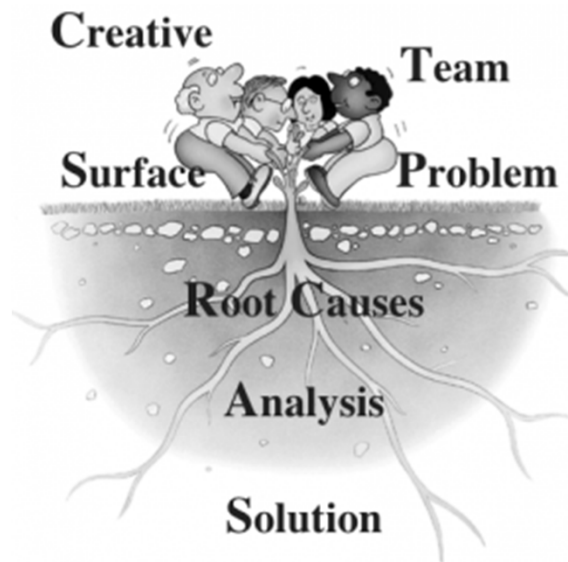


Root Cause and Data Analysis

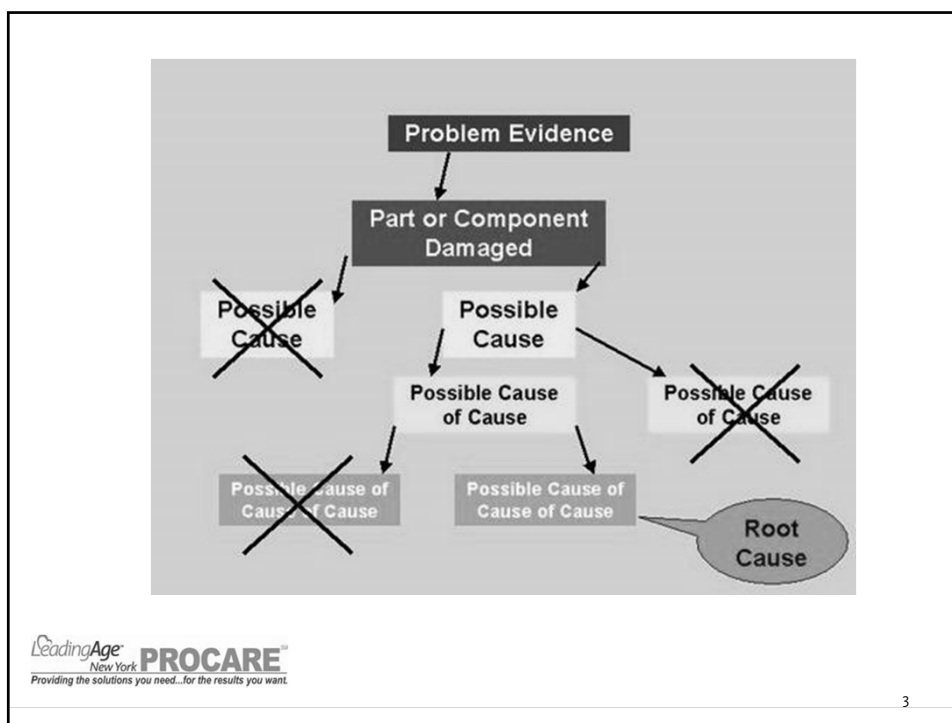


Michelle Synakowski
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Systemic Analysis and Action

- Systematic approach to problem analysis
 - Thorough
 - Highly organized
 - Structured
- Root cause of problem
 - Delivery or organization of care and services
 - Proficient in use of Root Cause Analysis
- Policies and Procedures define process



Feedback, Data Systems and Monitoring

- Systems to monitor care and services
- Data from multiple sources
- Feedback systems
 - Residents - Families - Staff - Others
- Use of Performance Indicators to monitor processes and outcomes
- Tracking
- Investigating



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Develop a data strategy

- Identify the sources of data:
 - Input from caregivers, residents, families and others
 - Adverse events
 - Performance Indicators (QMs, 5-star etc.)
 - Survey and complaint findings
 - Clinical records (MDS)
- QAPI plan must describe process for collecting and analyzing the data and how findings will be reviewed against benchmarks and/or targets set by the facility

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Identify Your Gaps and Opportunities

