WELCOME

GINA GAMBARO

Director, Marketing &

Business Development

Asking a question is easy!

- About the topic being presented —
  - Click on the **Q&A** icon at the bottom of your screen
  - Type your question & hit Enter
  - Questions will be answered at the program's end, or offline if time runs out
- About technical issues or CE credit —
  - Click on the **Chat** icon at the bottom of your screen
  - Type your question & hit Enter
  - Our team will reply to your question right away

Housekeeping notes

- This webinar is being recorded for on-demand access later, after the series' conclusion
- To earn CE, you must attend the entire session
- **For those sharing a computer**
  - Complete a manual sign-in sheet before the program ends
  - Go to **Chat** to access the link for the sign-in sheet
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2022 WEBINAR SERIES

Leveraging Lean Six Sigma to Prevent Errors from Recurring

Joanne Cu, Senior Vice President, Finance

Pamela B Kramer, Executive Vice President

Learning objectives

- Understand the difference between special cause variation (people mistakes) and process instability (process mistakes)
- Review Lean Six Sigma tools for identifying the root cause of an error and fixing the underlying process that created the problem
- Learn how to gather data, analyze it, and develop resolutions using practical examples

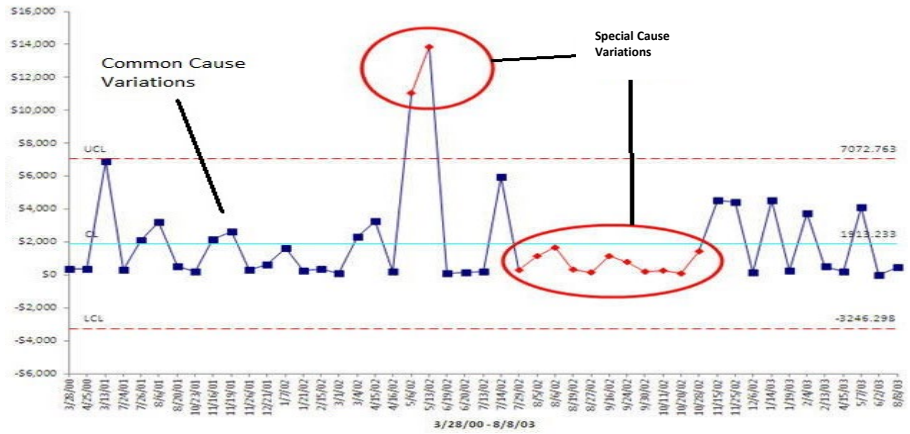

MISTAEKS
HAPPEN


TO ERR IS HUMAN
TO BLAME IT ON SOMEONE
ELSE SHOWS
MANAGEMENT POTENTIAL

Errors are variations from what you expect

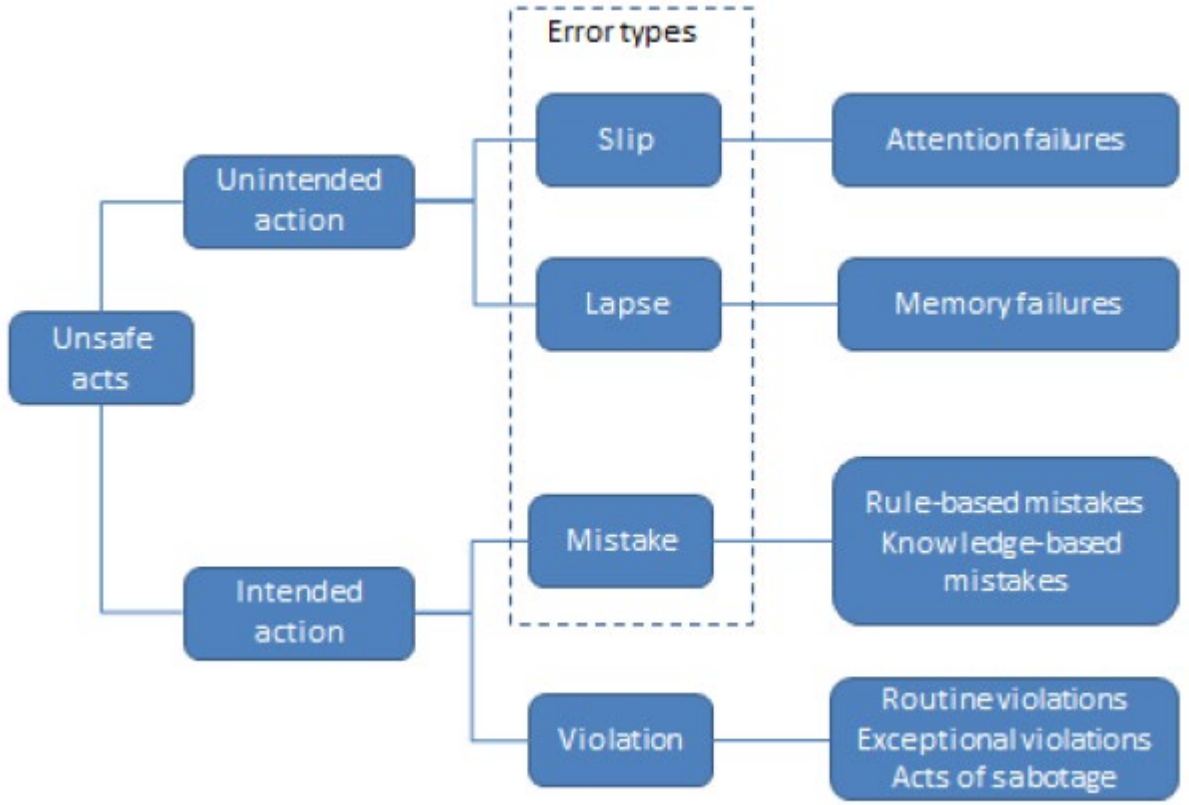
Special cause	Common cause
Unexpected variation that results from unusual occurrences	Natural or expected variation within a process

- We perceive all errors to be special cause
- More frequently, the error lies in common cause
  - How much does your process vary?
  - Do variations fall within acceptable limits?



The special-cause approach to handling errors

- Sometimes caused by unforeseen glitches – technology, etc
- **Often person-based**
  - Focuses on the unsafe acts of individuals



https://discovery.ucl.ac.uk/id/eprint/1401849/1/Monsey_Chan_McLeod_PhD_thesis_2013.pdf

“Be more careful” is not effective

- When we assume human error is the cause of all mistakes, we scold, retrain & urge caution
  - You can’t do much to change human nature
  - People will always make mistakes
- If you can’t tolerate mistakes, remove the opportunities for error
- Training doesn’t solve all problems – you have to improve the system
  - If you train people to use poorly designed systems, you’re only as good as your weakest link
  - Training & motivation work best when the system people use is the safest, easiest & most accurate way to do the job

Common-cause approach to handling errors

- **Systems**
  - Expects human error
  - Adds assessment of equipment, workplace, processes, policies & management decisions
  - More “wholistic”

https://discovery.ucl.ac.uk/id/eprint/1401849/1/Monsey_Chan_McLeod_PhD_thesis_2013.pdf

What is Lean Six Sigma ?

LEAN

Focuses on waste reduction by streamlining a process.

+

SIX SIGMA

Focuses on preventing defects through problem solving.

=

LEAN SIX SIGMA

Lean strengthens Six Sigma: Problem solving + improving processes delivers greater results.

Strong problem-solving culture involves PEOPLE

ENGAGE THE TEAM MEMBER/S CLOSEST TO THE PROBLEM

AS THE TEAM SOLVES THEIR OWN PROBLEMS, THEIR MOTIVATION AND EMPOWERMENT INCREASE

SHOWS YOUR RESPECT FOR THE TEAM AND THEIR ABILITIES

The formula for solving problems

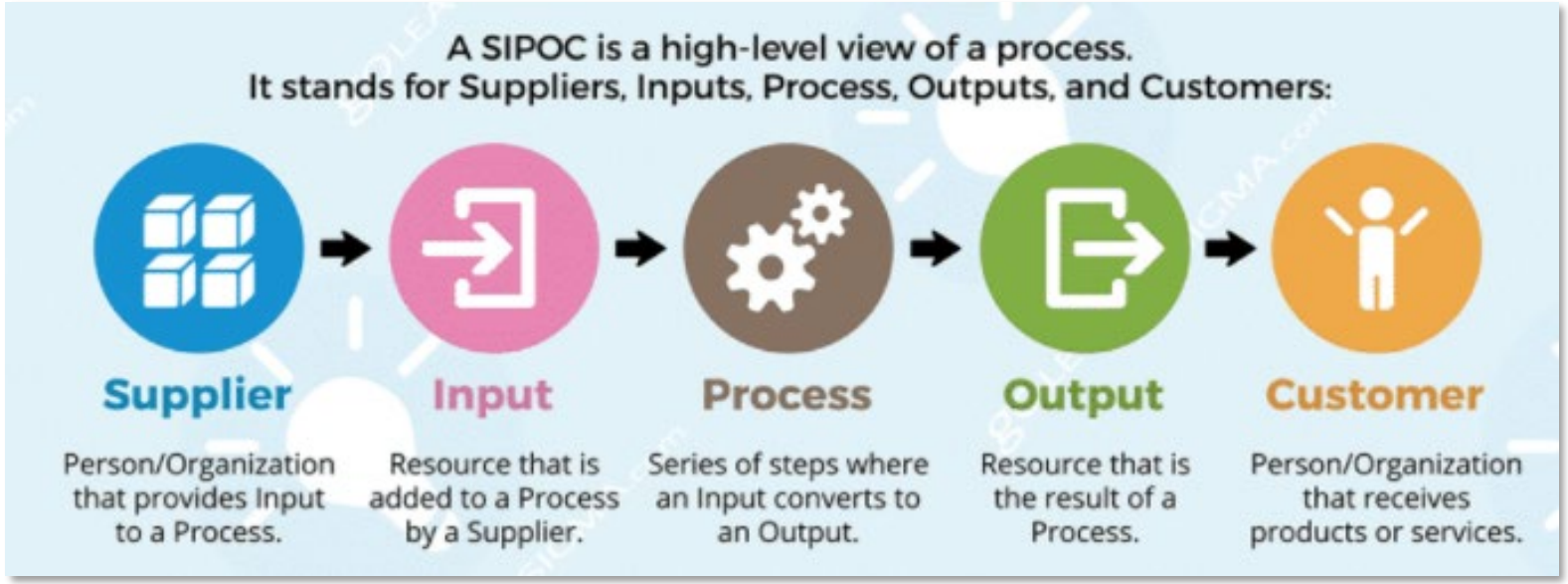
DEFINE	MEASURE	ANALYZE	IMPROVE	CONTROL
				
Define the problem	Quantify the problem	Identify the cause of the problem	Identify, implement & verify the solution	Maintain the solution

Define the problem

DEFINE | MEASURE | ANALYZE | IMPROVE | CONTROL
D M A I C
Define the problem | Quantify the problem | Identify the cause of the problem | Identify, implement & verify the solution | Maintain the solution

