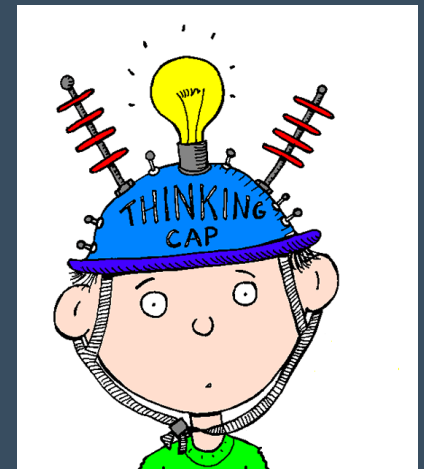


Approaching Problems in a Lean Sigma Way

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When Things Go Wrong, What Do We Do?

- Blame someone for it
- Knee jerk react into setting up the most stringent and unnecessary set of tasks to make everyone's life miserable
- Pray!
- Analyze the situation before reacting to make sure we totally understand what happened and what can be done to reasonably prevent a reoccurrence

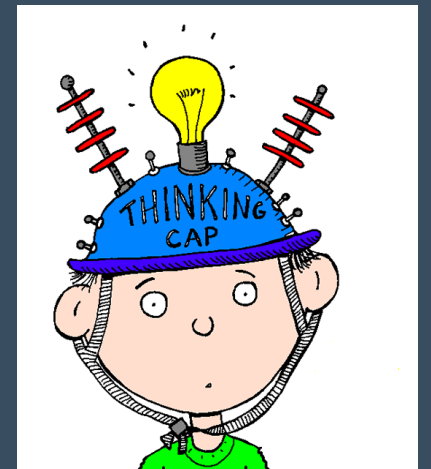


The Answer...

- Well, praying may not a bad idea! After all you and maybe your career are probably in big trouble!
- Failing to analyze the situation is the worst thing you can do!
 - Let's start looking at how you approach this type of a problem.



The “hypothetical” Real Case...



What Happened?

- Some very expensive (about \$60,000) reagents came into the loading dock
- The materials handler who normally received and took them to the molecular lab was on vacation
- The new kid on the block took the reagents to the lab and placed them with the other materials to be received into the lab
- The Lab assistant who normally put the reagents away called in sick.. and of course this was a Friday!



Discovery

- Come Monday morning, the Lab assistant returned, sniffing and on strong doses of decongestants, to find the reagents at room temperature, the ice packs warm and the reagents still in their boxes with the receiving documents
- The supervisor ran to the loading dock ready to kill someone!
- What should happen next?
- Choices:
 - Try to place the blame on the Lab for not looking at the materials that they were supposed to put away
 - Apologize and blame the new kid for being stupid
 - Apologize, set up a rush order to get replacement materials in and set a time (not now so everyone can cool down) to meet and figure out a plan.. Let's face it the stuff is ruined and there's no way to get it back)



The Process

- The meeting occurred right after the replacements were ordered, and the e-mail sent to everyone's bosses notifying them of the problem
- The meeting to solve had to include a Supply Chain material handler, a Tech from the Lab, the Supervisor, the Supervisor from Supply Chain, and the Lab Assistant who called in sick
- A promise of “no retaliation” was agreed upon
 - The key is preventing reoccurrence not punishment



Solutions

- By selecting a proper tool you can speed up and document all the possible solutions as well as the pros and cons of each
- Generally these tools come from the Six Sigma tool box.
- Goals for this process:
 - Understand the difference between incremental improvement and fundamental redesign
 - Be able to generate creative solutions
 - Be able to develop criteria to evaluate solutions
 - Be able to create and use a solution prioritization matrix.
 - Know when and how to use consensus decision making



Who Should be Doing The Work?

- In this case more is better
 - Getting multiple people involved limits the number you later have to convince the solution is the right choice
 - The right answer may not come from one individual but from multiple individuals
- People too close to the problem may still be trying to hide from it, and people too far removed may not understand
 - Get workers close to the problem but not directly involved in the problem. You can and should bring those individuals directly involved in later to review the potential solutions



Involvement Matrix

TASK	Responsible for	Involved in	Consulted with	Informed about
Identifying Solutions				
Selecting Solutions				
Planning the implementation				
Handling potential problems				
Implementing the solution				
Monitoring results				



RACI Chart

- You may have noticed the Involvement matrix looks a lot like a RACI chart
 - It's very important to know who has what role and where does the buck stop
 - Traditional RACI Chart or Involvement Matrix can do the job
- You have to have the best person to do the job to get the job done
- Might have to give up control.. Which can be very hard for some Clinical Personnel to do!