- Review sources of information (data) to determine if gaps or patterns exist in your systems that could result in quality problems:
 - Look at MDS data for patterns
 - Log onto NHC (QMs, staffing, survey)
 - Trends in survey issues/complaints?
 - Review Resident and Family satisfaction for trends
 - ER/hospital use
 - Caregiver turnover
 - Clinical Records
- This step should lead to development of Performance Improvement Projects (PIPs)

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Analyzing the Data

QM Description	Numerator	Denominator	Rate	National Benchmark	National Status
Percent of Residents Who Self-Report Moderate to Severe Pain (Short Stay)	4	210	1.9	20.3	✓
Percent of Residents With Pressure Ulcers That Are New or Worsened (Short Stay)	2	263	0.8	1.4	✓
Percent of Residents Who Were Assessed and Appropriately Given the Seasonal Influenza Vaccine (Short Stay)	204	210	97.1	82.9	✓
Percent of Residents Assessed and Appropriately Given the Pneumococcal Vaccine (Short Stay)	261	276	94.6	82.3	✓
Percent of Residents Who Newly Received an Antipsychotic Medication (Short Stay)	7	178	3.9	2.9	
Percent of Residents Experiencing One or More Falls with Major Injury (Long Stay)	5	695	0.7	3.3	✓
Percent of Residents Who Self-Report Moderate to Severe Pain (Long Stay)	22	468	4.7	9.3	✓
Percent of High-Risk Residents With Pressure Ulcers (Long Stay)	49	521	9.4	6.4	✗
Percent of Residents Assessed and Appropriately Given the Seasonal Influenza Vaccine (Long Stay)	695	695	100.0	92.5	✓
Percent of Residents Assessed and Appropriately Given the Pneumococcal Vaccine (Long Stay)	692	695	99.6	94.4	✓
Percent of Residents With a Urinary Tract Infection (Long Stay)	10	690	1.4	6.9	✓
Percent of Low Risk Residents Who Lose Control of Their Bowel or Bladder (Long Stay)	62	167	37.1	43.5	✓
Percent of Residents Who Have/Had a Catheter Inserted and Left in Their Bladder (Long Stay)	11	672	1.6	3.6	✓
Percent of Residents Who Were Physically Restrained (Long Stay)	1	695	0.1	1.8	✓
Percent of Residents Whose Need for Help with Activities of Daily Living Has Increased (Long Stay)	25	481	5.2	15.9	✓
Percent of Residents Who Lose Too Much Weight (Long Stay)	43	690	6.2	7.5	
Percent of Residents Who Have Depressive Symptoms (Long Stay)	38	654	5.8	6.8	
Percent of Residents Who Received an Antipsychotic Medication (Long Stay)	109	677	16.1	21.7	✓

Root Cause Analysis

What is the REAL cause(s) of the problem?

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Root Cause Analysis

- **Potential Contributing factors:**
 - Procedure/Policy not based on Regulation
 - Knowledge of Regulations
 - Staff knowledge and education
 - Accountability
 - Communication
 - Normalizing Behaviors: accepting the unacceptable
 - Quality Assessment/Assurance Process

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Data Principles

- Useful
- Relevant
- Specific
- Sufficient to assist in identification of root cause.
- Think of possible root causes when determining the data to collect

Data? What data?

- Determine data needed
 - What do we want to know?
 - How detailed do we want to be?
- Determine method to collect the data
 - Who will get the data?
 - What source do we need to obtain the data from?

Data? What data?

- Determine how to evaluate the data
 - Who will evaluate the data?
 - How will it be evaluated?
 - Benchmarks?
 - Facility
 - State
 - National
 - Tracking over time?

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Examples of Data...

Rehospitalization

- From what?
- How soon?
- How many times?
- What shift?
- What nurse?
- Doctor involved?
- Early intervention?
- Insidious onset?
- Decline noted?

Examples of Data

- Infection rates
 - Type of infections?
 - Specific unit?

Examples of Data

- Pressure Ulcer Rates
 - Incidence
 - Prevalence
 - When developing?
 - Where? What unit?
 - What stage are they found at?
 - Who is finding them?
 - Preventative measure in place?

Examples of Data

- In-house Fractures and Injuries
 - Incidence
 - How?
 - When?
 - Where? What unit?
 - Shift? Hour?
 - Why?

