroke Network.</td>
</tr>
<tr>
<td>- New therapists may not be familiar with RI measurement.</td>
<td>- Track documentation when there is no RI provided and identify the reasons for this.</td>
<td>- Investigate whether RI and workload can be on the same screen.</td>
</tr>
</tbody>
</table>

Variability in entering RI data:
- Inaccurate data entry by staff.
- Delay in inputting RI time by therapists/staff, documentation.

<table>
<thead>
<tr>
<th>How can we measure this influence?</th>
<th>How can we address this influence?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evaluate using standard case examples.</td>
<td>Increase knowledge of the guidelines. Emphasize that RI data collection is only for stroke patients.</td>
</tr>
<tr>
<td>Review data regularly.</td>
<td>Accurately record start and stop...</td>
</tr>
</tbody>
</table>

Cause and Effect Diagram (Fishbone)

Pareto Analysis

Areas of Opportunity to Increase Stroke Rehabilitation Intensity
Regional versions

Rehabilitation Intensity Data Quality Framework: A compilation of frameworks developed for the 10 hospitals that provide inpatient rehabilitation in Central East Stroke Network

Rehabilitation Intensity Cause and Effect: A compilation of causes identified by therapy providers at the 10 hospitals that provide inpatient rehabilitation in Central East Stroke Network
Your Quality Improvement Journey

Agnes Gibson, QI Advisor, IDEAS, Health Quality Ontario
What is Quality Improvement?

• **Quality improvement can be defined as a systematic approach** to making **changes** that improve clinical **practice** and health system **performance**, enhance professional and/or organizational **development**, and **improve patient and population health outcomes**.

• In other words:
  
  Quality Improvement is an approach to making changes that improve quality of care and how the health system performs.
Model for Improvement

AIM
What are we trying to accomplish?

MEASURE
How will we know if a change is an improvement?

CHANGE
What changes can we make that will result in improvement?

RAPID CYCLE IMPROVEMENT

Problems or Opportunities?

Problem Statement
- 1-2 sentences that identifies and summarizes a condition, problem, or issue that a Quality Improvement (QI) team is seeking to address
- Provides a quality improvement team with an articulate expression of what they are setting out to achieve

Opportunity Statement
- Can be appropriate
- If chosen, follows roughly the same format as a problem statement
- i.e. deciding to work on something without restrictions or targets being enforced
- Describes gap in performance to be addressed and why
## 5W2H Method

<table>
<thead>
<tr>
<th>5W and 2H</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>5W</strong></td>
<td><strong>2H</strong></td>
</tr>
<tr>
<td>What is the problem? Describe it in a single sentence, so that others will be able to understand what you mean.</td>
<td>The problem is ...</td>
</tr>
<tr>
<td>Why is it a problem? What is the pain?</td>
<td>This is a problem because ...</td>
</tr>
<tr>
<td>Where do we encounter the problem?</td>
<td>We encounter the problem at (Location) (Time) when (Specific Circumstance) ...</td>
</tr>
<tr>
<td>Who is impacted?</td>
<td>This impacts: (Staff) by ..., (Patients) by ..., (Other providers) by ... (others) by ...</td>
</tr>
<tr>
<td>When did we first encounter the problem?</td>
<td>We first encountered this problem ...</td>
</tr>
<tr>
<td><strong>2H</strong></td>
<td>How did we know there was a problem? The symptoms of this problem are ...</td>
</tr>
<tr>
<td>How often do we encounter this problem?</td>
<td>We encounter this problem (x) times and each encounter is (this big). The problem is getting (better/worse).</td>
</tr>
</tbody>
</table>
Working example

• Used to assist you with applying your theory
• Generic example of an improvement project

• This project:
  • Reduce amount of garbage produced by a household
  • Municipality is reducing how much can go to the curb (without additional cost)
  • Family needs to come up with a plan to reduce waste
We are producing too much garbage, and the municipality is now forcing us to decrease what we put out by putting limitations in place.

We know this is a problem because the limit is 1 bag/week, and we’re producing 4 bags/week.

