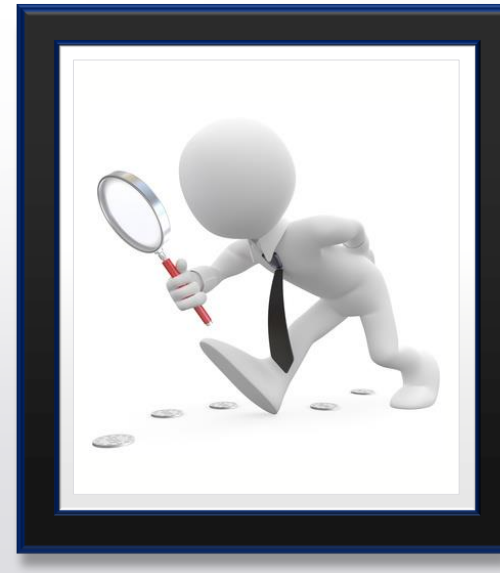
Root Cause Analysis: Getting to Why

By

Robin O. Novak, RN CIC



Root Cause Analysis: Getting to WHY

Objectives:

The learner will be able to:

- Discuss the definition of a root cause analysis
- Discuss tools utilized to perform a root cause analysis
- Utilize a fishbone diagram tool

Root Cause Analysis: Getting to WHY

What is a Root Cause Analysis?

- ✓ Approaches, tools and techniques
- ✓ Answers "what", "why", and "how"
- ✓ Used to target opportunities for improvement
- ✓ Focuses resource allocation
- ✓ Data collection, cause charting, identification, recommendation, implementation

Root Cause Analysis: Getting to WHY

5 steps:

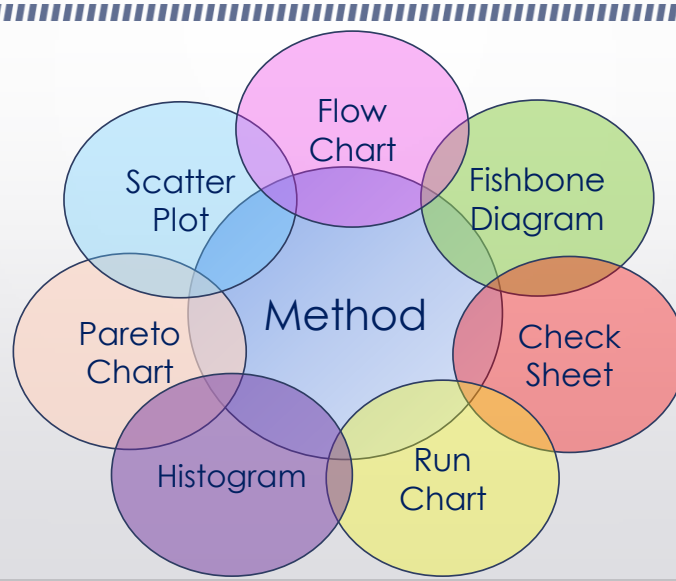
- ✓ Data collection
- ✓ Causal factor charting
- ✓ Root cause identification
- ✓ Recommendation
- ✓ Implementation

Root Cause Analysis: Getting to WHY

Data Collection:

- ✓ Begins immediately
- ✓ Statements from those involved
- ✓ Pictures

Root Cause Analysis: Getting to WHY



Root Cause Analysis: Getting to WHY

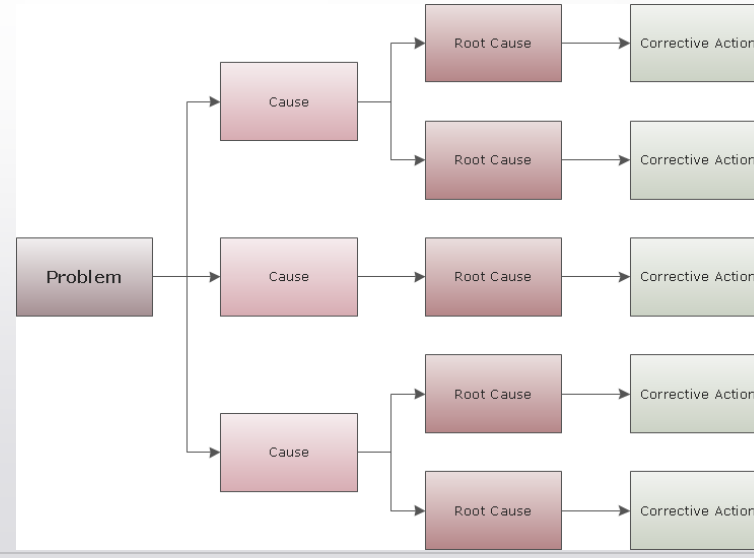
Causal factor charting:

- ✓Structure to organize and analyze
- ✓Identify gaps and deficiencies
- ✓Begins when start to collect information
- ✓Drives data collection process by identifying data needs

Root Cause Analysis: Getting to WHY

Flow Chart

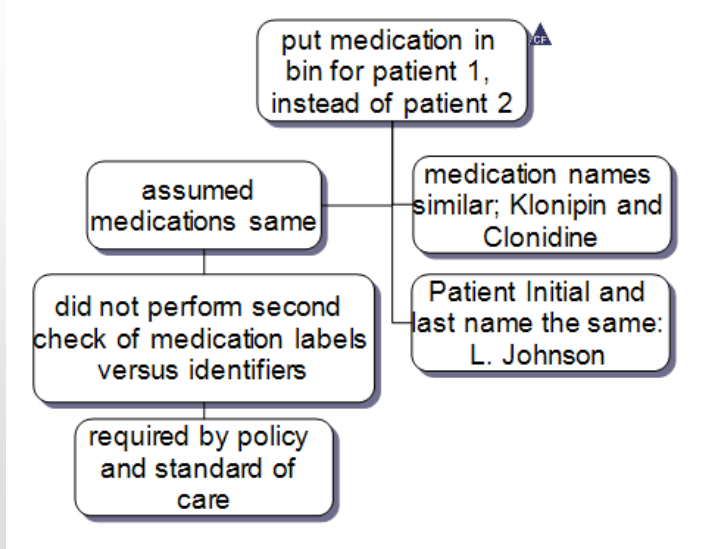
- Process flow
- Decision points
- Individual activity