Examples of Data

- Weight Loss
 - Incidence
 - When? Within 30-60 days of admission?
 - Where? What unit?
 - Why?
 - Don't like the food
 - Poor staff supervision
 - Lack of timely intervention

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“Data without analysis is useless...”



What is the data telling you?

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Let's look closer at some data...

Rehospitalization



- From what?
- How soon?
- How many times?
- What shift?
- What nurse?
- Doctor involved?
- Early intervention?
- Insidious onset?
- Decline noted?

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... and Data Analysis

Rehospitalization data received:



- 5 hospitalizations
- 1 day shift, 4 evening shift, 0 night shift
- 1 from Unit One, 4 from Unit Two
- 4 from Unit Two were all while Nurse Jones was on duty
- 3 admitted with dehydration, 1 UTI/Sepsis, 1 Pneumonia
- None were seen by the physician in the week prior to hospital admission

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Deductions?



- What shift would you focus on?
 - Evenings?
 - Maybe the problem is actually on Days?
 - Why didn't Days provide intervention?
 - Notify the Doctor?
 - Is it that the nurse on Evenings is “nervous” or that she is very skilled in assessing the need for intervention?

What would your PIP look like?

Do you have enough information?

Deductions?



- What do Dehydration, UTI, and Pneumonia have in common?
- Is the root of the problem really a hydration concern?
- If it is a hydration problem, is there a deeper root?

Deductions?

- Could there be more than one root cause?
 - Assessment skills of the nurses
 - Notification of the physicians
 - Intervention by the physicians
 - Evaluating overall effectiveness of the Hydration Program



Getting to the “Root” of the Problem

What is the REAL cause(s) of the problem?

- Need to look at all possible contributing factors
- Many times there is more than one root cause
- Don't stop when you get to one possible cause

Potential Contributing Factors

- Procedure/Policy not based on Regulation
- Knowledge of Regulations
- Staff knowledge and education
- Accountability
- Communication
- Normalizing Behaviors: accepting the unacceptable
- Quality Assessment/Assurance Process

Sample Root Cause Tools

- Diagrams:
 - May be most helpful with systems or training breakdown
 - Helps brainstorm about main causes and subsequent causes
 - Fishbone
 - Tree Analysis
 - Cause and Effect
 - Pareto Chart (80/20 rule)
 - Trend Chart (over time)
- Why-Why (5 Whys):
 - Helps drill down deeper to subsequent causes

Sample Root Cause Tools

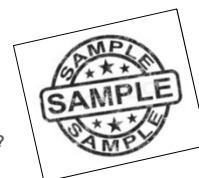
- **Brainstorming/Structured Discussions:**
 - Helps evaluate and prioritize subsequent causes
 - Can generate multiple ideas in a short period of time
 - Ensure everyone has an opportunity to participate in discussion or written idea submission
- **Storytelling Method:** Incident Reports
 - Predefined
 - Stops before the end of the story

LEARNING CIRCLES



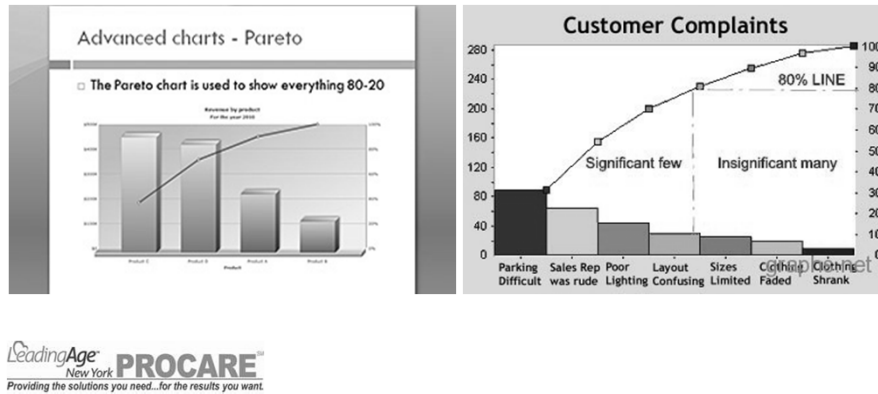
SAMPLE LEARNING CIRCLE QUESTIONS FOR NURSING HOMES

- How can we improve our current Pressure Ulcer Prevention Program?
- How do we feel about using restraints in our home?
- How can we reduce falls in our home?
- What do we do in our home that we should never stop doing?
- What do we do that we should stop doing immediately?
- What's the best part about working at _____?
- If you could change one thing here, what would it be?
- When we talk about *change*, I feel....
- What does teamwork mean to you?
- What have you learned that you would like to pass on to other co-workers?
- A good co-worker is.....
- A good boss is.....



