ROOT CAUSE ANALYSIS

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BI-STATE PRIMARY CARE ASSOCIATION, MONTPELIER, VT
INTRODUCTIONS

• Kristen Bigelow-Talbert, CPHQ, MSHM
• Community Health Quality Manager
  • Bi-State Primary Care Association
  • VT Rural Health Alliance, an HCCN
  • 11 FQHCs across 64 sites in VT
  • 11 FQHCs and 1 FQHC LAL across 47 sites in NH
LEARNING OBJECTIVES

1. The participant will be able to summarize the importance of conducting a root cause analysis.

2. The participant will understand how to develop your Problem Statement and gather baseline data.

3. The participant will understand the most common methods of Root Cause Analysis and how to conduct them.

4. The participant will understand how a root cause analysis may be used to identify priorities for diabetes prevention using a prioritization matrix.
Too Busy for Improvements?

@successpictures

No thanks! We are too busy.
Root cause analysis helps to get at the underlying problem (the root) that is causing the symptoms (the problem) that you see. Doing an intervention without first doing a root cause analysis is akin to putting a band-aid on a wound that needs surgery. It won’t fix the problem!
LINCOLN MEMORIAL MYSTERY

WHY WAS THE LINCOLN MEMORIAL CRUMBLING?
LINCOLN MEMORIAL MYSTERY

• Why was the Lincoln memorial crumbling?
  • Harsh cleaning chemicals and a large volume of water were used to clean it daily

Why were harsh chemicals used?
  • To get off the bird droppings

• Why were there so many bird droppings on the memorial?
  • There were numerous spiders living in the Memorial, providing ample food for starlings and sparrows

• Why were there so many spiders in the Memorial?
  • Midges (a type of tiny insect) swarmed the Memorial at dusk, providing ample food for the spiders

• Why were the midges swarming the Memorial?
  • They were attracted to the lights
LINCOLN MEMORIAL: ROOT CAUSE & SOLUTION

• Proposed solution: turn off the lights during the one hour timeframe after sunset.
  • Results of a 6 week PDSA: 85% reduction in midge infestation

DEVELOPING YOUR PROBLEM STATEMENT

• To be done BEFORE starting your Root Cause Analysis
• “All patients with diabetes who have an A1C over 9” is too broad of a category. Narrow it down!
Data

Problem Identification
TIPS FOR WRITING YOUR PROBLEM STATEMENT:

**Include**
- Identify the Gap
- Timeframe / trend
- Impact (health outcomes, cost, etc.)
- Importance (urgency)
- Data (if available)

**Do Not Include**
- Assumed causes of the problem
- Possible solutions to the problem
- Conjecture or belief rather than fact
- External issues outside of the scope of the problem
- Names of staff

• “45% of our patients aren’t coming to us for their flu shots, because they prefer the timeliness of getting them at the pharmacy.”

• “30% of our patients with an A1C over 9 have not come in for their 3 month diabetic check. For patients with out of control A1Cs, ongoing patient engagement is necessary to help patients manage their diabetes.”

• “The problem is that the triage nurses aren’t answering the phones, so we have a backlog of phone messages.”

• “45% of our patients aren’t coming to us for their flu shots, because they prefer the timeliness of getting them at the pharmacy.”
  • REVISED: “We are missing information on whether or not 45% of our patients have had a flu shot this season.”

• “30% of our patients with an A1C over 9 have not come in for their 3 month diabetic check. For patients with out of control A1Cs, ongoing patient engagement is necessary to help patients manage their diabetes.”

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• “The problem is that the triage nurses aren’t answering the phones, so we have a backlog of phone messages.”
  • REVISED: “We have a backlog of phone messages in our system; 30 from last week, and 23 from the week before. This is not only a liability risk, but a patient safety risk.”
REAL PROBLEM STATEMENT EXAMPLE

For some patients we are missing lab results. It is unclear if the patient attended their lab appointment or not. Missing lab results impacts patient quality of care.
BEFORE YOU BEGIN…

Proposals | Solutions | Ideas

P
GET YOUR TEAM TOGETHER

- Assign a facilitator
- Clinicians
- QI Lead
- Other folks that are involved in patient care for the topic (Care Coordinators, RNs, MAs, etc.)
- Don’t forget non-clinical folks! (Front desk staff, IT, Management, etc.)
ROOT CAUSE ANALYSIS
THE FIVE WHY’S
The Five Why’s

Real solution is found here
Problem Statement

Why 1
  Why 2A
  Why 2B
  Why 3A
  Why 3B
  Why 3C
  Why 4A
  Why 4B
  Why 4C
  Why 4D
  Why 4E
  Why 4F
  Why 4G
  Why 5A
  Why 5B
  Why 5C
  Why 5D
  Why 5E
  Why 5F
  Why 5G
  Why 5H

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CAREFUL WHEN ASKING “WHY”…

• Craft your “why” question so that it doesn’t point fingers at individuals, but instead inquire about processes, barriers, and systems.

