

# Tools For Healthcare Quality

Process Guru

**Jay Arthur**

Reveals Simple Tools  
for Patient Flow and  
Healthcare Quality

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Developing a Lean Six Sigma Mindset

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Lean Labs for Hospitals

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Accelerating Patient Flow

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Dashboards and Scorecards

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Control Chart Wizardry

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# Lean Six Sigma

## A Personal Message from Jay Arthur

Dear Healthcare Quality Leader,

When the healthcare community discovered the QI Macros Control Chart software for Excel, it took off like wildfire finding its way into thousands of hospitals.



Since then, I've had the opportunity to work with many hospitals around the country and I keep finding the same challenge—your quality improvement personnel become trapped in a monthly and annual cycle of graphing performance measures for JCAHO, CMS, IHI and so on. But they never have enough time to work on improving clinical and operational processes. They're so busy charting performance that

they don't have any time to improve it.

I've also noticed that while some hospitals have electronic medical records and tracking, most are still mired in paper records. This makes it hard to find, measure and improve patient flow and other clinical measures.

As an Excel geek, I've often found that I needed to create simple, easy-to-use data entry forms and tools in Excel to track the bare bones data we need to measure patient flow, lab turnaround times, housekeeping turnaround times, ED and nursing unit length of stay.

Maybe you are one of the lucky few that have good electronic medical records systems that time stamp every patient experience, but if you're not so lucky and your patients can't wait years for multimillion dollar investments in new technology, then our Excel-based length of stay, ED Whiteboard, bed management, CMS Core Measures dashboards and scorecards might be an affordable solution to help you bridge the gap between pure paper and

electronic medical records. If your process improvement personnel are tied up doing monthly charts and graphs, we can help create Excel-based tools that allow anyone (not just highly trained quality staff) to enter the monthly data and generate executive dashboards and scorecards of any performance measures. We've been doing this for clients around the country to measure everything from patient access to nursing performance. We've done everything from simple dashboards to massive rollups of entire healthcare systems.

We've also been conducting one-day Lean Six Sigma for Healthcare workshops that are designed to leave a working knowledge of Lean Six Sigma.

I've worked with hospital labs to use the tools of Lean to reduce travel in the lab by over 50% which accelerates results and reduces turnaround times.

From an operational and financial standpoint, I worked with teams that found ways to save millions of dollars in denied claims and reduce the time to resolve appealed claims. Since I left the phone company in 1996, I've helped other companies and hospitals find ways to simplify, streamline, and optimize their processes to add \$25,000, \$250,000 or more to the bottom line.

I'm a problem solver by nature and a toolsmith by trade. Excel can become a power tool for measuring and managing every aspect of healthcare delivery.

If you're open to it, this magazine is packed with insights and resources to accelerate your productivity, improve patient outcomes, and boost your bottom line.

Jay Arthur

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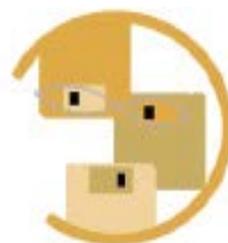
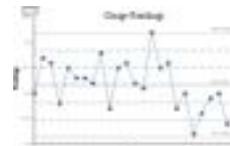
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# Are You Overlooking the Biggest Profit-Making & Patient Satisfaction Opportunity in Healthcare?

I'm willing to bet that your hospital or medical facility can be a lot more profitable than it is now. I've worked with businesses ranging in size from an independent muffler shop to hospitals to Fortune 50 companies. I've helped them save anywhere from \$25,000 to \$25 million that could be added to the bottom line. The process is simple, but almost every business overlooks this opportunity to bank more cash and boost the bottom line.

## Every Business Has Two Sources of Cash Flow

Cash is the lifeblood of your business. Businesses are only as healthy as their cash flow. Every business has two sources of cash flow:

1. **External customers** (e.g., payors) give you money for your products and services. The traditional wisdom says that you need to sell more to more customers to increase your cash flow.
2. **Internal processes** are another source of cash because mistakes, errors, defects and delays make your business leak cash like a rusty bucket. Why are internal processes a source of cash? Because when you plug the leaks in your cash flow, you get to keep all that money!

I'd like you to consider that most businesses spend all of their time and money focused on trying to fill the cash bucket with new customers and virtually no money plugging the leaks caused by internal processes. Almost every hospital will spend a small fortune trying to gain a slight edge in clinical technology that will allow them to get or keep a patient. The only problem is that this elusive edge is constantly in peril from competitors and the fickle perceptions of customers. You can never fully control this aspect of your cash flow.

You do, however, have complete control of the processes and technology inside the gates of your business. Every process leaks money. Even if you only make one mistake in every 100 patients, orders, bills, purchase orders, products or services, that one percent error rate can add up to 6-12-18 percent across your business.

The Juran Institute has found that the cumulative cost of mistakes, rework, and scrap will add up to 25-40% of your total expenses. Don't believe it's that much? Spend a day tracking every patient fall, medication error, redraw, mistake, glitch, and complaint in your facility. Then calculate the cost of finding and fixing each one.

How much time does it take? What does it cost?

If you and your employees weren't fixing the mistakes, what could you be doing instead? Multiply this by the number of days in the week, month, or year. Ouch!

These errors aren't your fault and they're not the fault of your people. It's your systems and processes that are at fault—they let people make mistakes that could be prevented.

## Every Process Produces Two Unwanted Side Effects

Every process produces defects and delays. The defects have to be fixed or scrapped. **Big leak #1: Fixing mistakes** (like medication errors or patient falls) that consume time and money that could be better spent serving patients and boosting the bottom line. **Big leak #2: The delays** (like lab, radiology or housekeeping delays) that cost you time, money, productivity and profitability.