Pareto chart

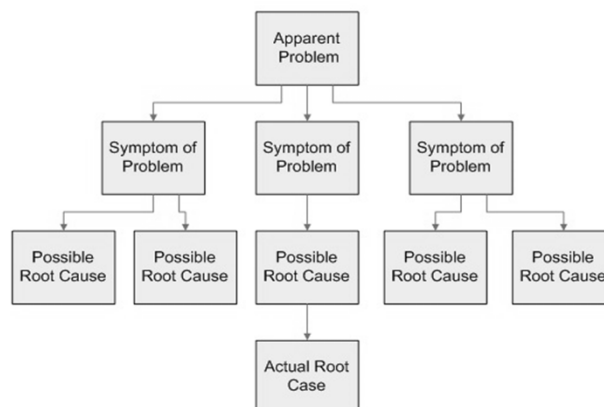
The Pareto theory proposes 20% of the causes contribute to 80% of the problem.



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Tree Diagram

Root Cause Analysis Tree Diagram

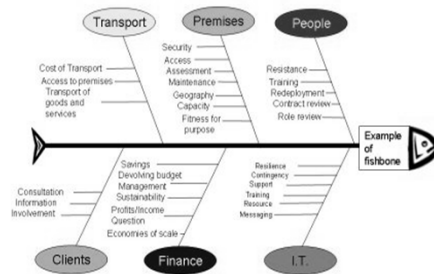


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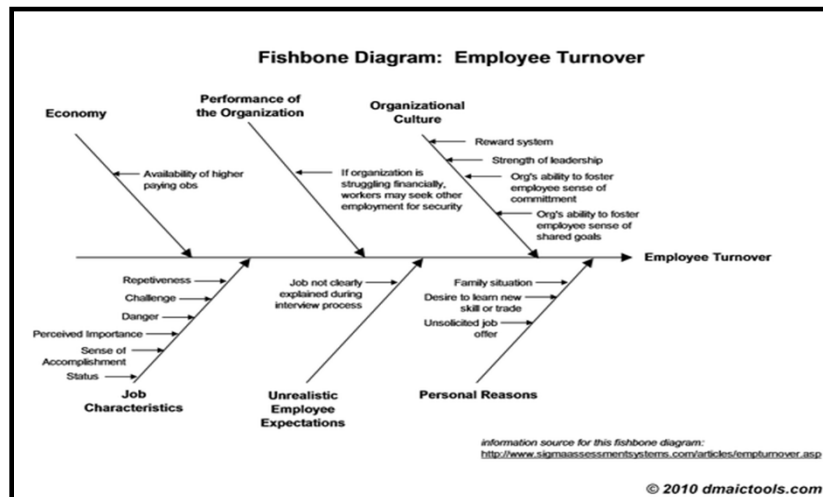
Fish Bone Diagrams

- Look at Cause and Effect
- Drill down to specific causes
- Many problems have multiple causes



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Fish Bone Diagrams



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Why-Why Chart

One of many brainstorming methods also known as the “Five Whys” method.



- ✓ Most simplistic root cause analysis process
- ✓ Involves repeatedly asking “why?” 5 times or until you can no longer answer the question
- ✓ 5 is arbitrary
- ✓ Increased staff participation

The root cause has been identified when asking “why” doesn’t provide any more useful information

5 Whys...



PROBLEM: Man runs out of gas...

Why did you run out of gas?

Because I didn't put gas in the car.

Why didn't you put gas in the car?

Because I didn't have any money.

Why didn't you have any money?

Because I spent it at the casino.

Why did you spend all your money at the casino?

Because I kept losing.

Why did you keep losing?

Because I am bad at gambling. **(ROOT CAUSE)**

5 Whys...

PROBLEM: Residents falling on Unit 2...

Why are residents falling on Unit 2?
They are getting up without assistance.

Why aren't they getting assistance?
They aren't asking for assistance.

Why aren't they asking for assistance?
They think the staff are too busy.