http://www.conceptdraw.com/How-To-Guide/cause-effect-analysis-and-solving

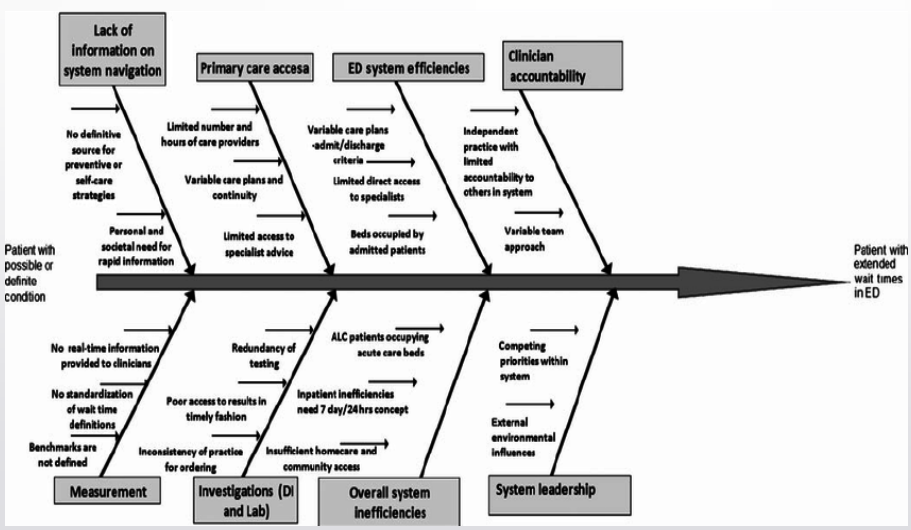
Tree Diagram

Root Cause Analysis: Getting to WHY



http://www.taproot.com/content/wp-content/uploads/2015/10/Nurse-2.png

Root Cause Analysis: Getting to WHY



Fishbone Diagram

- Outcome
- Categorize causes

https://www.researchgate.net/figure/51978080_fig1_Figure-1-Fishbone-diagram-showing-causal-factors-for-long-stays-in-hospital-emergency

Cause & Effect: Ishikawa Diagram- Fishbone

Root Cause Analysis: Getting to WHY

Brainstorming ground rules:

- ✓ No holding back, freewheeling thought, more ideas the better
- ✓ No discussion during the activity.
- ✓ No judgement
- ✓ Allow hitchhiking

Root Cause Analysis: Getting to WHY

5 WHY analysis

- ✓ Repeatedly ask the question "WHY"
  - ✓ Gets to root cause
  - ✓ Shows relationship of causes
  - ✓ Know when to end
    - ✓ Process, policy or a person
    - ✓ How relevant Q&A to problem investigating?
    - ✓ Root cause to help control/ avoid situation?

Root Cause Analysis: Getting to WHY

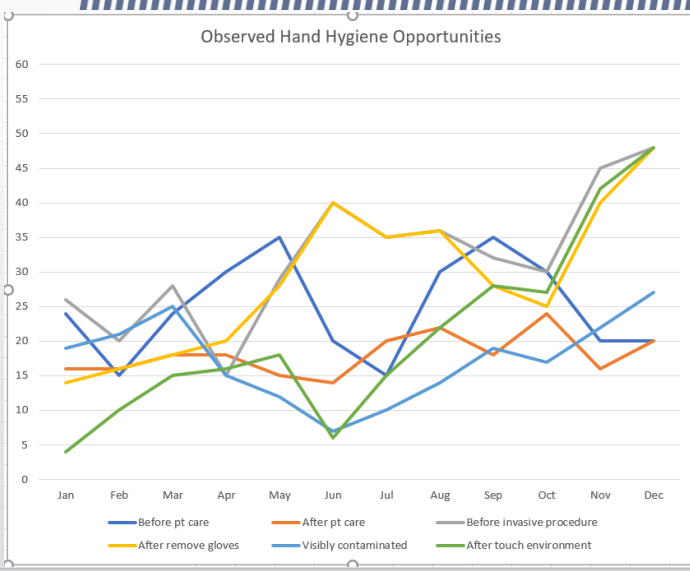
Check Sheet

- Data collection
- Categorize
- Tally marks

HAND HYGIENE PERFORMANCE

Criteria	MD	Anesthesia	RN	Tech	Total
Before pt care	III	I	𝍸 𝍸	𝍸 𝍸	24
After pt care	𝍸	III	𝍸	III	16
Before invasive procedure	𝍸	I	𝍸 𝍸	𝍸 𝍸	26
After remove gloves	II	I	𝍸 I	𝍸	14
Visibly soiled	𝍸	III	𝍸 II	IIII	19
After touch environment			III	I	4
Total	20	9	41	33	103
Soap/ water	𝍸	I	II	𝍸 𝍸	18
ABHR/ Foam	𝍸 𝍸 𝍸	𝍸 I	𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 IIII	𝍸 𝍸 𝍸 𝍸 I	85
Total	20	7	41	31	103

Root Cause Analysis: Getting to WHY



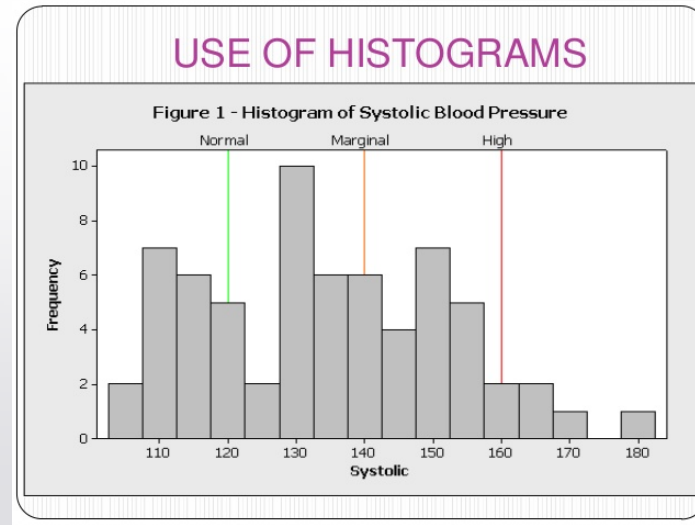
Run Chart

- Recognize trends, shifts or cycles
- Impact of corrective actions
- Horizontal axis = time
- Vertical axis = units

