

Welcome to computer based training!!

Welcome to Module 3 in this PI training program.

Module 1: Introduction to Performance Improvement

Module 2: PLAN - How to Identify Performance Improvement Opportunities

Module 3: PLAN - Collecting Data and Identifying Solutions

Module 4: DO and STUDY Stages

Module 5: ACT

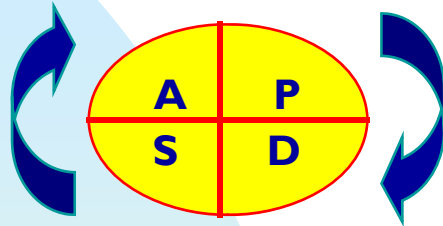
This module is part of a series of educational segments that has been developed to help you understand the performance improvement process and tools, and make them more practical to your everyday work life.



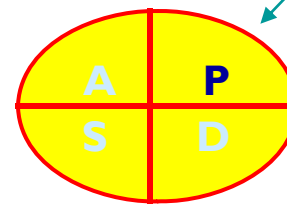
Reminder!!

When you complete the post-test for this module that was attached to the e-mail, fax it to Organization Development in HR, so that you receive credit for completion. Then, move on to the next module! (We'll remind you at the end!) **Good luck!**

Again, as a reminder, the Baptist Health Performance Improvement Model is the PDSA Cycle.



The four quadrants are:
PLAN, DO, STUDY, ACT.



PLAN

In this module, you will learn the remaining pieces of the PLAN phase.

PLAN an approach

- Write opportunity statement and identify objective
- **Develop solutions**
- **Develop plan to carry out change**
 - Who? What? When? Where?
 - What data needs to be collected

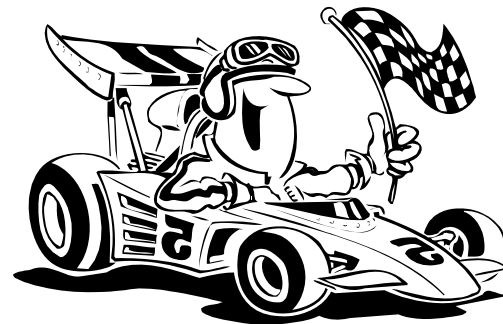


What will you learn?

In this module, you will learn how to...

- ...collect and analyze new and existing data;
- ...use PI tools such as brainstorming, multi-voting, flowcharts, and cause-and-effect diagrams; and
- ...generate, evaluate, and select the best solution for your PI initiative.

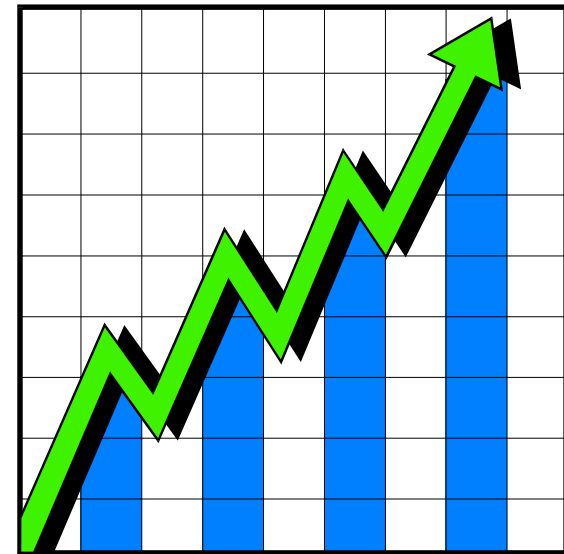
Let's go for the checkered flag!



What is data collection?

Data collection is the way in which we measure our performance. As we collect data, a picture begins to form about how we are doing. We can then try process changes to see how performance changes. Without some basic data collection, we cannot show the changes in outcomes.

Data also helps us understand our current situation. It helps us mark our starting point. This starting point helps us compare ourselves to similar operations. It also gives us a basis to gauge our improvement.



What is data collection? (continued)

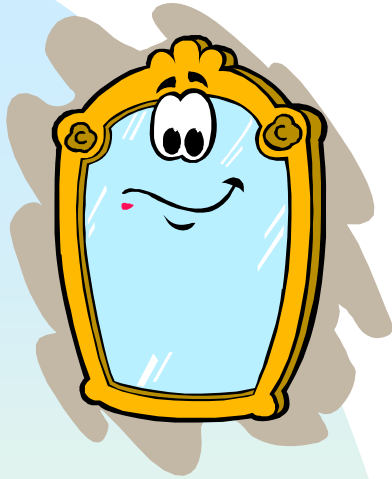
Collecting data allows the problem to be **specified** so we fully understand the magnitude of a problem. For instance, if an employee says, “*this happens all the time,*” it may be wise to count how many times it actually happens. (Notice the difference between perception and fact!)



Finally, in the process of collecting data, we may discover there are subsets of a problem. For instance, certain types of phone calls may take longer to handle than others. After determining which types of calls take longer, we can prepare responses to shorten those longer calls. Working on smaller pieces of a problem makes the project more manageable.

And frequently what is learned when working on a small piece can be used when dealing with other parts of the problem.

Now...What is quality?



Quality in Perception

We sure had a busy day today.

vs.

Quality in Fact

We did 78 procedures today, a new record!

It is important to understand the difference between quality in fact and quality in perception. For instance, the Press-Ganey patient satisfaction survey tells us a lot about our patients' likes and dislikes. It could be easy to think of it as our primary quality indicator.

True enough, it is important information. It is good to know if our patients feel our services are timely, for example. But even if the survey says only 18% of patients feel our services are timely, we will probably need more information before we begin making changes. ***Wouldn't it be good to know how long it actually takes to serve a patient?*** Now we are beginning to see the difference between quality in perception ("It takes too long!") and quality in fact ("How long does it take?").

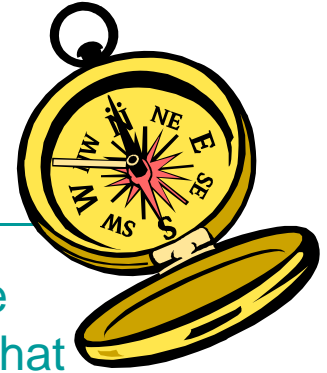
Here are some basic data collection principles... ... you need to remember



- **Data collection must be reliable.** Literally, we must be able to “count” on it! However we choose to collect data, we must have confidence that the data is accurate and truly represents the process being studied.
- **Data collection must be simple.** If our data collection method is too complicated, people will get frustrated and not use it. Then we’re no better off than when we started. So our method must be simple!
- **Data collection must be replicable.** If more than one person is involved in the data collection, then everyone should be doing it the same way. This means defining terms, giving examples, and doing a little training before data collection begins.
- **Data collection shouldn’t be redundant.** Using data that is already being gathered, such as data from a patient chart, is great. Even better is an automated source such as SMS. While existing sources simplify the data collection process, you still must compile or extract the specific data that you need.

Planning your data collection

Begin with the end in mind!



Begin the data collection process by thinking about what you want to be able to demonstrate. This doesn't mean rigging or gaming the data. What it does mean is deciding how you will answer the question, "How will you know a change is an improvement?" That's the real proof in the pudding!

Another way to think of it is -- what do you need to know to make a sound business decision? How will you know your decision is based on fact versus opinion or a guess?

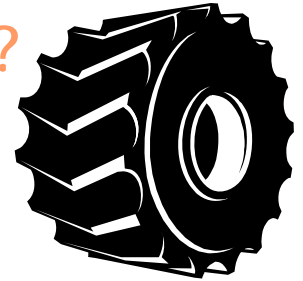
As we design the data collection methodology and tool, think about how you might divide data into components. Is it useful to know:

- ◆ The day of the week or time of the day?
- ◆ The type or cause?
- ◆ Length of cycle or process time?
- ◆ Physical location - for example, where in the hospital?
- ◆ Department or person of origin?
- ◆ Any special conditions present?

Knowing how the data will be displayed always helps guide the collection process. So think about what you will do with the data before you collect it.

So, where do we find the data? Start by using existing sources!

Why reinvent the wheel?



Once we've decided what kind of data we need, we turn to *where do we find it?* If the data is already being captured somewhere, that may be your most reliable source. So think about reports, patient charts, order sets, time reports, etc., which may contain what you need. You'll still have to extract it, so you may still need a check sheet or data collection tool, but it will be much easier to collect if you are lifting it from an existing source.

The tool you use may be an information table or grid. Or it may be a questionnaire of some type. In any case, decide what you need to collect by using the reporter's questions of Who, What, When, Where, How, How Much.

It may be helpful to do a process flowchart. A flowchart is helpful in determining where errors and rework occur. By counting things like number of errors and process time for rework, you're well on your way to data collection. We will be talking about flowcharts a little bit later on.

How do we collect the data? There are three steps to consider:

Step One

Design a data collection form if one doesn't already exist. The form should be simple and easy to use. Otherwise people won't use it!



Step Two

Determine how long to collect the data. Make sure that the data is a representative sample of the actual process.



Step Three

Decide who will collect the data. Make sure they understand what you are doing and why. Include them in the planning process.

Here are a few examples of data and data collection methods...

☞ Turn-around time for cleaning a room

- **Record the time a request is received and the time the job is completed.**

☞ Time for steps of a process, such as a patient in the emergency room

- **Design a form that moves with the patient. As the patient reaches critical points in the process, the time is recorded.**

☞ Volume of telephone calls

- **Design a form that includes required information, such as time of call, nature of call, how it is handled, whether issue is resolved or requires a return call, and who it is referred to.**

☞ Volume of procedures

- **Design a log with columns for name of patient, procedure required, time in, time out, and questions asked by patient or family.**

Here are a few sample forms...

This one is a laboratory tracking form.

Example

LABORATORY TIME STUDY – DATA SHEET		
<p>This sheet is to stay with each lab order until the results are entered into the computer. If you complete one of the steps below, then please do the following for your step.</p> <p style="text-align: right;">Thank you! <i>The Speedy Test Team</i></p>		
<ul style="list-style-type: none"> • Record time you completed step to nearest minute. • Use 24-hour notation. • Enter your initials. • Use “Notes” section to record anything unusual. • Questions? Contact Jean Brown, x2222 • 	DATE:	
	TEST:	
	PATIENT NAME:	
	ROOM:	
STEP	TIME	INITIALS
Order Written:		
Drawn:		
Log into Lab Computer:		
Test Complete:		
Results in Computer:		
<p>NOTES:</p> <p style="text-align: center;">Please put completed forms in blue box by lab entrance. Thanks for your assistance!</p>		

Here is a telephone log that could be used by Human Resources.

Telephone Call Data Sheet	
Call Start Time:	Call End Time:
Nature of Call	
PTO	401K Planning
Health Insurance	Tuition Reimbursement
Dental Insurance	Employee Health
Vision Plan	Workers' Compensation
Short Term or Long Term Disability	Day Care
Other (Brief Description):	
Caller is from:	
Corporate	Baptist Hospital
South Miami	Baptist Health Enterprise
Homestead Hospital	Mariners Hospital
Call Complete?	Requires Call Back? By Whom?
Additional Information that may be helpful	
HR Rep	Date

Example

Another type of form you can develop is called a check sheet.