- Identify the gap between what should be and what is happening

SIPOC Tool



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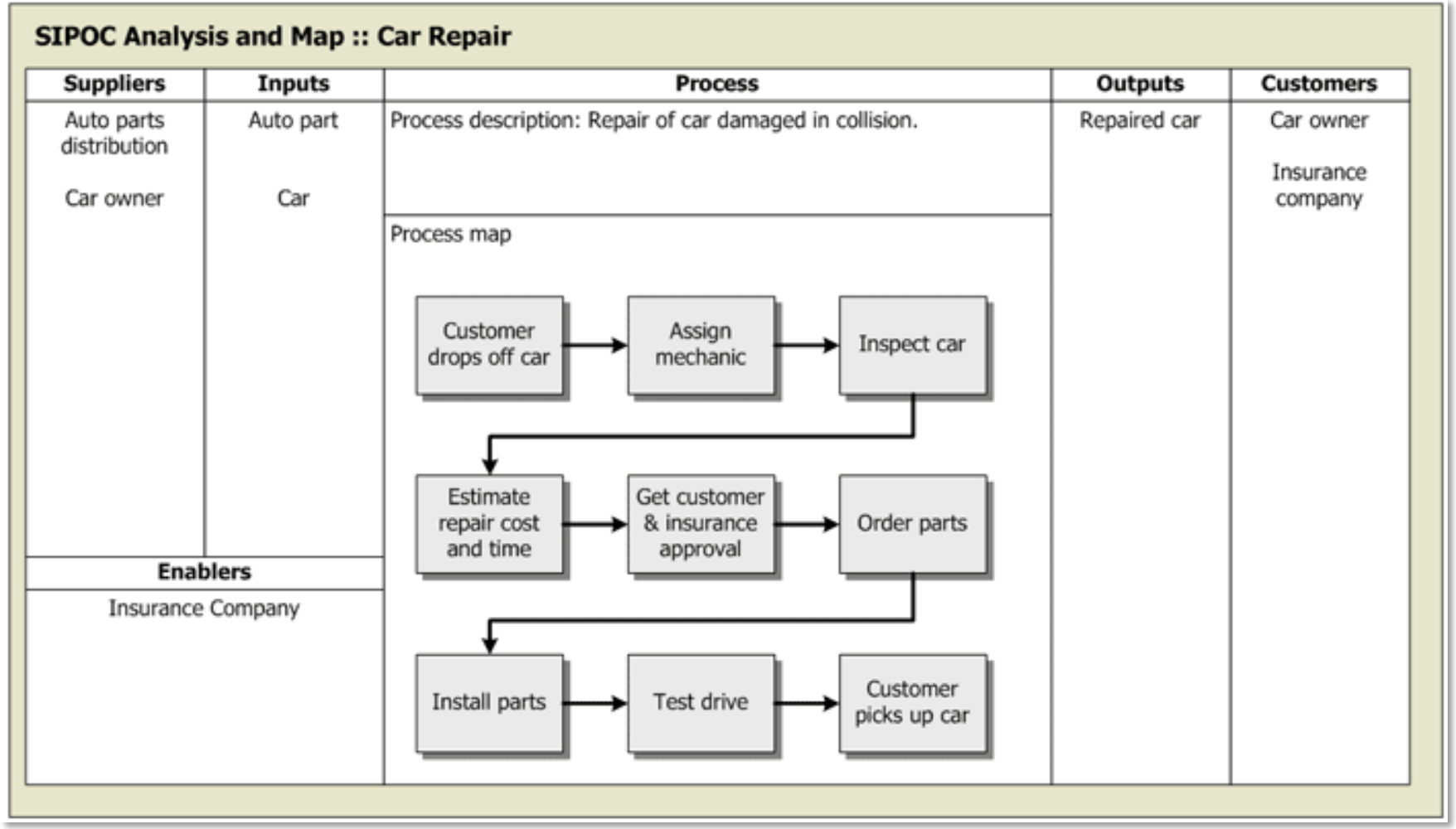
SIPOC can help you identify gaps & contributing factors



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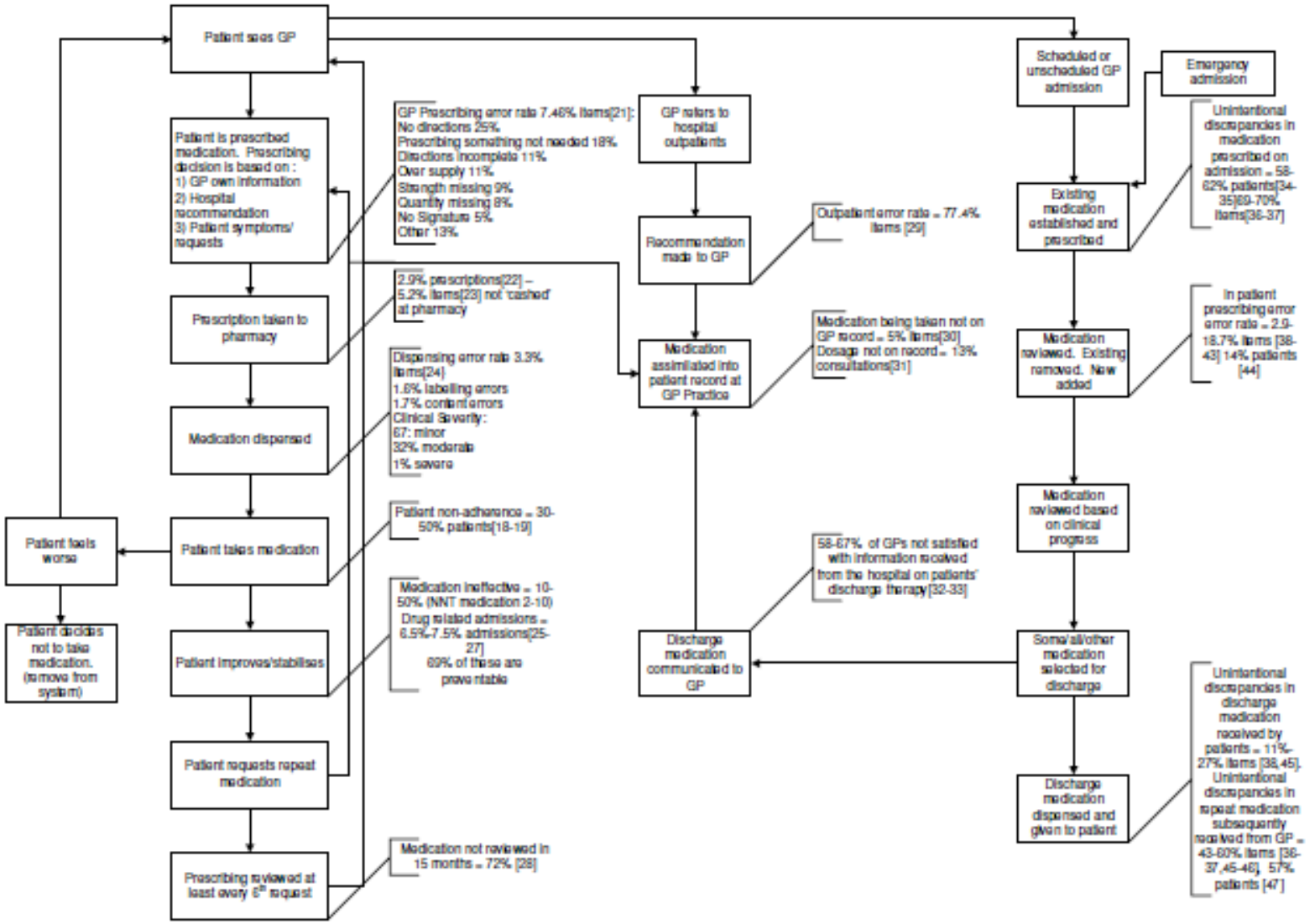
Process mapping example



M Measure

- Gather data at baseline, during & after implementation
- Scope, frequency, etc

M Measurement tools

Pain-Point Log

- Identify frequency / type of error & answer key questions:
  - When should I do something about it?
  - Is it still happening ? Is it resolved or not? Can I move on?
- Sometimes a simple spreadsheet will do

Pain-Point Log Tool

Pain Point Log - Problem occurs in day-to-day work that takes away from assigned job duties

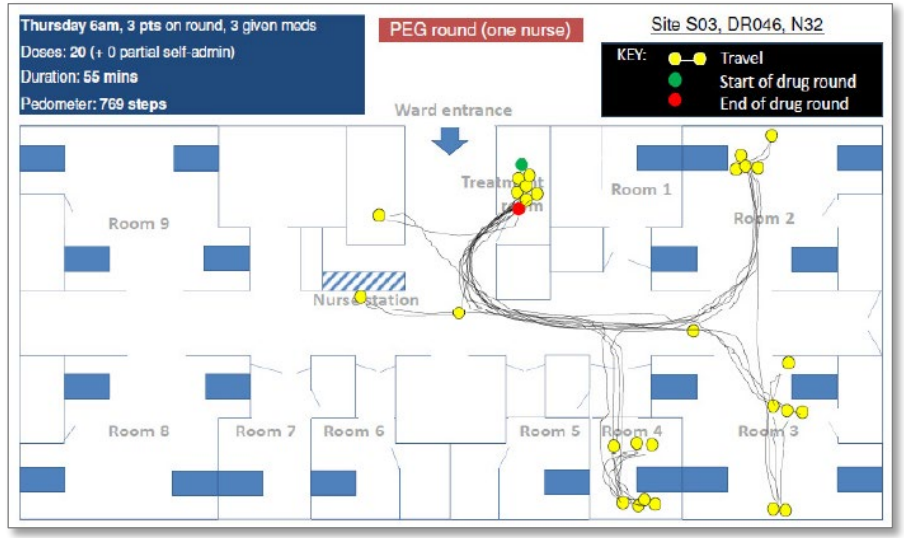
	# of Occurrences				RCPS		RCPS		
Problem Statement / Improvement Opportunities	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**Project**
Sample 1: Wrong dose given	1/14	1/30	2/3	2/15	2/22				
Sample 2: Discontinued med administered	2/5								
Sample 3: Incorrect route of administration	1/12	2/15							

Measurement tools

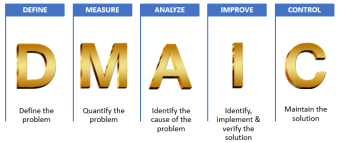
Spaghetti Diagram

- Visual representation of workflow using a continuous line tracing the path of an item or activity through a process
- Identifies redundancies & opportunities to expedite process flow

Spaghetti Diagram Tool



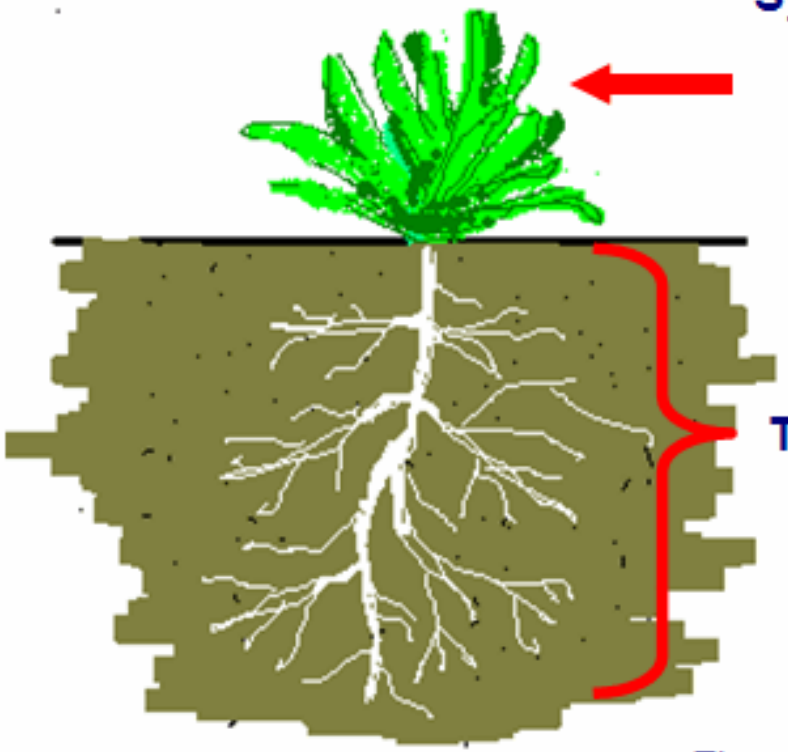
Analyze to find the cause of the problem



Root-Cause Problem Solving (RCPS)

- In-depth process for identifying the MOST BASIC factor(s) underlying a variation in performance (problem)
- Prevents jumping to conclusions
- Avoids creating “band-aid” fixes

A The basics of root-cause analysis



Symptom of the problem.

"The Weed"

Above the surface
(obvious)

The <u>Underlying Causes</u>

"The Root"

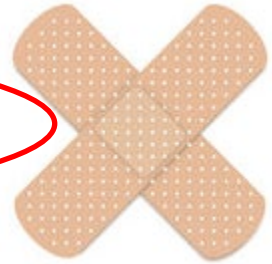
Below the surface

(not obvious)

The word root, in root cause analysis, refers to the underlying causes, not the one cause.

