

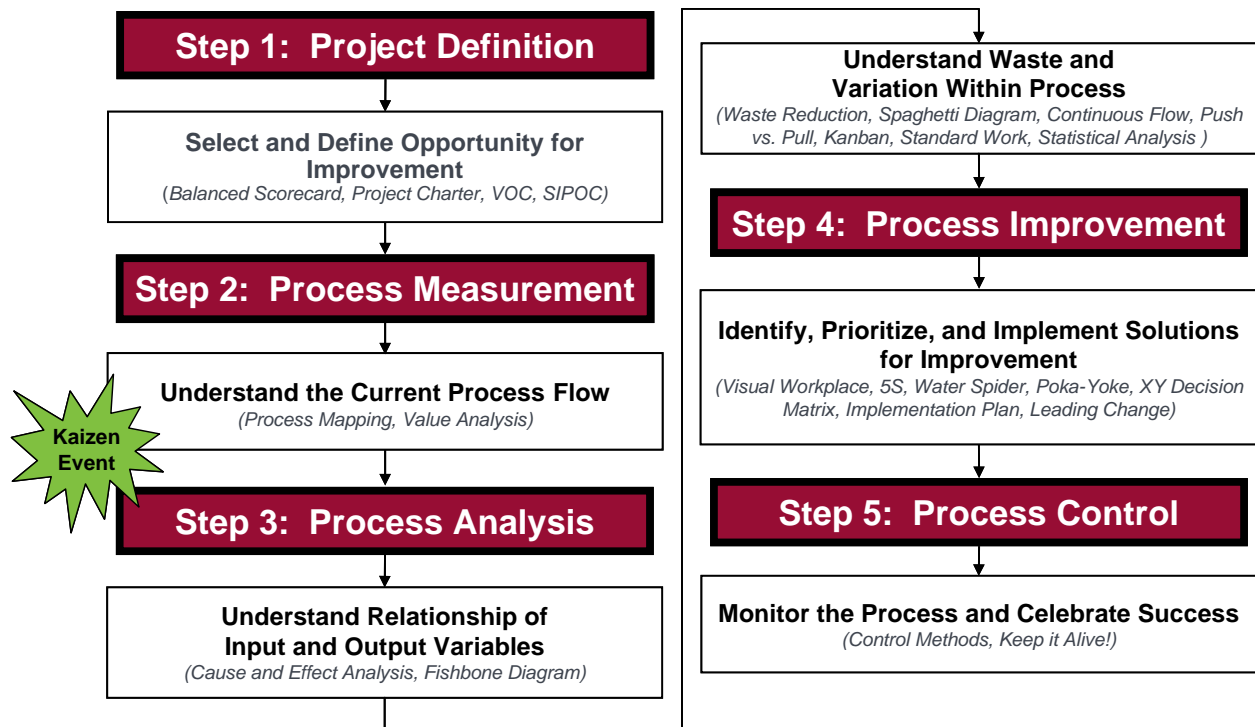
Leaning the Imaging Patient Experience

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Healthcare organizations are becoming more competitive as they center strategies around maintaining and expanding their patient populations while struggling to achieve a profitable bottom line. Progressive leaders are realizing it is critical to focus on the patient experience. Many are looking to Lean Six Sigma's basic concepts and tools to guide them in improving their patient-related core processes.

Why Lean? Lean targets the elimination of waste while improving process flow to achieve speed and agility at lower cost. *Why Six Sigma?* Six Sigma's DMAIC (Define, Measure, Analyze, Improve, and Control) process improvement methodology is a proven effective, systematic approach to problem solving. *Why combine Lean and Six Sigma?* When the speed and common sense of Lean is combined with Six Sigma's organized approach (Figure 1), rapid change occurs within 30 to 90 days.

Figure 1: DMAIC Approach



The first step is to **define** the opportunity for improvement. This is where many improvement initiatives fail. Organizations commonly choose processes that may frustrate patients. It is important to seek patient feedback; potential patient input sources are formal satisfaction surveys, “how are we doing?” cards given during each encounter, or the informal neighborhood conversation with someone who knows where you work and is sharing an experience that makes you cringe.