Check sheets allow you to record and compile data from existing sources, or observations as they happen, so that patterns and trends can be clearly detected and shown.



So how do you build one?

First you have to determine what you are going to observe. Be clear about what that means. For example, if you are looking for late payments, agree on the definition of “late.”

When designing the check sheet, your form must include the following:

- a. name of project
- b. location of data collection
- c. name of person recording data, if it applies
- d. dates
- e. other important identifiers
- f. column with defect/event name
- g. columns with collection days/dates
- h. totals for each column
- i. totals for each row
- j. grand total

Let's take a look at an example...

Check Sheet Criteria

- | | |
|--|---|
| <p>a name of project</p> <p>b location of data collection</p> <p>c name of person recording data, if it applies</p> <p>d dates</p> <p>e other important identifiers</p> | <p>f column w/ defect/event name</p> <p>g columns w/ collection days/dates</p> <p>h totals for each column</p> <p>i totals for each row</p> <p>j grand total</p> |
|--|---|

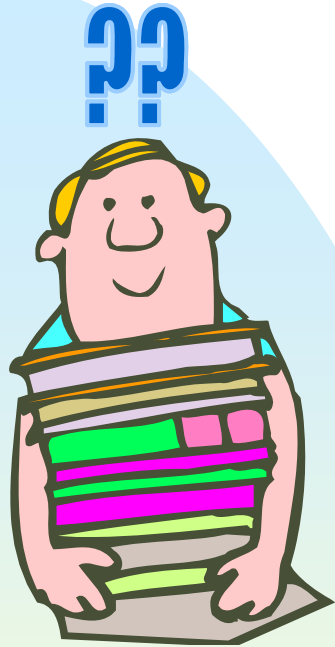
Example

a	Project: Admission Delays	Name: c						Shift: All e	
b	Location: Emergency Room	Dates: 3/10 - 3/16 d							
f	Reason	g Date						Total	i
		3/10	3/11	3/12	3/13	3/14	3/15		
	Lab Delays	9	4	6	6	3	12	12	52
	No beds available	2	7	2	4	5	8	3	31
	Incomplete patient inform.	7	3	1	2	2	4	5	24
h	Grand Total	33	28	36	30	25	47	38	237 j

Any way you collect data, you need to ensure that the form is simple and that the data is being entered consistently and accurately.

Now that we have all this data...

...what do we do?



Well, here comes the fun part, generating solutions or developing process changes. This is a creative process. Generally, the solutions or process changes that are developed are based on the experience of the team members and represent a hunch, theory, insight, or educated guess about how improvement can be made. It is more than a gut feeling and should be measured so that we know whether it is actually an improvement.

Aren't you glad you have all that data to start with?

If a process is relatively simple, then brainstorming will help you develop a list of possible solutions. If the process is more complex, it may be a good idea to use the cause-and-effect diagram and/or a process flowchart.

Let's take a look at the brainstorming and multivoting process...

What is brainstorming and multivoting

At one time or another, we've all participated in a brainstorming session. When properly facilitated, brainstorming is a powerful technique for capturing the knowledge and experience of a group.

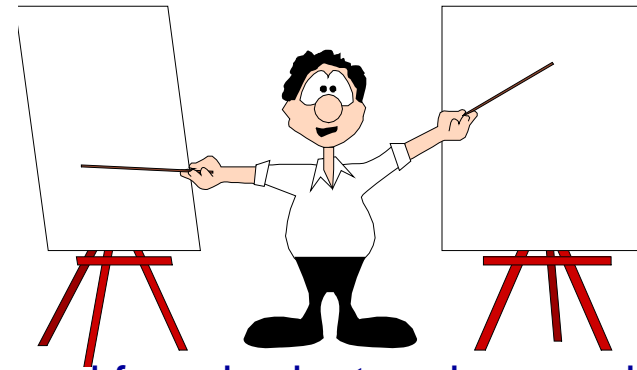
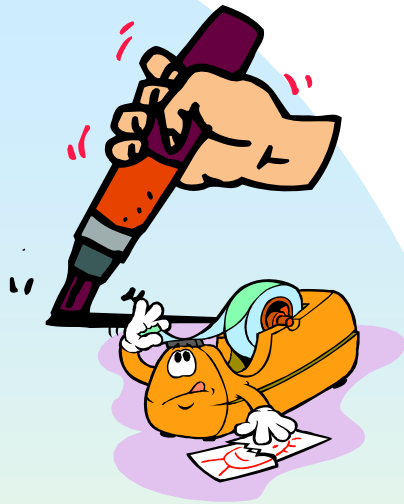
Brainstorming is used whenever you need to generate ideas and be creative. It can be used under many circumstances such as:

- ◆ *looking for causes to a problem*
- ◆ *looking for improvements/solutions for a problem*
- ◆ *developing an action plan or implementation plan*
- ◆ *working with process analysis tools such as cause-and-effect diagrams and process flowcharts*

There are three steps to a thorough brainstorming process:

- ◆ Stage 1: Generation - when the ideas are first spoken and recorded on the brainstorming list.
- ◆ Stage 2: Clarification - when we insure that all members understand the items on the list.
- ◆ Stage 3: Evaluation - when we combine and refine the brainstormed ideas.

Let's look at how the Generation stage is conducted.



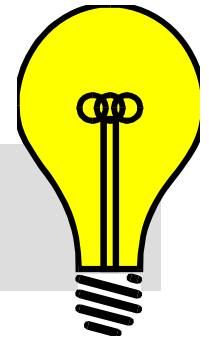
It is important to be prepared for a brainstorming session. Logistically, you will want a work space that is conducive to exchanging ideas, such as a conference room or meeting room. You'll also want to post ideas where they are visible to the group, so you'll need a chalkboard, white board, or flip chart. (Have the appropriate markers and tape if you'll be posting flip chart paper.)

Brainstorming is much more effective when the topic or issue is clearly stated. (If you have your opportunity statement, you are well on your way!) Plan ahead and know exactly how you will work the brainstorming "proposition." Again, post information where it will be visible to all participants.

As people throw out ideas, a recorder should write the ideas on a board or flip chart. Avoid the temptation to wordsmith, edit, or abbreviate ideas. Ideas don't have to be recorded in complete sentences, but they do need to be complete thoughts. Experience has shown that people don't always later remember what they meant when they gave an idea. Respect the idea by recording it faithfully without changing the meaning of the idea.

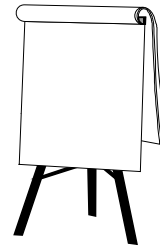
Did you know there were rules to brainstorming?

There are! And brainstorming will be more productive if everyone is playing the same game! So, what are these rules?



Brainstorming Rules

- ◆ Suspend judgment: No discussion or criticism
- ◆ Far-out ideas are encouraged
- ◆ Emphasis on quantity of ideas
- ◆ Participants should “hitchhike” on ideas
- ◆ Ensure everyone gets a turn
- ◆ One idea per turn
- ◆ OK to pass
- ◆ List ideas where visible to group



Brainstorming is a creative process. Far-fetched ideas may not be realistic, but they may stimulate someone else to mention an idea in passing which reminds someone else of a story which sparks a concept for someone else that just might work. That’s “hitchhiking.”

One objective is to generate as many ideas as possible in a short period of time. So the quantity of ideas is more important than the quality of ideas.

Discourage discussing or criticizing ideas. We humans place high personal identify on our ideas; our ideas are a part of us. Criticize my ideas, and you are criticizing me. One sure way to short change idea generation is to be critical of the ideas.

Now, let's discuss the Clarification stage.



There are three steps in the clarification stage:

- ◆ Step 1: Review list.
- ◆ Step 2: Ask questions of understanding and clarification only. Withhold judgment; don't discuss or debate.
- ◆ Step 3: Eliminate duplicates.

In the clarification stage, we can ask questions of understanding or clarification only. This is not to be confused with questions or statements of judgment, "This is a good idea, this is not." At this stage, we are just making sure that everyone has a common understanding of the items on the list.

This is still not the time to discuss or debate ideas. That is yet to come in the Evaluation stage. Continue to keep an open mind. If new ideas arise, they can be added at any time.

Also, at this point, the list can be condensed by eliminating duplicates.



Now comes the stage we all have been waiting for:
Evaluation stage.

In the Evaluation stage, discuss and evaluate the ideas. Some ideas may be off limits as matters of policy or regulation (for example, salaries, policies, regulatory requirements, etc.). Remove these from the list.

Some ideas may be inappropriate for the team to deal with. These should also be removed from the list. In some cases, these ideas can be referred to the sponsor, supervisor, or manager.

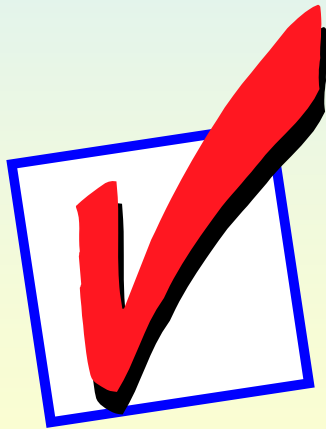
Ideas can be combined, restated, redefined, or deleted at this stage.

But be careful, it is still important to respect the author of the idea.

Once you have all those ideas, you'll probably need to trim down the list! **Multi-voting** is a way to do that. In multi-voting, we decide together which ideas to accept. This builds consensus. Let's see how its done!

Understanding Multi-voting

Multi-voting is a quick and efficient method of reducing the number of items on a list. One note: don't reduce the list all the way down to one. In most cases, 3 to 5 remaining ideas is a good target. Then you can discuss the pros and cons of each idea before making a final choice of one idea. Again, this is a method for building consensus around a final decision.



How do you do it? Well, it is quite simple! Once brainstorming is complete, multi-voting can begin. You may want to review the list one more time, especially if there has been a time gap since the list was generated. It is important to be sure that everyone understands the items on the list.

Understanding Multi-voting (continued)

Let's look at how you conduct multi-voting.

Round 1: People can vote for as many items as they wish. Obviously, if each person votes for every item, the list won't decrease much! Go through the list, one item at a time, and ask for a show of hands. Record the number of votes for each item. Review the vote count. Determine a breaking point at which about 1/3 to 1/2 of the items drop off. Draw a line through the items dropped.

Round 2: Allow each person about half as many votes as items on the list. Again, vote for as many items as desired. Review the vote count. Determine a breaking point at which about 1/3 to 1/2 of the items drop off. Draw a line through the items dropped.

Continue the process until the list is reduced to 3 to 5 items. Engage participants in a discussion to reach consensus on the final selection.

**I know, I know. It sounds complicated, but it is actually quite easy.
Let's walk through an example!!**

Let's take a look at an example.

Here is a brainstormed list answering "Where to go for lunch?"

Brainstorm List (8 people in group)
Where to go for lunch?

	<u>1</u>	<u>2</u>	<u>3</u>
Cafeteria	7		
Burger King	8		
Dominoes	6		
Gino's Italian	5		
Steaks Now	2		
House o' Greens	4		
Wing Dings	6		
Wharf Seafood	7		
Casa de TexiMex	7		
Just Like Home	6		
Sizzlin' Thai	7		
Bubba's Subbas	3		
Chili Madness	8		
Pop's Soda Shop	6		

In Round 1, each member votes as many times as desired, but only once per item. Let's see how they voted.