Understanding “cause”

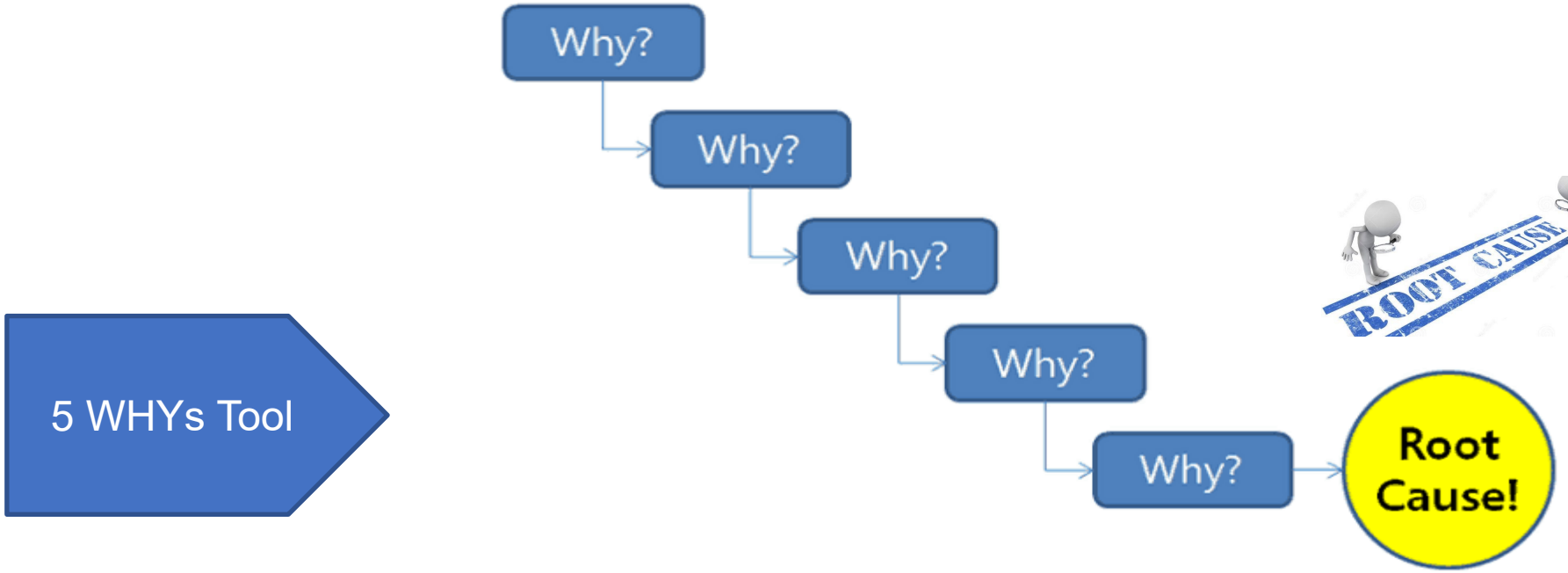
- Set of circumstances or conditions that makes a condition exist or an event happen
  - **Direct / Immediate Cause**
    - The cause that directly resulted in the event
  - **Contributing / Underlying Cause**
    - The cause(s) that contributed to an event but, alone, would not have caused the event
  - **Root Cause**
    - The fundamental reason for an event, which if corrected, would prevent recurrence



Looking for root cause — option A

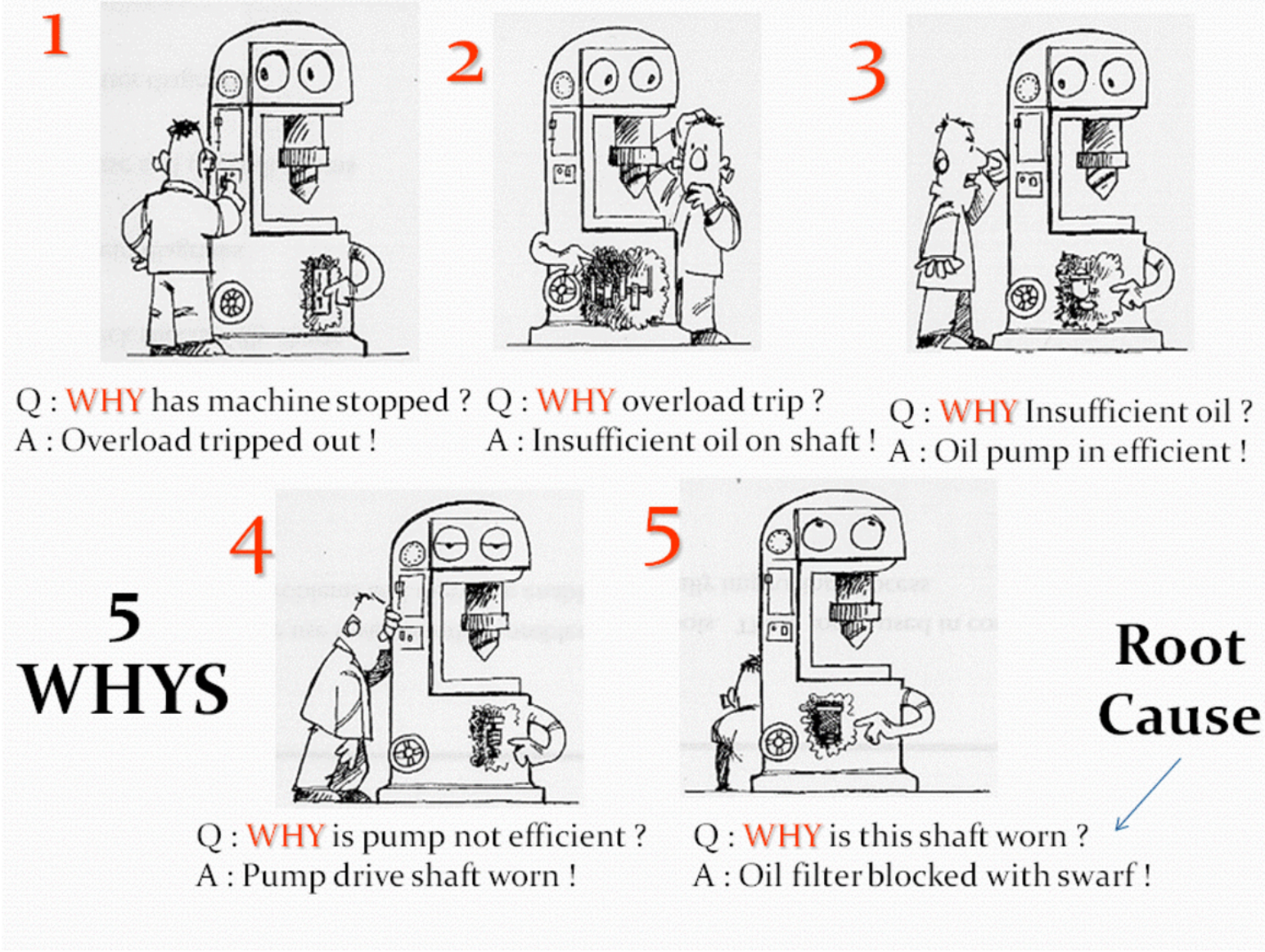
5 WHYs

- Most problems, even the most complex, can be handled by asking “why” 5 times



A

5 WHYs can help you get to the root cause easily



5 WHYs template

Asking Powerful Questions: 5 Whys

Define the Problem:

Why is it happening?

Why is that?

Why is that?

Why is that?

Why is that?

You don't want to list 5 different reasons; you want to go deep on 1 reason.

Caution:
- If your last answer is something you can't control, go back up to the previous answer

Action:

Looking for root cause — option B

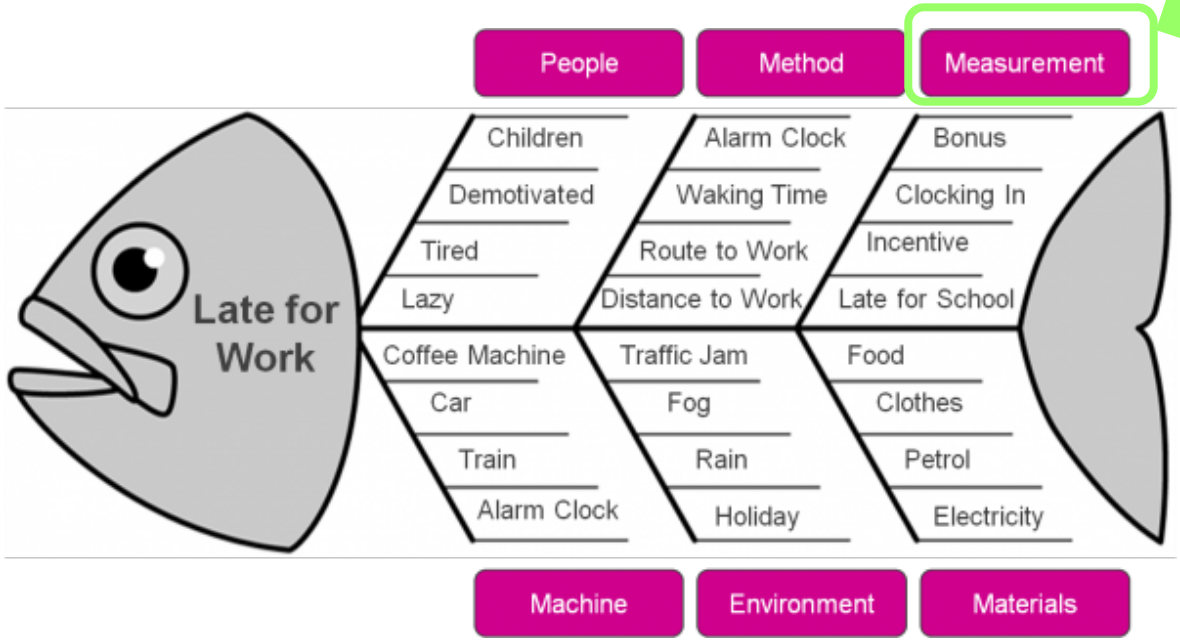
Fishbone Diagram

- Used to identify all of the contributing & root causes likely to be causing a problem

Fishbone Diagram Tool

Using the Fishbone

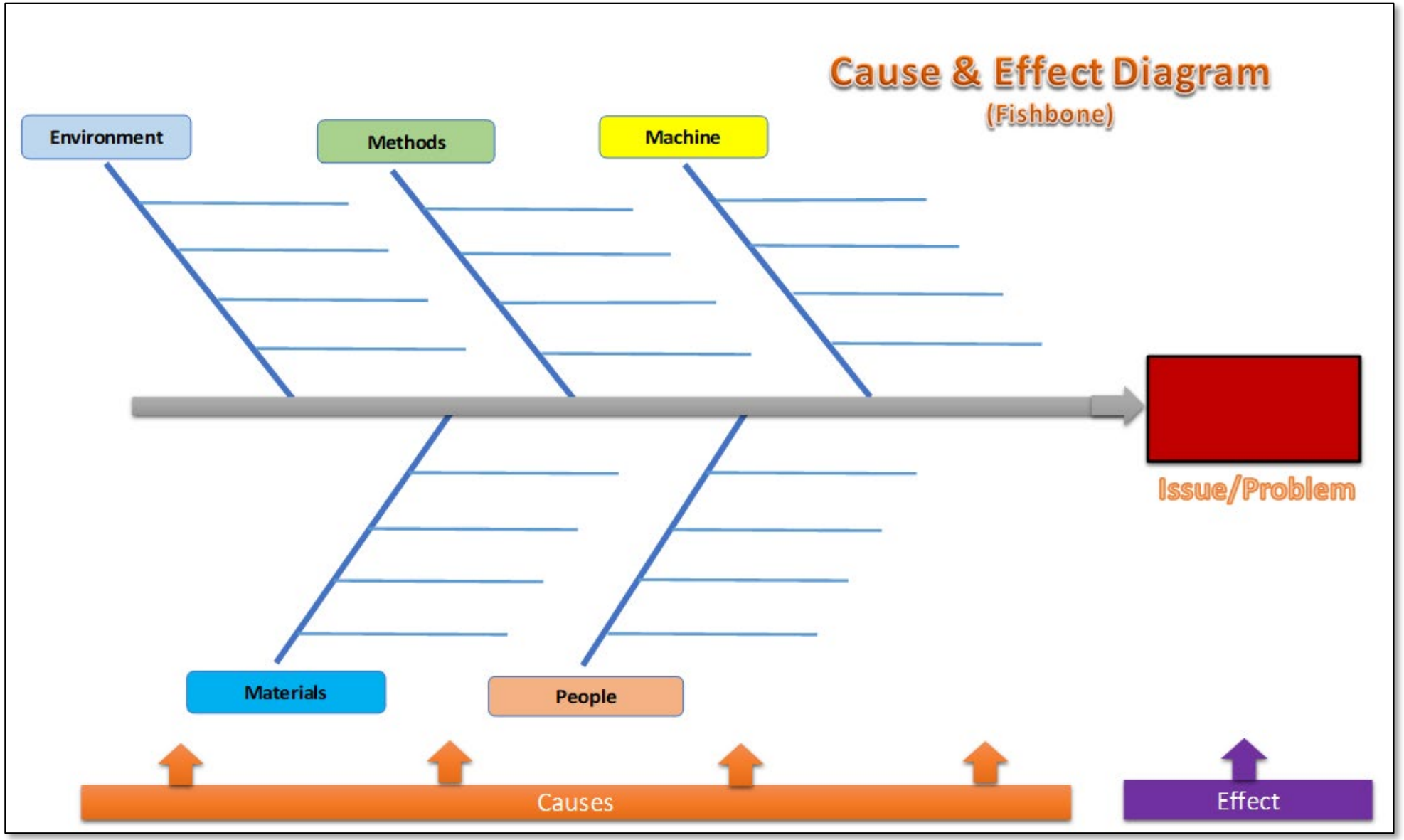
Measurement is not usually included on Fishbone diagrams, but this can help you identify how to create metrics for the problem or gauge to success