One organization took patient complaints about its imaging registration seriously and decided to focus on the process from the time of physician order to the time of bill payment. When this imaging service **measured** the time it took a patient to complete the process, it was shocked at the findings: (1) significant process time variation from the point of physician order to patient exam that ranged from hours to many days, (2) each site within the healthcare system had different processes, with registration identified as the main source of dissatisfaction, and (3) some patients had to visit two different imaging sites to complete all the requested procedures, therefore experiencing two different processes. One comment the system received seemed to sum up the patient experience when compared to a local freestanding imaging center competitor: “Coming here is an ‘afternoon event’ compared to [Competitor A]’s ‘over the lunch hour’ type of experience!”

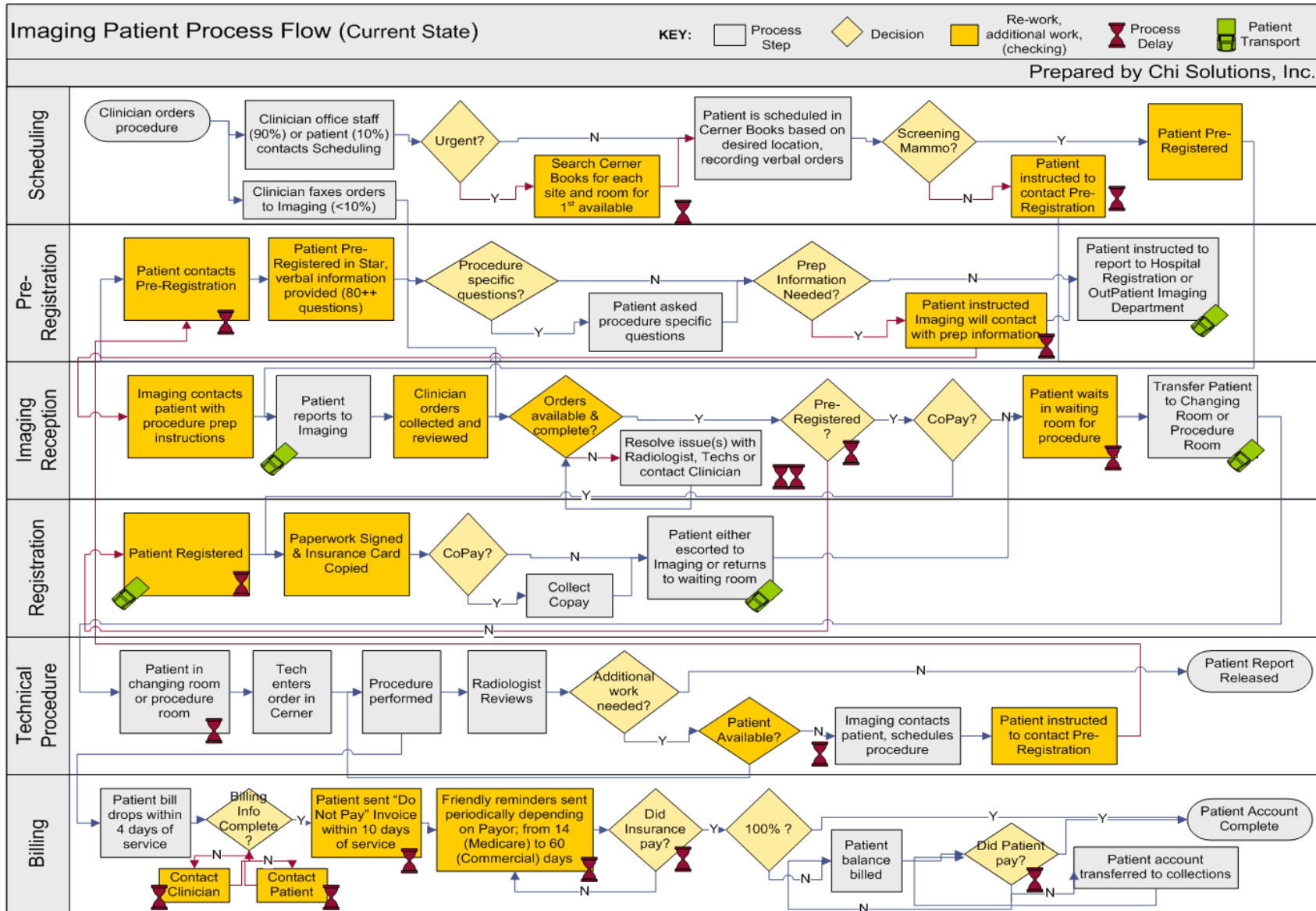
To measure and **analyze** its imaging process, the organization employed a common Lean tool known as a value stream map (VSM). A VSM starts with a basic process map and expands on it by assessing each process step or activity to determine whether it is value-added or waste. Lean defines value as the worth of a product as judged by the patient (customer). For an activity to be determined as value-added, the following elements must be present:

1. The activity meets the needs of a customer,
2. The activity changes the product/service, and
3. The activity is not rework.

If these three statements are not true for the process step under evaluation, the probability is high that it is “waste” and an opportunity for elimination or improvement. Some activities may not add value but are essential, such as those required by law or regulation; these tasks are called “value enabling.”

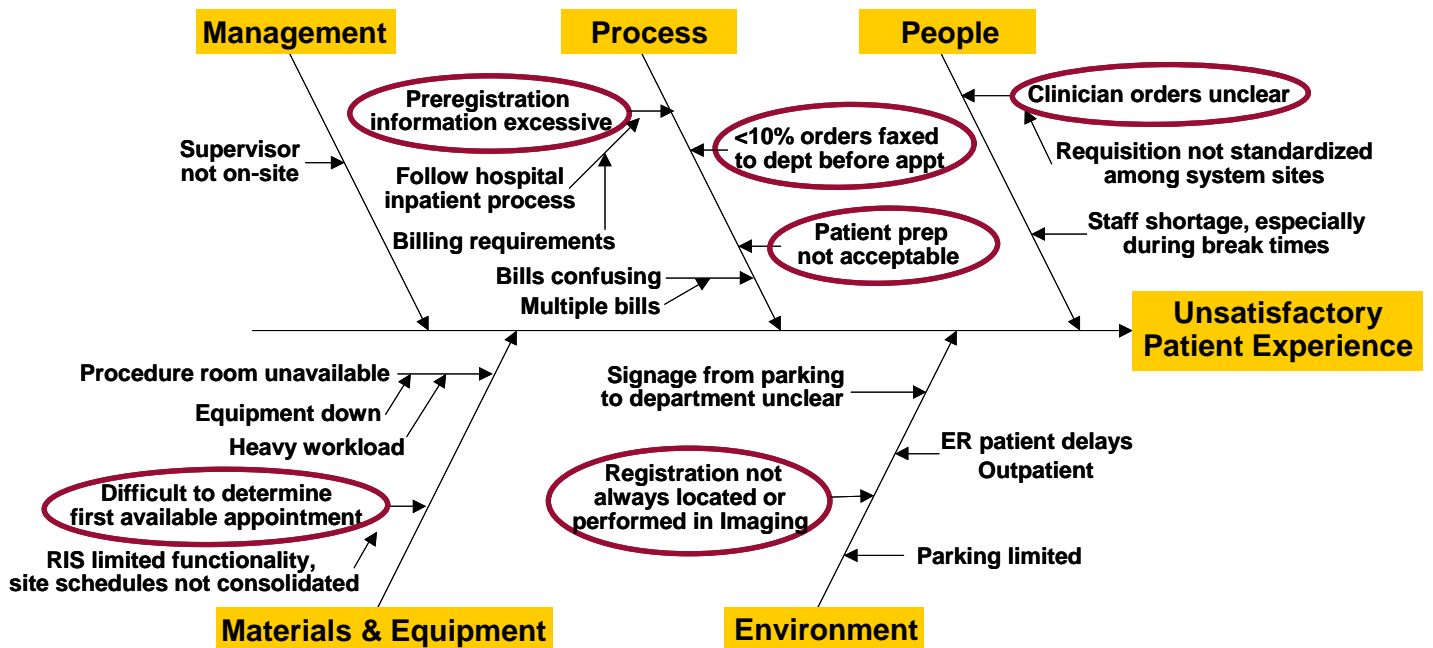
The VSM in Figure 2 (see next page) shows the state of the above mentioned organization’s imaging patient experience at the beginning of the process improvement project. The gold colored boxes on the map indicate steps that represented possible waste or non-value-added activities to be addressed.

