Root Cause Analysis

Lynn Wilson, MS
Amy Daly, MA, LNHA, CPHQ
February 8, 2024

IPRO

ALLIANT HEALTH SOLUTIONS

NQIIC
Network of Quality Improvement and Innovation Contractors
CENTERS FOR MEDICARE & MEDICAID SERVICES
iQUALITY IMPROVEMENT & INNOVATION GROUP

Lynn Wilson, MS

SENIOR QUALITY IMPROVEMENT SPECIALIST

Lynn has more than 30 years of experience with regulatory agencies for community mental health centers and nursing homes and is a nationally recognized QI leader in long-term care, behavioral health and hospice and palliative care settings. Under her leadership, behavioral health and end-of-life care practice innovations generated through frontline staff quality improvement processes have been recognized as national best practices.

Contact: lwilson@ipro.org

Amy Daly, MA, LNHA, CPHQ

SENIOR QUALITY IMPROVEMENT SPECIALIST

Amy is a licensed nursing home administrator with over 20 years of leadership and long-term care management experience. In addition to her work as a vice president of long-term care and facility administrator, she has served on the boards of the Genesee Health Facilities Association (as treasurer and education committee member) and the Genesee Health Facilities Foundation. She serves as a New York State Department of Health Informal Dispute Resolution (IDR) panel member and has been an adjunct clinical instructor of dental hygiene at Monroe Community College. Amy has a master's degree in health promotion and a bachelor's degree in health sciences.

Contact: adaly@ipro.org

Making Health Care Better *Together*
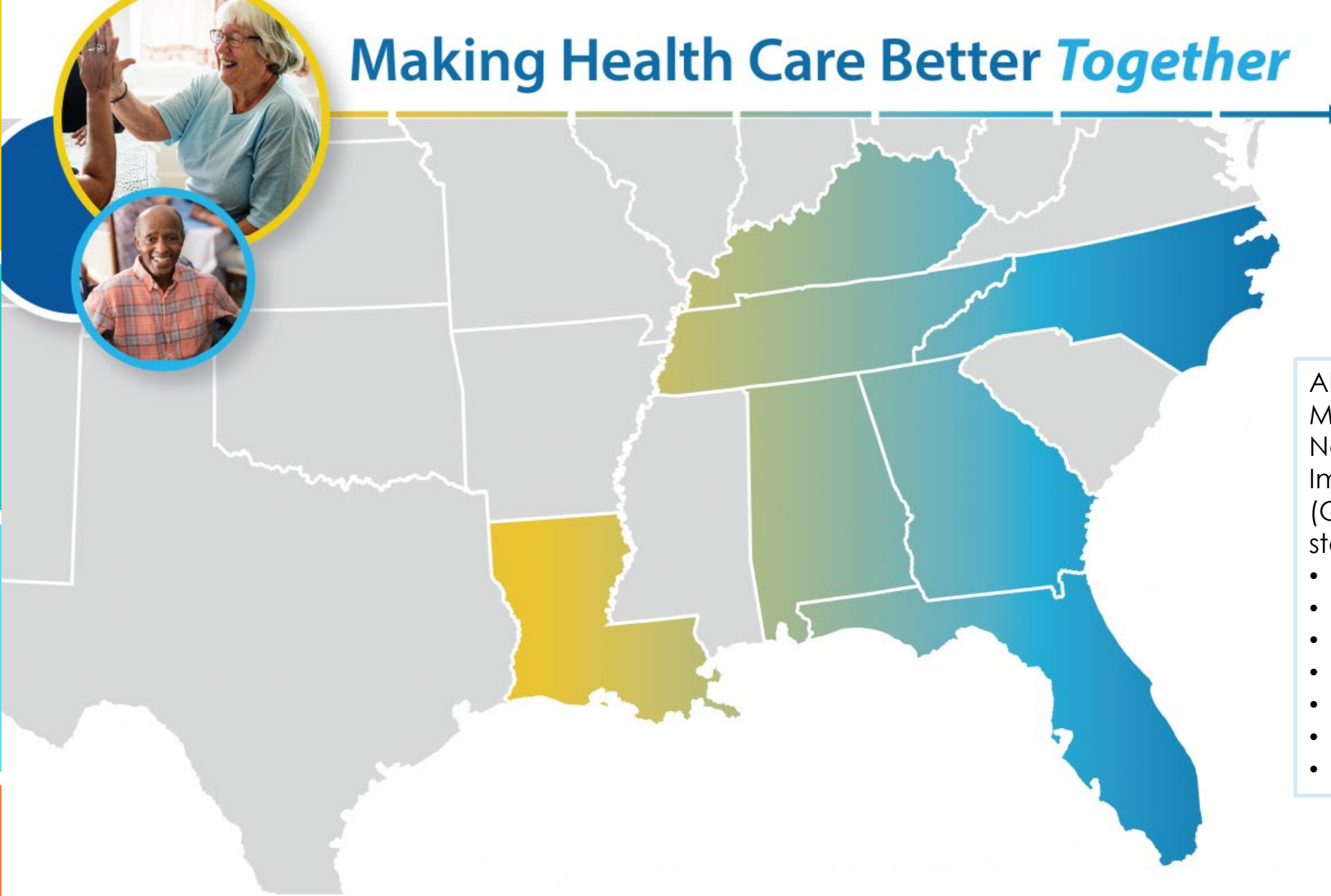
Alliant Health Solutions is the Medicare Quality Innovation Network-Quality Improvement Organization (QIN-QIO) for the following states:

- Alabama
- Florida
- Georgia
- Kentucky
- Louisiana
- North Carolina
- Tennessee

Alliant Health Solutions, QIN-QIO

The IPRO QIN-QIO

The IPRO QIN-QIO

- A federally-funded Medicare Quality Innovation Network – Quality Improvement Organization (QIN-QIO) in contract with the Centers for Medicare & Medicaid Services (CMS)
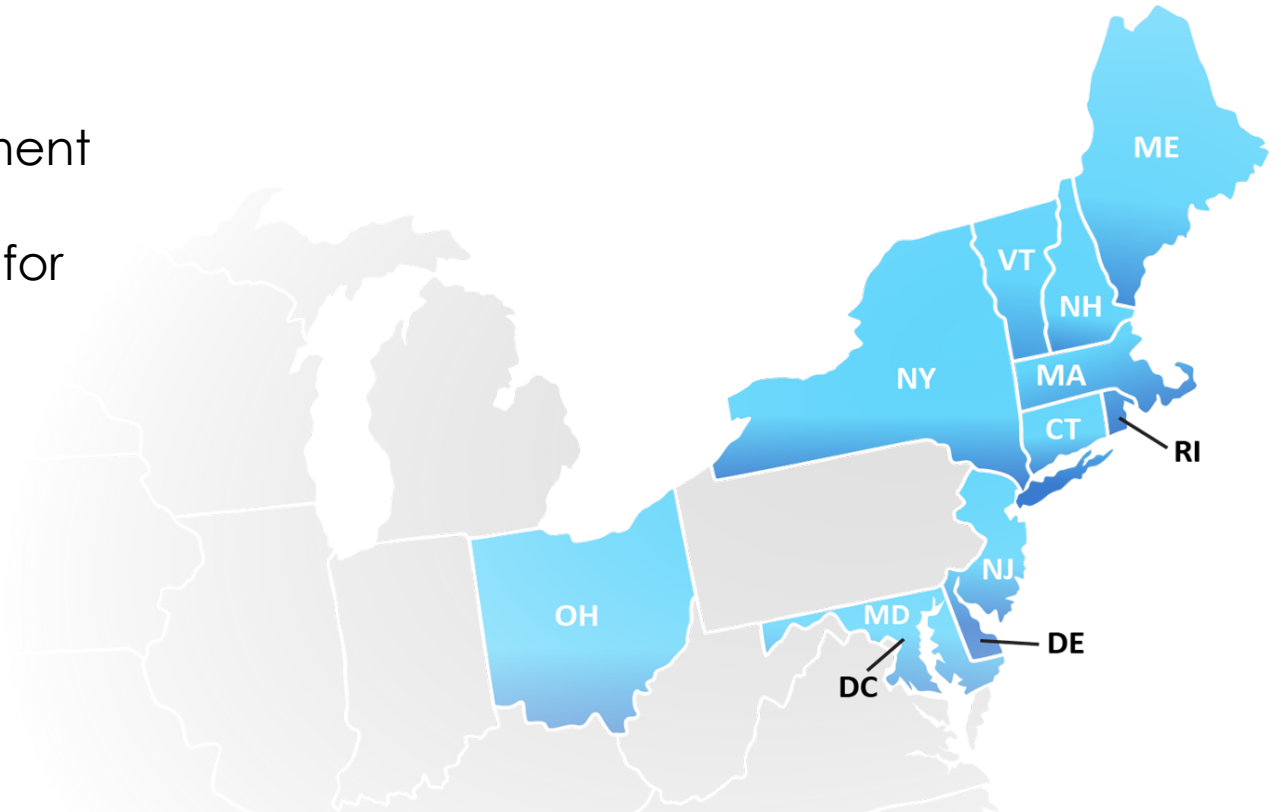
- 12 regional CMS QIN-QIOs nationally