Keeping items with **6 votes or more** eliminates about 1/3 of the items.

With 10 items left, team members would get 5 votes each in the next round - half the number of items left.

Seems pretty simple! Let's look at the remaining rounds!

Multi-voting Round Two

Brainstorm List

Where to go for lunch?

	<u>1</u>	<u>2</u>	<u>3</u>
Cafeteria	7	5	
Burger King	8	3	
Dominoes	6	6	
Gino's Italian	5		
Steaks Now	2		
House o' Greens	4		
Wing Dings	6	7	
Wharf Seafood	7	5	
Casa de TexiMex	7	5	
Just Like Home	6	1	
Sizzlin' Thai	7	3	
Bubba's Subbas	3		
Chili Madness	8	6	
Pop's Soda Shop	6	2	

In Round 2, each person votes for up to 5 places. Let's see how this round's votes turned out.

Keeping restaurants with **5 or more** votes eliminates another 1/3 or so of the list.

One more round to go! Our list is getting smaller!

Multi-voting Round Three

Brainstorm List

Where to go for lunch?

	<u>1</u>	<u>2</u>	<u>3</u>
Cafeteria	7	5	3
Burger King	8	3	
Dominoes	6	6	5
Gino's Italian	5		
Steaks Now	2		
House o' Greens	4		
Wing Dings	6	7	6
Wharf Seafood	7	5	3
Casa de TexiMex	7	5	3
Just Like Home	6	1	
Sizzlin' Thai	7	3	
Bubba's Subbas	3		
Chili Madness	8	6	6
Pop's Soda Shop	6	2	

In Round 3, each person gets to take 3 votes. (Remember - about half the number of items left!) Let's see how this round's votes turned out.

Round 3 takes us down to 3 choices. We would now discuss the options and come to consensus.

Now, we're ready to go to lunch! And we all agree!

Brainstorming is an expansion tool.

It helps us be creative and generate ideas.



Following the three stages of brainstorming (generation, clarification, and evaluation) and rules of brainstorming will keep the process on track and productive.

Multi-voting is a list reduction tool. We can take a long list and quickly narrow it down to a few options. The objective is to reduce to 3 to 5 choices, then discuss them to reach consensus.

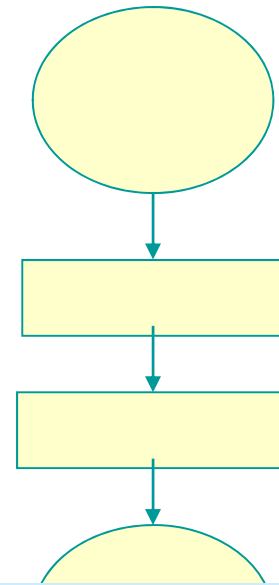
Another tool that you can use is a process flowchart. All work is a process. There are inputs, activities, and outputs. A flowchart is a “picture” of a work process. It shows the steps along the way, how the steps connect to other steps, where important decisions are made, and the outcome of the process. Some flowcharts even show **who** does what.

Lets take a closer look at process flowcharts...

Why are process flowcharts so useful?

Most adults are visual learners; pictures help us understand ideas and concepts. A process flowchart is a picture of a work process. By identifying steps and activities in the order they occur, it helps us visualize the abstract process.

A good process flowchart can become an important tool for standardizing work processes. It is also a valuable training and orientation tool. A complicated procedure can become more understandable when presented in picture format.



Process flowcharts also help us understand where trouble spots are in the work process. Frequently, problems cause us to repeat a step. On a flowchart, this is shown as an arrow directing you to a previous step. Uh-oh! How many times do we have to go backwards in the process? This count is a process indicator - indicating how well or poorly a process works.

So now we can see where problems occur, and we can track the number of problems. Therefore, process flowcharts help us in the development of process indicators.

Why process flowcharts are useful (continued)...

Aside from the benefits of having a picture of a process, the exercise of developing a process flowchart is also valuable. All too frequently, everyone in a group assumes they know how a process works. What they don't realize is that each person has her or his own understanding of how the process works. One person's understanding may be different than another person's. When we all assume agreement, but actually differ in our understanding, conflict arises. This translates into errors, poor hand-offs, and waste.

Getting the appropriate people around a table and beginning to put a process on paper reveals the vast differences people may have. Quite frankly, it is not always easy to do a process flowchart. In fact, it can sometimes be aggravating, frustrating, and downright irritating! On the other hand, finding hidden issues helps reveal where problems occur, and the discussion about those issues leads to understanding and speeds finding solutions.

When a group of people work on a flowchart, they discover different ways to deal with issues. Some ideas will be better than others. A great amount of organizational learning takes place.



What do you need to build a process flowchart?



People required: The first and perhaps most important resource in building a process flowchart is the right people. Since most processes go through numerous steps and numerous hands, it is wise to include the people who actually do the work. Experience has shown that the people who actually do the work know how the work actually gets done! So include front line staff in developing process flowcharts.

Tools required: Tools are fairly simple. Sticky notes are very helpful because you will find that things need to be rearranged as you go along. Sticky notes allow you to move things around more easily than erasing and rewriting. You'll also need a space to work, such as a white board, chalk board, flip chart, or simply a wall or table. The space you use should be adequate for the group. If it is a small group who can work close to the notes, using small sticky notes and a flip chart will be adequate. If you have lots of people, then you will need a larger space and larger notes so that everyone can see and read what you are doing.

How do you construct a process flowchart?

First step: Agree on the process being flowcharted!

This first step is very critical. You need to agree on the starting and ending points. This will insure that everyone remains focused on the goal. Additionally, you need to agree on the level of detail.

There is a style of art called Pointilism. In Pointilist art work, a picture is composed of many dots. If you look at the picture too closely, you'll see individual dots, but you won't see the picture. If you stand far away, you'll see a picture, but you won't see the dots. You must be at just the right distance in order to appreciate the work of art in its entirety.

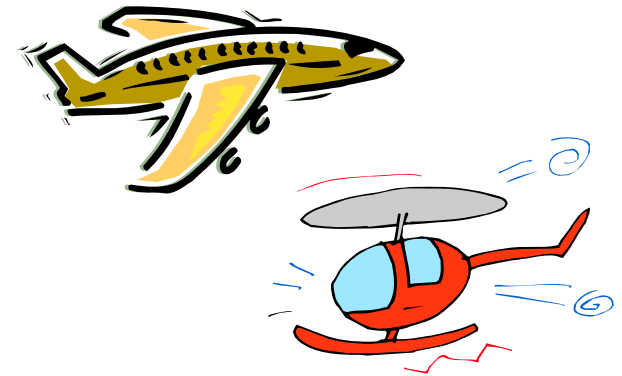
That's the way it is with process flowcharts. You must decide on the level of detail you want to show. If you start out too detailed at first, you'll get really bogged down in the process (and probably give up!). On the other hand, an extremely high level flowchart probably won't have adequate detail to fully understand the process.

How do you construct a process flowchart?

Continued...

When deciding on the level of detail; start broad. Ask yourself, which view should we be at?

- ◆ Airplane view (30,000 feet) - *Really big chunks!*
- ◆ Helicopter view (1,000 feet) - *General steps*
- ◆ Rooftop (50 feet) - *Somewhat detailed*
- ◆ Ground level (0 feet) - *Extremely detailed*



The key is to start out at a very high level, as if you were on an airplane looking down. You know there are cars and people down there, but you're not ready to describe them yet. Just describe the large chunks of the process for now. Then you can begin to zoom in on specific, targeted areas.

Here comes the fine print!!

Caution: Teams frequently have the temptation to be very detailed in describing processes. This leads to frustration! Resist the temptation.

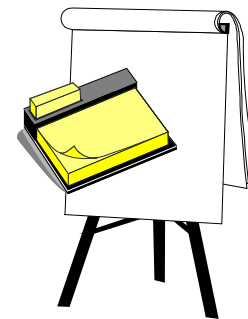
How to construct a process flowchart?

Second step: Identify the main players in the process.



Most processes go through different people, job functions, and departments. Keep the level of detail in mind; you may only want to identify departments or locations at first, positions and functions later. Write these on sticky notes, and place along the top of your workspace. Put them roughly in order of occurrence in the process. As you go along, you may change their position to make the logistics of the flowchart work better.

Now...we can begin brainstorming the key activities of the process. Write each one on a sticky note. Arrange the activities in sequence under the heading of who does that activity.



A few simple symbols make the flowchart a bit more understandable...



Circle

- ⇒ Start / End or Entry / Exit points. *Small circle with a letter in it indicates a connection point to another flow chart.*



Rectangle

- ⇒ Indicates an action step or activity.



Diamond


- ⇒ Indicates a decision point. Usually this is a “Yes/No” question.



Arrow

- ⇒ Connects everything together. Arrows show the progression from one point to the next.

When the key activities and decision points have been brainstormed and captured on sticky notes, begin arranging them on your workspace. Place activities in the appropriate column to indicate who does them.

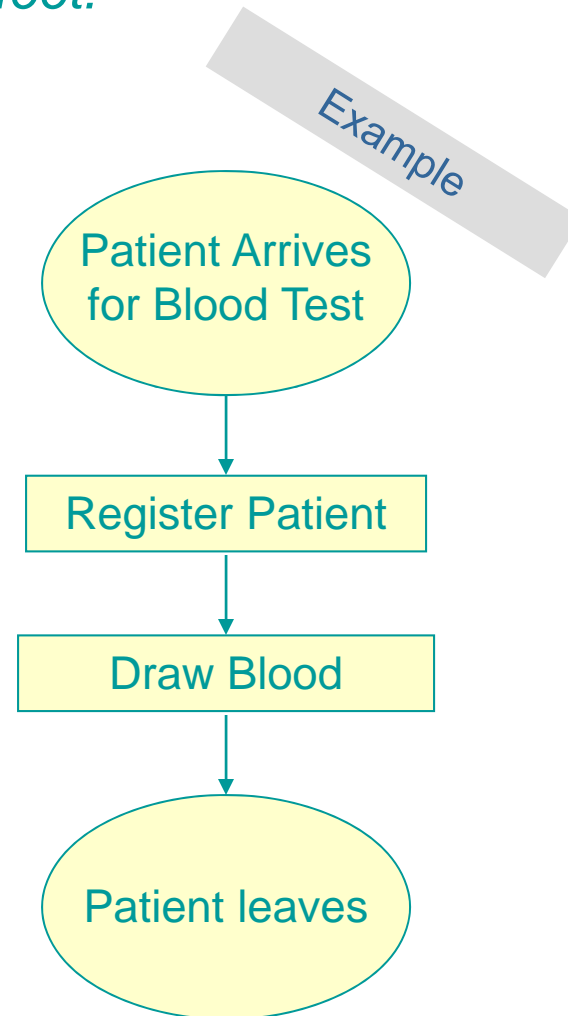
Connect the activities with arrows, to show the sequence of the steps. Remember that decision blocks  may return you to a previous step. Follow the logic to insure that the order of steps make sense.

Here are a few example process flowcharts...

This one is a high level flowchart - *30,000 feet*.