We will be impacted financially (and shamed by our neighbourhood) as any more than 1 bag will cost money. This problem has been ongoing since the kids went back to school and we see evidence of this problem on a weekly basis/each garbage day.
Problem/Opportunity

Stroke patients are not receiving 3 hours (180 minutes) of Rehabilitation Intensity per day in Inpatient Rehabilitation.
ACTIVITY: Problem Statement!

• Draft a problem statement as a team
  • What is the problem?
  • Why is it a problem?
  • Where do we encounter the problem?
  • Who is impacted by the problem?
  • When did we first encounter the problem?

  • How did we know there was a problem?
  • How often do we encounter this problem?

• 5 Minutes to jot down thoughts into a few sentences
Model for Improvement

AIM

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CHANGE

What changes can we make that will result in improvement?

RAPID CYCLE IMPROVEMENT

What are we trying to accomplish?

**Aim:** A good aim addresses an issue that is important to those involved; it typically answers:

- How much?
- By when?
- For whom (or for what system)?

• Set a SMART AIM:
  • Specific
  • Measurable
  • Achievable
  • Realistic
  • Time Sensitive
AIM Statement #1

I want to cut back on some of the garbage we produce pretty soon to save money by burning what we can or dumping excess on my neighbours lawn.

AIM Statement #2

By June 23rd, 2017, our household garbage placed at the curb for pickup will be reduced from 4 bags to 1 bag each week.
ACTIVITY: AIM Statement!

• Draft an AIM statement as a team
  • What do you want to achieve?
  • How much?
  • By when?
  • For whom/for what system?

• Is your AIM SMART?
  • Specific, Measurable, Achievable, Realistic, Time Sensitive?

• 5 Minutes to jot down thoughts into a few sentences
Model for Improvement

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RAPID CYCLE IMPROVEMENT

<table>
<thead>
<tr>
<th></th>
<th>Quality Improvement</th>
<th>Judgement (Evaluation)</th>
<th>Research</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Purpose</strong></td>
<td>Bringing new knowledge into daily practice</td>
<td>Comparing programs, modifying program planning, justifying funding</td>
<td>Discovering new knowledge</td>
</tr>
<tr>
<td><strong>Audience</strong></td>
<td>The organization, system</td>
<td>The organization, system, funders</td>
<td>Scholars, researchers</td>
</tr>
<tr>
<td><strong>Bias</strong></td>
<td>Accept consistent bias</td>
<td>Measure and adjust to reduce bias</td>
<td>Design to eliminate bias</td>
</tr>
<tr>
<td><strong>Sample Size</strong></td>
<td>“Just enough” data, small sequential samples</td>
<td>Obtain 100% of available, relevant data</td>
<td>“Just in case” data</td>
</tr>
<tr>
<td><strong>Hypothesis</strong></td>
<td>Hypothesis flexible, changes as learning takes place</td>
<td>No hypothesis</td>
<td>Fixed hypothesis</td>
</tr>
<tr>
<td><strong>Tests</strong></td>
<td>Sequential, observable tests</td>
<td>No tests, evaluate current performance</td>
<td>One large test, blinded or controlled</td>
</tr>
<tr>
<td><strong>Tools</strong></td>
<td>Run charts, Shewhart/Statistical process control charts</td>
<td>No change focus</td>
<td>Statistical tests, p-values</td>
</tr>
</tbody>
</table>

Source: Langley et al., The Improvement Guide: A Practical Approach to Enhancing Organizational Performance, 2nd edition, Toronto: Jossey-Bass, 2009. Adapted from Table 2.1, page 27
# Family of Measures

<table>
<thead>
<tr>
<th>Type of Measure</th>
<th>Description</th>
</tr>
</thead>
</table>
| **Outcome**     | • The voice of the patient  
                  • How does the system impact the values of patients, their health and well-being? |
| **Process**     | • The voice of the working process  
                  • Logically linked to obtaining the outcome  
                  • Address how key parts of the system are performing |
| **Balancing**   | • Look at the system from different directions/dimensions  
                  • Are changes designed to improve one part of the system causing new problems in other parts of the system?  
                  • Is there an alternative explanation for improvements? |