IPRO:
New York, New Jersey, and Ohio

Healthcentric Advisors:
Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont

Qlarant:
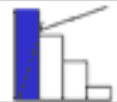Maryland, Delaware, and the District of Columbia
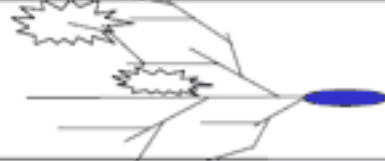
Working to ensure high-quality, safe healthcare for
20% of the nation's Medicare FFS beneficiaries

Check in

Today

- Define RCA and what is NOT an RCA
- Systems and processes
- Facilitating the RCA process
- Review the seven (7) steps of the RCA process & helpful tips for success
  - Brainstorming
  - Swiss cheese
  - Cause and effect diagram
  - 5 Why's
- A few references

Problem Solving

Name	Just Do It!	Root Cause Analysis	Complex (A3)
Effort to Address Problem	Low	⭐ Medium	High
Understanding of Problem	• Problem is well understood • Well informed root cause & solution • Stakeholders agree on solution • EASY!	• Problem is somewhat understood • Root cause & solution unknown • Stakeholders need more information • Takes time	• Problem is not understood • Root cause & solution unknown • Requires team • Stakeholders need more information • Resource intense
Example	New process – train team	Lost order - medication dose missed	Achieve delivery time <2 hours
Collaboration	Identify stakeholders impacted by the problem and involve them in the improvement work		

Reference: Sobek II & D K, Smalley, A. (2008). *Understanding A3 Thinking: A Critical Component of Toyota's PDCA Management System* (1ˢᵗ ed). CRC Press.

A Root Cause Analysis is …

- Structured
- Facilitated **team** process that identifies breakdowns in processes and systems *(not individual performance)*

Goals

- Identify the root causes of an event that resulted in an undesired outcome
- Develop corrective actions to prevent/eliminate the event from recurring

Resist temptation to jump to Step 5: Find the root causes.

Avoid quick fix solutions that do not identify and address underlying system gaps or contributing factors and fail to prevent similar events in the future.

"Every system is perfectly designed to get the result it gets."

- W Edwards Deming
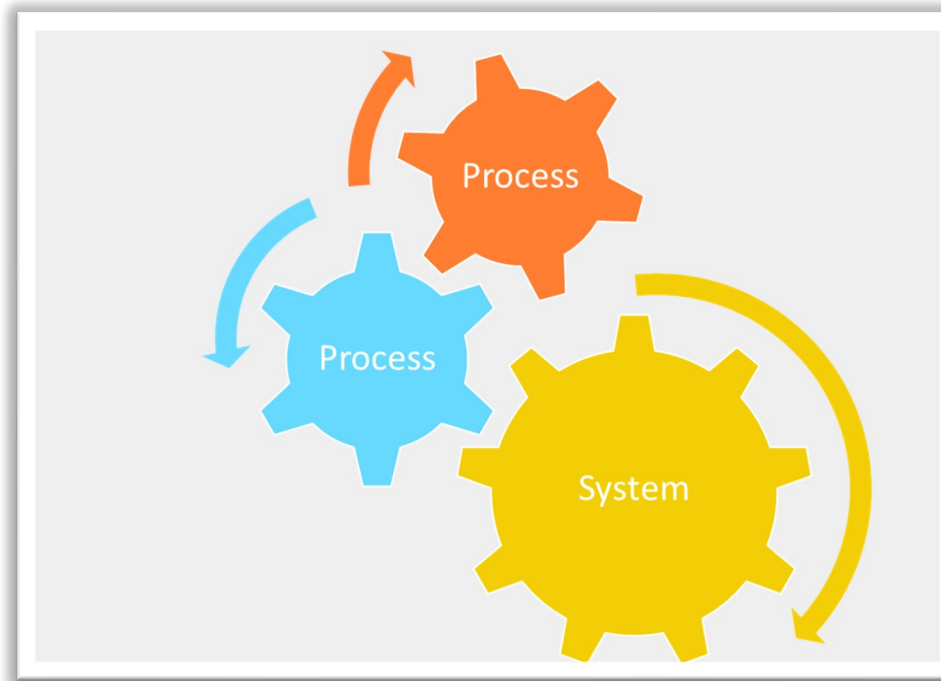
Systems and Processes

A **system** is a group or combination of related things or parts that function together as a whole.

A process …

- Is a systematic sequence of related actions, often done in a specific order, to produce a desired result.
- Often spans organizational boundaries, linking people, the flow of information and other resources to create value and deliver results.

Processes are smaller parts of a larger **system**.
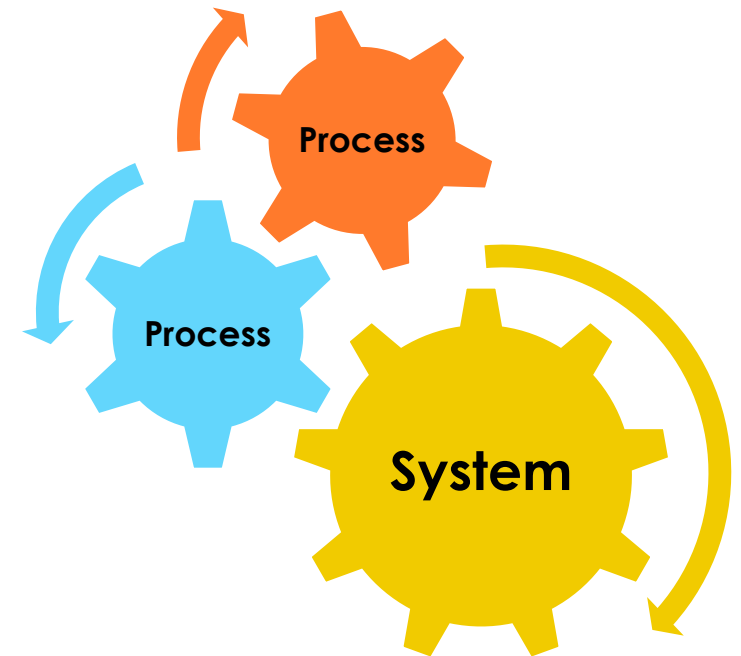
Systems & Processes

Inputs

- Physical facility
- Equipment, tools
- Raw material
- Human resources
- Information

Steps in Process

- Technical
- Communication
- Data management
- Cognitive/skills

Outputs

- Product, service
- Outcome, results
- Fulfilling needs
- Relief, comfort
- Dignity

Reason's Model of Accident Causation: (aka The Swiss Cheese Model)