Figure 2: Current State Imaging Patient Process Flow



Another common quality tool used in Lean to discover the “pain points” in a process is a cause and effect diagram, known as a fishbone analysis. The head of the fish is the effect being analyzed, which in Figure 3 below is “Unsatisfactory Patient Experience.” Through brainstorming the potential causes, the bones of the fish are identified and grouped in six common categories: management, process, people, materials, equipment, and environment. In some processes, it may make sense to combine some of the categories.

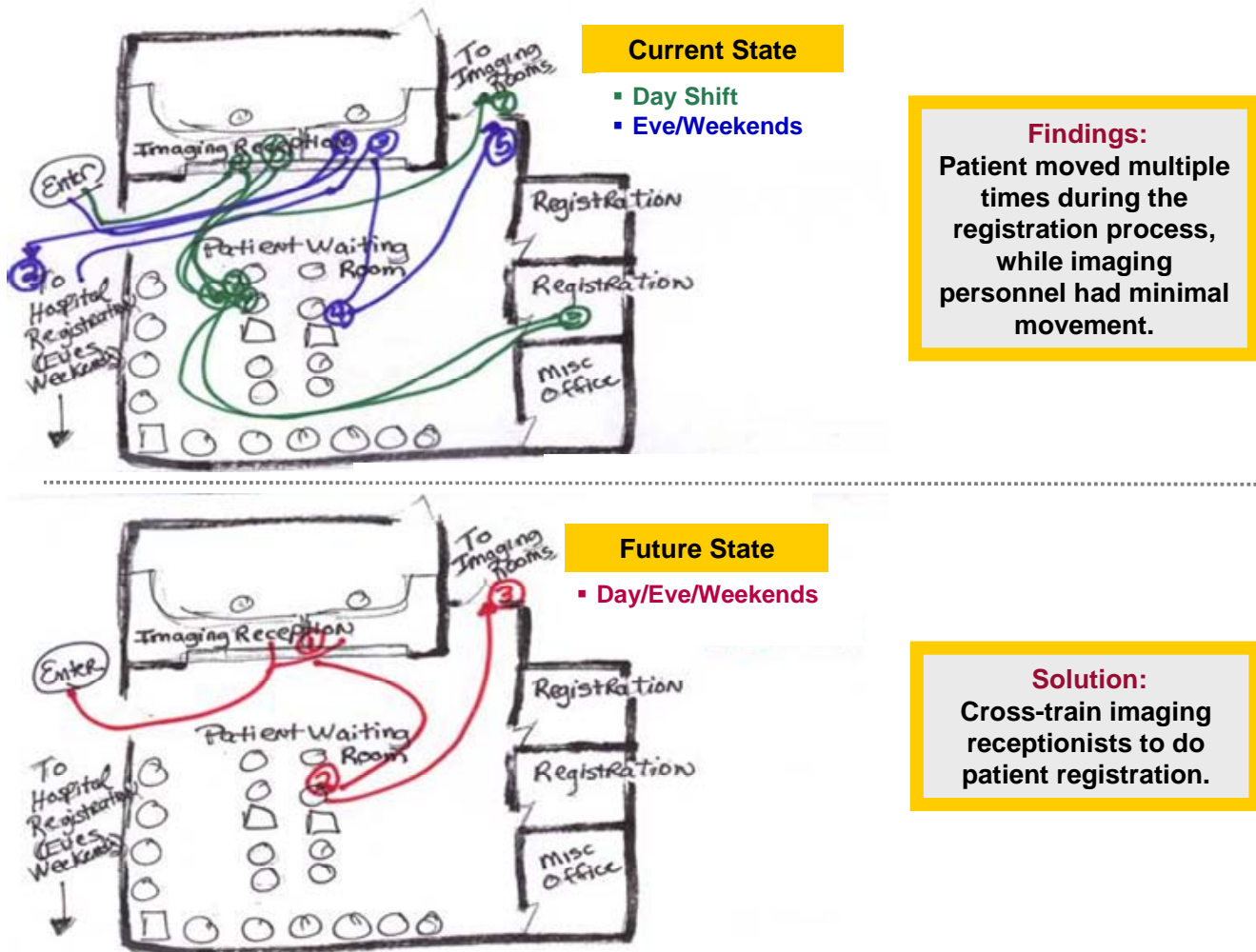
Figure 3: Fishbone Analysis