- Agree upon & list the problem
- Brainstorm causes for each major category—ask “why does this happen?”
- For each cause, again ask “why does this happen?”
- Write sub-causes, branching off initial causes
- Continue to ask why until the group runs out of ideas

A

Fishbone template

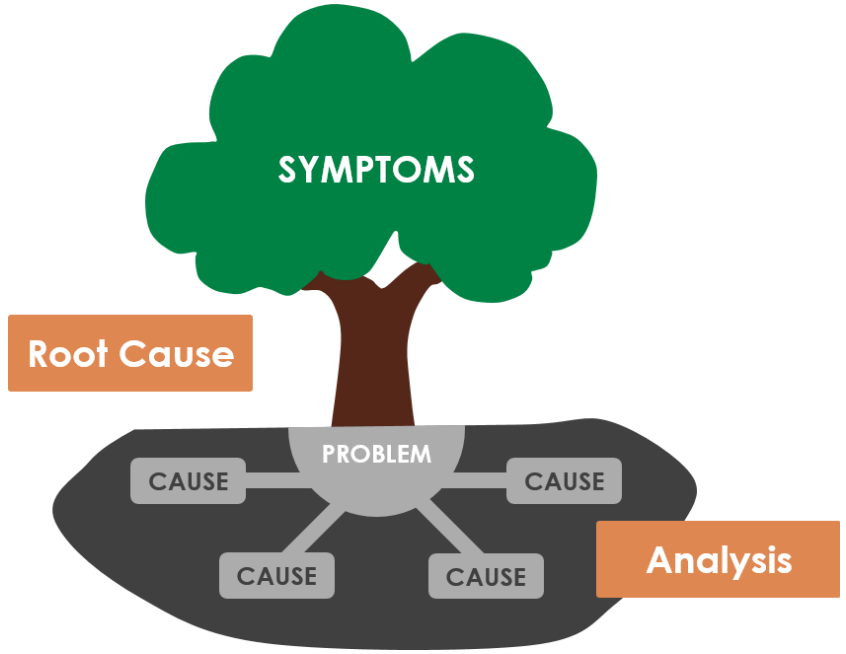


Looking for root cause — option C

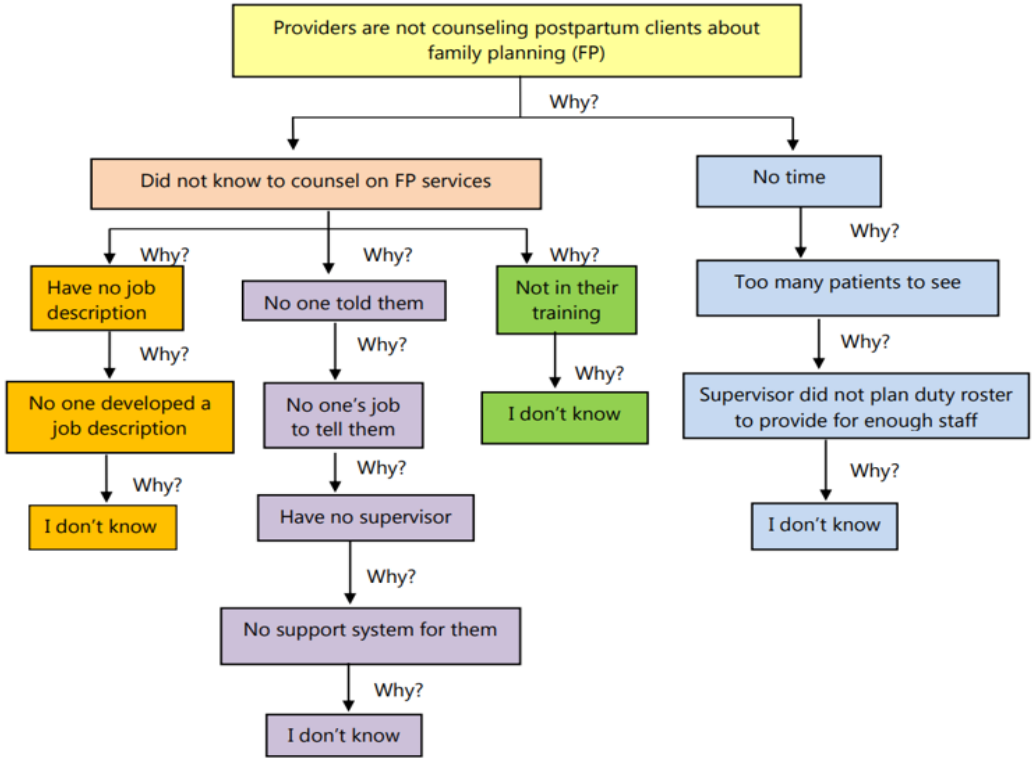
WHY Tree Diagram

- Lists the possible causes of the problem/gap/strength by asking the question “why” or “why is that true?” or “why is it happening”

WHY Tree Tool



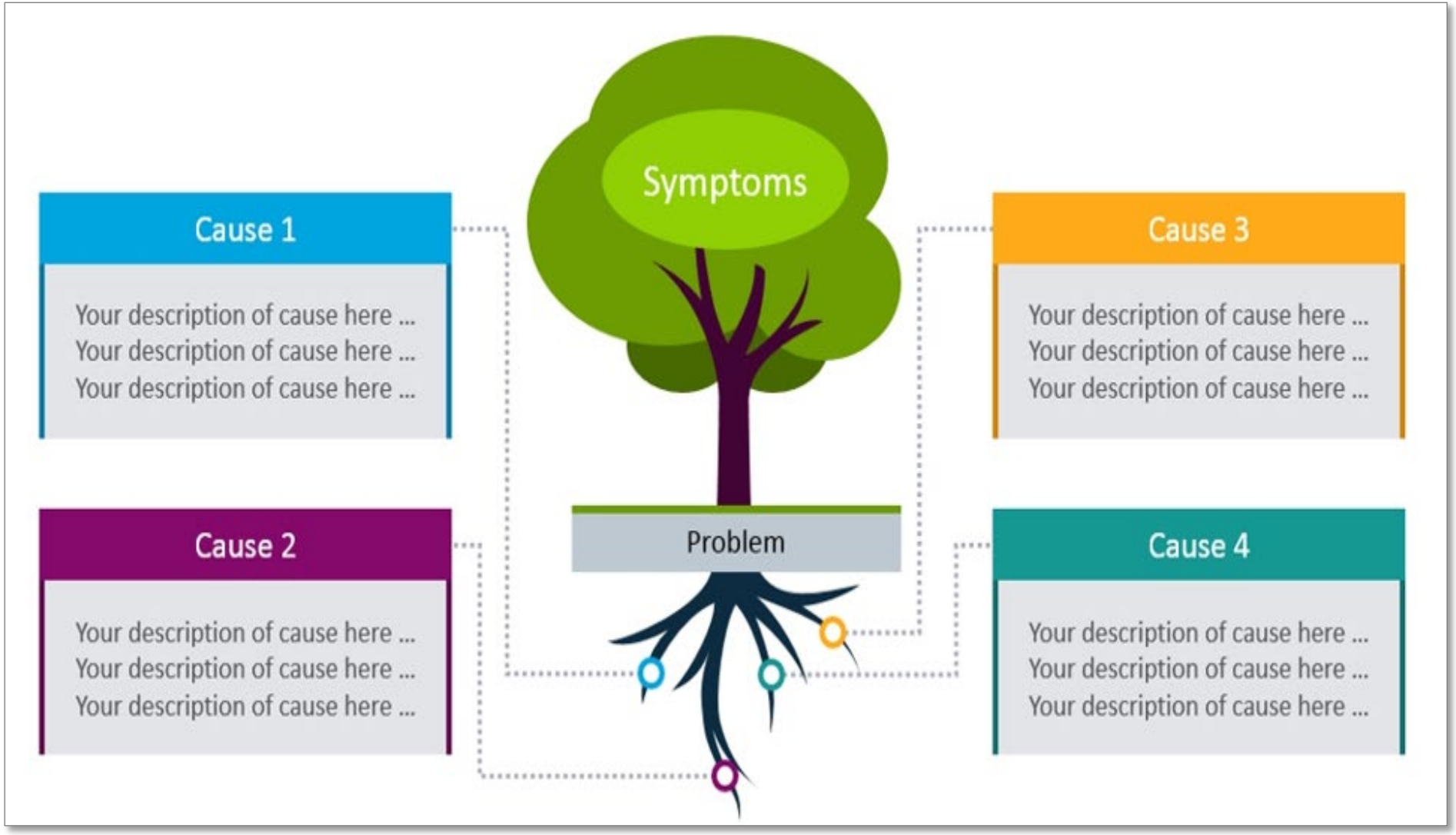
Using the 5 WHY Tree



- Agree upon & list the problem
- list the possible causes of the problem/gap/strength by asking the question "why" or "why is that true?" or why is it happening?"
- For each of the causes, again ask the question "why" and list all possible responses
- Continue this process at least 5x or until the response is "that is just the way it is," or "that is just what happened"

A

5 WHY Tree template



Bonus material: Most commonly identified factors contributing to med errors

Personal
Mathematical skills
Knowledge of medications
Experience & education level
Understanding of how errors occur
Failure to adhere to P&Ps

Environmental
Distractions & interruptions
Quality of orders / legibility of records
Patient acuity
Complexity of medication / setting
Physical environment
Fatigue / sleep loss
Equipment failure
Similarity of drug names
Shift length

Organizational
Workload / staffing
Culture / climate
Communication channels
Routines
Handling of incident-reporting
Inadequate access to P&Ps

https://discovery.ucl.ac.uk/id/eprint/1401849/1/Monsey_Chan_McLeod_PhD_thesis_2013.pdf