SWISS CHEESE MODEL

- Near Miss
- Safeguards
- Inherent weaknesses
- Medication Incident
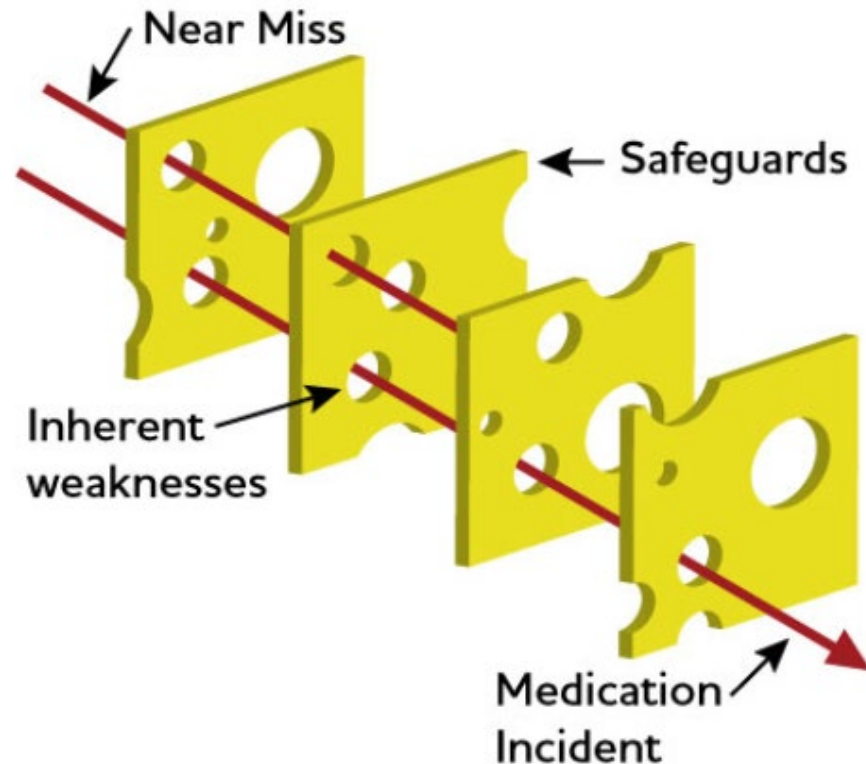
"The author identified what he describes as latent failures at the managerial level before the possibility for human error is even involved. As described by Reason, **latent errors are those … whose adverse consequences may lie dormant within the system for a long time, only becoming evident when they combine with other factors to breach the system's defences** … Latent errors … are most likely to be spawned by those whose activities are removed in both time and space from the direct control interface: designers, high-level decision makers, construction workers, managers and maintenance personnel."

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3776518/

https://pharmacyconnection.ca/how-swiss-cheese-can-help-visualize-medication-safety-risks/

IPRO

ALLIANT HEALTH SOLUTIONS

NQIIC
Network of Quality Improvement and Innovation Contractors
CENTERS FOR MEDICARE & MEDICAID SERVICES
iQUALITY IMPROVEMENT & INNOVATION GROUP

Important Aspects of Facilitation

BE CURIOUS NOT JUDGMENTAL

Assumptions

- People want to do the right thing
- They care about their work
- They care about the people they serve

Create safety with structure

- Clearly state the objective
- Provide structure to conversation
- Summarize, step by step
- Create agreement on next steps, who will do what, by when?
- Follow-up

No judgment

Be very curious

What happened?
- When?
  - Where?
    - Why? Why? Why? Why? Why?
      - Who?
        - How?

Has this happened before? Same time? Location?

How was it addressed?

Guidance for Performing Root Cause Analysis (RCA) with Performance Improvement Projects (PIPs)

Steps	Explanation
1. Identify the event to be investigated and gather preliminary information	Events and issues can come from many sources (e.g., incident report, risk management referral, resident or family complaint, health department citation). The facility should have a process for selecting events that will undergo an RCA.
2. Charter and select team facilitator and team members	Leadership should provide a project charter to launch the team. The facilitator is appointed by leadership. Team members are people with personal knowledge of the processes and systems involved in the event to be investigated.
3. Describe what happened	Collect and organize the facts surrounding the event to understand what happened.
4. Identify the contributing factors	The situations, circumstances or conditions that increased the likelihood of the event are identified.
5. Identify the root causes	A thorough analysis of contributing factors leads to identification of the underlying process and system issues (root causes) of the event.
6. Design and implement changes to eliminate the root causes	The team determines how best to change processes and systems to reduce the likelihood of another similar event.
7. Measure the success of changes	Like all improvement projects, the success of improvement actions is evaluated.

TIP: Create an RCA report template

- Use these 7 Steps for your written RCA Report documentation.
- Include in your official, confidential QI files.
- You may be asked to share this document with surveyors.

https://www.cms.gov/medicare/provider-enrollment-and-certification/qapi/downloads/guidanceforrca.pdf

Resist the Temptation to Jump to Step 5: Find the Root Causes

Avoid quick fix solutions that do not identify and address underlying system gaps or contributing factors and fail to prevent similar events in the future.
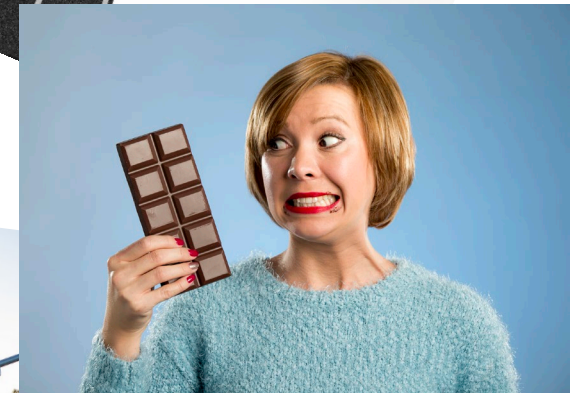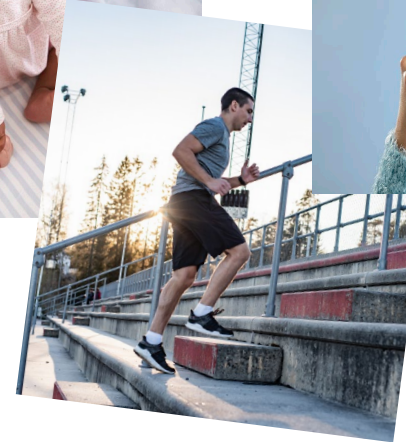
Step 1: Identify the Event to be Investigated and Gather Preliminary Information

- Gather preliminary information, e.g., incident report, any related documentation, interviews with patient/resident/family/visitors, staff, photographs

- Review all relevant policies and procedures

- If applicable, ensure defective equipment is out of use

Use information from the sources above to determine who participates in the team (Step 2).

IPRO   ALLIANT HEALTH SOLUTIONS   NQIIC
Network of Quality Improvement and
Innovation Contractors
CENTERS FOR MEDICARE & MEDICAID SERVICES
iQUALITY IMPROVEMENT & INNOVATION GROUP

Step 1: Helpful Tips

Facility leaders …

- Review information. Must prioritize the RCA.
- Identify the **problem** and **expected outcome** **(an outcome is _not_ the <u>solution</u>)**
- **Problem Statement** objectively states what went wrong.
  a. *"Resident x continued to receive a medication one week after the discontinuation order was given."* Or…
  b. *"Discontinuation orders for medications are not being followed."*
- **Outcome statement** objectively states what will happen when a solution is tested and found to <u>successfully prevent the problem from reoccurring</u>.

NOTE: If an event represents a liability concern or questionable practice by an employee, leadership can initiate a risk management review or an employee performance review that can occur at the same time as the RCA – but is always confidential and separate from the RCA.

Step 2: Charter and Select Team Facilitator and Team Members

Leadership team works with facilitator to develop a charter that guides the team in
- Managing the scope of the project
- Making changes that are ultimately linked to root causes

Leadership team and facilitator select staff to participate on the team
- People who are familiar with the processes and systems associated with the event
- People who have personal knowledge of what actually happened, or given an opportunity to contribute to the investigation through interviews

Facilitator is responsible for assembling and managing the team, guiding the analysis, documenting findings, and reporting to appropriate persons.

Over time, manager and supervisor facilitator skills will develop in organization.

IPRO

ALLIANT HEALTH SOLUTIONS

NQIIC
Network of Quality Improvement and Innovation Contractors
CENTERS FOR MEDICARE & MEDICAID SERVICES
iQUALITY IMPROVEMENT & INNOVATION GROUP

Step 2: Helpful Tips

- **Normalize** the fact that the review of an event can be difficult for the staff involved. (Revisit your trauma informed care resources.)
  - They may be processing their emotions about what happened and unable to be unbiased or objective.
  - Provide access to EAP or other counseling resources.
  - Hearing others describe the event objectively can help them deal with the situation positively.
  - Build & reinforce your culture of safety. Confidentiality is critical to psychological safety.