Root Cause Analysis: Getting to WHY

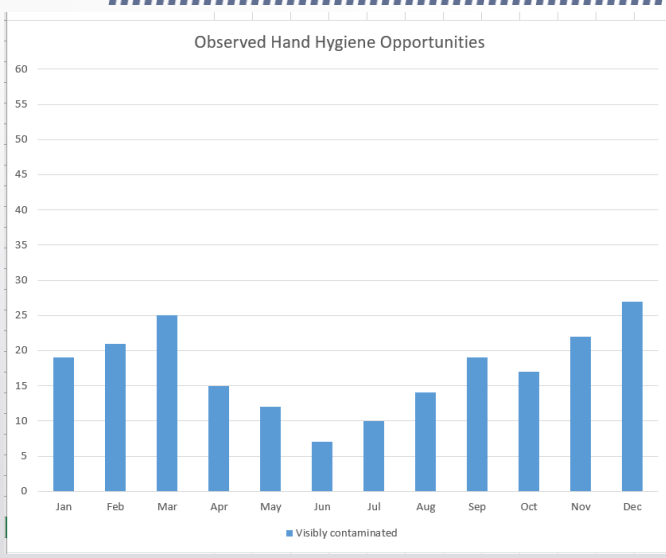
Histogram

- Graphic depict distribution
- Rate of occurrence
- X axis = unit being observed
- Y axis = number occurrences



https://www.slideshare.net/poonamchaudhary1/total-quality-management-in-healthcare-organisations

Root Cause Analysis: Getting to WHY

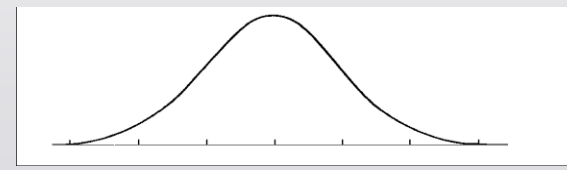


Hand Hygiene Performance

Criteria: 2016	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Before pt care	24	15	24	30	35	20	15	30	35	30	20	20	298
After pt care	16	16	18	18	15	14	20	22	18	24	16	20	217
Before invasive procedure	26	20	28	15	29	40	35	36	32	30	45	48	384
After remove gloves	14	16	18	20	28	40	35	36	28	25	40	48	348
Visibly contaminated	19	21	25	15	12	7	10	14	19	17	22	27	208
After touch environment	4	10	15	16	18	6	15	22	28	27	42	48	251
Total	103	98	128	114	137	127	130	160	160	153	185	211	1706

Criteria: 2016	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Soap/ water	18	18	15	20	24	31	27	12	17	25	36	42	285
ABHR/ foam	85	80	113	94	113	96	103	148	143	128	149	169	1421
Total	103	98	128	114	137	127	130	160	160	153	185	211	1706

Criteria: 2016	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
MD	20	24	18	24	25	17	15	21	14	17	21	20	236
Anesthesia	9	27	15	20	22	14	14	9	20	11	18	7	186
RN	41	12	32	33	21	40	26	45	51	26	63	91	481
Tech	33	35	63	37	69	56	75	85	75	99	83	93	803
Total	103	98	128	114	137	127	130	160	160	153	185	211	1706



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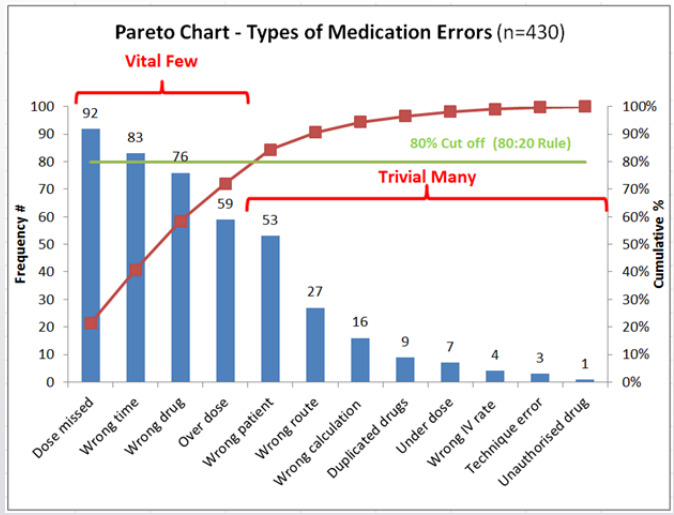


http://www.cec.health.nsw.gov.au/quality-improvement/improvement-academy/quality-improvement-tools/pareto-charts

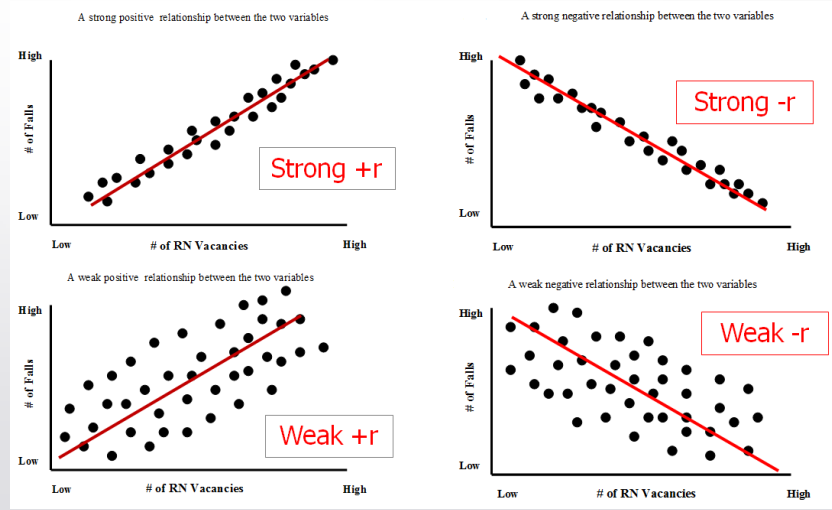
Pareto Chart

- Data analysis
- 80% effects are result of 20% of causes
- X axis = subject
- Y axis left = # occurrences
- Y axis right = cumulative %

Root Cause Analysis: Getting to WHY

Scatter Plot

- Paired data comparisons; analysis
- Test hypothesis
- X axis = treatment variable
- Y axis = response variable
- Correlation?



https://qi.elft.nhs.uk/resources/scatter-plot/

Root Cause Analysis: Getting to WHY

Scenario:

Eye Med X 2% was placed into 3 different cataract patient eyes by 3 different nurses on 3 separate days. The order was for Eye Med Y 1%. 3 different physicians wrote the order.