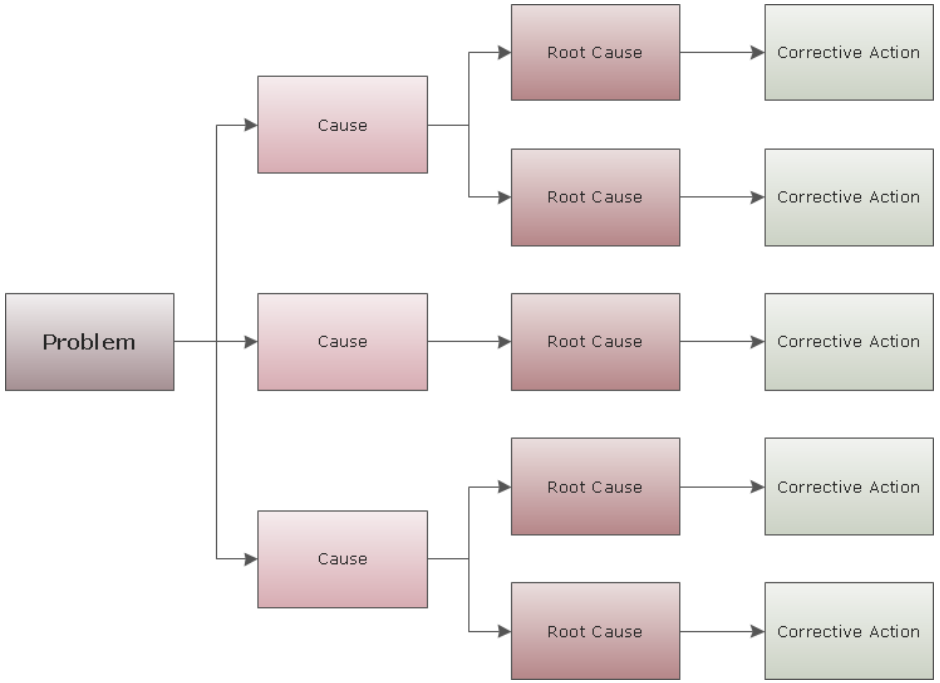
Bonus material: Scenarios for med errors & near misses

Prescribing Errors	Dispensing Errors
• Wrong medication / dose / route / rate • Transcription errors • Not taking into account clinical parameters (height, weight, etc) • Not taking into account clinical condition(s) or other medications	• Translation-of-order errors • Wrong medication / dose / route / frequency • Wrong patient • Expired medication • Incorrect labeling or directions • Incorrect packaging
Preparation & Administration Errors	**Monitoring Errors**
• Wrong medication / dose / route / frequency • Use of expired med • Wrong patient • Med omitted without a clinical rationale • Incorrectly prepared / administered • Incorrect infusion rate • Administered late / early	• Not ordering labs • Not adjusting dosing based on lab results • Not monitoring administration records • Not monitoring length of drug therapy • Failure

Adapted from: https://www.qlicksmart.com/medication-errors-obstruct-patient-safety/

Improve: Identify countermeasures

- Actions, devices or processed designed to prevent an issue from occurring or mitigate its effects
- Depending on the root cause(s), multiple actions may be needed



Improve: Brainstorm solutions

- Organize into common themes

Countermeasure template

Countermeasure Sheet

Group:		Date:		Page		of	

KPI or Improvement Objective:	
Problem Statement:	

Gap Analysis

Target:		Actual:		Gap:	

	Root Causes	Impact
1.		
2.		
3.		
4.		
5.		

Notes:	

Supporting Data

Paste run chart of KPI or other backgroud data here

Paste supporting data (i.e. Pareto chart) here

	Countermeasure	Owner	Due Date	Status	Impact
1.					
2.					
3.					
4.					
5.					

Countermeasure Owner:		Total Impact:	

Shmula.com
lean six sigma. simplified.

Improvement tools – option A

Poka Yoke

- Prevents a mistake from being made or makes the mistake obvious at a glance

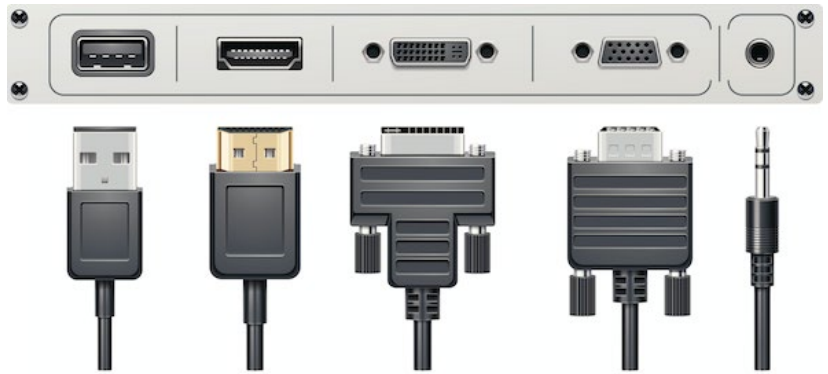
Poka Yoke Tool

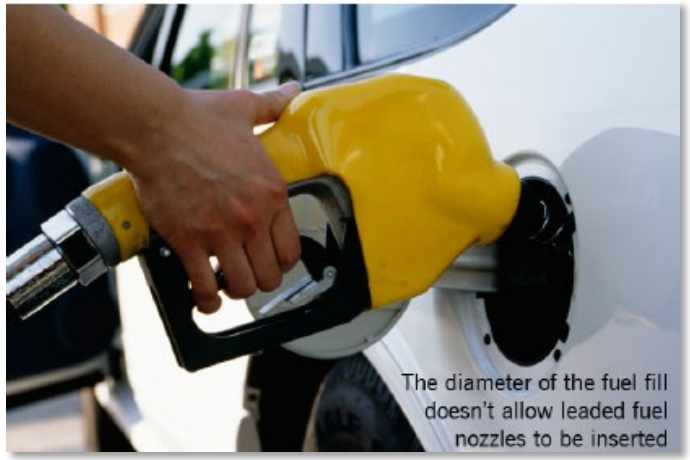
"Your ability to mistake-proof a process is only limited by your own lack of imagination."

-Shigeo Shingo

Mistake-proofing examples

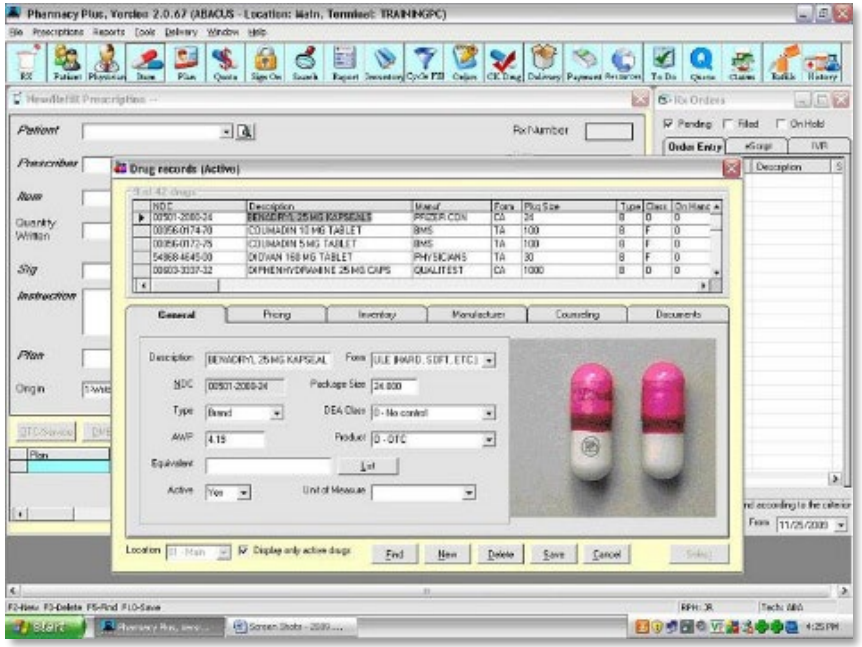
- Physical/hard stops prevent the mistake from ever being made





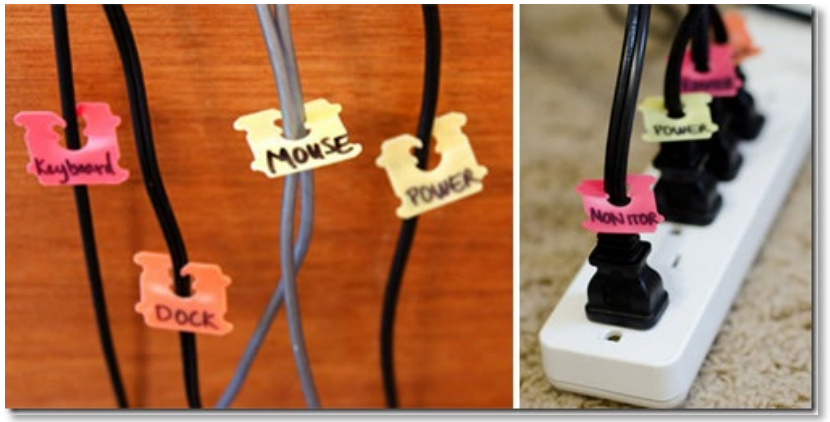
Mistake-proofing examples

- Makes it easier to prevent a mistake



Mistake-proofing examples

- Makes it easier to prevent a mistake or see when one is made



Improvement tools – option B

5S

- System for organizing spaces using visual management, so work can be performed efficiently, effectively, and safely

5S Tool

1. SORT	• Remove unnecessary items from each area
2. SET IN ORDER	• Arrange items you use daily, so they are easily accessed & stored
3. SHINE	• Clean & inspect each area regularly • Make sure items/equipment work properly
4. STANDARDIZE	• Create 5S tasks & procedures
5. SUSTAIN	• Assign responsibility & track progress

5S examples


PACKAGING AREA
TAPE GUN
INSPECTION GUIDELINES
STRETCH WRAP DISPENSER
PENS
BOX CUTTER
CUT GLOVES

5S examples

5S examples

Before

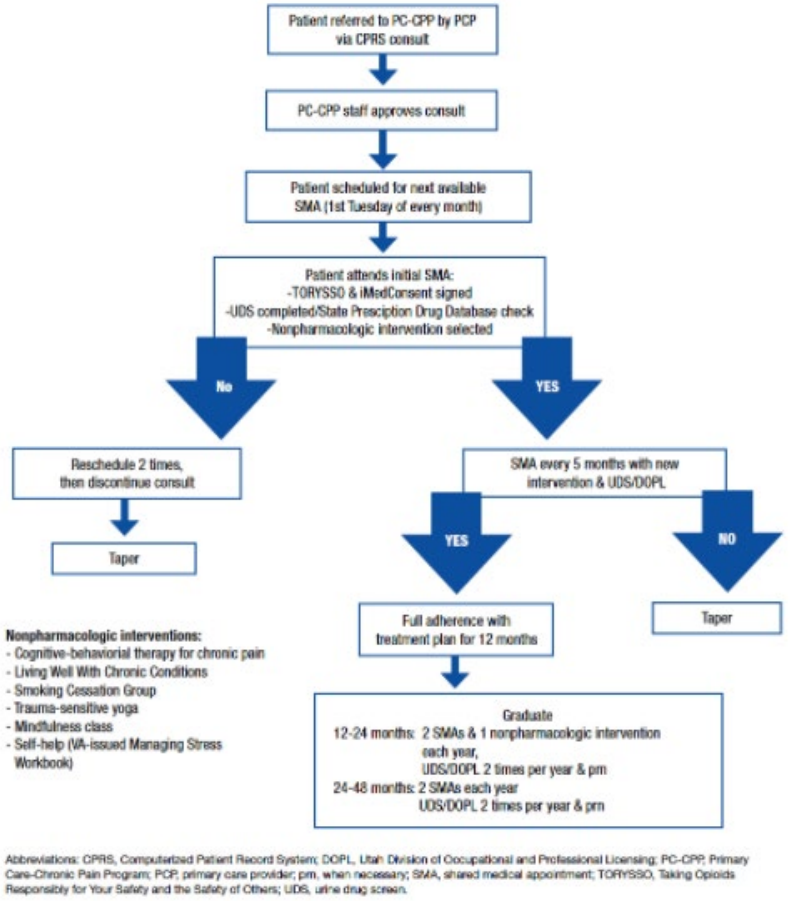
After

5S examples

Everything in the area has a marked location!!