- Team members can discuss the event in an objective and unbiased manner.

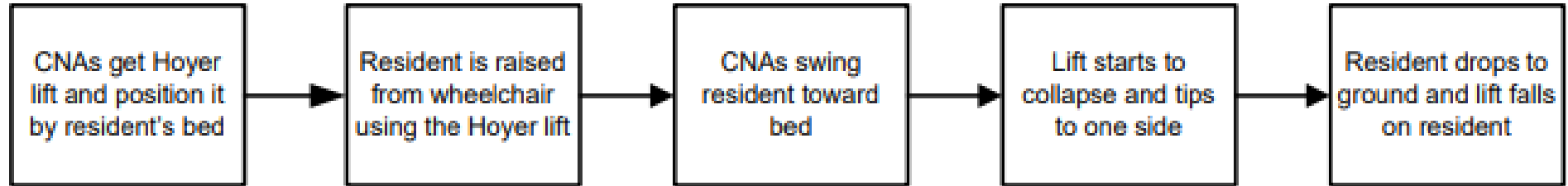- Keep the number of management & supervisory level participants at a minimum.

Step 3: Describe What Happened

Timeline of the event:

The sequence of steps leading up to the event

1st meeting:

- A timeline of the event is created, using information gathered in step 1, and presented for review and elicit additional information from the team. What is missing? What is not accurate? What else?

- Share comments from interviews with staff who are not present.

- Use a flipchart or white board with post-it-notes.

- Before moving to next step – ensure there is agreement about what happened.

Example Timeline

EVENT

TIME LINE:

| CNAs get Hoyer lift and position it by resident's bed | → | Resident is raised from wheelchair using the Hoyer lift | → | CNAs swing resident toward bed | → | Lift starts to collapse and tips to one side | → | Resident drops to ground and lift falls on resident |

CONTRIBUTING FACTORS:

Step 3: Helpful Tips

Facts – <u>not what caused the facts to happen</u>. (*This can be tricky.*)

Facilitator asks:

- ✓ *Does the timeline adequately tell the story of the incident?*

    (If not, the timeline may need to be expanded further back in time or expanded to include what happened after the event.)

- ✓ *Does each step in the timeline derive directly from the step it precedes?*

    (If not, add missing steps.)

- ✓ *Is each step in the timeline pertinent to the incident under investigation?*

    (Answers may be yes, no, not sure – keep only the yes and not sure steps in the final timeline.)

Resist the temptation to jump to Step 5: Find the Root Causes. Avoid quick fix solutions that do not identify and address underlying system gaps or contributing factors and fail to prevent similar events in the future.

Step 4: Identify Contributing Factors

SWISS CHEESE MODEL

Near Miss

Safeguards

Inherent weaknesses

Medication Incident
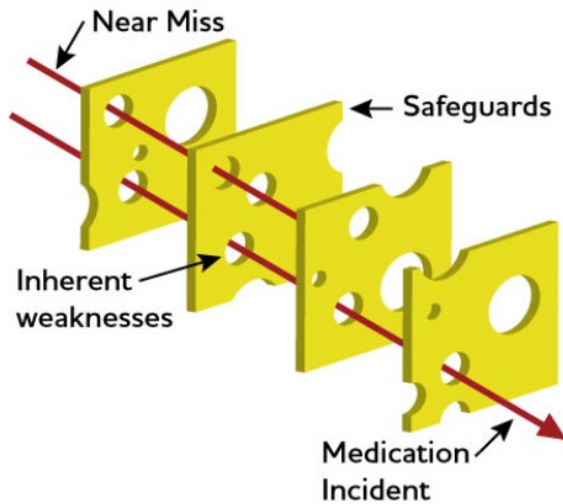
Contributing factors include situations, circumstances, or conditions that collectively increased the likelihood of the incident. By itself, a contributing factor may not have caused the incident, but when they occur at the same time, the probability an incident will occur increases.

Curiosity leads to discovery

This is where the knowledge gained during Step 3 is used by the team to dig deeper into **what** happened to discover **why** it happened.

Team looks at each step of the timeline and asks,

✓ *"What was going on at this point in time that increased the likelihood the event would occur?"*

Step 4: Helpful Tips

Consider what was happening at *each* step.
Use the timeline as the guide for process.

Brainstorm question:

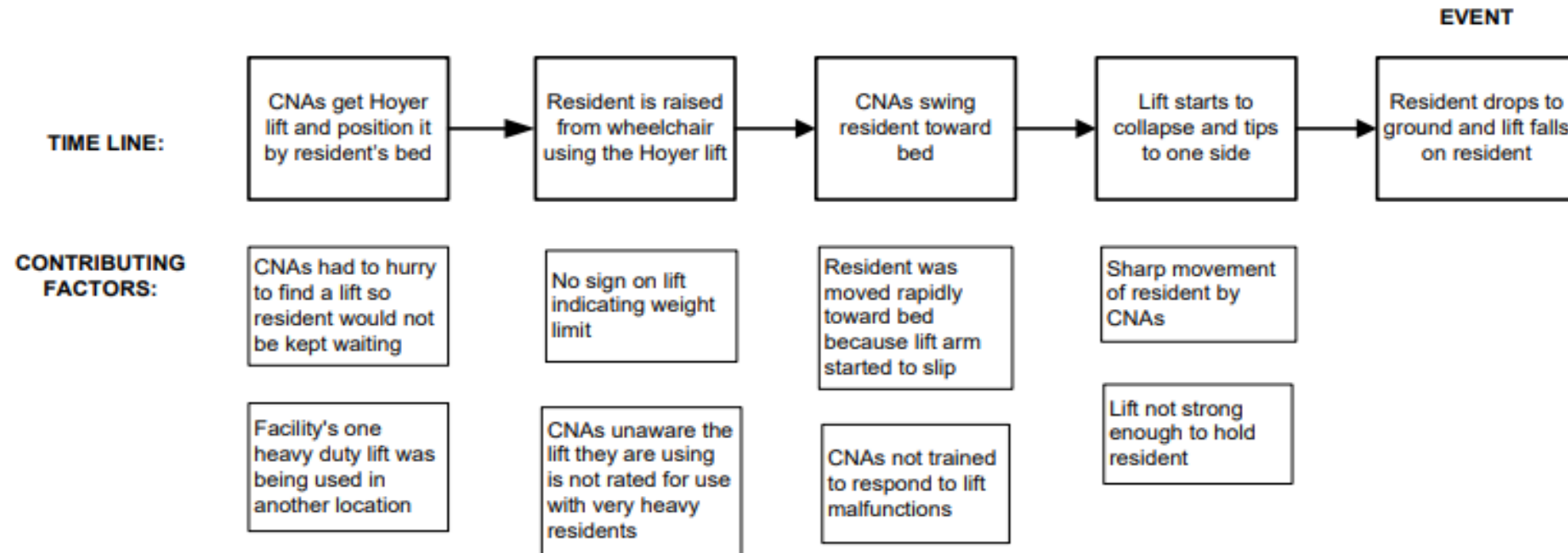*"What might have happened to increase the likelihood the event would occur?"*

- *Was a recommended practice not followed?*
- *Were there any procedure work-arounds that may have been used?*
- *How did staffing at the time of the event impact the eventual outcome?*

- When identifying contributing factors, beware of "hindsight bias". Knowing the eventual outcome of a timeline can influence how team members view activities leading up to the event.

- Remember to consider only the factors that were actually present and known to those involved at the time – not what was only realized after the fact.