Root Cause Analysis: Getting to WHY

Scenario: Eye drop (Eye Med X 2%) was placed into 3 different cataract patient eye by 3 different nurses on 3 separate days. Order was for Eye Med Y-1%. 3 different doctors

RN #1	RN #2	RN #3
• Rushed • Had 40 cases that day • Nurse called in • No replacement • No PRN on staff • Orders standardized usu. 1% • Both have red labels • Both located in same row of eye med tray next to each other • Manufacturer changes frequently • Back orders • Different person placing order		

Data Collection

Root Cause Analysis: Getting to WHY

Scenario: Eye drop (Eye Med X 2%) was placed into 3 different cataract patient eye by 3 different nurses on 3 separate days. Order was for Eye Med Y-0.5%. 3 different doctors

RN #1	RN #2	RN #3
	• Rushed • Pt late to pre op which led to less time to instill eye drops • Arrived late to registration • Had paper work to complete • Lengthy with small print • Pt started eye drop at home which led to decreased vision • Slow- used a walker • Bay was furthest away • Stop at bathroom • Eye med tray location far away • MD pacing/ waiting	

Data Collection

Root Cause Analysis: Getting to WHY

Scenario: Eye drop (Eye Med X 2%) was placed into 3 different cataract patient eye by 3 different nurses on 3 separate days. Order was for Eye Med Y-1%. 3 different doctors

RN #1	RN #2	RN #3
		• Rushed • New to eyes = slow admitting • Orders difficult to read • Photocopies/ fax • Poor quality/ penmanship • Unfamiliar with generic names of meds • No med book in pre op • Lack permissions to use internet • No mentor • Orders not standardized

Data Collection

Root Cause Analysis: Getting to WHY

Scenario: Eye drop (Eye Med X 2%) was placed into 3 different cataract patient eye by 3 different nurses on 3 separate days. Order was for Eye Med Y-1%. 3 different doctors

RN #1

- Rushed
- Had 40 cases that day
- Nurse called in
- No replacement
- No PRN on staff
- Orders standardized usu. 1%
- Both have red labels
- Both located in same row of eye med tray next to each other
- Manufacturer changes frequently
- Back orders
- Different person ordering

RN #2

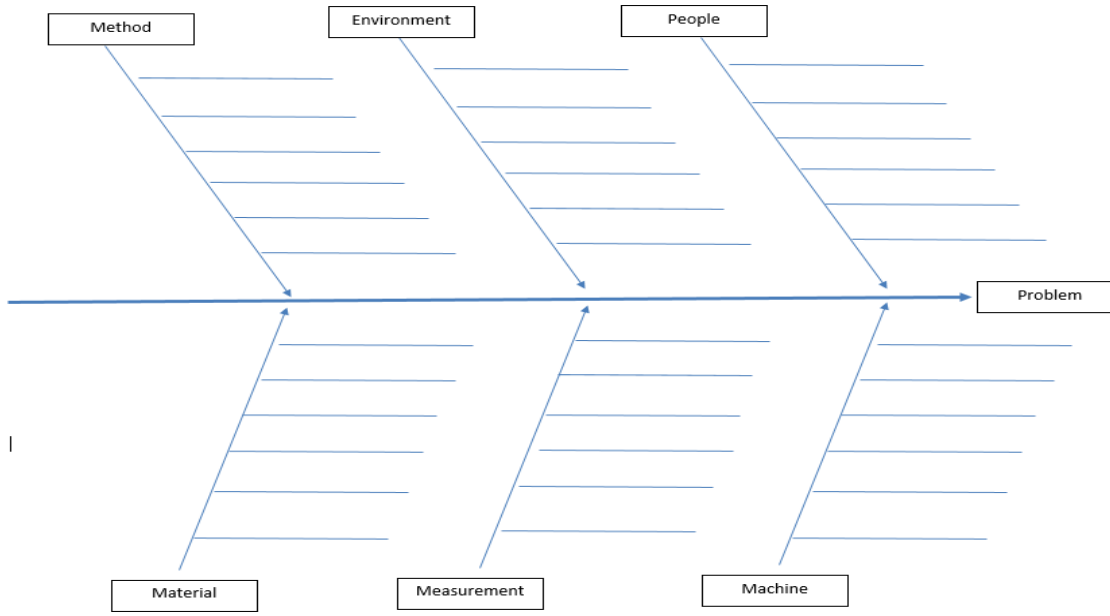
- Rushed
- Pt late to pre op which led to less time to instill eye drops
- Arrived late to registration
- Had paper work to complete
- Lengthy with small print
- Pt started eye drop at home which led to decreased vision
- Slow- used a walker
- Bay was furthest away
- Stop at bathroom
- Eye med tray location far away
- MD pacing/ waiting

RN #3

- Rushed
- New to eyes = slow admitting
- Orders difficult to read
- Photocopies/ fax
- Poor quality/ penmanship
- Unfamiliar with generic names of meds
- No med book in pre op
- Lack permissions to use internet
- No mentor
- Orders not standardized

Data Collection

Fishbone/ Ishikawa/ Cause & Effect Diagram



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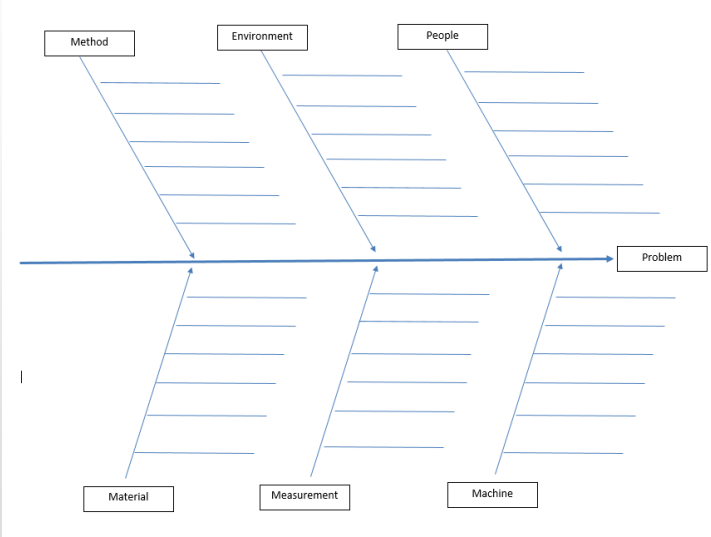