High level flowchart

- ◆ Very simplified, very high level
- ◆ Shows large chunks of the process
- ◆ Is a good start; could now look at
 - ☞ Patient arrival
 - ☞ Registration process
 - ☞ Blood drawing process
 - ☞ Patient departure process



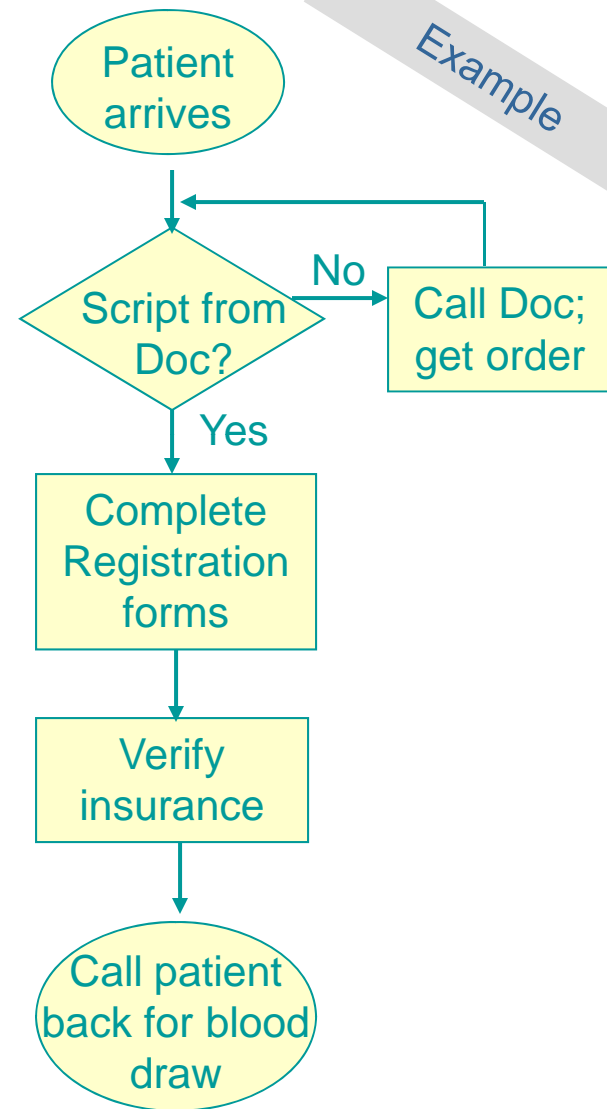
Example...zooming in to a helicopter view...

1,000 feet

Here we're zooming in on the process. Notice the feedback loop, "Script from Doc?" The simplest path is yes, and move to the next step. A "no" response adds a step that slows down the process.

By building in an indicator, we could begin to see how many patients present without a script. If we felt that the number was significant, we could then categorize the data by day of the week, purpose of the test, test being done, or physician; whatever helps us understand the problem better and also helps us develop a better process.

Again, a reminder about altitude: Decide the level you want to work at for this particular flowchart, and then be very disciplined about sticking with it. Even at this level, we could get overly detailed.



Example...100 ft. view...

Example

Appointment Process

Here is an example of a more detailed flowchart that shows the questions asked and the information gathered at each step.

Very detailed!

Have you been to our office before?

What is your full name?
Would you please spell that?
What is your Date of Birth?

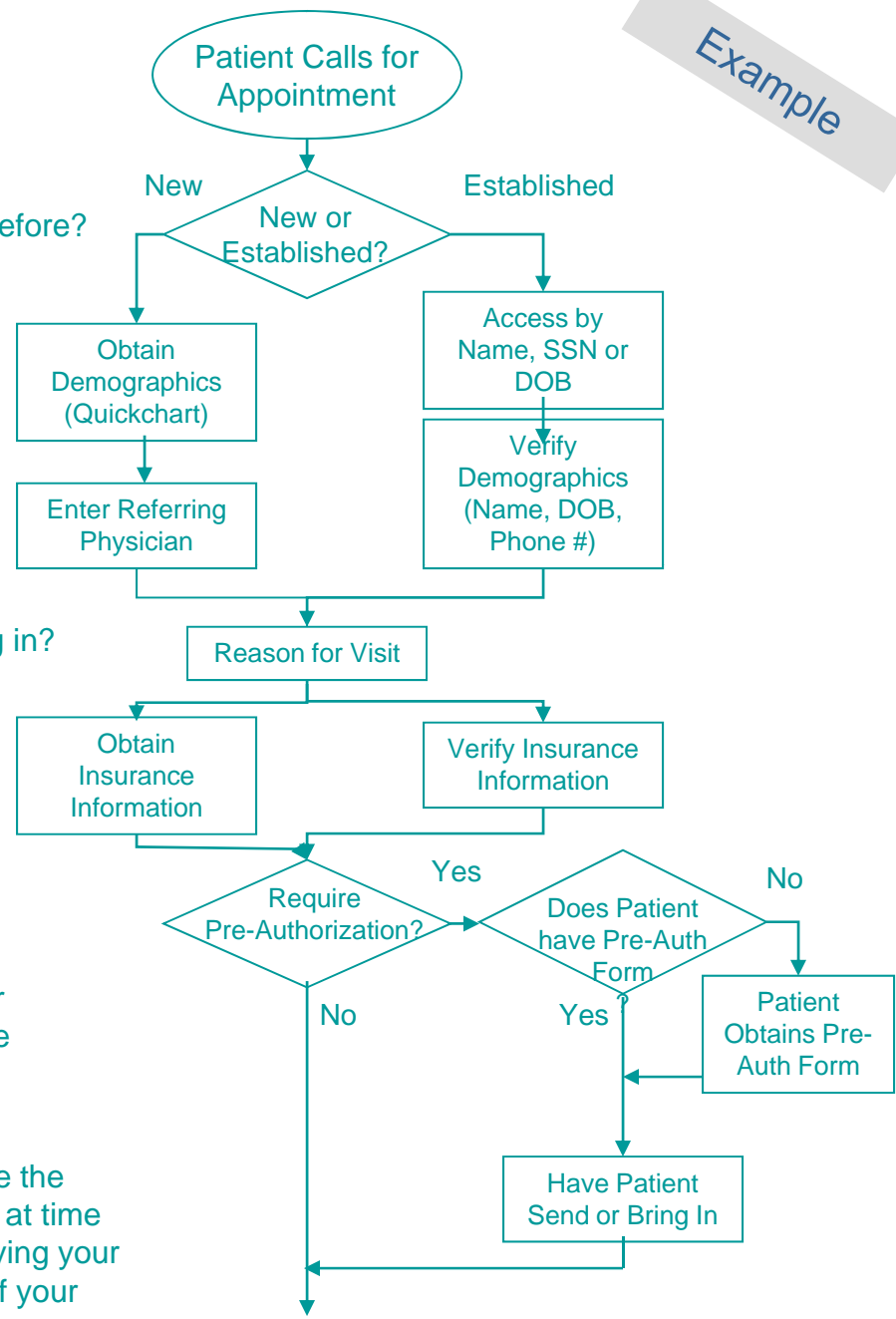
Who referred you to our practice?

What's your reason for coming in?

What type of insurance do you have? Is it an HMO?
Who is your registered Primary Care Provider?
What co-payment does your insurance require?

Is an authorization required for your appointment? Will you be obtaining that?

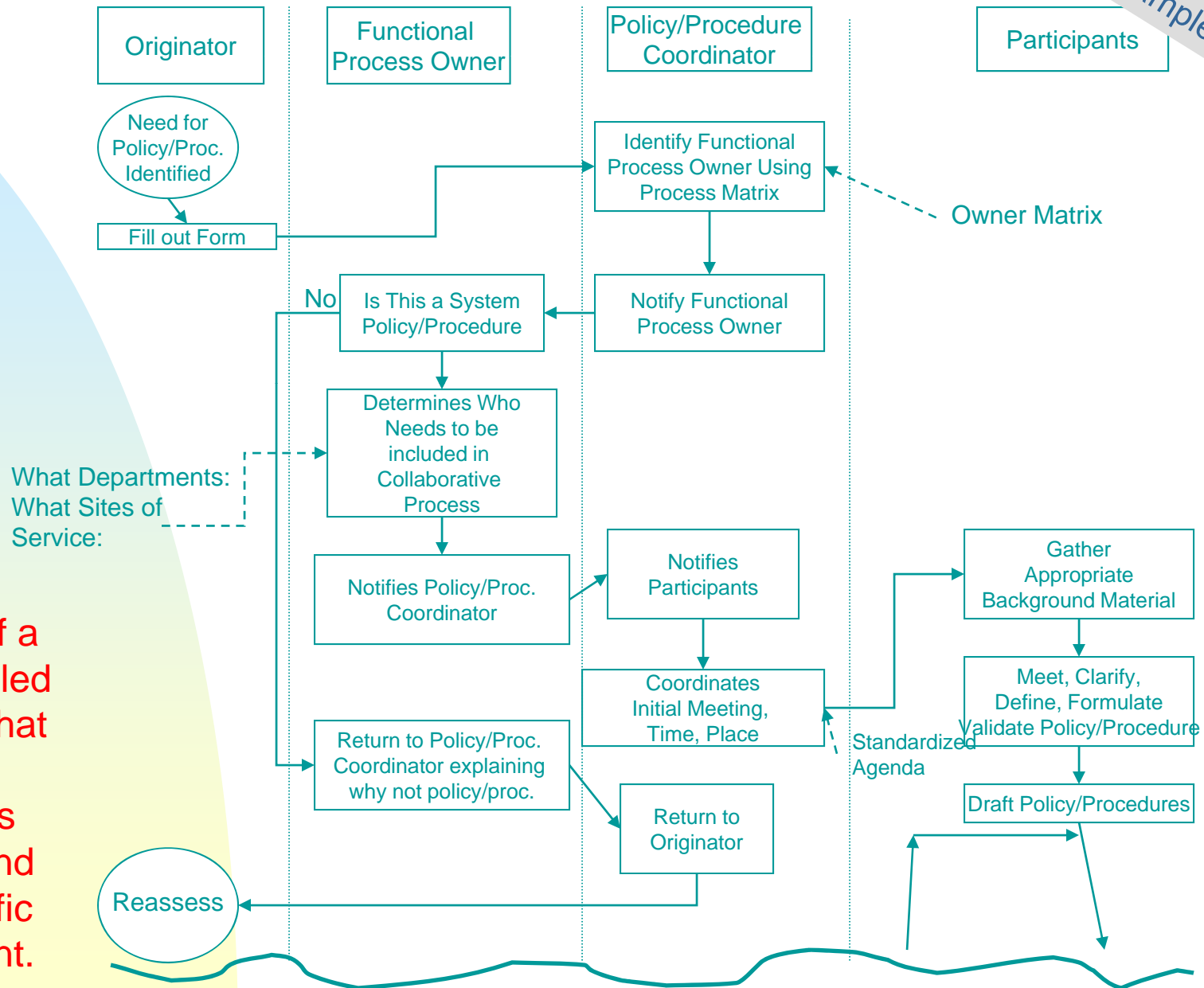
Our financial guidelines require the patient's responsibility be paid at time of service. Please plan on paying your co-payment (fee) at the time of your visit.



Flowchart continues

Example...showing different participants...

Example



Here is an example of a more detailed flowchart that shows the participants involved and their specific involvement.