IPRO ALLIANT HEALTH SOLUTIONS
NQIIC
Network of Quality Improvement and Innovation Contractors
CENTERS FOR MEDICARE & MEDICAID SERVICES
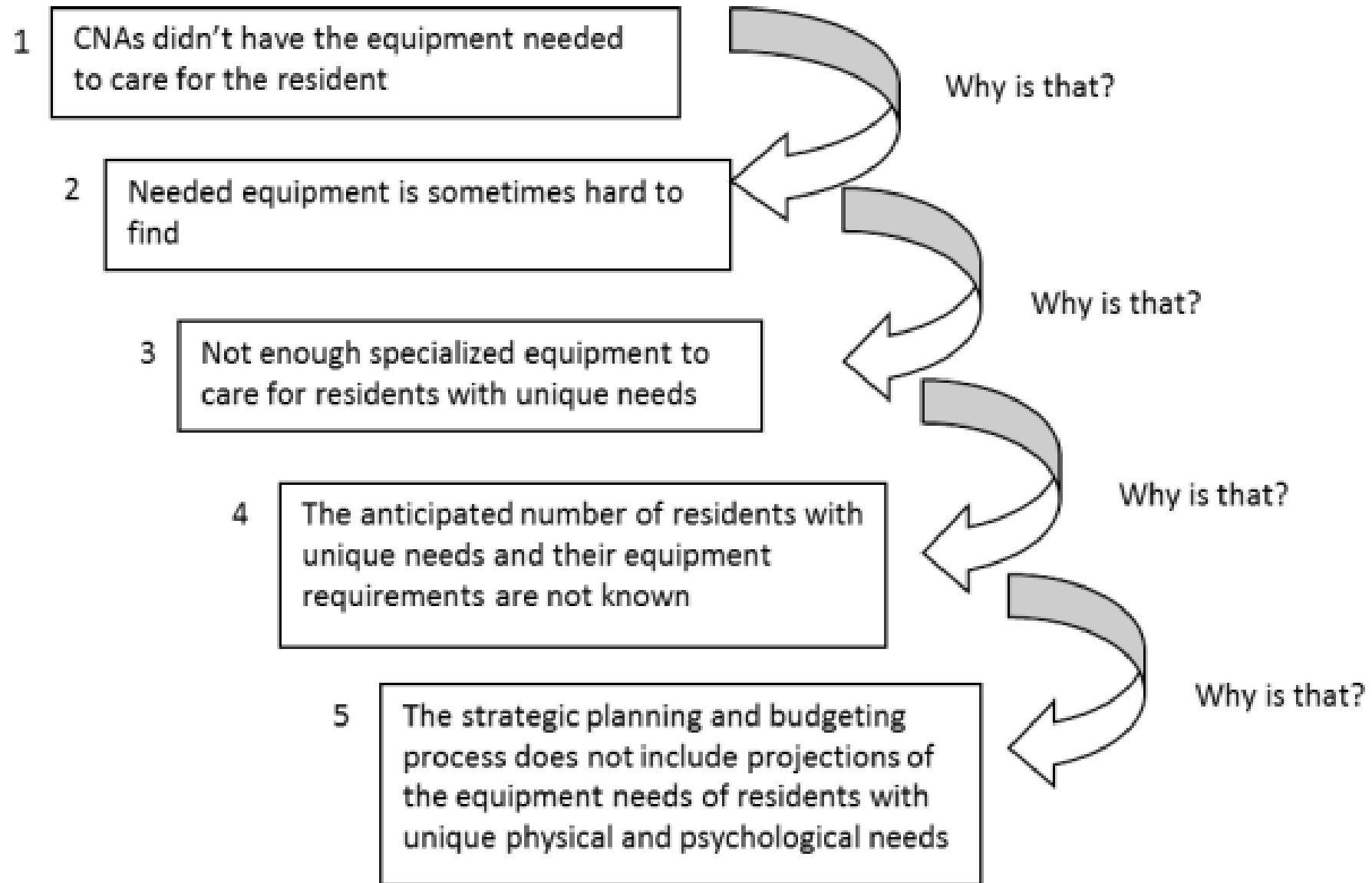iQUALITY IMPROVEMENT & INNOVATION GROUP

Probing questions…

"What might have happened to increase the likelihood the event would occur?"
- ✓ Was a recommended practice not followed? If not - 5 Why's
- ✓ Were there any procedure work-arounds that may have been used? If so - 5 Why's
- ✓ How did staffing at the time of the event impact the eventual outcome? Any distractions? 5 Why's

EVENT

TIME LINE:

CNAs get Hoyer lift and position it by resident's bed → Resident is raised from wheelchair using the Hoyer lift → CNAs swing resident toward bed → Lift starts to collapse and tips to one side → Resident drops to ground and lift falls on resident

CONTRIBUTING FACTORS:

CNAs had to hurry to find a lift so resident would not be kept waiting

No sign on lift indicating weight limit

Resident was moved rapidly toward bed because lift arm started to slip

Sharp movement of resident by CNAs

Facility's one heavy duty lift was being used in another location

CNAs unaware the lift they are using is not rated for use with very heavy residents

CNAs not trained to respond to lift malfunctions

Lift not strong enough to hold resident

Step 5: Identifying the Root Causes

- All incidents have a direct cause.

- This is the occurrence or condition that directly produced the incident.

- In Step 3, the tilting and collapsing Hoyer lift is the direct cause of the accident. **However, the direct cause is not the root cause.**

- Root causes are underlying faulty process or system issues that lead to the harmful event. Often there are several root causes for an event.

- **Contributing factors are not root causes**.

- Use **The 5 Why's** to dig deeper into the contributing factors.

1 | CNAs didn't have the equipment needed to care for the resident

Why is that?

2 | Needed equipment is sometimes hard to find

Why is that?

3 | Not enough specialized equipment to care for residents with unique needs

Why is that?

4 | The anticipated number of residents with unique needs and their equipment requirements are not known

Why is that?

5 | The strategic planning and budgeting process does not include projections of the equipment needs of residents with unique physical and psychological needs

Why is that?

Step 5: Helpful Tips

The team must determine if they have truly identified the root cause vs. a contributing factor.

When the team has identified a root cause ask:

✓ *Would the event have occurred if this cause had not been present?*

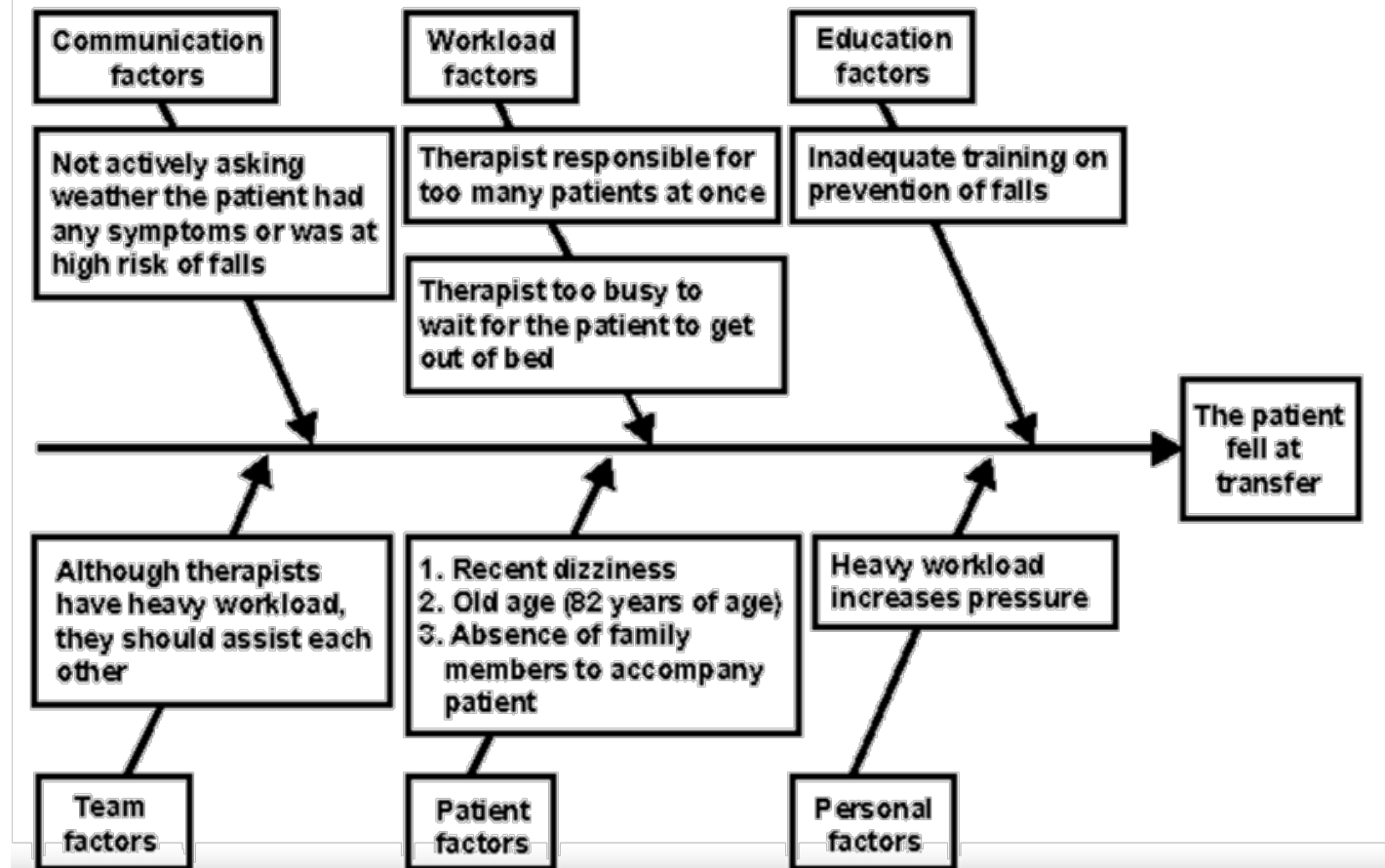✓ *Will the problem recur if this cause is corrected or eliminated?*