Source: Langley et al., The Improvement Guide: A Practical Approach to Enhancing Organizational Performance, 2nd edition, Toronto: Jossey-Bass, 2009. Adapted from Table 2.15
## Family of Measures - examples

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Process</th>
<th>Balancing</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of patients with HbA1c within target</td>
<td>% of patients whose HbA1c was measured at least twice in the past year</td>
<td>Appropriate care for other comorbidities</td>
</tr>
<tr>
<td>Total length of stay in hospital</td>
<td>Turnaround time between when the physician ordered discharge and when patient was actually discharged</td>
<td>% readmitted within 30 days</td>
</tr>
<tr>
<td>Number of days to the 3rd next available appt.</td>
<td>Average daily clinician hours available for appointments</td>
<td>Physician workload; staff satisfaction</td>
</tr>
<tr>
<td>Number of minutes of rehab intensity for all stroke patients</td>
<td>% of patients that arrived for therapy at scheduled time or % of patients who received therapy from (enter discipline) each week</td>
<td>% of patients readmitted or % of patients exceeding recommended LOS or Rehab intensity for non-stroke patients</td>
</tr>
</tbody>
</table>
Data and Measures

• Agreement of what to measure, and what steps to follow to measure consistently
  • Methods/equipment/criteria/target population

• Where will data come from?
  • Decision support
  • Clinical/EMR systems
  • Surveys
  • Pen and paper – collect your own data!

• Who is responsible?

• How often will it be collected?
Model for Improvement

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RAPID CYCLE IMPROVEMENT

Types of Changes

• **Reactive changes**
  • Day-to-day performance
  • About keeping the system running
  • Solve problems or react
  • Immediate impact

• **Fundamental Changes**
  • Fundamentally alter how work or activity is done
  • Results in improvement of several measures simultaneously
  • Lasting Impact
Sources of Fundamental Change

• Review of data
• Logical thinking about the current system
• Learning from others – including literature
• Using technology
• Creative thinking
• Diagnostics (root cause analysis, process mapping, etc.)
• Using change concepts
Driver Diagram

• Lays out your team’s theory for improvement
• Provides a visual of what must or could be done to achieve your AIM
• Meant to be updated throughout your QI work/project
What is at the heart of the matter?

What drives this primary driver?

How can I accomplish this?

Driver Diagram Template

Primary Drivers

Secondary Drivers

Change Concepts/Ideas
By June 23, we will reduce the amount of waste generated by our household from 4 bags to 1, for our weekly garbage pick-up.

**AIM**

**PRIMARY DRIVER**
- Reduce waste being placed in the garbage
- Recycle items
- Increase awareness

**SECONDARY DRIVER**
- Acquire less materials that need to be disposed
- Re-purpose items for use
- Choose reusable over disposable items
- Reduce and divert paper goods
- Educate family members

**CHANGE IDEAS**
- Cancel 3 of the 4 newspaper subscriptions
- Encourage organic separation
- Donate clothing and furniture items
- Get canvas shopping bags
- Buy Brita bottles
- Place blue bin in washrooms
- Educate family members
By June 23, we will reduce the amount of waste generated by our household from 4 bags to 1, for our weekly garbage pick-up.

**AIM**

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**CHANGE IDEAS**

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**WHY?**

**HOW?**

Left to Right: **AIM** → **PRIMARY DRIVER** → **SECONDARY DRIVER** → **CHANGE IDEAS**

Right to left: **WHY?**
AIM Statement:
Stroke rehab patients at (facility) will receive (#) min/day of Rehab Intensity in inpatient rehab by (date)

Primary Driver #1
Number of minutes/day that OT/PT/SLP provide

- Full inter-professional team composition
- Team FTEs
- Coordination of patient therapy schedule
- Maximize hours/day that therapy provided
- Eligible RI time is counted

Primary Driver #2
Secondary Driver
Secondary Driver
Secondary Driver

Primary Driver #3
Secondary Driver
Secondary Driver
Secondary Driver

Secondary Driver
Secondary Driver
Secondary Driver

Change Ideas?
Change Ideas?
Change Ideas?
ACTIVITY: Driver Diagram!