FMEA Table*

Process/Project: _____

FMEA Team: _____

FMEA Team Leader: _____

FMEA Process											Action Results				
Item and Function	Potential Failure Mode	Potential Effects of Failure	Severity	Potential Cause of Failure	Occurrence	Current Controls	Detection	RPN	Recommended Action	Responsibility and Target Completion Date	Action Taken	Severity	Detection	Occurrence	RPN
Total Risk Priority Number									Resulting Risk Priority Number						

* The Basics of FMEA Analysis by McDermott, Mikulak & Beauregard, Productivity ISBN 0-527-76320-0



FMEA Analysis

- FMEA analysis from Six Sigma is the ideal tool to analyze what could go wrong with your ideas
 - The analysis looks at and prioritizes them based on the potential risks
 - Mature individuals in Six Sigma often begin doing this in their heads, way ahead of the team brought in to solve the problem
- It may not be necessary to complete each task of the chart, as long as you get to the real risks



Our Hypothetical Analysis

- What are the ideas?
- What are the risks?
- What is the risk severity?
- What is our selection?
- How do we implement it?

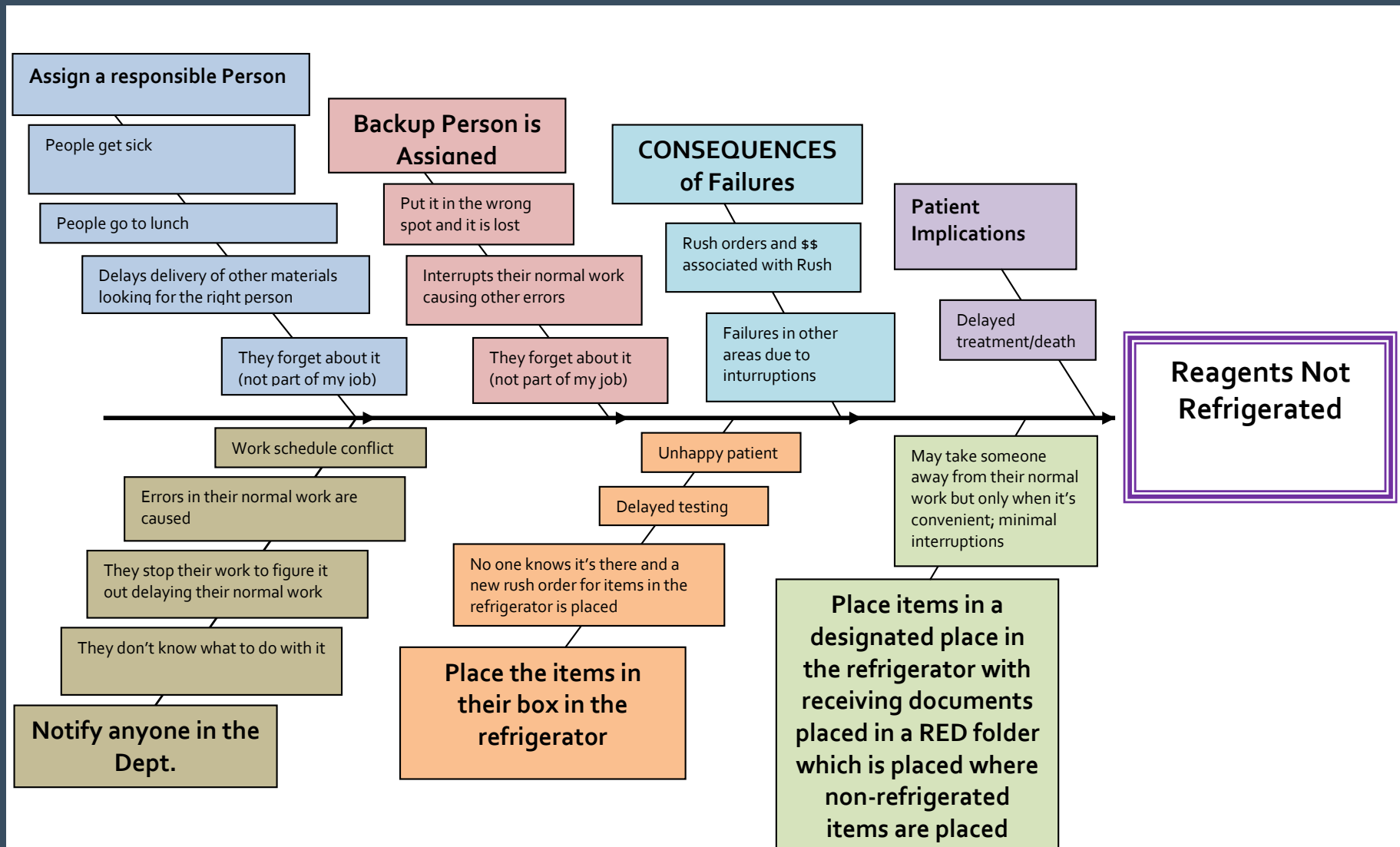


FMEA Solutions

Idea	Potential Failure Mode	Potential Effects of Failure	Severity	Action Taken
Always assign a person to handle refrigerated items	People get sick, take vacations, etc.	No one to do the work	8	Not an acceptable solution
Always assign a person to handle refrigerated items when the assigned person is off/sick/etc.	People go to lunch, are busy and interrupting them might cause an error in their work	Slows other deliveries and may still not find someone	8	Not an acceptable solution
Notify a supervisor or lead that a refrigerated package has arrived	May not be able to find the supervisor or he/she is in a meeting	Slows other deliveries	8	Not an acceptable solution
Notify anyone in the department that a refrigerated package has arrived	Interrupt someone working or may not want to take responsibility, or may not know what to do with it	Causes errors in work	8	Not an acceptable solution
Place the refrigerated item in the refrigerator	No one knows it's there; orders more thinking they've run out	\$\$ on unneeded rush order and wasted material	6	Not completely unacceptable but still not ideal