If the answer to both questions is No, the root cause has been identified.

The team may need to be reminded it is not their job to cast **judgement** about whether the individual did the right thing. That is the responsibility of the person responsible for evaluating the employee's performance.

CAUTION

Discussion **manipulation** may occur during this step, e.g., attempts to deflect attention from potential root causes originating in their department or direct discussion away from root causes that will require additional resources or require changes to how work is currently being done.

IPRO | ALLIANT HEALTH SOLUTIONS | NQIIC
Network of Quality Improvement and Innovation Contractors
CENTERS FOR MEDICARE & MEDICAID SERVICES
iQUALITY IMPROVEMENT & INNOVATION GROUP

Looking for Root Cause: Cause & Effect Diagram
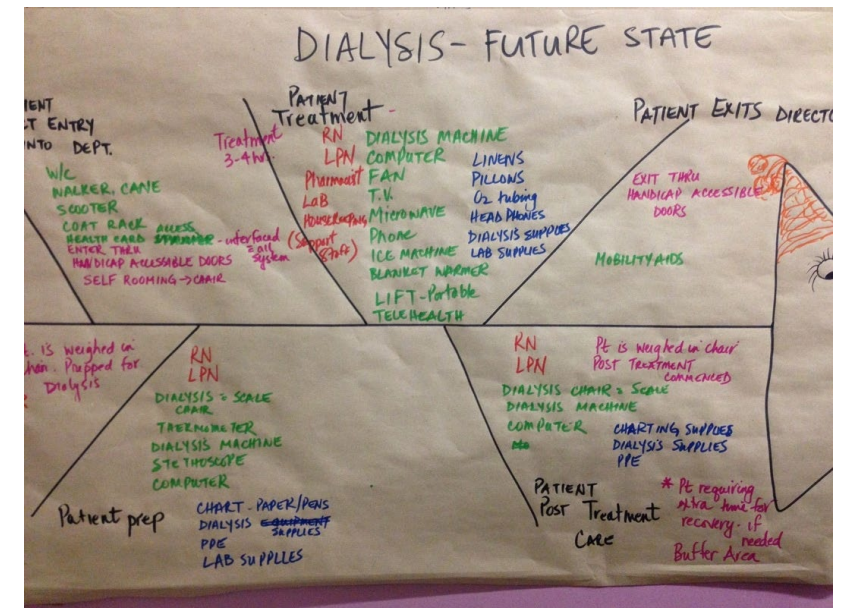
Prioritizing Causes with Multivoting

The PARETO PRINCIPLE — 80% of consequences come from 20% of causes.

EFFORT → RESULT
20% → 80%
80% → 20%
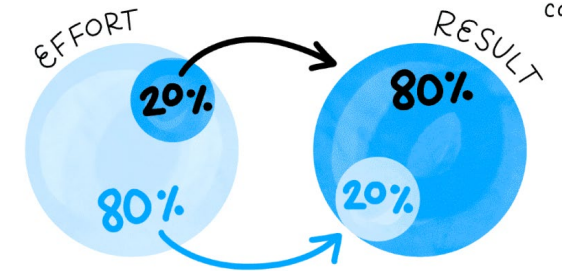
● important   ● not important

6 Participants
3 Votes/person
Vote Results
1 – 1x = 1
2 – 2x = 4
3 – 1x = 3
4 – 1x = 4
6 – 1x = 6
Total votes = 18
80%/18 = 14
20%/18 = 4

Step 6: Design and Implement Changes to Eliminate the Root Causes

- Team evaluates each root cause to determine how best to reduce or prevent it from triggering another harmful event.

- Important: Choose actions that address *each* root cause (at least one for each root cause). This usually requires the creation of a new process or making a change to the current process.

- **Important to include people who will be directly impacted by the change in the design and implementation of the new process.**

- Be clear about next steps (who will do what by when?)

Short-term solutions rarely address root causes.

Step 6: Design and Implement…continued…

When developing corrective actions consider questions such as:

- *What safeguards are needed to prevent this root cause from happening again?*

- *What contributing factors might trigger this root cause to recur? How can we prevent this from happening?*

- *How could we change the way we do things to make sure that this root cause never happens?*

- *If an event like this happened again, how could we stop the accident trajectory (quickly catch and correct the problem) before a resident was harmed?*

- *If a resident were harmed by this root cause, how could we minimize the effect of the failure on the resident?*

Step 6: Aim for corrective actions with a stronger or intermediate rating, based on the categories of actions below. (Corrective actions that change the system and do not allow the errors to occur are the strongest.)

Stronger Actions

- Change physical surroundings.

- Usability/testing of devices before purchasing.

- Engineering controls into system (forcing functions which force the user to complete an action).

- Simplify process and remove unnecessary steps.

- Standardize equipment or process.

- Tangible involvement and action by leadership in support of resident safety; i.e., leaders are seen and heard making or supporting the change.

Intermediate Actions

- Increase staffing/decrease in workload.

- Software enhancements/modifications.

- Eliminate/reduce distractions.

- Checklist/cognitive aid.

- Eliminate look alike and sound alike terms.

- "Read back" to assure clear communication.

- Enhanced documentation/communication.

Weaker Actions

- Double checks.

- Warnings and labels.

- New procedure/memorandum/policy.

- Training. Retraining.

- Additional study/analysis.

Step 6: Helpful Tips

- Encourage team to identify as many intermediate and strong actions as possible.

- Include supervisory and management staff in the action planning discussions –they have knowledge about various resident care systems, the facility's resource allocation priorities, feasibility and costs associated with corrective actions.

- If a specific action cannot be accomplished due to current constraints, the team should look for other ways of changing the process to prevent a similar event from happening in the future.

- Doing nothing ~~should~~ is not ~~be~~ an option.

Step 7: Measure the Success of Changes

RCA should reduce the risk of future harmful events by minimizing or eliminating the root causes.

As action plans are implemented, mechanisms are established to gather data to be used to measure the success of the corrective action.

What you measure should answer these questions affirmatively:

1. Did the recommended corrective actions get done?
2. Are people complying with the recommended changes?
3. Have the changes made a difference?

Evaluating the success of a PIP usually occurs after the team has disbanded and will become the responsibility of the person designated to monitor the corrective action(s).

The QI committee is responsible for overseeing all QAPI activities, which includes reviewing the effectiveness of all improvement projects.

IPRO

ALLIANT HEALTH SOLUTIONS

NQIIC
Network of Quality Improvement and Innovation Contractors
CENTERS FOR MEDICARE & MEDICAID SERVICES
IQUALITY IMPROVEMENT & INNOVATION GROUP

Step 7: Measure the Success of Changes continued…

A PIP is successful when:

1. Measures of success are monitored over time.
2. The goal was attained (e.g., process changes made & sustained, no recurrent events).
3. You are confident the change is permanent.