Why do they think the staff is too busy?
Because the staff tell the residents they are short staffed

Why are the staff telling the residents they are short staffed?
So the residents will tell management.

why?
why?
why?
why?

ROOT CAUSE: Communication between staff and management

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ROOT CAUSE ANALYSIS WORKSHEET

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TEAM: _____ TEAM LEADER: _____ DATE: _____

PROBLEM STATEMENT: _____

IDENTIFY AND CATEGORIZE THE "MOST LIKELY" CAUSE CANDIDATES FROM THE BRAINSTORMING EXERCISE:

Materials (supplies, medication)	Methods (procedures, process, practices)	Equipment (tools, forms, communication media)	People (education, training, orientation)	Environment (lighting, rooms, hallway, etc.)

Root Causal Factor Identified - (After Applying "Five Why" Technique): _____

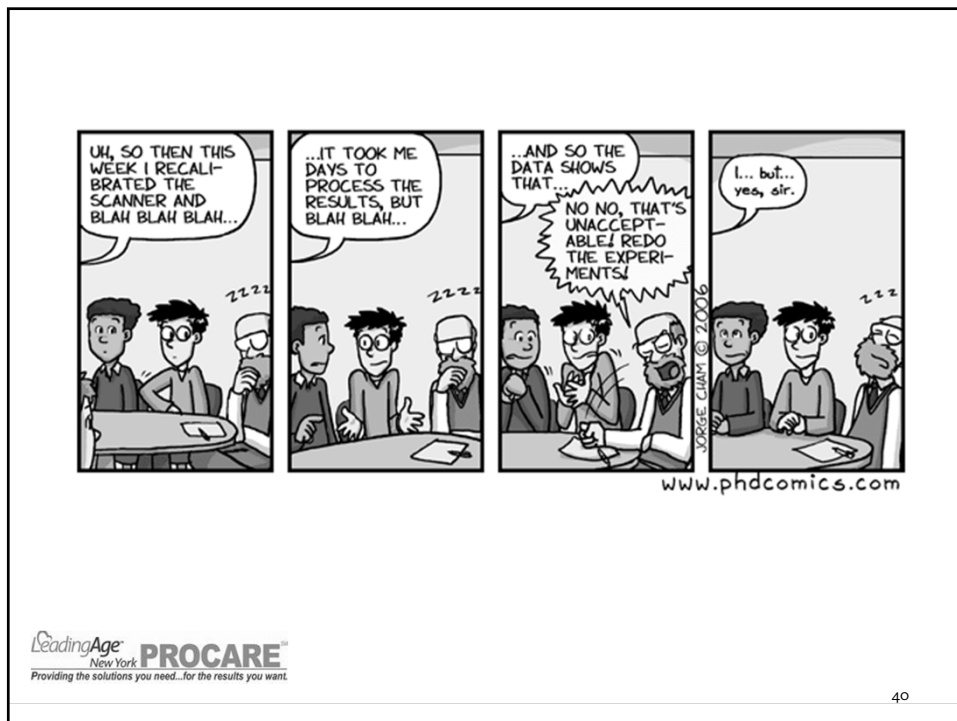
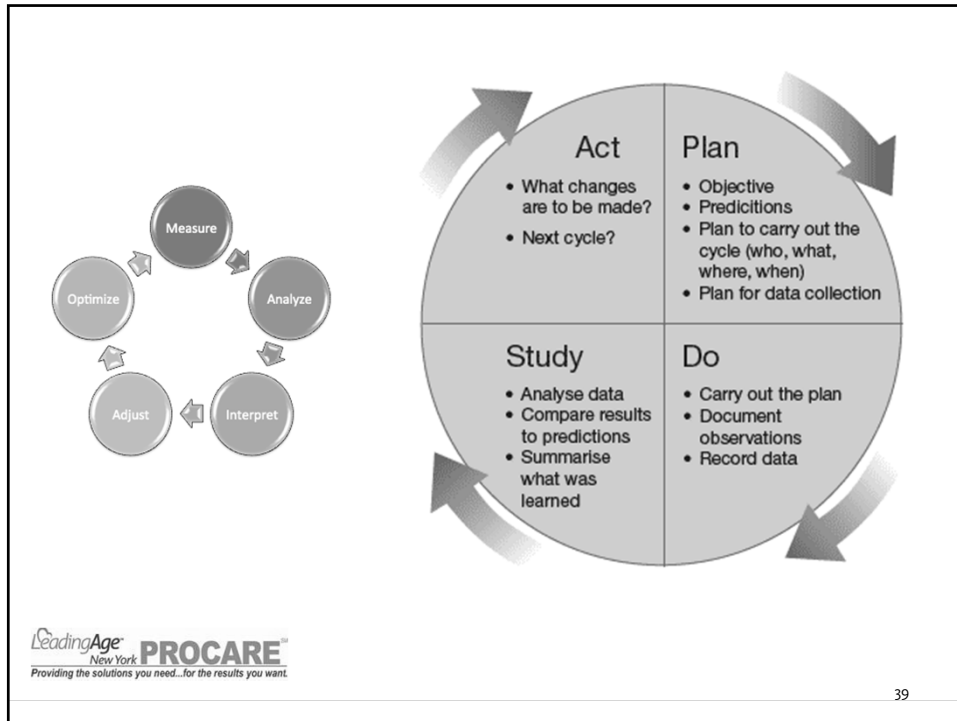
Intervention - (Apply PDSA cycle): _____