RN #1

- Rushed
- Had 40 cases that day
- Nurse called in
- No replacement
- No PRN on staff
- Orders standardized usu. 1%
- Both have red labels
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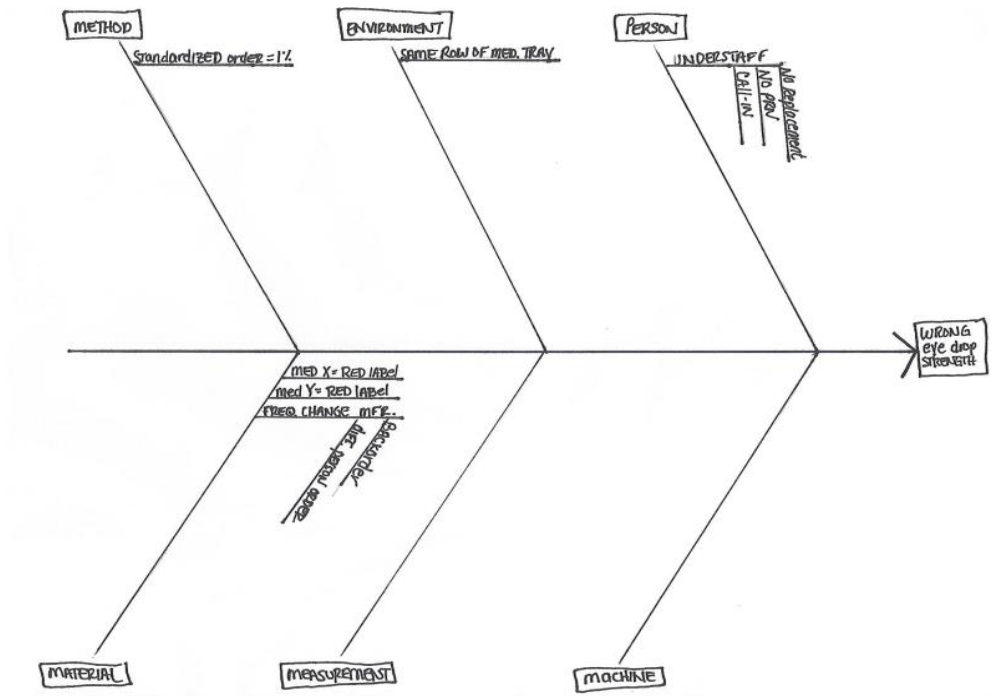
- Manufacturer changes frequently
- Back orders
- Different person ordering

Fishbone/ Ishikawa/ Cause & Effect Diagram



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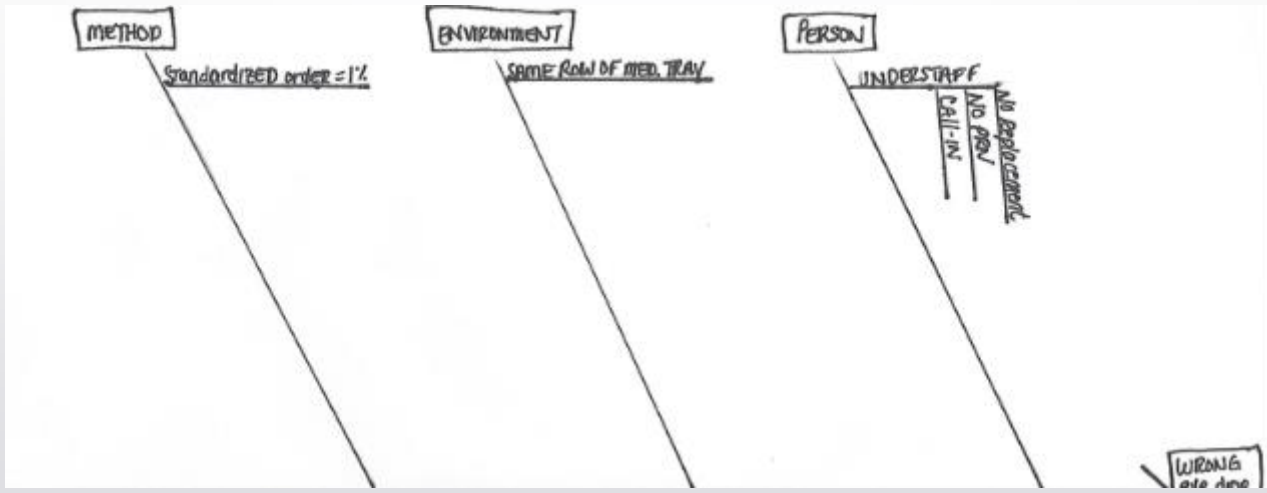

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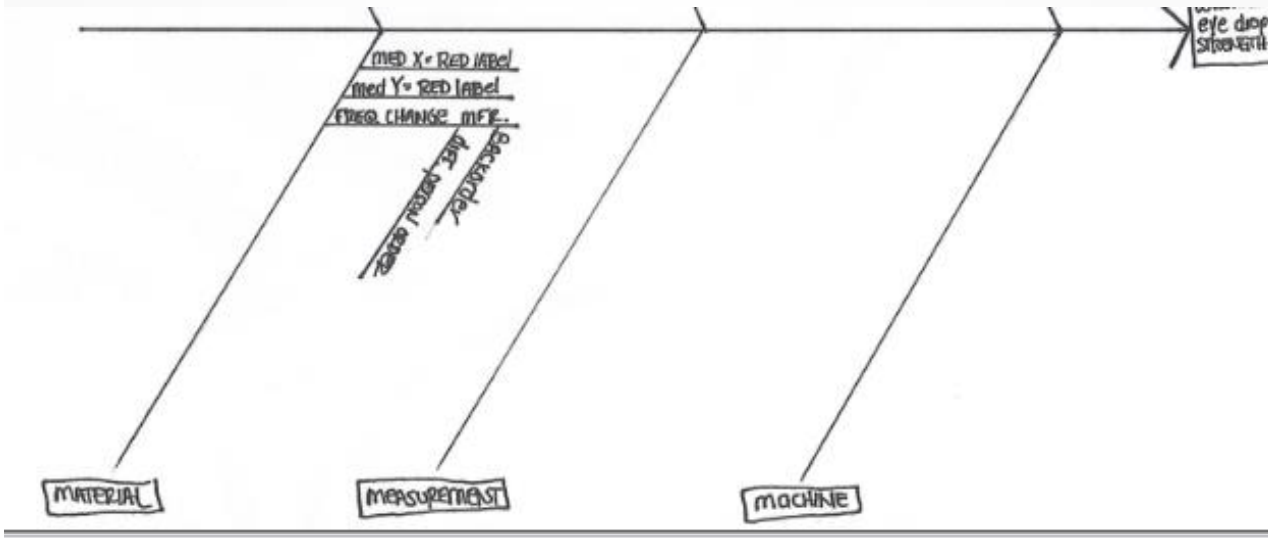