Build Your Repertoire: Prompts for Change Strategies

Process Variation

- Standardization

- Contingency plans

Mistake Proofing

- Reminders

- Differentiation

- Constraints

Customer expectations

- Coach on reasonable expectations

- Agreement on expectations

Improve Workflow

- Synchronize

- Minimize hand offs

- Move steps in a process closer together

- Find/remove bottlenecks

- Use automation

- Smooth workflow

- Adjust to peak demand

Other

- Eliminate multiple entry

- Change targets

- Conduct training (JIT)

- Optimize maintenance

IPRO

ALLIANT HEALTH SOLUTIONS

NQIIC
Network of Quality Improvement and Innovation Contractors
CENTERS FOR MEDICARE & MEDICAID SERVICES
iQUALITY IMPROVEMENT & INNOVATION GROUP

When You Tell Your Story – You Honor the Unique Journey Of How High-Quality Care is Provided by Everyone in Your Organization

You find the path by walking it.
- Maya Angelou
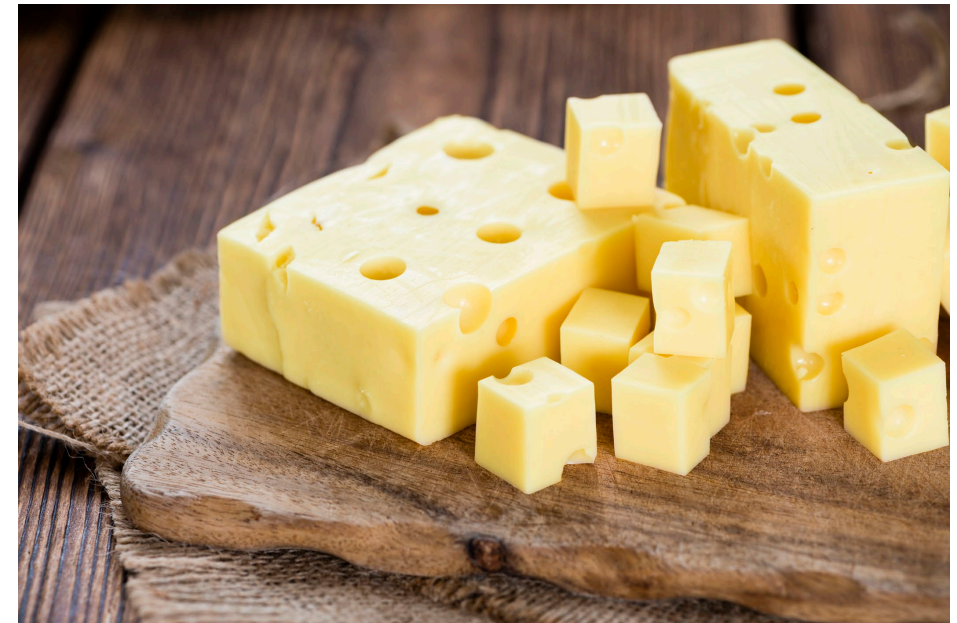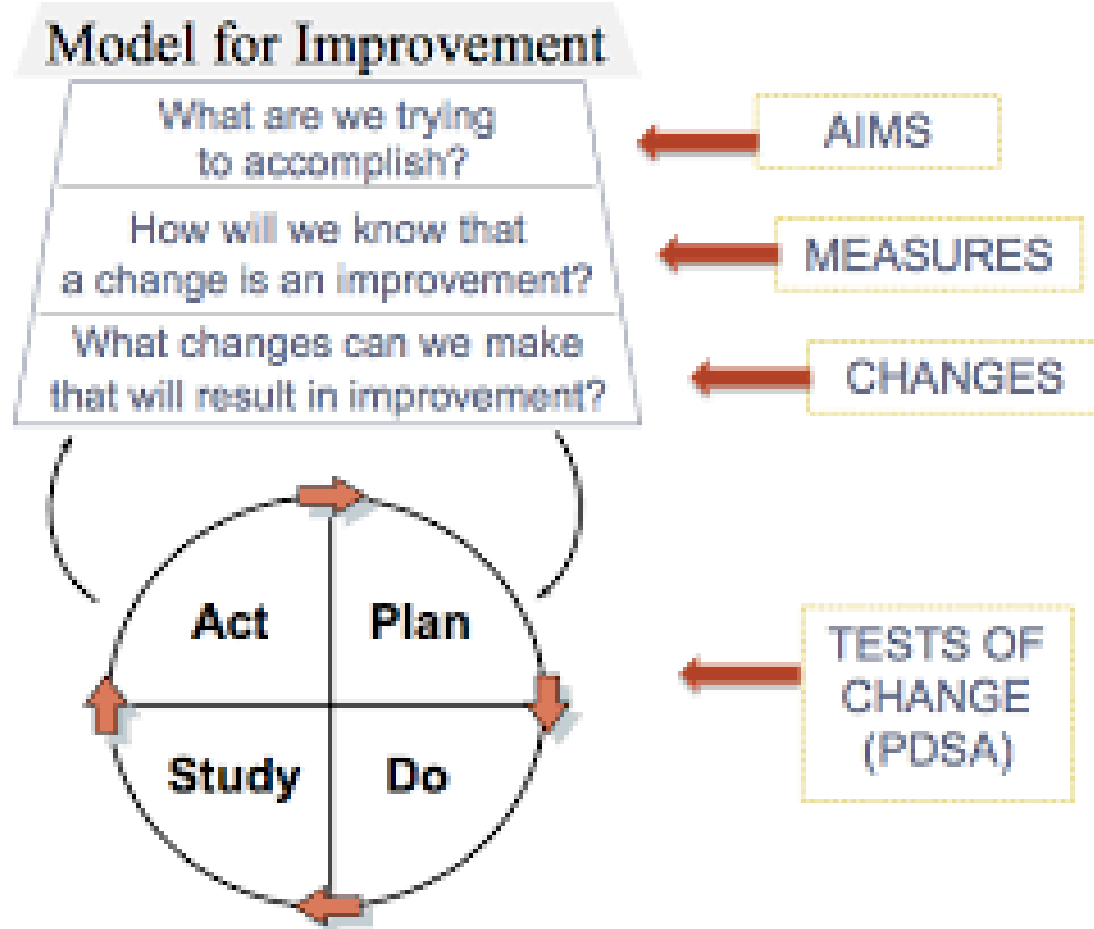
Continue Being Curious!

- Guidance for Performing Root Cause Analysis (RCA) with Performance Improvement Projects (PIPs) https://www.cms.gov/medicare/provider-enrollment-and-certification/qapi/downloads/guidanceforrca.pdf

- The Improvement Guide: A Practical Approach to Enhancing Organizational Performance 2nd Edition by Gerald J. Langley, Ronald D. Moen, Kevin M. Nolan, Thomas W. Nolan, & 2 more

- IHI: Cause and Effect Diagram

- Just Culture: A Foundation for Balanced Accountability and Patient Safety
  - *Just culture requires a change in focus from errors and outcomes to system design and management of the behavioral choices of all employees.*

Thank you!

Questions?