What Departments:
What Sites of Service:

Flowchart continues

Words of Wisdom for flowcharting



When you begin talking about work processes, everyone may not agree on exactly what process you're working on! Different people will have a different understanding of the process and how it works. **It is important to clearly define the exact process, and the starting and ending points.**

Agree on a level of detail. It's a lot easier to start very broad based and get more detailed later. If you do get too detailed, save your sticky notes; you can use them later.

Question, challenge, have others explain what you don't understand. Quite frequently the conversation around developing flowcharts is as valuable for helping us understand the process as the charts themselves.

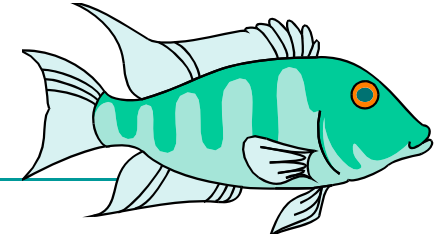
Test your flowchart by showing it to others involved in the work process. See if they understand it, and if it represents how the work does or should get done.

Hand-drawn is just fine! There are computer programs for flowcharting. It can be done in Microsoft Word or PowerPoint. However, don't let the lack of computer knowledge discourage you from doing a flowchart. Pretty is not the point!

Have fun too!

Now that we understand flowcharts,

...let's take a look at the cause-and-effect analysis.



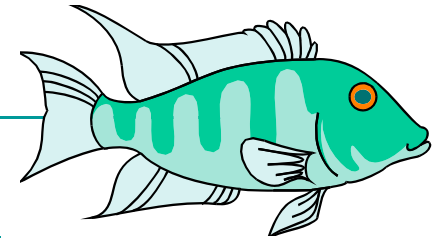
Cause-and-effect analysis is an idea-generating method to help us develop theories about why an undesired condition exists. Since it is an idea-generating tool, we should not allow ourselves to be limited by our assumptions, or what we “just know from experience” about a process. By opening up our minds, we are free to discover other potential root causes, which lead us to a wider range of possible solutions.

There are several questions that are part of the cause-and-effect analysis.

- What causes this condition to occur or exist?
- Why does this happen?
- Or simply, Why? *(a common expression in problem solving is “Ask ‘Why?’ five times.” By pushing further down the logic chain, we discover hidden ideas.)*

Cause-and-effect analysis should be done by the whole team. By listening to and challenging one another, we are stretched to think about the problem differently.

So what is a cause-and-effect analysis?

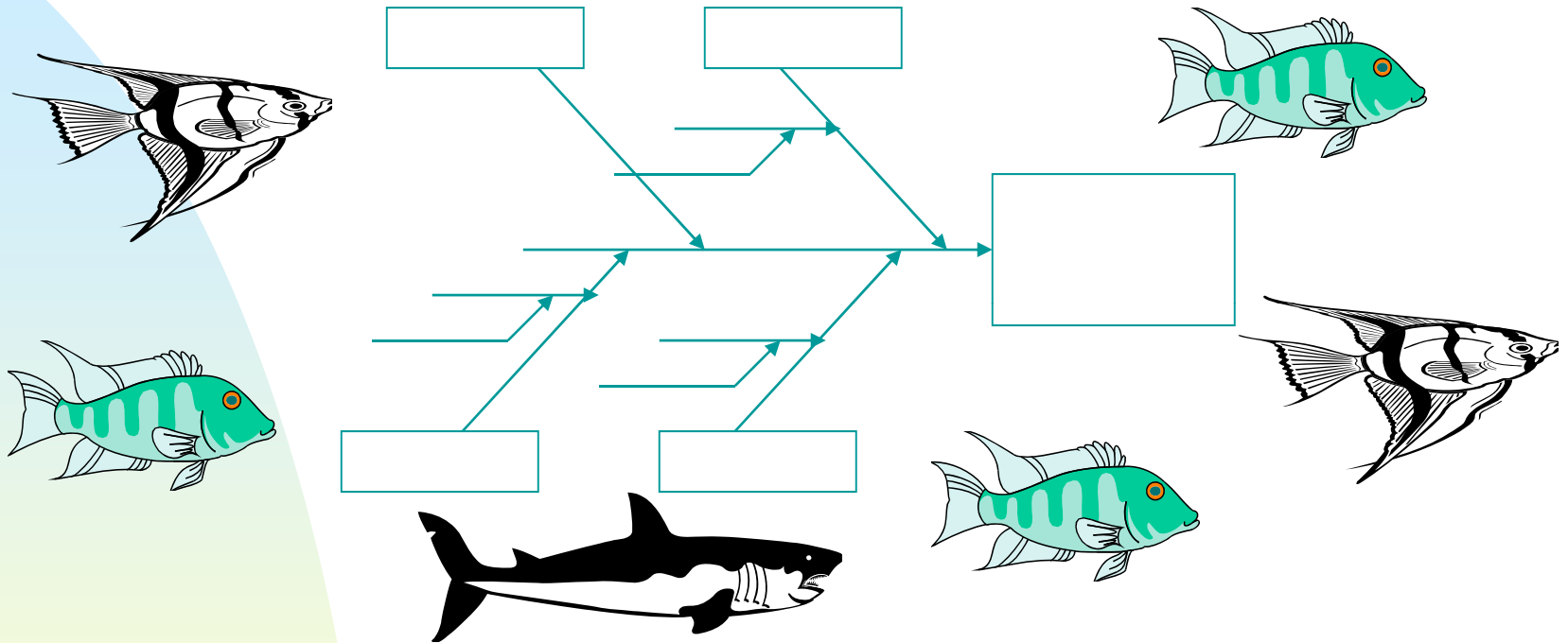


Cause-and-effect analysis identifies potential root causes. It does not prove root causes. By considering all reasonable causes of the problem, we open our thinking about why an undesired condition exists.

Once we have reached a point where we think we have some potential root causes, we can return to our work process and make further observations, perhaps collect some more data, or maybe interview others to get their input. Then we can feel confident that we have verified our root causes.

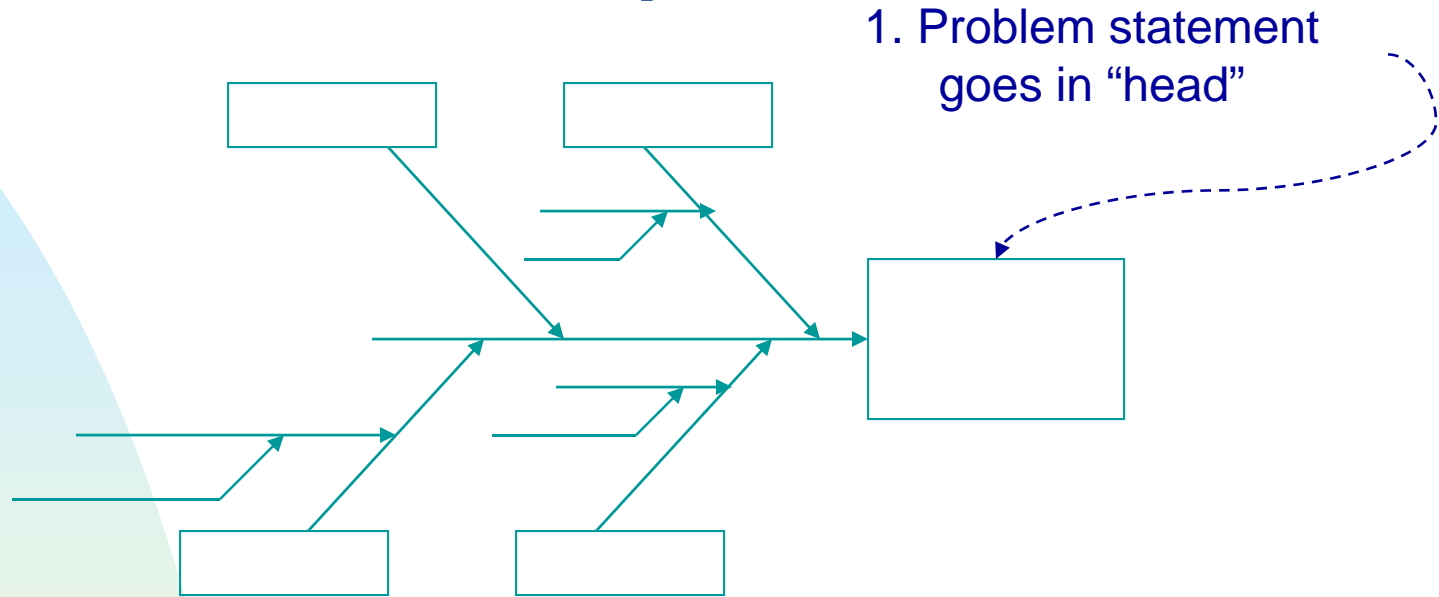
It is important to have a good understanding of the process we are studying before we begin cause-and-effect analysis. Therefore, it is a good idea to do a process flowchart so we have consensus on how the process actually works. A flowchart will point out weaknesses in the work process where problems may occur. This will help us focus on causes.

Description of cause-and-effect analysis



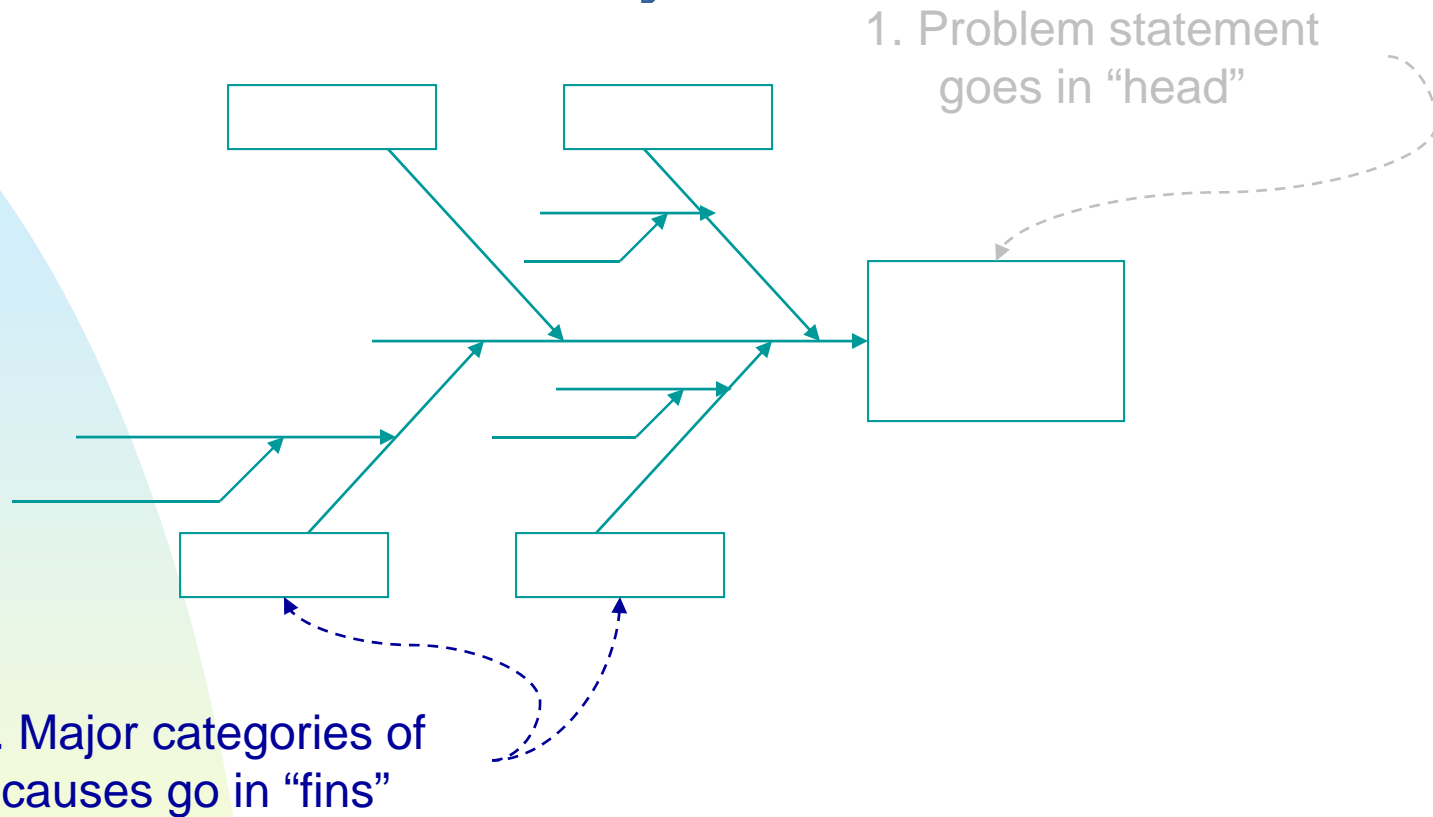
The cause-and-effect diagram is often called a fishbone diagram because of its shape and appearance. The head goes to the right, with a central spine extending from the head to the left. Secondary spines branch out from the central spine. Further branches extend from the secondary spines.