Improve: Document your new process

- Update processes and/or policies
- Create a standard of work / checklist mapping your new process to get everyone on the same page



Process documentation example

STEP	ACTION	RESPONSE
1	Diversion may be required.	
2	Oxygen masks (if required)	On, 100%
3	Smoke goggles (if required)	On
4	Crew and cabin communications	Establish
5	Manufacturer's initial steps	Accomplish
	Anytime smoke or fumes become the greatest threat, accomplish separate *Smoke or Fumes Removal Checklist.*	
6	Source is immediately obvious and can be extinguished quickly:	
	If YES → go to Step 7.	
	If NO → go to Step 9.	
7	Extinguish the source. If possible, remove power from affected equipment by switch or circuit breaker on the flight deck or in the cabin.	
8	Source is visually confirmed to be extinguished:	
	If YES → consider reversing manufacturer's initial steps. Go to Step 17.	
	If NO → go to Step 9.	
9	Remaining minimal essential manufacturer's action steps [These are steps that do not meet the"initial steps" criteria but are probable sources.]	Accomplish
10	Initiate a diversion to the nearest suitable airport while continuing the checklist.	
	Warning: If the smoke/fire/fumes situation becomes unmanageable, consider an immediate landing.	
11	Landing is imminent:	
	If YES → go to Step 16.	
	If NO → go to Step 12.	
12	"X" system actions [These are further actions to control/extinguish source.] If dissipating, go to Step 16.	Accomplish
13	"Y" system actions [These are further actions to control/extinguish source.] If dissipating, go to Step 16.	Accomplish
14	"Z" system actions [These are further actions to control/extinguish source.] If dissipating, go to Step 16.	Accomplish
15	SFF continues after all system-related steps are accomplished: Consider landing immediately. Go to Step 16.	
16	Review Operational Considerations.	
17	Accomplish *Smoke or Fumes Removal Checklist*, if required.	
18	Checklist complete.	

Standard work example

Standard Work Instruction

CHORE-TIME

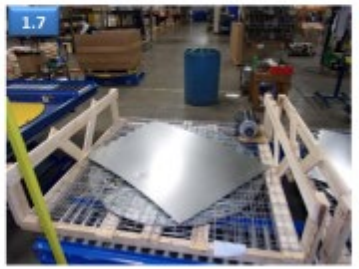
Work Element Sheet

Instruction Title	Hyflo Fan Line, C225, 54" Fans			Issue Date	03-Feb-16	Page 5 of 7
Element Name	Hyflo Door and Crate and Motor Assembly (Operator 1)			Element #	1	Element Time 0:04

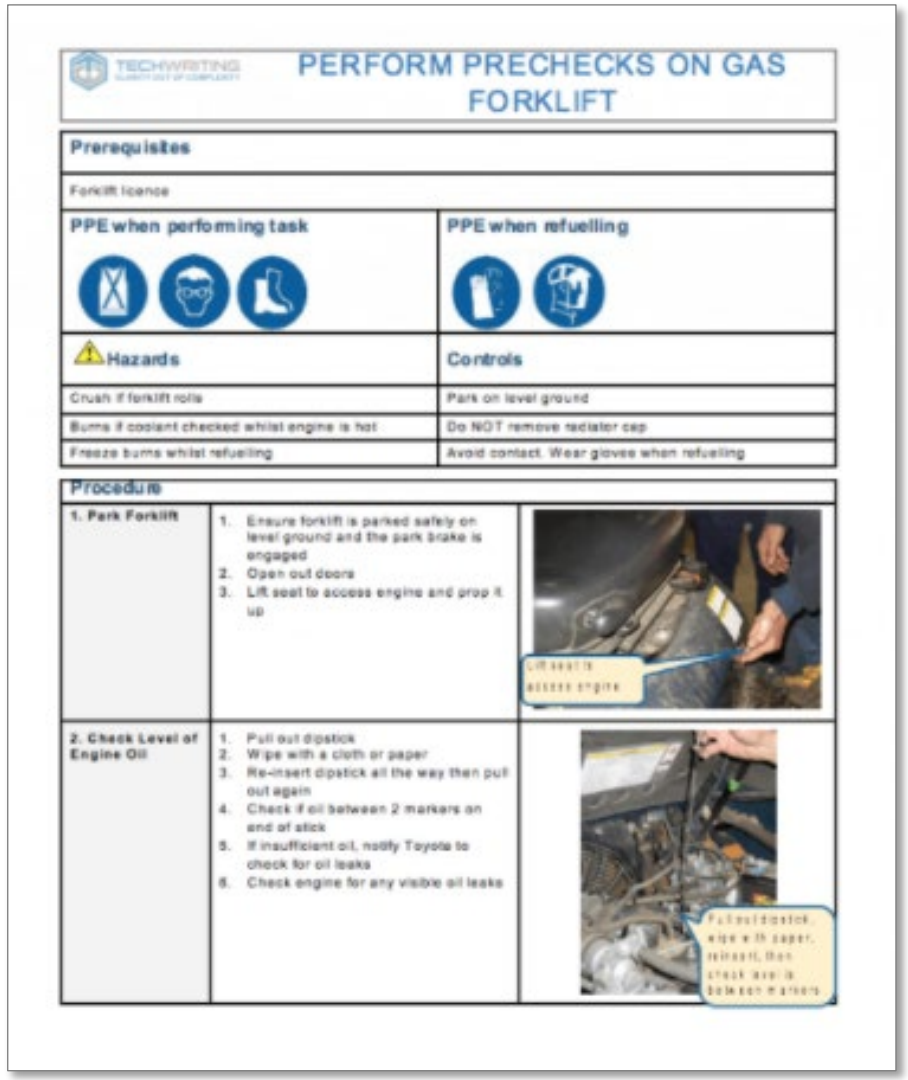
Symbols		Step#	WORK STEP	Symbol	KEY POINT / SAFETY HIGHLIGHT	REASON WHY
Quality	Q	1.1	Push door and crate onto the conveyor			
HSE	✚	1.2	Place grill, screen and cone panels on top of the door. Install 2 screws to hold the panels.			
Knack	☺	1.3	Staple side rails to the crate base.			
		1.4	Apply the label.			
		1.5	Attach the pulley and wire ties to the motor.			
		1.6	Set motor into crate on cardboard, then attach to the crate with the wire ties.			
		1.7	Lower the crate, push the skid off the lift, and raise the table.			
		1.8	Assist operator at Station 2 in lifting the sub assembly onto the shroud, then place the blades onto the assembly fixture.	✚	Teamwork lifting	Improper lifting techniques can lead to added stress to the body, leading to possible muscle strains and sprains.

Visuals

this is actually the first step for oper 1



Standard work examples



TECHWRITING

PERFORM PRECHECKS ON GAS FORKLIFT

Prerequisites

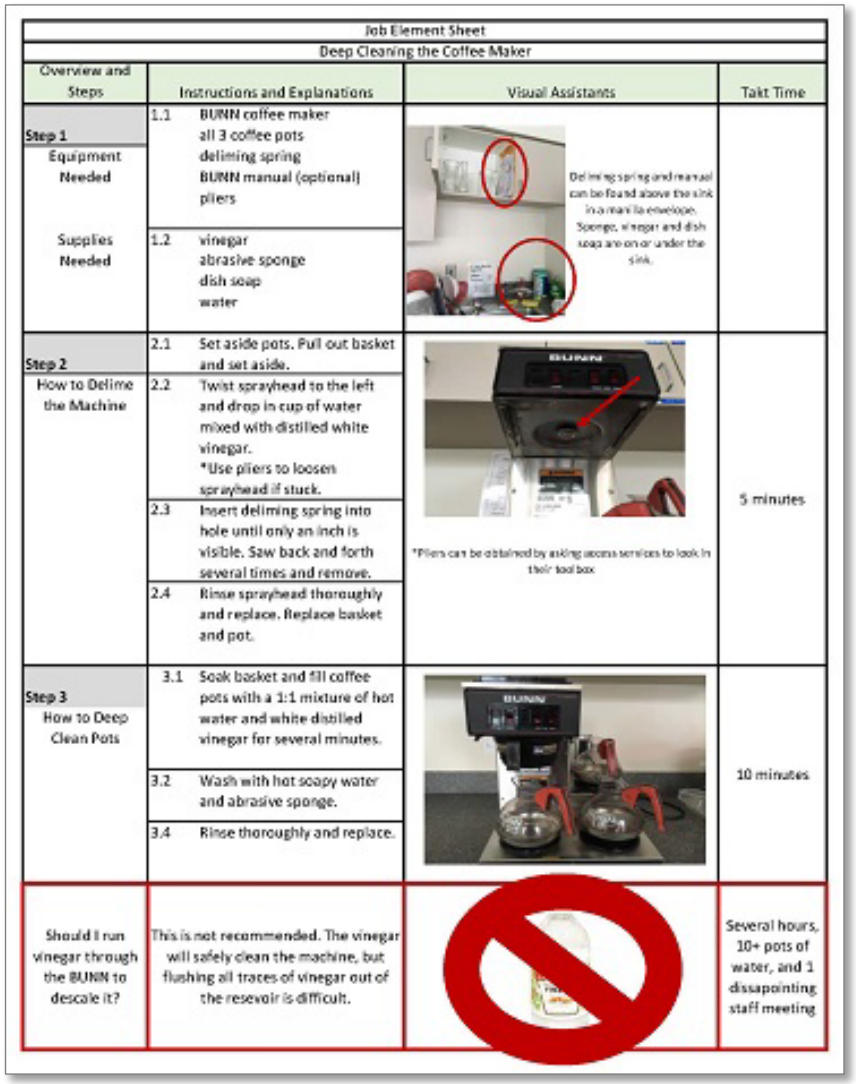
Forklift licence

PPE when performing task	PPE when refuelling

Hazards	Controls
Crush if forklift rolls	Park on level ground
Burns if coolant checked whilst engine is hot	Do NOT remove radiator cap
Freeze burns whilst refuelling	Avoid contact. Wear gloves when refueling

Procedure

1. Park Forklift	1. Ensure forklift is parked safely on level ground and the park brake is engaged 2. Open out doors 3. Lift seat to access engine and prop it up	
2. Check Level of Engine Oil	1. Pull out dipstick 2. Wipe with a cloth or paper 3. Re-insert dipstick all the way then pull out again 4. Check if oil between 2 markers on end of stick 5. If insufficient oil, notify Toyota to check for oil leaks 6. Check engine for any visible oil leaks	