Place the items in a designated area of the refrigerator	No one knows it's there; orders more thinking they've run out	\$\$ on unneeded rush order and wasted material	6	Not completely unacceptable but still not ideal
Place item in a clearly labeled "unreceived refrigerated items do not place anything else in this spot!"	No one knows it's there; orders more thinking they've run out	\$\$ on unneeded rush order and wasted material	5	Not completely unacceptable but we're getting closer; still not ideal
Place item in a clearly labeled "unreceived refrigerated items do not place anything else in this spot!" Keep red folders near that spot. Receiving documents are placed in the red folder, red folder labeled "attention refrigerated items were dropped off and need to be received" The red folder with documents placed where all non-refrigerated items are received.	Anyone seeing a red folder is instructed to DO SOMETHING!	May take someone away from their normal work when it's convenient but should not cause errors	2	Worth piloting as a potential solution which may need refinement



Fishbone Chart Option



How Do the Techs Feel...

- The concept was socialized with the Techs at their huddle meetings
- They were excited to error proof the process
- They found it much easier to watch for a red folder than to check for boxes needing refrigeration
- Inventory Coordinators and Techs feel this is a real money saver and provides a better quality reagent/product/results



What's in it for the Lab.. Financial Expectations

- Reduced rush/emergency orders
- Cost of some refrigerated items can be \$60K or more!
- Unexpected results:
 - Forced cleaning (and keeping clean) the refrigerator!
- Reduced labor time for both Supply Chain and Lab Assistants
- Since there is no way to know how many errors are averted, using previous data and the event that caused this FMEA to be done, it is estimated that over \$50k will be saved annually in just lost reagents and shipping costs
- Cost of implementation one box of red folders and two laminated signs (less than \$50)!



Keys to Success

- Focus on problem not the person
- ***Involve*** Supply Chain and Clinical Labs
- Staff had input into the process to ensure that it works for them and that they understand it
- ***DAILY*** huddle meetings are used for education/input and ***MUST*** include all individuals who work together!