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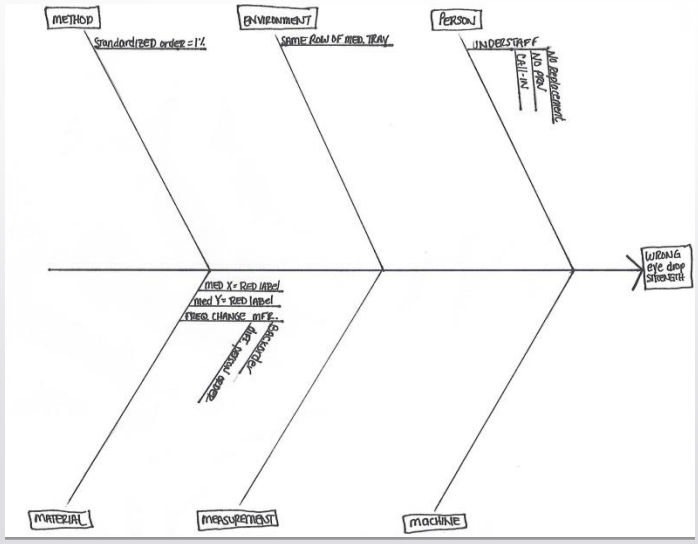
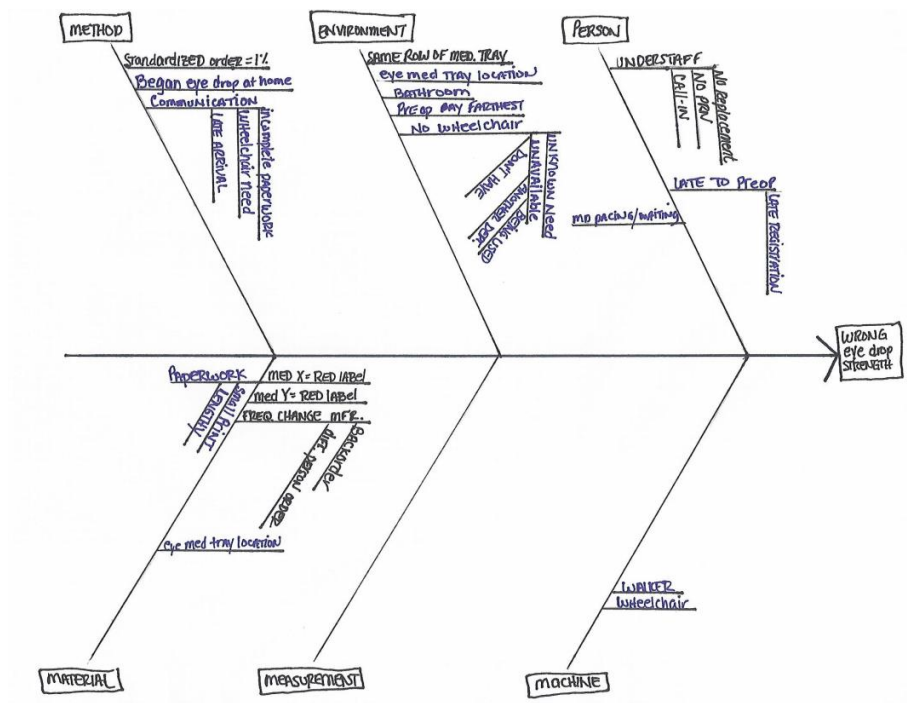


RN #2

- Rushed
- Pt late to pre op which led to less time to instill eye drops
- Arrived late to registration
- Had paper work to complete
- Lengthy with small print
- Pt started eye drop at home which led to decreased vision
- Slow- used a walker
- Bay was furthest away
- Stop at bathroom
- Eye med tray location far away
- MD pacing/ waiting