• Examples:
  • “Why is Susan not following up on these referrals?”
  • “She’s lazy.”
  • “She doesn’t care.”
  • “She’s too busy.”
CAREFUL WHEN ASKING “WHY”…

• Craft your “why” question so that it doesn’t point fingers at individuals but rather focuses on processes, barriers, and systems.

• Examples:
  • “Why is Susan not following up on these referrals?”
  • Instead, try: “Why are referrals not being followed up on?”
  • “Why is our CEO not providing leadership and resources to this?”
  • “They don’t see it as important.”
  • “Difficult to track in EMR”
  • “She’s too busy.”
  • “She doesn’t care.”
  • “No time set aside”
CAREFUL WHEN ASKING “WHY”…

• Craft your “why” question so that it doesn’t point fingers at individuals; rather, inquire about processes, barriers, and systems.

• Examples:
  • “Why is Susan not following up on these referrals?”
  • Instead, try: “Why are referrals not being followed up on?”
  • “Why is our CEO not providing leadership and resources to this?”
  • Instead, try: “Why is this project not a top priority for management?”

“No time set aside”
“Difficult to track in EMR”
“They don’t see it as important.”
“Right now MAT and SUD are taking a lot of time and resources.”
TO SIMPLIFY…

JUST ASK: “WHY DID THAT HAPPEN?” OR “WHY DID THIS OCCUR?”
For some patients we are missing lab results. It is unclear if the patient actually attended their lab appointment or not. Missing lab results impacts patient quality of care.

Why would we be missing lab results?

1. Patient didn't get lab work or testing completed
   1. i. Why would the patient not have completed their labwork?
      1) They didn't go get their labs prior to their appointment time (there is a Quest lab in-house; all they have to do is walk in; no apt. needed)
      1. a) Why were labs not completed prior to the appointment time?
          1) Patient forgot they were supposed to have them done
          1. One. Why didn't the patient remember they were supposed to get labs?
             First. Too much time in between appointments; they forget
             Second. They didn't get a reminder call
             1. Why wouldn't a patient get a reminder call?
                1. Limited capacity of staffing; not enough time to do chart prep (which includes these calls)
                1. Why is there not enough time to do chart prep?
                   1. Because they are rooming for multiple providers; already overburdened. More staff needed.
          ii) Patient didn't fast, and it was a fasting lab and therefore couldn't be completed
          1. One. Why didn't the patient fast?
             First. They didn't get a reminder call
             1. Why wouldn't a patient get a reminder call?
                1. Limited capacity of staffing; not enough time to do chart prep (which includes these calls)
                1. Why is there not enough time to do chart prep?
                   1. Because they are rooming for multiple providers; already overburdened. More staff needed.
          ii) They forgot (in spite of a reminder call)
          1. Why would patients forget?
             1. There is a lot going on in their lives; lots of SDOH and BH complicating things
CAUSE AND EFFECT DIAGRAMS

(ALSO KNOWN AS FISHBONE DIAGRAMS)
WHY USE A “FISHBONE DIAGRAM?”

Often many “root causes,” or factors contributing to a problem

Visual way to organize a list of causes and their relationships

Categorize causes, determine what is and is not in your control

Group process; actively engages everyone that is part of the process, or influences the outcome
CAUSE-EFFECT DIAGRAM (FISHBONE DIAGRAM)

• Developed by Prof. Kaoru Ishikawa
• It visually connects “effect” (problem statement) and “cause(s)”
• A good tool to investigate several categories for each problem statement
• Useful for visual learners

https://www.leanstrategiesinternational.com/listen-to-the-gemba/the-fish-bone-diagram-7-basic-quality-tools
COMMON CATEGORIES USED

• The 6 M’s: Methods, Machines, Materials, Manpower, Measurement, Management
• The 4 S’s: Surroundings, Suppliers, Systems, Skills
• The 8 P’s: Procedures, Policies, Place, Product, People, Processes, Price and Promotion

Can also organize by functions or processes:

• Prescribing, filling, dispensing, purchasing, and taking medication
• Ordering, performing, resulting, communications
How to Create a Fishbone Diagram

- Your Problem Statement is placed on the far right as the “head” of the fishbone.
- Decide what categories you want to use; these categories will then become the main “bones.”
- Draw a line to connect the categories to the problem statement.
How to Populate a Fishbone Diagram