Structure of cause-and-effect analysis



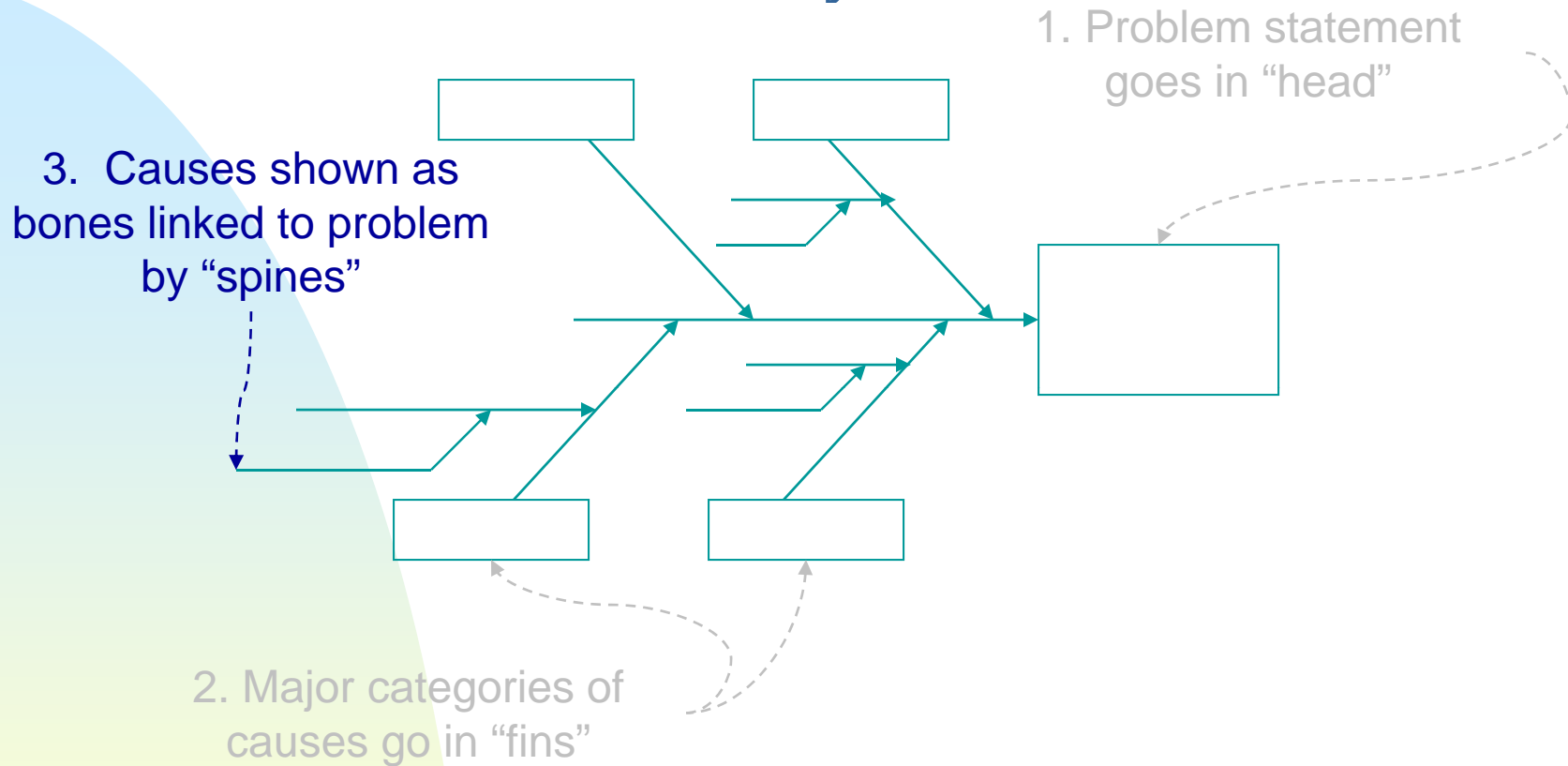
In constructing a fishbone diagram, the problem statement (the statement of the observed, undesirable condition) is placed in the head of the fish. The existing condition is actually the result of some series of actions or other conditions. Therefore, it is an effect that probably has multiple causes. These causes can be sorted into categories.

Structure of cause-and-effect analysis



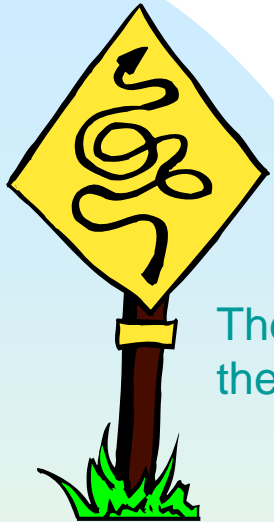
We show these categories as the secondary spines, or fins, of the fish. The name of the category goes in the box at the end of the secondary spine.

Structure of cause-and-effect analysis



The specific causes of the problem are put on bones, sorted by category. As each of these causes is identified, we ask why it exists. In other words, each cause is itself an effect which may have other causes. This is how the logic chain is built.

How to construct a cause-and-effect diagram



So where do we start? The path can seem very confusing. As we said, the problem statement is the statement of the observed condition. That goes in the head of the fishbone. Because it is the starting point of the diagram, it is important to have a well-crafted problem statement.

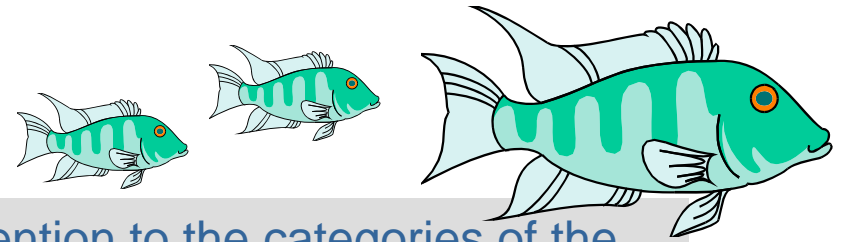
The problem statement should contain the *Who, What, When, and Where* of the problem. It should also contain an indication of *How much*.

Here are some examples...

- In the second quarter of FY 2001, Dept. X had 347 filing errors on Medicaid claims.
- From 6/1/01 to 5/31/02, Dept. Y staff incurred 8 lost time back injuries while moving/transferring patients to and from bed.
- During October, patients in the Hope Hospital ED experienced an average door-to-needle time of 47 minutes for the administration of thrombolytics versus a VHA-Florida average of 34 minutes.

These are fictitious problem statements, but illustrate the point. Each states the location - *where, what* is being measured, and the magnitude of the problem - *how much*. Two of the statements tell *who* is affected. Notice that the statements don't mention *why*. Discovering *why* is the purpose of the diagram. Don't jump the gun!

Construction continued...



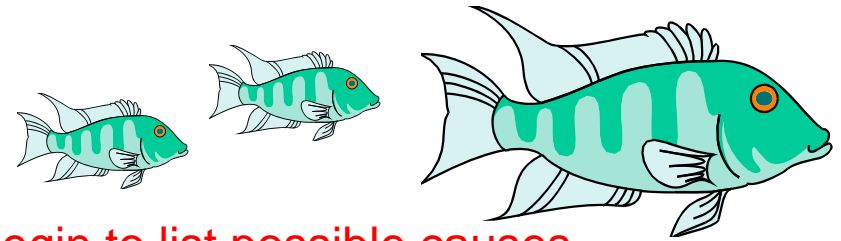
With the problem stated, we now turn our attention to the categories of the fishbone.

There are several ways to go about categorizing causes. No one way is better than the other. The team's approach depends on members' knowledge of the problem.

A generic approach is to simply use People, Methods, Machine (Equipment), Material (Supplies), and Environment. This can be customized by converting the generic categories to the specifics of the problem. For instance, "Machine" may be IV pump, monitor, or respirator.

Another way to categorize is to identify the categories that our data sorts into. For instance, if the indicator is unusable blood specimens, we may sort them by reason they we unusable, such as specimen hemolyzed; not labeled properly; wrong tub; not enough blood; and not properly preserved. These categories can be used in our cause-and-effect diagram.

Construction continued...



Once we have identified our categories, we begin to list possible causes. Here's a tip: use sticky notes, recording each idea on a separate slip. You can move them around as you go along.

There are two approaches to identifying causes that can be helpful. One is to simply begin brainstorming causes (aren't you glad you know how!) and organize them. Look for casual relationships in the causes you brainstormed.

A second approach is to go step-by-step building your logic chain. In reality, most teams use a blend of these two approaches. However you do it, the questions remain the same:

- ◆ What causes this?
- ◆ Why does this happen?
- ◆ Ask *Why?* five times

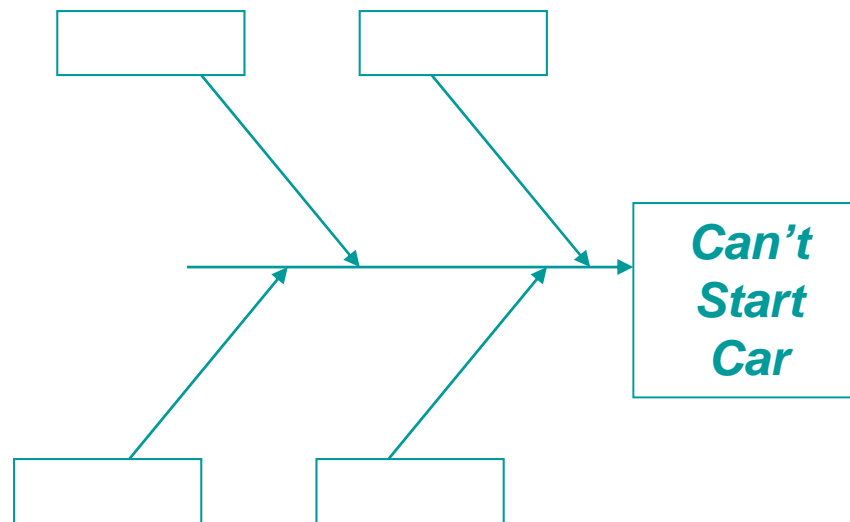
As you work your way down the logic chain, asking these questions, each cause is also an effect, with other causes. Continue this process until it makes sense to stop. Some causes will show up in more than one place. That's OK! In fact, that's a signal that it may be a good candidate for further study. You may have found an underlying root cause!