Nursing Home and Partnership for Community Health:
CMS 12th SOW GOALS

OPIOID UTILIZATION AND MISUSE	**PATIENT SAFETY**	**CHRONIC DISEASE SELF-MANAGEMENT**	**CARE COORDINATION**	**COVID-19**	**IMMUNIZATION**	**TRAINING**
Promote opioid best practices · Reduce opioid adverse drug events in all settings	Reduce hospitalizations due to c. diff · Reduce adverse drug events · Reduce facility acquired infections	Increase instances of adequately diagnosed and controlled hypertension · Increase use of cardiac rehabilitation programs · Reduce instances of uncontrolled diabetes · Identify patients at high-risk for kidney disease and improve outcomes	Convene community coalitions · Reduce avoidable readmissions, admissions to hospitals and preventable emergency department visits · Identify and promote optimal care for super utilizers	Support nursing homes by establishing a safe visitor policy and cohort plan · Provide virtual events to support infection control and prevention · Support nursing homes and community coalitions with emergency preparedness plans	Increase influenza, pneumococcal, and COVID-19 vaccination rates	Encourage completion of infection control and prevention trainings by front line clinical and management staff
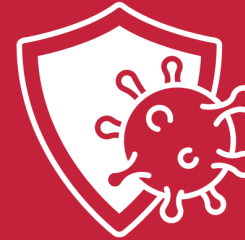
Making Health Care Better *Together*
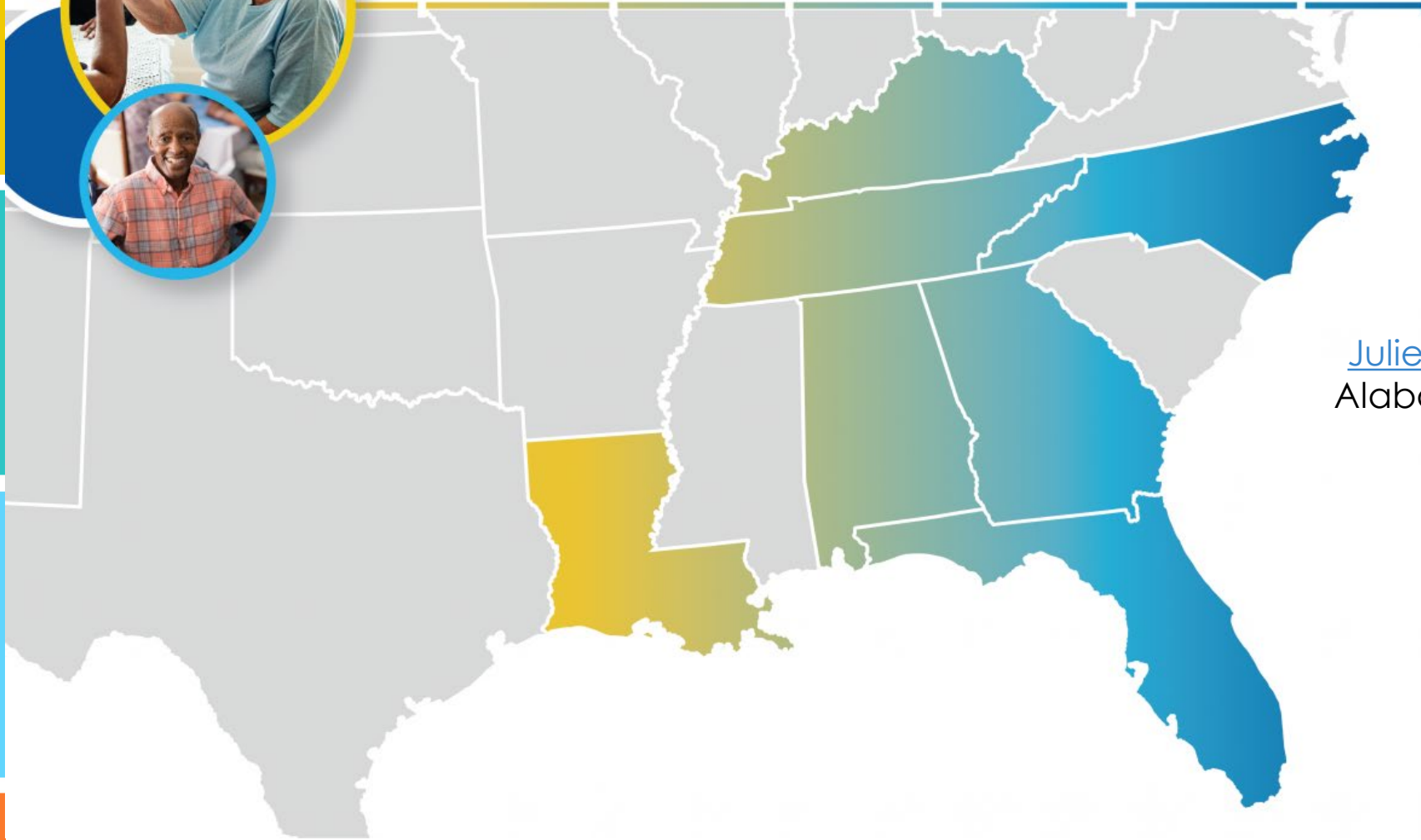
Julie Kueker
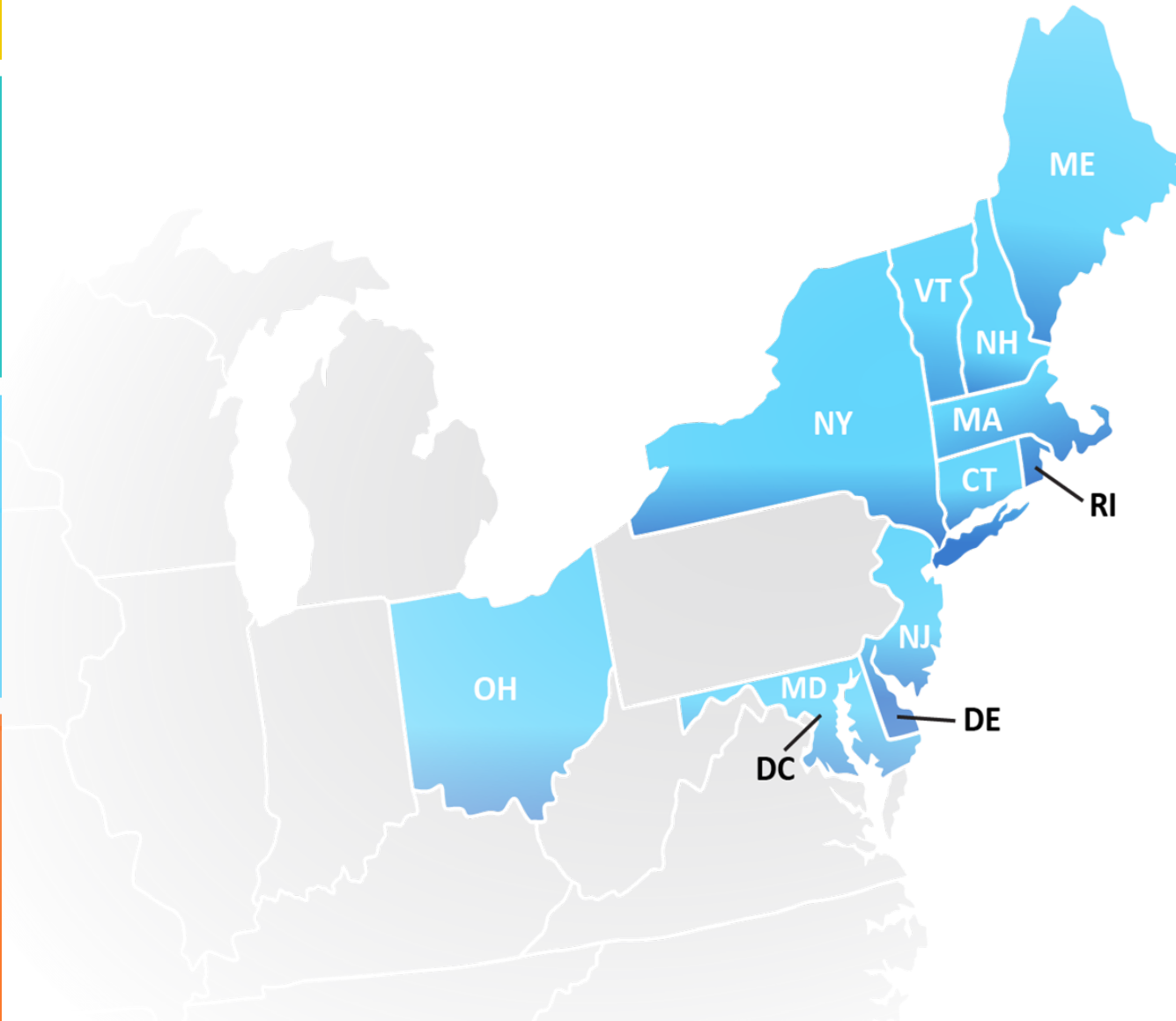Julie.Kueker@AlliantHealth.org
Alabama, Florida and Louisiana

Leighann Sauls
Leighann.Sauls@AlliantHealth.org
Georgia, Kentucky, North Carolina and Tennessee

Program Directors

Better health care, realized.

Melanie Ronda, MSN, RN, LTC-CIP, CPHQ
Director, Health Care Quality Improvement
Infection Preventionist
Email: mronda@ipro.org

@AliantQIO

Alliant Health Solutions

@AliantQIO

AliantQIO