Fishbone/ Ishikawa/ Cause & Effect Diagram



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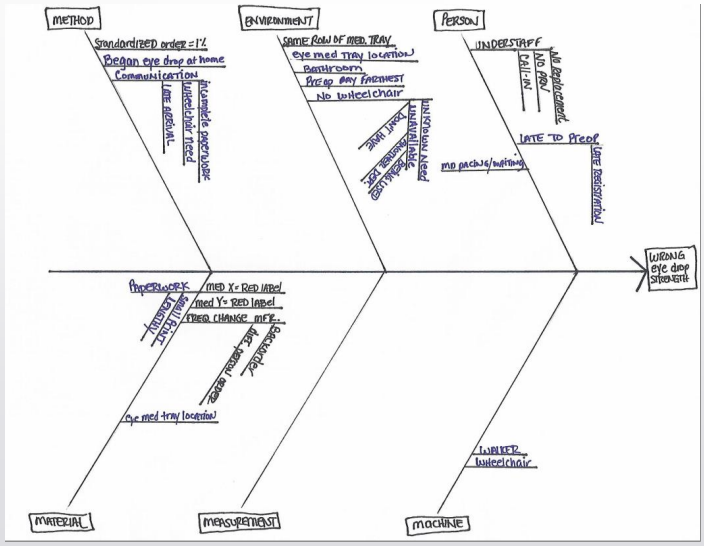
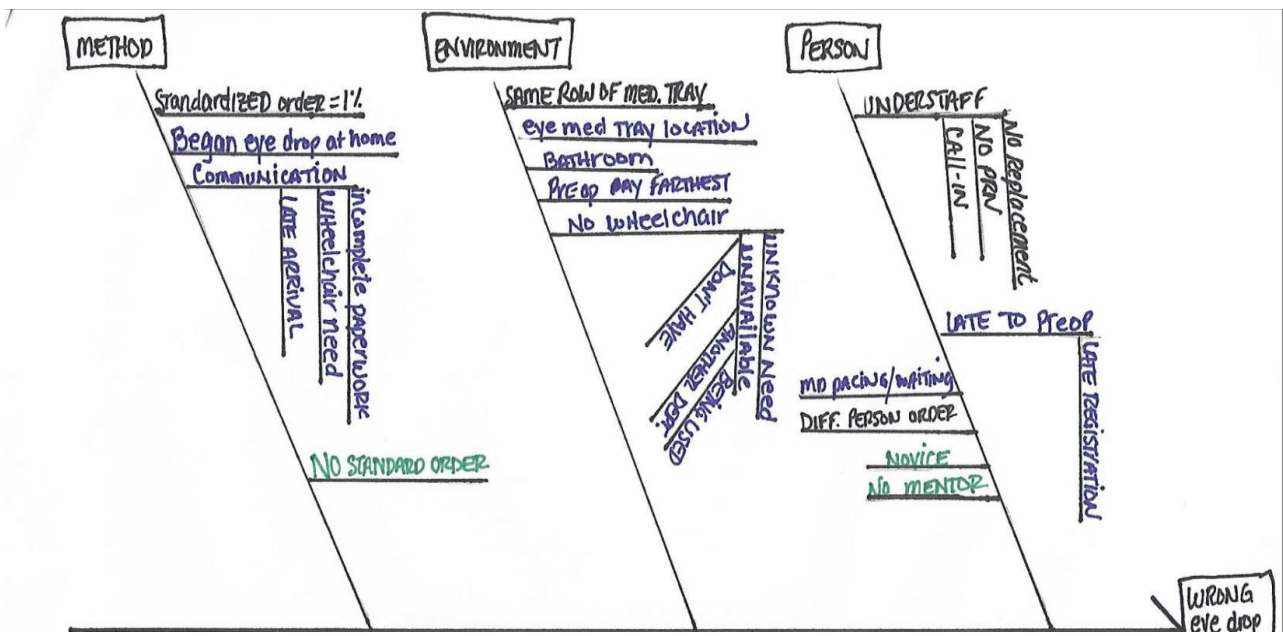


RN #3

- Rushed
- New to eyes = slow admitting
- No mentor
- Orders not standardized
- Orders difficult to read
- Photocopies/ fax
- Poor quality/ penmanship
- Unfamiliar with generic names of meds
- No med book in pre op
- Lack permissions to use internet

Fishbone/ Ishikawa/ Cause & Effect Diagram



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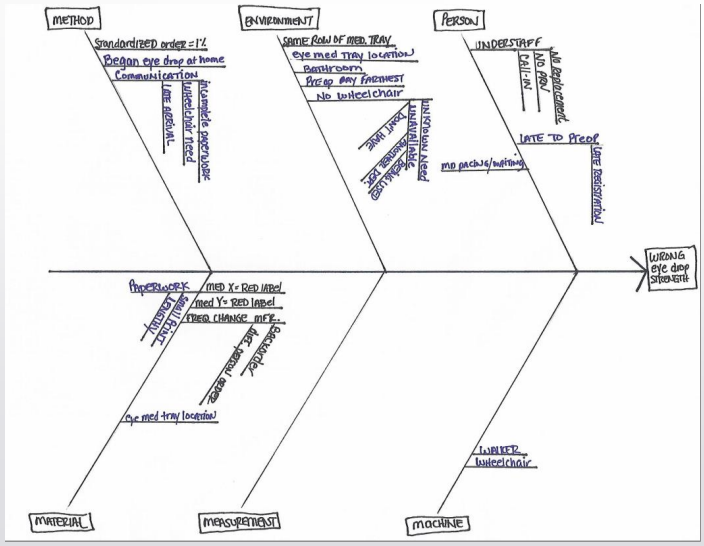

RN #3

- Rushed
- New to eyes = slow admitting
- No mentor
- Orders not standardized
- Orders difficult to read
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- Poor quality/ penmanship
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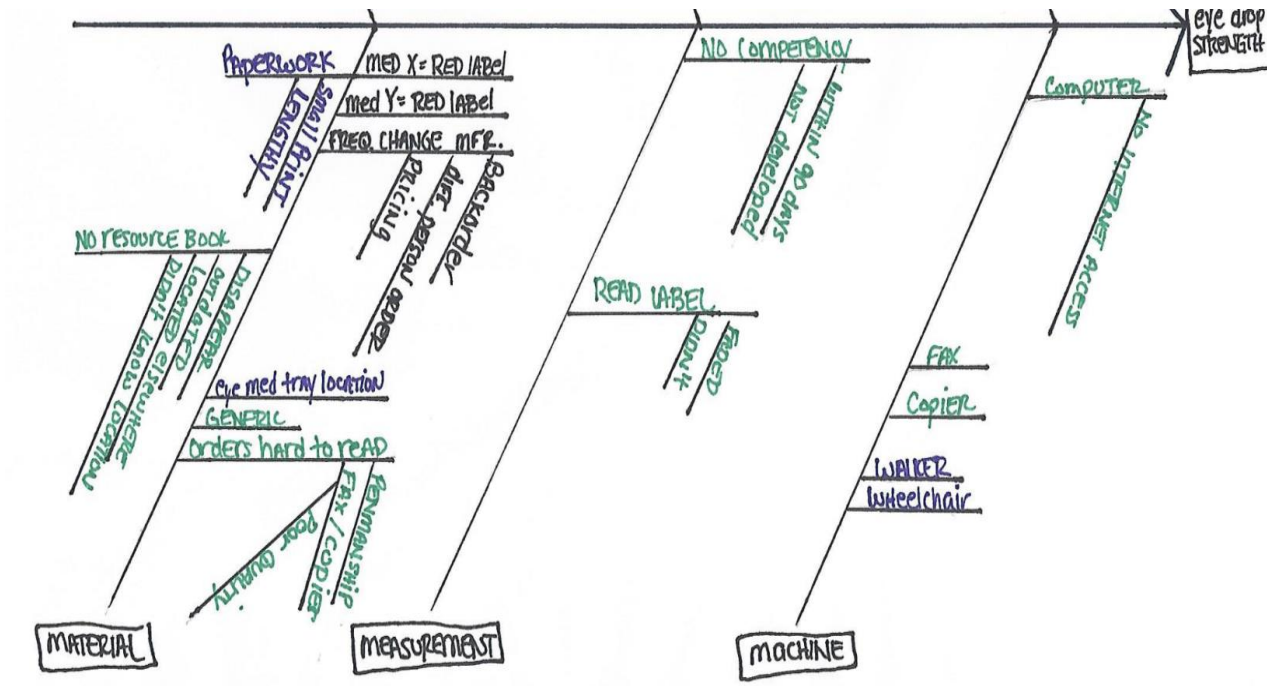