Findings: Primary “pain points” were process-related.

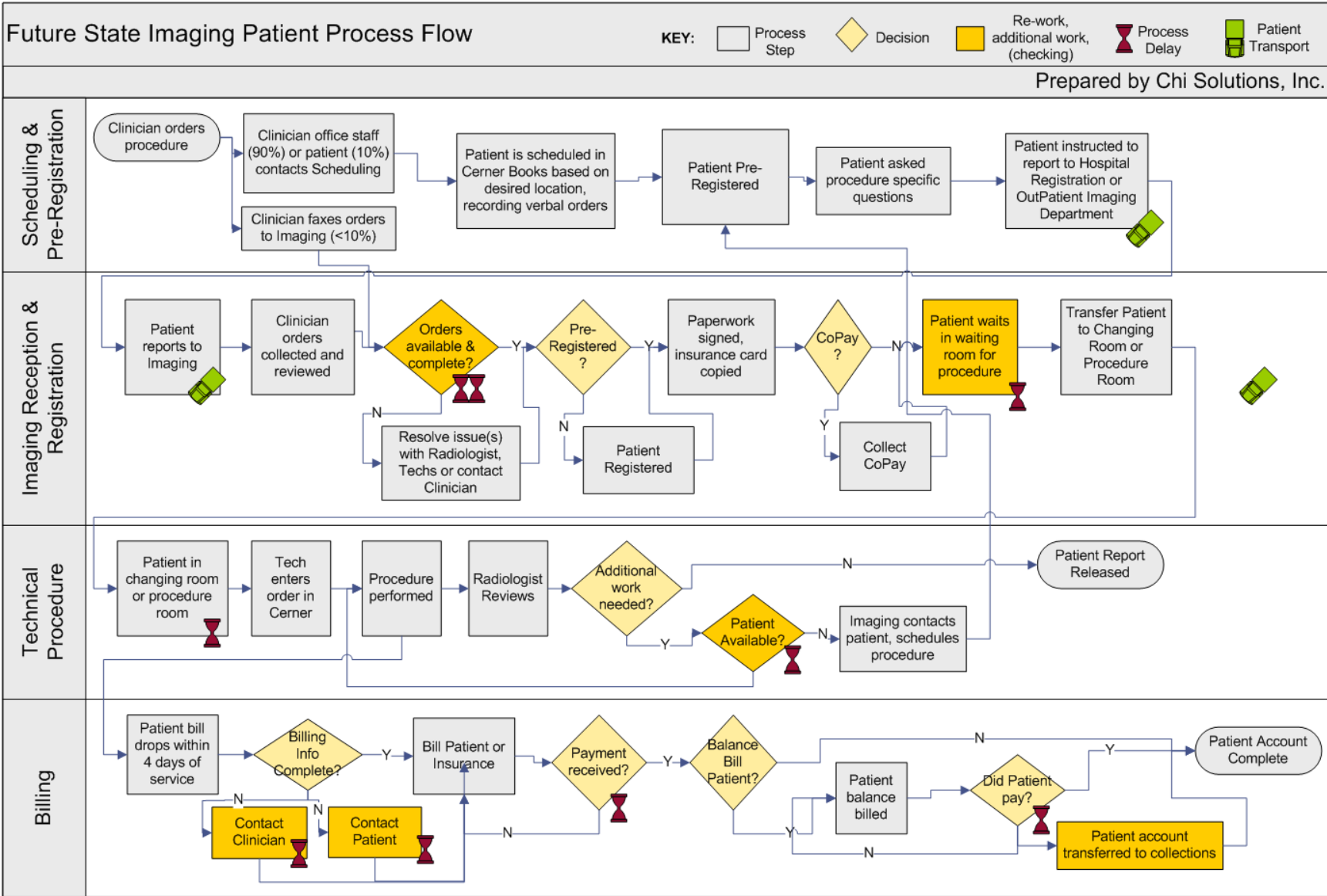
A spaghetti diagram is another Lean tool often employed during the analyze phase of the Six Sigma DMAIC process improvement methodology approach. This type of diagram illustrates the physical flow of a person, product, or information as it moves through multiple steps in a process. The benefit is to identify workflow inefficiencies and provide a method of modeling potential improvements before making major (or minor) process changes. Figure 4 is an example of how quickly this visual tool is able to pinpoint sources of patient dissatisfaction and common sense solutions.