Let's walk through an example

Here's an example of a root cause analysis. Sue can't start her car. There may be lots of reasons why. We brainstormed a list of potential reasons. As you look at this list, what do you notice? Do some of these causes fit together? Would there be some logical categories they would sort into?

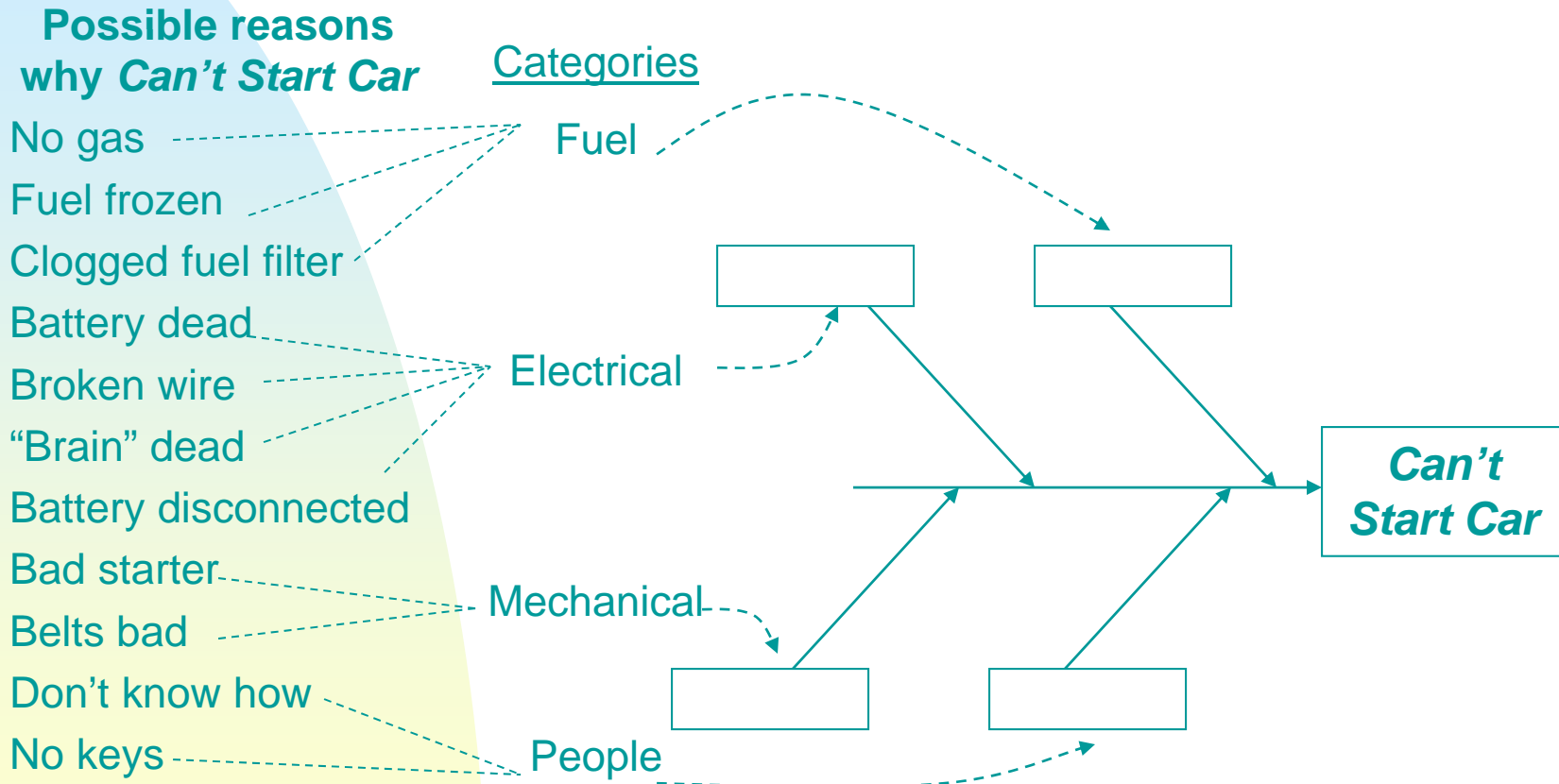
Possible causes for *Can't Start Car*

- No keys
- No gas
- Battery dead
- Bad starter
- Belts bad
- Bad solenoid
- Battery disconnected
- Broken wire
- Clogged fuel filter
- "Brain" dead
- Don't know how
- Fuel frozen



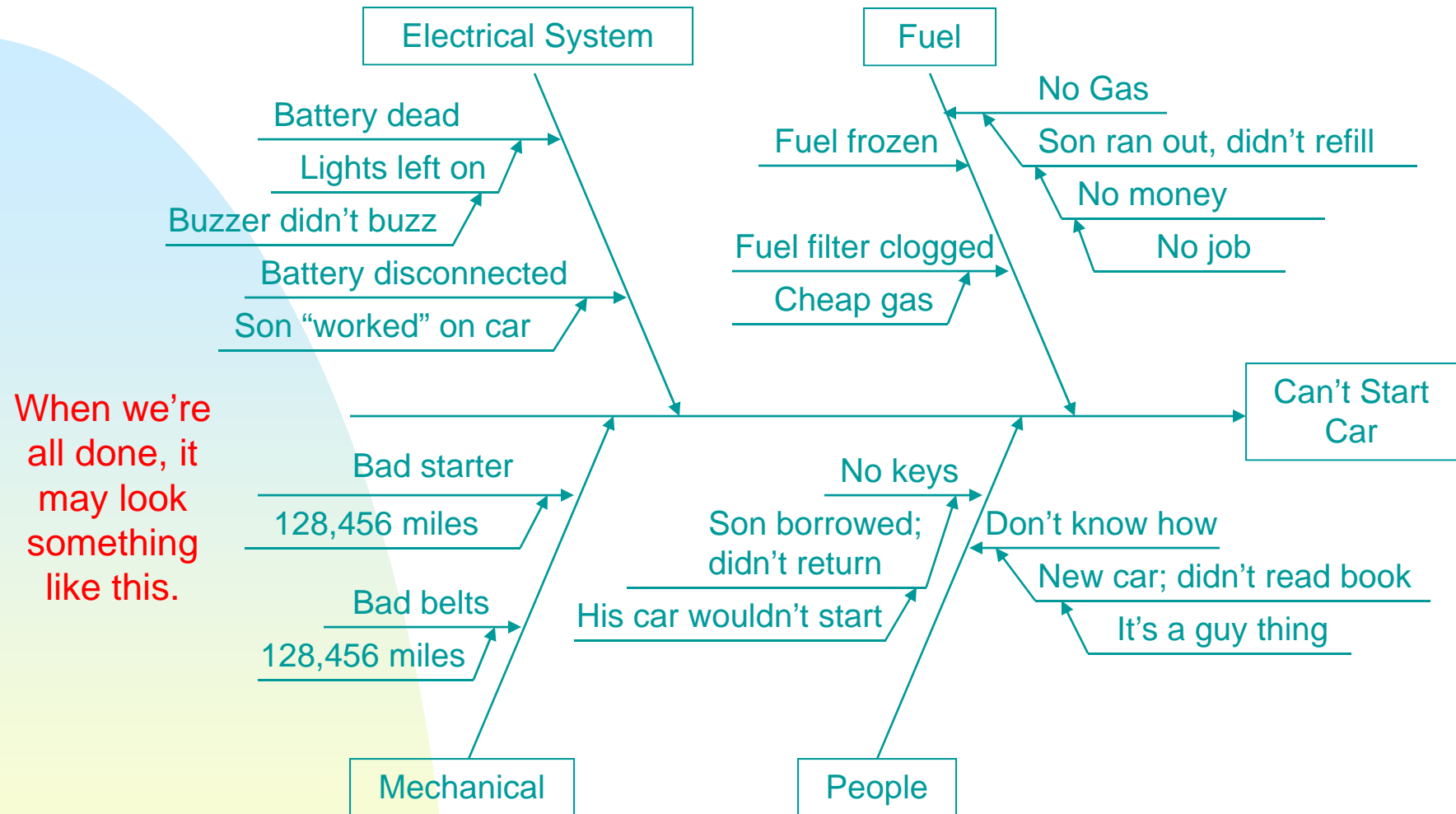
Our walk continues...

Here, you see how we broke them down into categories. These categories will go into the “fins” of our diagram



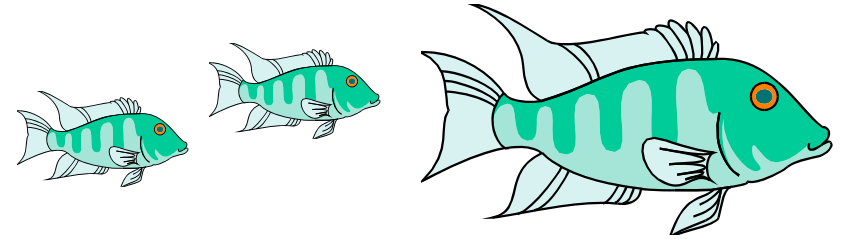
We can now begin asking our questions, “What causes this? Why does this happen?” We fill these in on individual bones of the chart.

Our walk continues...



In this case, a couple things begin to emerge that might be potential root causes. One is that this is a high-mileage car. Maybe there are some maintenance items that need to be checked. Another is that pesky son! But don't go blaming him too quickly. We have to verify our root causes first!