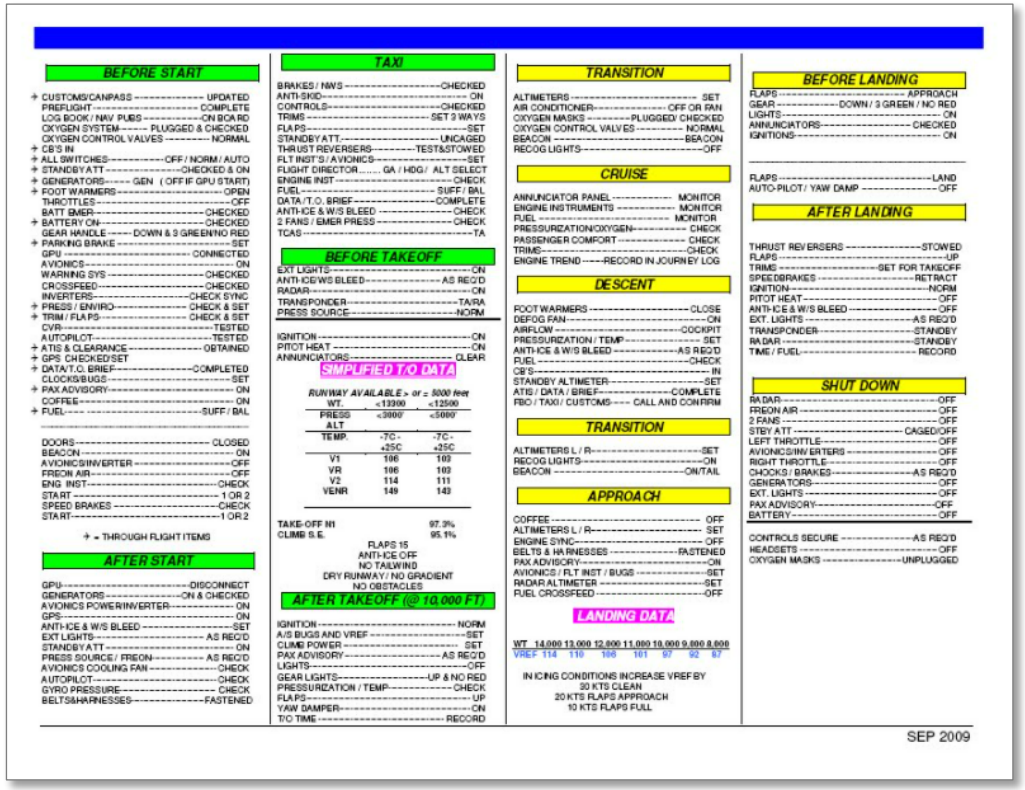


Job Element Sheet

Deep Cleaning the Coffee Maker

Overview and Steps	Instructions and Explanations	Visual Assistants	Takt Time
Step 1 Equipment Needed Supplies Needed	1.1 BUNN coffee maker all 3 coffee pots deliming spring BUNN manual (optional) pliers 1.2 vinegar abrasive sponge dish soap water	Deliming spring and manual can be found above the sink in a manilla envelope. Sponge, vinegar and dish soap are on or under the sink.	
Step 2 How to Delime the Machine	2.1 Set aside pots. Pull out basket and set aside. 2.2 Twist sprayhead to the left and drop in cup of water mixed with distilled white vinegar. *Use pliers to loosen sprayhead if stuck. 2.3 Insert deliming spring into hole until only an inch is visible. Saw back and forth several times and remove. 2.4 Rinse sprayhead thoroughly and replace. Replace basket and pot.	*Pliers can be obtained by asking access services to look in their tool box	5 minutes
Step 3 How to Deep Clean Pots	3.1 Soak basket and fill coffee pots with a 1:1 mixture of hot water and white distilled vinegar for several minutes. 3.2 Wash with hot soapy water and abrasive sponge. 3.4 Rinse thoroughly and replace.		10 minutes
Should I run vinegar through the BUNN to descale it?	This is not recommended. The vinegar will safely clean the machine, but flushing all traces of vinegar out of the reservoir is difficult.		Several hours, 10+ pots of water, and 1 dissapointing staff meeting

Checklist examples



BEFORE START

+ CUSTOMS/CANPASS ---------- UPDATED
PREFLIGHT ---------- COMPLETE
LOG BOOK / NAV PUBS ---------- ON BOARD
OXYGEN SYSTEM ---------- PLUGGED & CHECKED
OXYGEN CONTROL VALVES ---------- NORMAL
+ CB'S IN
+ ALL SWITCHES ---------- OFF / NORM / AUTO
+ STANDBY ATT ---------- CHECKED & ON
+ GENERATORS ---------- GEN (OFF IF GPU START)
+ FOOT WARMERS ---------- OPEN
THROTTLES ---------- OFF
BATT BMBR ---------- CHECKED
+ BATTERY ON ---------- CHECKED
GEAR HANDLE ---------- DOWN & 3 GREEN/NO RED
+ PARKING BRAKE ---------- SET
GPU ---------- CONNECTED
AVIONICS ---------- ON
WARNING SYS ---------- CHECKED
CROSSFEED ---------- CHECKED
INVERTERS ---------- CHECK SYNC
+ PRESS / ENVIRO ---------- CHECK & SET
+ TRIM / FLAPS ---------- CHECK & SET
CVR ---------- TESTED
AUTOPILOT ---------- TESTED
+ ATIS & CLEARANCE ---------- OBTAINED
+ GPS CHECKED/SET
+ DATA/T.O. BRIEF ---------- COMPLETED
CLOCKS/BUGS ---------- SET
+ PAX ADVISORY ---------- ON
COFFEE ---------- ON
+ FUEL ---------- SUFF / BAL

DOORS ---------- CLOSED
BEACON ---------- ON
AVIONICS/INVERTER ---------- OFF
FREON AIR ---------- OFF
ENG INST ---------- CHECK
START ---------- 1 OR 2
SPEED BRAKES ---------- CHECK
START ---------- 1 OR 2

+ = THROUGH FLIGHT ITEMS

AFTER START

GPU ---------- DISCONNECT
GENERATORS ---------- ON & CHECKED
AVIONICS POWER/INVERTER ---------- ON
GPS ---------- ON
ANTI-ICE & W/S BLEED ---------- SET
EXT LIGHTS ---------- AS REQ'D
STANDBY ATT ---------- ON
PRESS SOURCE / FREON ---------- AS REQ'D
AVIONICS COOLING FAN ---------- CHECK
AUTOPILOT ---------- CHECK
GYRO PRESSURE ---------- CHECK
BELTS/HARNESSES ---------- FASTENED

TAXI

BRAKES / NWS ---------- CHECKED
ANTI-SKID ---------- ON
CONTROLS ---------- CHECKED
TRIMS ---------- SET 3 WAYS
FLAPS ---------- SET
STANDBY ATT ---------- UNCAGED
THRUST REVERSERS ---------- TEST&STOWED
FLT INST'S / AVIONICS ---------- SET
FLIGHT DIRECTOR ..... GA / HDG / ALT SELECT
ENGINE INST ---------- CHECK
FUEL ---------- SUFF / BAL
DATA / T.O. BRIEF ---------- COMPLETE
ANTI-ICE & W/S BLEED ---------- CHECK
2 FANS / EMER PRESS ---------- CHECK
TCAS ---------- TA

BEFORE TAKEOFF

EXT LIGHTS ---------- ON
ANTI-ICE/WS BLEED ---------- AS REQ'D
RADAR ---------- ON
TRANSPONDER ---------- TA/RA
PRESS SOURCE ---------- NORM

IGNITION ---------- ON
PITOT HEAT ---------- ON
ANNUNCIATORS ---------- CLEAR

SIMPLIFIED T/O DATA

RUNWAY AVAILABLE > or = 5000 feet

WT.	<13300	<12500
PRESS ALT	<3000'	<5000'
TEMP.	-7C - +25C	-7C - +25C
V1	106	103
VR	106	103
V2	114	111
VENR	149	143

TAKE-OFF N1 97.3%
CLIMB S.E. 95.1%

FLAPS 15
ANTI-ICE OFF
NO TAILWIND
DRY RUNWAY / NO GRADIENT
NO OBSTACLES

AFTER TAKEOFF (@ 10,000 FT)

IGNITION ---------- NORM
A/S BUGS AND VREF ---------- SET
CLIMB POWER ---------- SET
PAX ADVISORY ---------- AS REQ'D
LIGHTS ---------- OFF
GEAR LIGHTS ---------- UP & NO RED
PRESSURIZATION / TEMP ---------- CHECK
FLAPS ---------- UP
YAW DAMPER ---------- ON
T/O TIME ---------- RECORD

TRANSITION

ALTIMETERS ---------- SET
AIR CONDITIONER ---------- OFF OR FAN
OXYGEN MASKS ---------- PLUGGED/ CHECKED
OXYGEN CONTROL VALVES ---------- NORMAL
BEACON ---------- BEACON
RECOG LIGHTS ---------- OFF

CRUISE

ANNUNCIATOR PANEL ---------- MONITOR
ENGINE INSTRUMENTS ---------- MONITOR
FUEL ---------- MONITOR
PRESSURIZATION/OXYGEN ---------- CHECK
PASSENGER COMFORT ---------- CHECK
TRIMS ---------- CHECK
ENGINE TREND ----- RECORD IN JOURNEY LOG

DESCENT

FOOT WARMERS ---------- CLOSE
DEFOG FAN ---------- ON
AIRFLOW ---------- COCKPIT
PRESSURIZATION / TEMP ---------- SET
ANTI-ICE & W/S BLEED ---------- AS REQ'D
FUEL ---------- CHECK
CB'S ---------- IN
STANDBY ALTIMETER ---------- SET
ATIS / DATA / BRIEF ---------- COMPLETE
FBO / TAXI / CUSTOMS ---- CALL AND CONFIRM

TRANSITION

ALTIMETERS L / R ---------- SET
RECOG LIGHTS ---------- ON
BEACON ---------- ON/TAIL

APPROACH

COFFEE ---------- OFF
ALTIMETERS L / R ---------- SET
ENGINE SYNC ---------- OFF
BELTS & HARNESSES ---------- FASTENED
PAX ADVISORY ---------- ON
AVIONICS / FLT INST / BUGS ---------- SET
RADAR ALTIMETER ---------- SET
FUEL CROSSFEED ---------- OFF

LANDING DATA

WT	14,000	13,000	12,000	11,000	10,000	9,000	8,000
VREF	114	110	106	101	97	92	87

IN ICING CONDITIONS INCREASE VREF BY
20 KTS CLEAN
20 KTS FLAPS APPROACH
10 KTS FLAPS FULL

BEFORE LANDING

FLAPS ---------- APPROACH
GEAR ---------- DOWN / 3 GREEN / NO RED
LIGHTS ---------- ON
ANNUNCIATORS ---------- CHECKED
IGNITIONS ---------- ON

FLAPS ---------- LAND
AUTO-PILOT / YAW DAMP ---------- OFF

AFTER LANDING

THRUST REVERSERS ---------- STOWED
FLAPS ---------- UP
TRIMS ---------- SET FOR TAKEOFF
SPEEDBRAKES ---------- RETRACT
IGNITION ---------- NORM
PITOT HEAT ---------- OFF
ANTI-ICE & W/S BLEED ---------- OFF
EXT. LIGHTS ---------- AS REQ'D
TRANSPONDER ---------- STANDBY
RADAR ---------- STANDBY
TIME / FUEL ---------- RECORD

SHUT DOWN

RADAR ---------- OFF
FREON AIR ---------- OFF
2 FANS ---------- OFF
STBY ATT ---------- CAGED/OFF
LEFT THROTTLE ---------- OFF
AVIONICS/INVERTERS ---------- OFF
RIGHT THROTTLE ---------- OFF
CHOCKS / BRAKES ---------- AS REQ'D
GENERATORS ---------- OFF
EXT. LIGHTS ---------- OFF
PAX ADVISORY ---------- OFF
BATTERY ---------- OFF

CONTROLS SECURE ---------- AS REQ'D
HEADSETS ---------- OFF
OXYGEN MASKS ---------- UNPLUGGED

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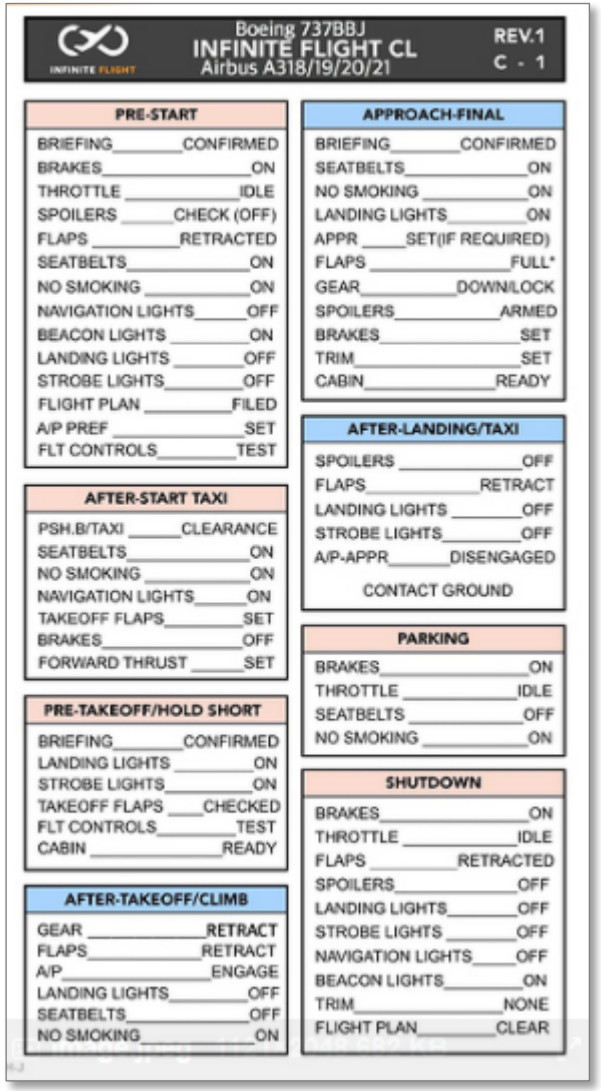