Figure 4: Spaghetti Diagram of Patient Waiting Room



The final step in the analyze phase that leads into the implementation phase is to determine what the ideal or future state process should look like. This is accomplished by going back to the original value stream map and determining what non-value-added steps or waste can be eliminated and what possible solutions need to be implemented. As Figure 5 on the next page illustrates, this exercise can result in major process efficiency improvements when compared to the original process (see Figure 2). At times, not all waste can be removed right away, but over time, much of it can be addressed.

Figure 5: Future State Imaging Patient Process Flow



The reason for applying a systematic approach to process improvement is to assure any action taken is of highest value to the patient (customer). When a process is properly defined, measured, and analyzed, the solutions to be **implemented** generally become very obvious. One comment from a Lean Six Sigma team member sums it up nicely: “The solutions are just common sense; why did we not think of this a long time ago?”

“Common sense is not necessarily common practice.”
–Benjamin Franklin

If multiple solutions are identified for implementation, the development of a formal implementation plan to guide and monitor progress is needed. Figure 6 offers an example of a simple spreadsheet format with the key components an effective plan would include.

Figure 6: Implementation Plan

- Basic project management components:**
- Action steps to be taken
 - Assigned accountabilities
 - Timeline tracked
 - ROI tracked
 - Progress report

Ref. No	Action Steps	Task Leader(s)	Comments	Wk of 4/7	4/14	4/21	4/28	5/5	5/12	5/19	Later
			Planned Activity								
			On Schedule / Activity Completed								
			Off Schedule - Should Not Impact Timeline								
			Off Schedule, Will Impact Overall Project Timeline								
	List Category #1										
	List Action Step	List Leader Name	Add notes or provide update on progress	Done							
	List Action Step	List Leader Name	Add notes or provide update on progress								
	List Action Step	List Leader Name	Add notes or provide update on progress				Delay				

After solutions have been implemented, it is essential that ongoing monitoring of performance occur in order to assure **control** is maintained. Change can be met with resistance from employees until they realize the new process is much better than the old one—this may take time. Depending on the solutions, control strategies may range from daily tracking of patient wait times with a monthly roll-up to monthly compilation of patient satisfaction feedback. The process performance metric utilized during the project to measure improvement should be included in the department’s ongoing Quality Report if it had not already been monitored.

Once success has been achieved, it is crucial to take time and celebrate! Publicly recognizing the efforts of the team not only energizes the participants, it also creates positive momentum that engages others to tackle the next improvement initiative.

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