Verifying Root Causes

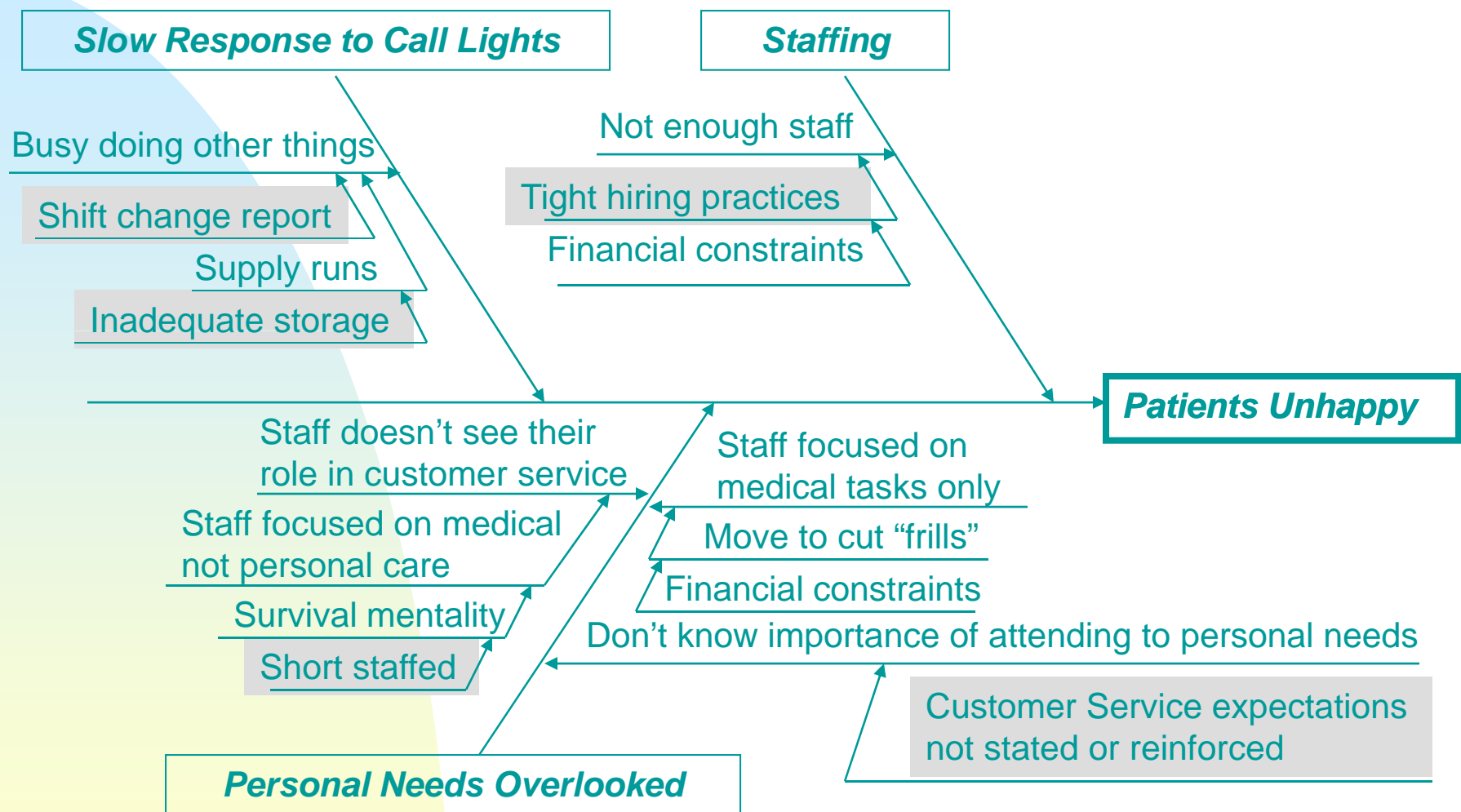


We can check our logic by starting at the end of the chain of bones and ask, “*If* we change this, *then* will the next higher ‘bone’ improve? *If* the next bone improves, *then* will the next one?” Continue the process until you get to the original problem statement in the head of the fishbone. If everything up the chain improves, then you have a good candidate for further investigation as a root cause.

Once we’ve checked the logic, we want to decide which of the potential root causes we want to verify. Select the ones that seem to have the greatest impact on your “If, Then” logic chain. Return to the data that has already been collected. Are your assumptions verified by the data? Do you need to study further?

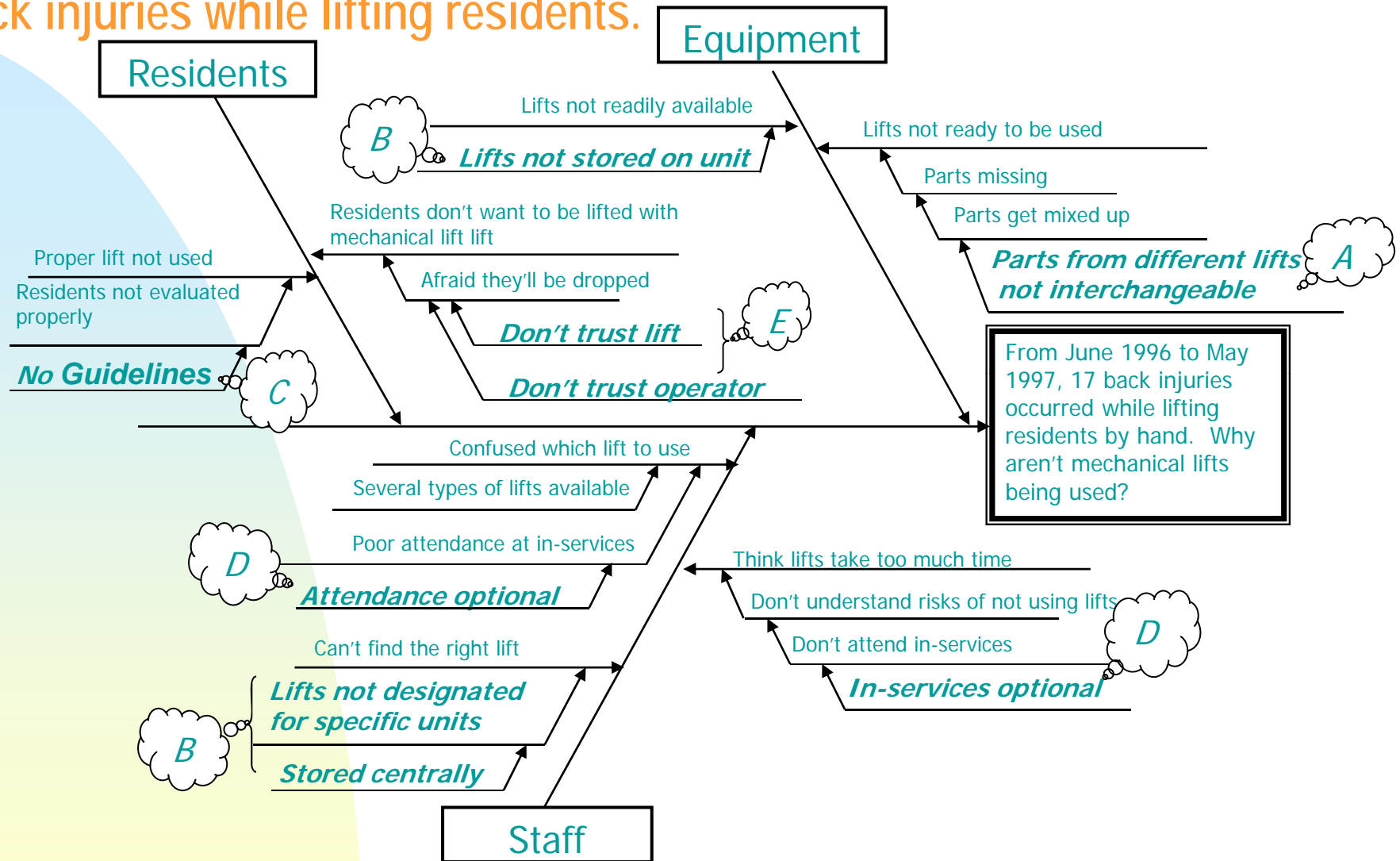
The verified root causes revealed at this point will be the beginning for implementing changes. Therefore, it is important to be sure about your root causes. Although this verification may seem tedious, it will avoid complications later in the problem solving process.

Here's another example of a cause and effect diagram examining **low Press-Ganey scores...**



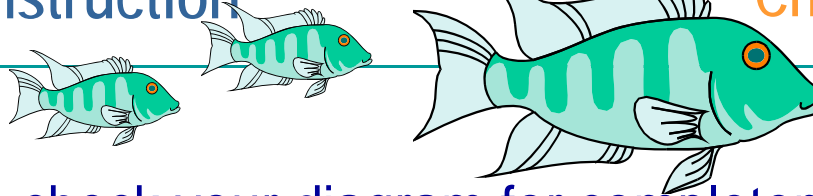
This one is related to patient satisfaction (problem statement is abbreviated). Note multiple root causes, highlighted in gray. Two spines are categorized by Press-Ganey Customer Satisfaction report categories, and one by staffing.

Here's another example of a cause and effect diagram examining back injuries while lifting residents.



Here is another example. Notice here that similar root causes appear in more than one place on the fishbone diagram. This is a signal of a strong root cause.

Final Step in construction



Checking for completeness

It is important to check your diagram for completeness. A few tips can help strengthen the analysis. Remember that the analysis is a method of developing, organizing, and displaying assumptions about why an undesired condition exists. It doesn't prove anything.

Here are a few steps to consider:

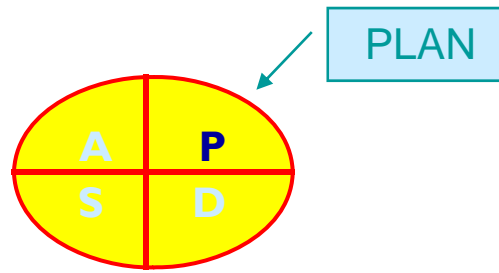
- Check the logic of the bones by working backwards, up the spine, using "If/Then" statements.
- If it is difficult to "ask *Why?* Five times," maybe the team doesn't have enough information about the issue. Revisit the process flowchart or other data and information from the beginning. Otherwise, study further or move to another spine on the fishbone.
- If a potential root cause appears in more than one place, it may be a strong "suspect" for further study.

Here's a summary of the steps for constructing a cause-and-effect diagram.

- ★ Define the effect or symptoms (problem statement) for which the causes must be identified.
- 🕒 Place the effect or symptom in the box to right; draw the spine.
- 🕒 List possible causes (via brainstorming or step-by-step approach).
- 🕒 Identify categories. Place them in a box, connecting to the spine with an arrow, forming fins.
- 🕒 Add causes on the arrows, pointing to the fins. Branch as often as needed while reaching the potential root causes.
- 🕒 Check for validity and completeness, working up the logic chain.
- 🕒 Verify the potential root causes with data.

This type of analysis is a powerful technique for discovering underlying root causes. It can be difficult at first, but don't give up. Developing a knack for this type of analysis may take time, but it will prove useful in the long run. It is a tool that, once mastered, becomes a part of your way of thinking about things. You can use the process mentally in many situations.

Now...What do you do?



PLAN an approach

- Write opportunity statement and identify objective
- **Develop solutions**
- **Develop plan to carry out change**
 - Who? What? When? Where?
 - What data needs to be collected

By using the tools identified in this module (brainstorming and multi-voting, process flowcharts, and cause and effect analysis), you can begin generating and evaluating solutions. Once you (and the team) discover something you want to try, develop an implementation plan.

Your plan must include Who? What? When? Where? and What? data needs to be collected during the test. We want to have something to track our progress! Module 4 discusses the **DO** stage of **PDSA cycle** in more detail. Check it out!

As a reminder...

... here are some of the things you learned.



- How to collect data that is reliable, simple, replicable, and not redundant.
- How to conduct a brainstorming and multi-voting session that can be used to generate causes of a problem, possible solutions, steps of a process, or anything else in which we need to be creative in listing things.
- How to construct and utilize a process flowchart
- How to identify causal relationships in performance improvement problems by using a cause-and-effect analysis

Congratulations on your completion of Module 3!!!!