Boeing 737BBJ
INFINITE FLIGHT CL
Airbus A318/19/20/21
REV.1
C - 1

PRE-START

BRIEFING ---------- CONFIRMED
BRAKES ---------- ON
THROTTLE ---------- IDLE
SPOILERS ---------- CHECK (OFF)
FLAPS ---------- RETRACTED
SEATBELTS ---------- ON
NO SMOKING ---------- ON
NAVIGATION LIGHTS ---------- OFF
BEACON LIGHTS ---------- ON
LANDING LIGHTS ---------- OFF
STROBE LIGHTS ---------- OFF
FLIGHT PLAN ---------- FILED
A/P PREF ---------- SET
FLT CONTROLS ---------- TEST

AFTER-START TAXI

PSH.B/TAXI ---------- CLEARANCE
SEATBELTS ---------- ON
NO SMOKING ---------- ON
NAVIGATION LIGHTS ---------- ON
TAKEOFF FLAPS ---------- SET
BRAKES ---------- OFF
FORWARD THRUST ---------- SET

PRE-TAKEOFF/HOLD SHORT

BRIEFING ---------- CONFIRMED
LANDING LIGHTS ---------- ON
STROBE LIGHTS ---------- ON
TAKEOFF FLAPS ---------- CHECKED
FLT CONTROLS ---------- TEST
CABIN ---------- READY

AFTER-TAKEOFF/CLIMB

GEAR ---------- RETRACT
FLAPS ---------- RETRACT
A/P ---------- ENGAGE
LANDING LIGHTS ---------- OFF
SEATBELTS ---------- OFF
NO SMOKING ---------- ON

APPROACH-FINAL

BRIEFING ---------- CONFIRMED
SEATBELTS ---------- ON
NO SMOKING ---------- ON
LANDING LIGHTS ---------- ON
APPR ---------- SET(IF REQUIRED)
FLAPS ---------- FULL*
GEAR ---------- DOWN/LOCK
SPOILERS ---------- ARMED
BRAKES ---------- SET
TRIM ---------- SET
CABIN ---------- READY

AFTER-LANDING/TAXI

SPOILERS ---------- OFF
FLAPS ---------- RETRACT
LANDING LIGHTS ---------- OFF
STROBE LIGHTS ---------- OFF
A/P-APPR ---------- DISENGAGED

CONTACT GROUND

PARKING

BRAKES ---------- ON
THROTTLE ---------- IDLE
SEATBELTS ---------- OFF
NO SMOKING ---------- ON

SHUTDOWN

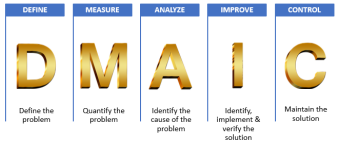
BRAKES ---------- ON
THROTTLE ---------- IDLE
FLAPS ---------- RETRACTED
SPOILERS ---------- OFF
LANDING LIGHTS ---------- OFF
STROBE LIGHTS ---------- OFF
NAVIGATION LIGHTS ---------- OFF
BEACON LIGHTS ---------- ON
TRIM ---------- NONE
FLIGHT PLAN ---------- CLEAR

Improve: Implement the changes

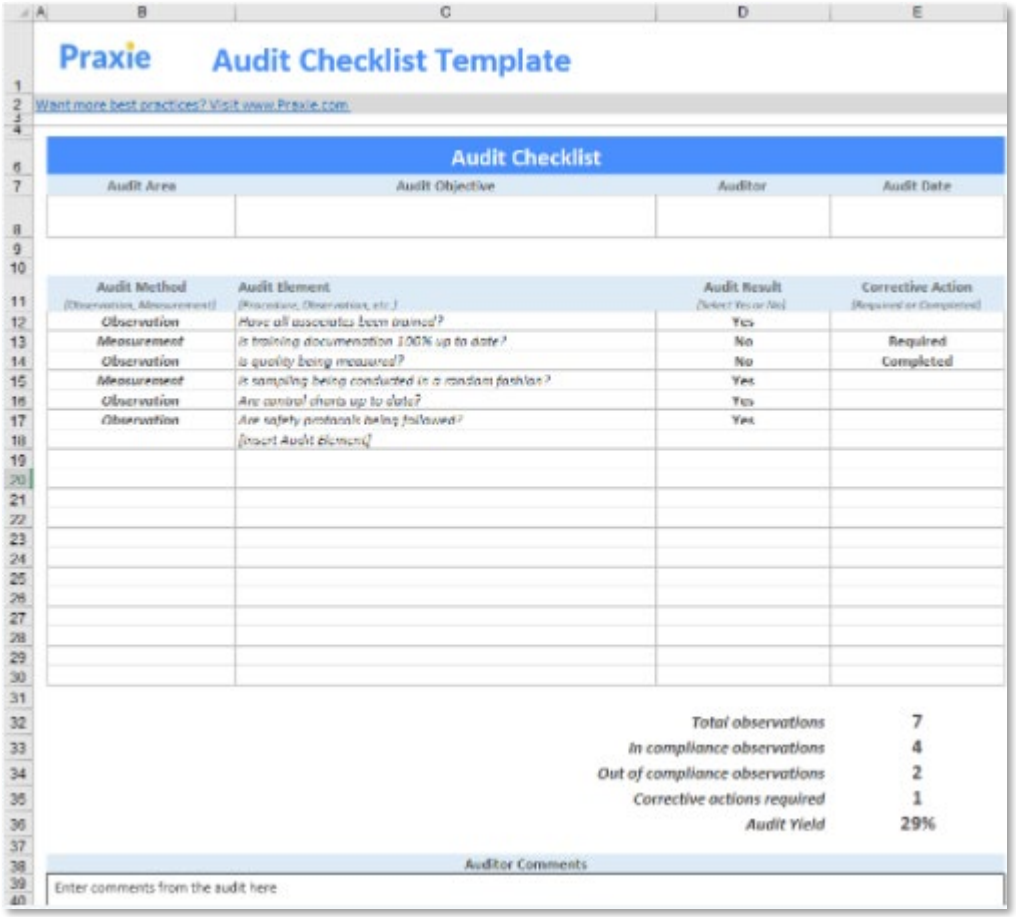
- Communicate
- Post it?
- Educate
- Check for progress in the first days of implementation

Communication Plan						
Audience	Message(s)	Media or Vehicle	Frequency	Timing	Responsibility	Feedback Mechanism

Control the process



- Validate your results
- Maintain your solution(s) by monitoring them *(“Don’t expect what you don’t inspect”)*
- Audit your progress – Daily? Weekly? Monthly? Quarterly?
- What do you expect to be done or completed?



Praxie **Audit Checklist Template**

Want more best practices? Visit www.Praxie.com

Audit Checklist

Audit Area	Audit Objective	Auditor	Audit Date

Audit Method	Audit Element	Audit Result	Corrective Action
Observation	Have all associates been trained?	Yes	
Measurement	Is training documentation 100% up to date?	No	Required
Observation	Is quality being measured?	No	Completed
Measurement	Is sampling being conducted in a random fashion?	Yes	
Observation	Are control charts up to date?	Yes	
Observation	Are safety protocols being followed?	Yes	
	[Insert Audit Element]		

Total observations	7
In compliance observations	4
Out of compliance observations	2
Corrective actions required	1
Audit Yield	29%

Auditor Comments

Enter comments from the audit here

Audit tools

LEAN SIGMA CORPORATION

Audit Checklist

Target Area:	Statement of Audit Objective:	Auditor:	Audit Date:
Audit Technique	**Auditable Item, Observation, Procedure etc.**	**Individual Auditor Rating (Circle Rating)**	
Observation	Have all associates been trained?	YES	NO
Observation	Is training documentation available?	YES	NO
Observation	Is training documentation current?	YES	NO
Observation	Are associates wearing proper safety gear?	YES	NO
Observation	Are SOP's available?	YES	NO
Observation	Are SOP's current?	YES	NO
Observation	Is quality being measured	YES	NO
Observation	Is sampling being conducted in random fashion	YES	NO
Observation	Is sampling meeting it's sample size target?	YES	NO
Observation	Are control charts in control	YES	NO
Observation	Are control charts current?	YES	NO
Observation	Is the process capability index >1.0?	YES	NO
Number of Out of Compliance Observations			
Total Observations			
Audit Yield			#DIV/0!
Corrective Actions Required			
Auditor Comments			

Forum EXTENDED CARE SERVICES

5s AUDIT

Area:

Date:

Audited by:

			YES	NO
SORT	1	Is the work area clear of any unneeded items?		
SORT	2	Is the area free of any safety hazards?		
SET IN ORDER	3	Is everything clearly labeled?		
SET IN ORDER	4	Choose 5 items; are they all in the right place?		
SHINE	5	Is the area being cleaned regularly?		
SHINE	6	Is anyone responsible for routine inspections/maintenance?		
STANDARDIZE	7	Is everyone aware of their responsiblities?		
STANDARDIZE	8	Are there pictures of the items posted?		
SUSTAIN	9	Is 5s audit being performed routinely?		
SUSTAIN	10	Are checklists available and being used?		

Score Assesment 2+ "NO" 8+ "YES"

TOTALS

I-094_v3_5s_Audit_Checklist

***Scored Audits should be gone over with Supervisor/Manager.

Summary

DEFINE	MEASURE	ANALYZE	IMPROVE	CONTROL
D	M	A	I	C
Define the problem	Quantify the problem	Identify the cause of the problem	Identify, implement & verify the solution	Maintain the solution

- Start small — one error/type
- Follow the formula
- Choose the tool(s) & template(s) you think would work best for you
- Don’t get discouraged

Resources

- Training
  - https://www.shmula.com/six-sigma-dmaic-training-table-of-contents/
  - https://asq.org/quality-resources/learn-about-quality
  - https://www.pfw.edu/departments/etcs/depts/lean/document-library/Standard%20Work%20(Bill%20Roper%20June%202018).pdf
- Free templates
  - https://www.shmula.com/free-lean-and-six-sigma-templates-and-guides/

Sources

- https://www.researchgate.net/publication/325537553_Lean_Six_Sigma_to_reduce_Medication_Errors_in_hospitals
- https://asq.org/healthcaresixsigma/pdf/qp0405esimai.pdf
- https://bmjopenquality.bmj.com/content/6/1/u215011.w5936
- https://www.aha.org/case-studies/2016-09-16-lean-six-sigma-reduces-risk-medication-errors-due-medical-dispense
- https://discovery.ucl.ac.uk/id/eprint/1350255/1/Garfieldmapping.pdf
- https://praxie.com/
- https://www.velaction.com/countermeasure-sheet/
- https://www.qlicksmart.com/medication-errors-obstruct-patient-safety/
- https://www.rewo.io/standard-work-instructions-and-standard-operation-procedures/
- https://www.graphicproducts.com/articles/what-is-5s/
- https://leanmethods.com/resources/articles/reaching-people-effectively-communication-plans/

Q & A

About CE credit

Administrator credit

This program has been approved for one clock hour of continuing education credit by the National Continuing Education Review Services (NCERS) of the National Association of Long-Term Care Administrator Boards (NAB).

Approval #20230326-1-A82034-DL

Nursing credit

This program has been approved for one clock hour of continuing education credit by The Illinois Board of Nursing, an approved sponsor of continuing education by the Illinois Department of Professional Regulation.

Obtaining CE credit

- Complete the evaluation at the conclusion of this program:
  - In your web browser
  - Also emailed immediately following this program
- For those sharing a computer to view the webinar:
  - Submit your sign-in sheet to the email address listed on the form
  - Each participant will then be emailed a link to the evaluation
  - Each person must complete an evaluation to receive CE credit
- CE certificates should be **emailed in the next 30 days**

Want more CE after this?

Stay tuned for our upcoming webinars:

ForumPharmacy.com

April 21, 2022

COVID-19 Impacts on Mental Health

May 19, 2022

Appropriate Use of Psychotropic Drugs in Long-Term & Residential Care

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SAVE THE DATE!

6th Annual Live Forum on
Post-Acute, LTC and Assisted Living

June 3, 2022
7 am – 4 pm

DoubleTree Oak Brook, Illinois

THANK YOU!