DATE TO IMPLEMENT INTERVENTIONS: _____ FOLLOW-UP DATE(S) RESULTS: _____

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PRESENTING PROBLEM: AN EMPLOYEE FALLS AND INJURES HER BACK...


Cause Questions/Answers	Cause Classification	Possible Solution
No one asks, "Why?" It's assumed that the employee isn't safety conscious...	Safety	Send employee to a safety refresher course.
Why did the employee fall? She slipped on residual absorbent pellets...	Housekeeping	Send a memo to operators about cleaning around their workstations.
Why were the absorbent pellets on the floor? To soak up the oil leak...	Operator procedures	Send a memo to the equipment operators on the importance of checking equipment for fluid leaks.
Why was there an oil leak? The equipment was 2 months behind in its preventive maintenance schedule...	Maintenance	Have a meeting with the maintenance staff to review the preventive maintenance schedule.
Why was the PM schedule not being followed? The department was down two maintenance technicians.	Supervisory	Put in a requisition for the technicians or increase overtime.
Why was the department down two technicians? Hiring freeze for indirect labor...	Management Policy	Change the hiring policy.



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BENEFITS OF THE “5 WHYS”



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5 WHYS WORKSHEET

TEAM: _____ DATE: _____

PROBLEM STATEMENT:

CAUSE CANDIDATE:

WHY:


WHY:

WHY:

WHY:

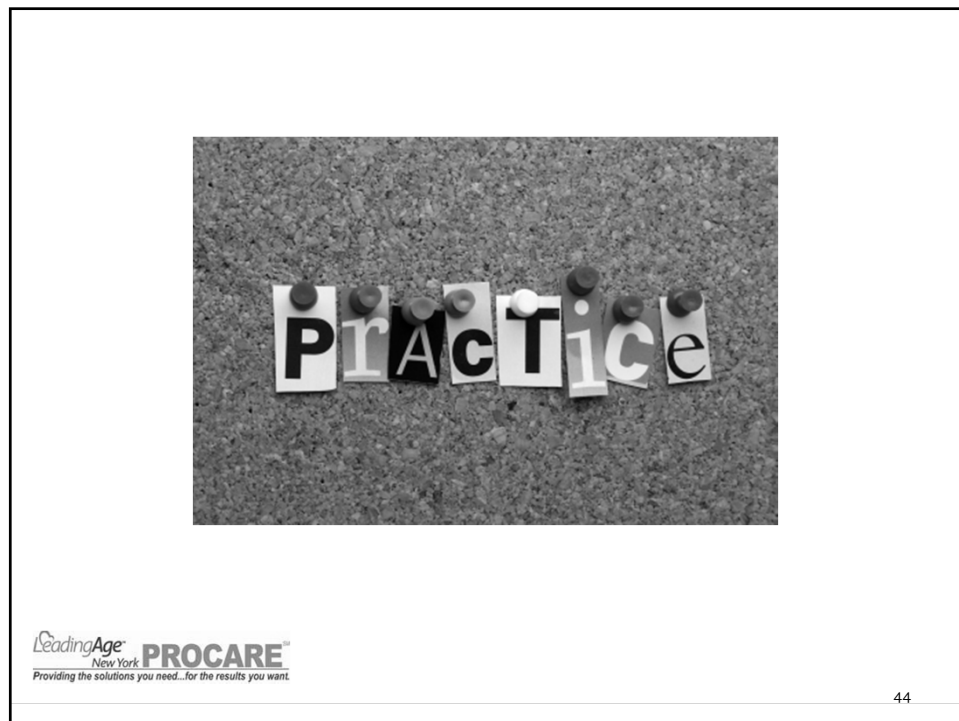
WHY:

RECOMMENDATION:



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Nsg Unit	# Pressure Ulcers During Report Month						# Ulcers on Admission						# Ulcers Acquired In-House						# Ulcers >30 days									
	Stage					# Healed Ulcers	Stage					# Healed Ulcers	Stage					# Healed Ulcers	Stage					# Healed Ulcers				
	I	II	III	IV	U		I	II	III	IV	U		I	II	III	IV	U		I	II	III	IV	U					
	Total by Unit	Total by Unit	Total by Unit	Total by Unit	Total by Unit	Total by Unit	Total by Unit	Total by Unit	Total by Unit	Total by Unit	Total by Unit	Total by Unit	Total by Unit	Total by Unit	Total by Unit	Total by Unit	Total by Unit	Total by Unit	Total by Unit	Total by Unit	Total by Unit							
A	7	7	0	1	0	15	3	7	5	0	1	0	13	3	0	2	0	0	0	2	0	0	0	2	8	0	0	4
B	6	3	0	0	0	9	0	6	1	0	0	0	7	0	0	2	0	0	0	2	0	2	0	1	0	0	3	
C	4	1	0	0	0	5	1	2	0	0	0	0	2	1	2	1	0	0	0	3	1	2	0	0	0	0	2	
D	4	0	1	0	0	5	1	2	0	1	0	0	3	1	2	0	0	0	0	2	1	0	0	1	0	0	1	
Total Current Ulcers						34							25							9						10		
Totals by Stage	21	11	1	1	0		5	17	6	1	1	0		3	4	5	0	0	0		2	4	0	4	2	0		
% by Stage	62%	32%	3%	3%	0%			68%	24%	4%	4%	0%			44%	56%	0%	0%	0%			40%	0%	40%	20%	0%		
						Total New/Total Discontinued							Total New Ulcers: Admission							Total New Ulcers: In- House								
# New Ulcers	4	1	0	0	0	5		2	1	0	0	0	3		2	0	0	0	0	2								
# Dis- continued Ulcers	1	1	2	4	0	8																						
% Total Ulcers													74%							26%						29%		

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- How many pressure ulcers were being treated on nursing Unit A during October 2007? Unit B? Unit C? Unit D?
- Of the total number of pressure ulcers on Unit A in October 2007, how many were Stage I? Stage II? Stage III? Stage IV? Unstageable?
- How many ulcers were healed on Unit A in October 2007?
- Of the total number of ulcers on Unit A in October, how many were discovered on new admissions to the nursing unit? Of the total number of ulcers that were discovered on new admissions, how many were Stage I? Stage II? Stage III? Stage IV? Unstageable?
- Of the total number of ulcers that were on nursing Unit A during October 2007, how many were developed in-house? Of the in-house-developed ulcers, how many were Stage I? Stage II? Stage III? Stage IV? Unstageable?
- On nursing Unit A, how many ulcers have been treated for longer than 30 days, by ulcer stage?
- What are the total numbers of pressure ulcers on nursing Unit B? Unit C?
- What are the total numbers of ulcers for the entire facility for October 2007?
- For the facility, how many ulcers in October 2007 are Stage I? Stage II? Stage III? Stage IV? Unstageable?
- What ulcer stage was treated most often in October 2007?
- What ulcer stage is most often identified upon admission?
- At which stage are ulcers most often found when identified on in-house residents?
- At the facility level, how many ulcers have been treated for longer than 30 days?
- Which nursing unit has the most ulcers of 30 day or longer duration?
- How many new ulcers were identified during October 2007? Of these new ulcers, how many were identified upon admission? How many were acquired in house?
- Of all ulcers being treated in the facility in October 2007, were clinicians treating more ulcers identified upon admission or ulcers identified in-house?

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Quality Improvement Fundamentals – Tool Kit

- [http://www.ofmq.com/Websites/ofmq/images/QI Fundamentals 508.pdf](http://www.ofmq.com/Websites/ofmq/images/QI_Fundamentals_508.pdf)