• Review: are the primary drivers what you’d expect, related to your AIM?
• Review: are the secondary drivers what you’d expect, given your AIM?
• Brainstorm: what changes can you make, that will result in improvement, for each secondary driver?

• Read LEFT to RIGHT (ask HOW?)
• Read RIGHT to LEFT (ask WHY?)
• **10 Minutes to jot down change ideas**
Change Ideas

By June 23, we will reduce the amount of waste generated by our household from 4 bags to 1, for our weekly garbage pick-up.

AIM

PRIMARY DRIVER

Reduce waste being placed in the garbage

Recycle items

Increase awareness

SECONDARY DRIVER

Acquire less materials that need to be disposed

Re-purpose items for use

Choose reusable over disposable items

Reduce and divert paper goods

Educate family members

CHANGE IDEAS

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Encourage organic separation

Donate clothing and furniture items

Get canvas shopping bags

Buy Brita bottles

Place blue bin in washrooms
Priority Matrix - Impact / Effort Grid

- High Impact (Major improvement)
  - High Effort (Difficult)
  - Low Impact (Minor improvement)
  - High Effort (Difficult)
- High Impact (Major improvement)
  - Low Effort (Easy)
  - Low Impact (Minor improvement)
  - Low Effort (Easy)

High

Low

High Effort

Low Effort

High

Low
Priority Matrix - Impact / Effort Grid

High Impact / Effort

Get new recycling bins and place in all the washrooms

Place green bin in the kitchen

Ask kids to shovel all dog poop into the forest behind the house

Stop newspaper subscriptions

Low Impact / Effort
ACTIVITY: Impact/Effort Grid!

• Re-create the grid on your flip chart paper
• Write one change idea per post-it/sticky note and place on the grid

- High Impact (Major improvement)
  - High Effort (Difficult)
- High Impact (Major improvement)
  - Low Effort (Easy)
- Low Impact (Minor improvement)
  - High Effort (Difficult)
- Low Impact (Minor improvement)
  - Low Effort (Easy)

• 10-15 minutes
# Priority Matrix - Impact / Effort Grid

<table>
<thead>
<tr>
<th>Impact/Effort Decision Making Grid</th>
<th>Effort</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Difficult to Do</td>
</tr>
<tr>
<td>Major Improvement/Benefit</td>
<td>3.  Difficult to do but yields a big improvement</td>
</tr>
<tr>
<td>Minor Improvement/Benefit</td>
<td>4.  Difficult to do but yields a small improvement</td>
</tr>
</tbody>
</table>

**Payoff Worth It!**  
**Low Hanging Fruit**  
**Don't Bother**  
**Quick Hits**
Model for Improvement

AIM → What are we trying to accomplish?

MEASURE → How will we know if a change is an improvement?

CHANGE → What changes can we make that will result in improvement?

RAPID CYCLE IMPROVEMENT

PDSA

• What’s Next?

Act
• Are we ready to implement?
• Should we try something else?
• Next cycle: Adapt, Adopt, Abandon?

Plan
• Objective
• Questions and predictions
• Plan to carry out the cycle (who, what, where, when)
• Plan for data collection

Study
• Complete data analysis
• Compare data to predictions – update theory
• Summarize what was learned

Do
• Carry out the plan
• Document problems and unexpected observations
• Begin analysis of the data

• What will happen if we try something different?

• Did it work?

• Let’s try it!

(Lloyd, R. & Scoville, R. “The Science of Improvement.” Institute for Healthcare Improvement.)
Why test first?