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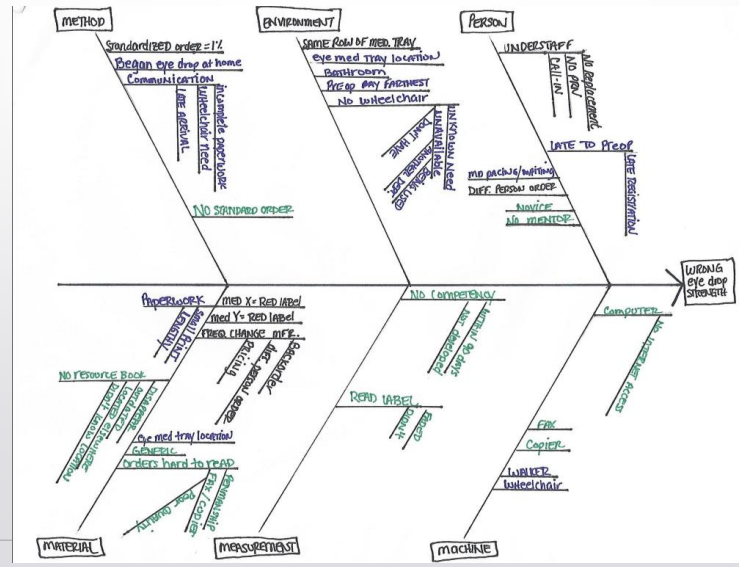

Fishbone Diagram

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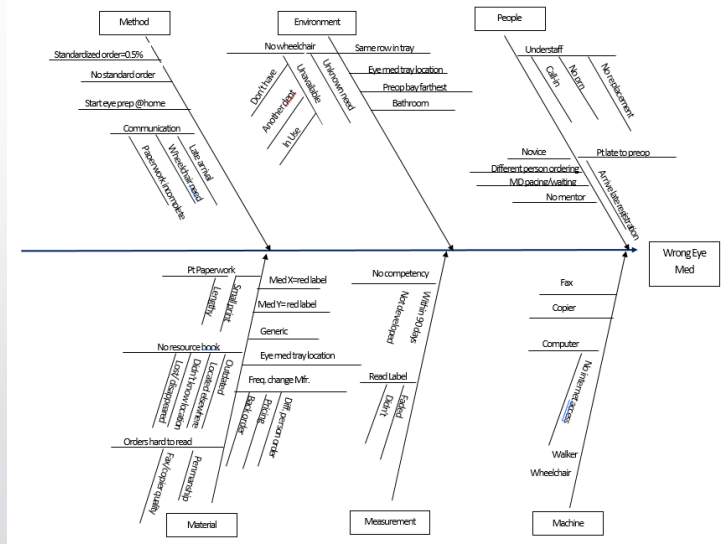


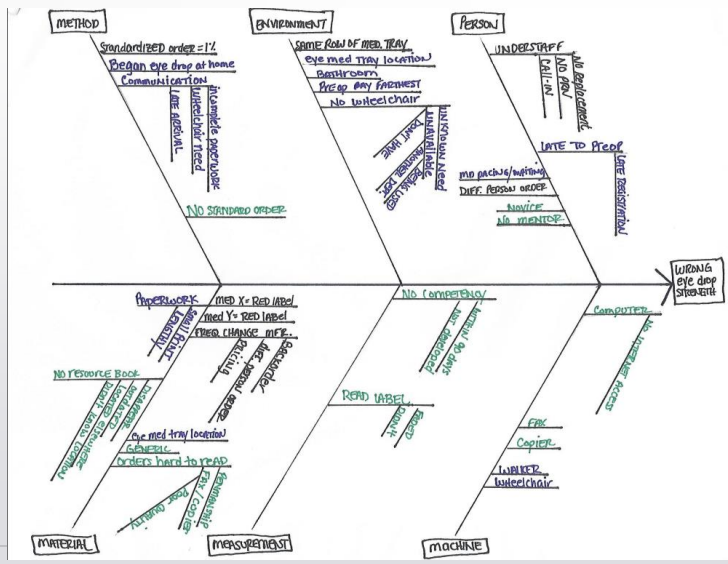
Fishbone Diagram

Root Cause Analysis: Getting to WHY

Corrective Actions

- Ensure failure won't recur
- Sustainability
- Use plan, do, check, act cycle
- Applied to other processes?

Root Cause Analysis: Getting to WHY



Corrective Actions

- Look at each category
- Multidisciplinary team
  - Management
  - Affected staff

Root Cause Analysis: Getting to WHY

Implementation:

- Execute
- Engage
- Examine
- Evaluate

Root Cause Analysis: Getting to WHY

References:

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Root Cause Analysis: Getting to WHY

Questions?

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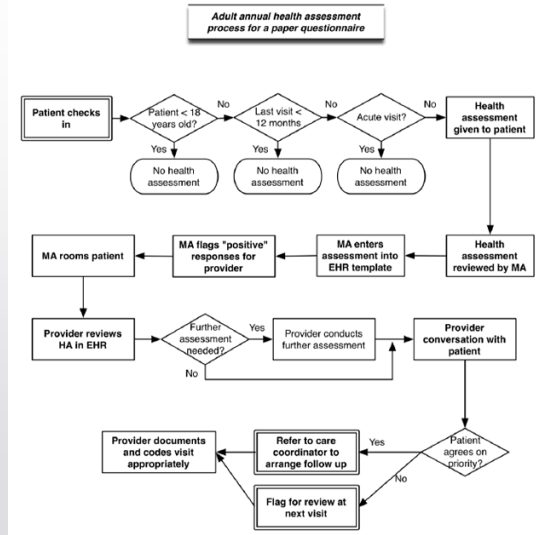

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