- Examine each category and determine what in that category is affecting the problem (ask “why?”). These then become smaller “bones” on each category.
- As you dig deeper, more “bones” are added
Cause & Effect Diagram

https://twitter.com/TheIHI/status/867029107149856769/photo/1
5 WHYS VS. FISHBONES

Fishbone is broken out into categories, visual helps to see connections, relationships between causes

Easier to go into deeper levels with “5 Whys”

BOTH valid RCA tools!
WHEN ARE YOU AT THE ROOT?...
EXAMINING ROOT CAUSES: PRIORITIZE

Prioritizing: Which would have the biggest impact?

Tools: Prioritization Matrix (a simplified version)

Criteria to consider:
• Impact on the Problem Statement
• Feasibility
• Urgency
### Priority Matrix (Simplified)

Key: 10 = high, 1 = low

<table>
<thead>
<tr>
<th>Root Causes</th>
<th>Impact on Problem Statement</th>
<th>Feasibility</th>
<th>Urgency</th>
<th>Actionable?</th>
<th>TOTAL</th>
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<th>Urgency</th>
<th>Actionable?</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients were not brought up to know how to cook raw/healthy/non-processed foods</td>
<td>6</td>
<td>8</td>
<td>4</td>
<td>5</td>
<td>23</td>
</tr>
<tr>
<td>The older population seems to have a heavy reliance on doctors and Rx to fix them. It's a generational barrier; a cultural expectations. &quot;If I take this pill, I should be able to eat what I want.&quot;</td>
<td>7</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>12</td>
</tr>
<tr>
<td>There are food desserts, and no transportation to grocery stores after working hours. (We are rural, and there are not enough people to make that affordable.) People are shopping at gas stations / dollar stores / whatever is closest to their homes.</td>
<td>8</td>
<td>5</td>
<td>3</td>
<td>5</td>
<td>21</td>
</tr>
<tr>
<td>Grocery stores are not open 24/7. For patients who need to grocery shop between work shifts, their food options are limited.</td>
<td>4</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>11</td>
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</tbody>
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Problem Statement: Poor diet is contributing to the rise of DM Type 2, obesity, and high A1Cs.
BRAINSTORMING SOLUTIONS

• Focus on one root cause at a time!
• All ideas are valid! Anything on the table
• Brainstorming methods:
  • Sticky notes
  • Whiteboard
  • Quiet team members? Talk to them privately
• Revisit your parking lot!
• Prioritize Solutions!
  • Can use the same Matrix
  • Feasibility, Cost, Impact, Actionable?
## Priority Matrix (Simplified)

**Key:** 10 = high, 1 = low

<table>
<thead>
<tr>
<th>Proposed Solutions</th>
<th>Impact on Problem Statement</th>
<th>Feasibility</th>
<th>Cost</th>
<th>Actionable?</th>
<th>TOTAL</th>
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DEVELOPING YOUR QUALITY IMPROVEMENT PROJECTS

1. Root Causes
   - Take the 3 Root Causes that are at the top of the priority list

2. Brainstorm Solutions
   - All ideas are equal – write them down!
   - Involve all players – even community partners
   - Revisit your parking lot

3. Prioritize
   - Use the Prioritization Matrix

4. Develop Next Steps
   - Develop Your PDSAs
   - Who do you need to collaborate with?
• Use your Problem Statement and Identified Root Cause
• Identify your Measures
• Collect your Baseline
• Create your Action Plan
• Set your goal

Plan

• Implement your selected solution
• Re-Measure your data, using the same criteria as your baseline, but a new timeframe.

Do

• Use analysis to determine next steps and tweaks to the process, if needed.
• Repeat PDSA steps

Act

Analyze data for trends and patterns.

Study
**Model for Improvement**

**Practice Name:**
**Date:** Updated

**What is your Aim/Target Goal?** (What are you trying to accomplish?)

**What will you measure?** (How will you know your changes are making an improvement?)
- Numerator:
- Denominator:

**How will you collect your data?** (Is it available now or will you have to create a data collection tool?)

**What changes are you going to test to reach your Aim? (PDSA Cycles)**

**Team:**

**PLAN:**

<table>
<thead>
<tr>
<th>Tasks to be completed</th>
<th>Who will do it?</th>
<th>When will it be done by?</th>
<th>Tools/Resources needed?</th>
</tr>
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<tbody>
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</tr>
</tbody>
</table>

**DO:** [Insert tables and graphs to monitor data]

**STUDY:** [Narrative analysis of data results]

**ACT:**
THE PLANNING PHASE

Include:

• Original Problem Statement
• Identified Root Cause
• Identified Solution
• Next steps (what, who, and by when)

Ask Yourself:

• Who could we collaborate with?
• What measures would tell the story we are trying to learn about? (Quantifiable data!)
• What resources do we need to pull this off?
• What is your goal?
REMEMBER YOUR COMMUNITY PARTNERS!
WHERE TO START?
BASELINE DATA

• Know your data! Check:
  • What are your available data sources?
  • What criteria is used?
  • Is it telling the truth?
  • Important! Does the data tell the story that you want to learn about?
  • Valid?
  • Don’t just focus on percentages!
SELECTING YOUR MEASURES

• Measures include a numerator, denominator and rate
• Look at your denominator size
• Get your baseline! (Required!)
• Beware of generics!
• Think outside of the box
• What will tell the story??
CONVERTING QUALITATIVE TO QUANTITATIVE

• Some data – like experiences – can be hard to quantify.
• Try using a scale; 1-10
• Look for common themes in the data; can any be grouped? (for example, comments about the staff, comments about the space, positive comments, negative comments, etc.)
• Try to structure your data collection ahead of time to get as much quantitative data as possible.
SMART GOALS:

- **Specific**
- **Measurable**
- **Achievable**
- **Relevant**
- **Time-based**

**SETTING YOUR GOAL:** BE SMART!
SETTING AIMS & GOALS: EXAMPLES

• Aim: To get patients to stop no-showing
  • Needs Improvement!

• Aim: To reduce no-shows from our baseline of 10% to 8%
  • Better

• Aim: To reduce no-shows from our weekly baseline of 10% to 8% within 1 month
  • Best!
FROM PAPER TO PRACTICE

- Develop your Action Plan!
- What / Who / When?
- Important to **assign tasks**!! Don’t assume.
- Create a deadline and hold folks to it.
- Meet regularly; review the To-Do’s from the previous meeting; status? Complete? Barriers to completion?
## SAMPLE ACTION PLAN: OUTREACH

<table>
<thead>
<tr>
<th>Tasks to be completed</th>
<th>Who will do it?</th>
<th>When will it be done by?</th>
<th>Tools/Resources needed?</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generate a list of patient not up to date on their Mammogram Screening</td>
<td>IT</td>
<td>June 15, 2017</td>
<td>Access to the EMR, desired parameters for report</td>
<td>Complete</td>
</tr>
<tr>
<td>Decide: Phone Calls or Letter?</td>
<td>QI Team</td>
<td>June 20, 2017</td>
<td></td>
<td>Complete: letter was decided upon</td>
</tr>
<tr>
<td>Draft a phone script / letter</td>
<td>QI Team</td>
<td>June 30, 2017</td>
<td>Word Processor</td>
<td>Complete: letter drafted and ready to be printed</td>
</tr>
<tr>
<td>Conduct Outreach</td>
<td>Care Coordinators</td>
<td>July 30, 2017</td>
<td>Printer, paper, envelopes, stamps, etc.</td>
<td>In process; 50% complete</td>
</tr>
<tr>
<td>Monitor / Track responses</td>
<td>Care Coordinators</td>
<td>August 1, 2017 &amp; ongoing</td>
<td>Spreadsheet with patient list</td>
<td></td>
</tr>
<tr>
<td>Track data</td>
<td>IT</td>
<td>August 1, 2017 &amp; ongoing</td>
<td>EMR</td>
<td></td>
</tr>
<tr>
<td>Analyze Progress and Next Steps</td>
<td>QI Team</td>
<td>Monthly</td>
<td>Team members, status updates</td>
<td></td>
</tr>
</tbody>
</table>
DO IMPLEMENT CHANGES

- Make sure all involved staff understand WHY the change is needed. Get them on board!
- Make sure all staff understand what you want them to do. No guessing games!
- Have a contact person for questions / concerns.
  - EXPECT resistance. Change is scary!! Support them, hear them. Their concerns are valid, and they deserve to be heard.
  - Having a clinical champion can help tremendously. Someone who is passionate about the cause!
- Check-in frequently. Make sure the requested changes are being done.
TIPS TO SUSTAIN CHANGE

- Leadership buy-in
- Find a Clinical Champion!
- Communication, communication, communication!!!
- Involve those who will be impacted – from the start!!!
- Make results visible
- Celebrate small successes
- Check in – how are things going for staff? Do they have questions or need extra support?
QUESTIONS??

- (Please fill out the evaluation!)

Contact Information:
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Bi-State Primary Care Association
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