- It involves less time, money and risk
- The PDSA is a powerful tool for learning; from both ideas that work and those that don’t
- It is safer and less disruptive for patients and staff
- Because people have been involved in testing and developing the ideas, there is often less resistance

www.ideasontario.ca
### PDSA: Plan-Do-Study-Act Tool

**Test Topic:**

<table>
<thead>
<tr>
<th>Cycle #:</th>
<th>Date:</th>
</tr>
</thead>
</table>

**The purpose of this cycle is to:**
- Develop
- Test
- Implement

<table>
<thead>
<tr>
<th>What questions do you want to answer?</th>
<th>What are your predictions?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Plan to collect data to answer your questions:**

<table>
<thead>
<tr>
<th>What data will be collected?</th>
<th>How? (checklist, chart audit)</th>
<th>Who? (name or role)</th>
<th>When? (times, dates – be specific)</th>
<th>Where? (unit, area, charts)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**List tasks necessary to set up test:**

|-----------------------|--------------------------------|---------------------|-----------------------------------|---------------------------|
PDSA – Plan

• Purpose of your test
  • Test (not implement) adding recycle bins to all rooms

• What do you want to answer?
  • How much garbage is coming from the kitchen

• What are your predictions?
  • We will empty the garbage pail 3 times less per week

• Plan to collect your data?
  • Number of times the garbage bag is emptied because it is full
  • Number of times each recycle bin is full & emptied

• List necessary tasks
  • Purchase and set-up recycle bins (Mom)
  • Inform family of new processes we’re testing & importance of sorting (Dad)
  • Set up a data collection sheet in the kitchen (Mom and Dad)
PDSA – Do

• Carry out the test
• What did you observe during the test?
• Were there any unexpected observations?
PDSA – Study

• Analyze your data and describe results
• How do results compare with your predictions?
• What did you learn from this cycle?
PDSA – Act

• Are you ready to implement?
• Based on what happened, you can
  • Abandon
  • Adapt
  • What is your plan for the next cycle?
• Adopt
PDSA - An Iterative Process

- Improvement
- Implementation of Change
- Wide-Scale Tests of Change
- Follow-up Tests
- Learning and improvement
- Improvement
- DATA

- Hunches
- Theories
- Ideas

- Very Small Scale Test
- PDSA
  - A
  - P
  - S
  - D
ACTIVITY: PDSA Exercise!

• **GOAL:** Design a paper airplane using material provided & have the airplane fly as far as possible

• **AIM:** Set an AIM for your team – remember, SMART!

• **PLAN:** Use the PDSA template: purpose, predictions

• **DO:** Two pilots from each team should take a turn to fly the plane; no modifications can be made between flights; measure distance & record

• **STUDY:** After each test, analyze your data & describe results; what did you learn?

• **ACT:** Are you ready to implement this across your agency? What is your plan for the next cycle?
Hints for planning useful cycles

• Start small: one day, one area, one patient
• Be present when the changes are tested
• Engage the team in plans and predictions
• Ensure you have appropriate resources
• Describe the purpose of the test or action
• Be open to learning
• Be clear about instructions
• Engage all levels of leadership
• Include nay-sayers
• Make it simple
PDSA in Action

- Canvas shopping bags for groceries
- Buy a Brita jug
- Try reusable water bottles
- Use plastic food containers instead of disposable zip bags

Reduce garbage volume
ACTIVITY: Planning your PDSA!

• Using the template: What change are you testing?
• What is the purpose of your test?
• What are you curious to learn?
  • Write down 2-3 questions you hope to answer by doing your test
• What are your predictions?
• Be clear on what is the change you are testing

Example: We want to test if locating the green bin closer to the kitchen will result in more food waste being diverted from the garbage bag.

• 15 minutes
ACTIVITY: Planning your PDSA!

• Continue with the PLAN section of the PDSA template
• What data will be collected?
  • How?
  • Who?
  • When?
  • Where?
• List tasks necessary to set up the test
  • What?
  • How?
  • Who?
  • When?
  • Where?
Where do we go from here?
Next Steps

• Today you completed PLAN in PDSA. Now, you can go back and:
  • DO: start testing your change next week
  • STUDY: review and make changes within 1 month
  • ACT: Make changes and test again

• Final report – www.cesnstroke.ca

• Reporting Template – share your progress
Discussion

• What other follow-up and support does the group want?
  • from each other
  • from CESN
Thank You!

Contact:
Donelda Sooley,
Regional Rehabilitation Coordinator
Central East Stroke Network