Even a small reduction in defects and delay in your mission-critical processes can give you a sustainable competitive advantage. Patients aren't stupid. They can tell a finely tuned supplier from a clumsy one. Once you have a head start, your competitors will always be playing catch up.

## Secret #1: Work ON Your Business, Not IN It

In the 1970s, I owned a Mustang. I loved to drive in my car and I liked to work on my car, but I couldn't both work on my car and drive in it at the same time. As you know, if you don't periodically change the oil, tune the engine, fix the brakes, and change the tires your car will most likely breakdown. And it will most likely break down at the least opportune moment. While most business owners will take time out of their hectic schedule to have their cars serviced, most never think to do the same for their businesses.

Do you feel like your business is controlling you, not the other way around? Can you leave your department in the capable hands of your employees or does it demand too much of your attention?

In the 1990s, Michael Gerber captivated the attention of business owners with a book called the E-Myth. He argued that most people spend all of their time working in their business, but most never work on their business, creating and improving the processes and systems that minimize mistakes and maximize output. If you want a reliable, dependable business that consistently

produces predictable results, you will need proven methods and tools to make it happen.

**Secret #2: Become Process-Oriented**

It's easy to be seduced by the excitement of "emergency department thinking", crisis management and firefighting. It becomes a way of life in most businesses. When daily heroics are required to avoid missing commitments and preventing negative patient outcomes, healthcare comes to rely on heros.

**Develop a Lean Six Sigma Mindset!**

This is another mistake. People-oriented businesses believe that quality and productivity are a function of their people, not their processes. People-oriented businesses have to pay a premium for the best people.

When these people leave, they take their highly refined mental processes with them.

Process-oriented businesses, on the other hand, rely on mistake-proof processes to ensure that products and services are delivered on time and error-free. Process-oriented businesses have procedures for everything from cleaning restrooms (e.g., McDonalds) to maintaining Navy fighter jets. When you have good processes, there's less need for overtime and you can hire the lowest skill-level necessary for the job. Labor costs are cheaper because you aren't bidding for a small group of the best people. Best of all, you can go on vacation, secure in the knowledge that your department will run itself.

**Secret #3: Implement a Proven Improvement System**

Most healthcare facilities think they should be able to find and fix all of the problems in their business, and they can up to a point, but then they hit a wall. This isn't your fault. Research has shown that one set of problem solving methods (e.g., common sense and trial-and-error) will work for a certain class of problems, but not another. Then you need a new set of methods and tools to solve the next class of problem. Consider antibiotics: they fight bacterial infections, but not viruses like the common cold. The same is true in business.

When people first start a business, processes are

created by accident in an ad hoc way. Problems with the processes are fixed using common sense and trial-and-error as the business grows. But at some point, the ability of these two methods to solve the more mysterious and complex problems begins to fall off. Eventually, they stop working all together. This early-success and later-failure syndrome affects all problem-solving methods. It's often shown as an S-curve.

Throughout time, people have routinely found ways to solve seemingly unsolvable problems. Edison invented the light bulb. The Wright brothers figured out how to fly. But to do this, they invariably had to invent new ways to solve problems that exceeded the grasp of the old methods.

Fortunately, the methods and tools for creating and improving your processes and systems have already been developed and proven in every industry. I have found that a few key tools used in the right order are all you need to start making immediate breakthrough improvements in speed, quality, productivity and profitability.

**Double Your Profits**

If you're like most businesses, reducing costs by 20% would more than double your profits. To make this easy, I've created a complete tool belt for working on your business. It's all here: methods, tools, technology, and training to handle everything you need to plug the holes in your cash flow and start saving 20-35% of your expenses.

**Don't Have The Time?**

The urgencies of any business can consume all of your time. Fortunately, given the right gauges on the dashboard of your business, it's easy to diagnose where to focus your improvement efforts even while you are still working in your business. That's why we created the QI Macros software to simplify your initial foray into measurement and improvement.

**Too Busy Bailing to Plug the Leaks?**

Every facility has to improve the key aspects of performance every year just to keep even with the competition. The only question is whether you're going to rely on the declining effectiveness of common sense and trial-and-error or are you going to upgrade your ability

Calculate Your Benefits			
	Your Business	Reduce Costs	Increase Revenue
1. Annual Gross Revenue	\$ _____	\$10,000,000	\$20,000,000
2. Annual Expenses	\$ _____	\$ 9,000,000	\$18,000,000
3. Current Net Profit (#1-#2)	\$ _____	\$ 1,000,000	\$ 2,000,000
4. Reduce Expenses by 10%	\$ _____	\$ 900,000	
5. New Net Profit (#3+#4)	\$ _____	\$ 1,900,000	

**Which is easier? To increase revenue by 100% or cut your costs by 10%?**

# Lean Labs

Lab turnaround times are one of the keys to patient throughput. 60% of Emergency patients will need lab work. Most of the patients in a hospital will need lab work before discharge. The ability to get that work done quickly will accelerate patient flow, improve outcomes, reduce patient length of stay, reduce costs and increase profits.

## Lean Labs

Studies have shown that reducing patient length of stay (LOS) is key to improving patient satisfaction and clinical outcomes. Delays in the lab increase ED LOS which causes LWOBS (leaving without being seen) and diversion. It's estimated that every hour on divert costs a hospital two ambulances and estimated revenue of \$6,000 per ambulance. LWOBS may be worth \$600 per patient.

Delays in the lab cause delays in discharge which can also cause increased LOS in the ED and units. Delays in the lab can cause adverse patient outcomes. Every lab plays an important part in achieving those patient, clinical and financial outcomes.

### Here's the Secret

Your technicians are busy, but your patient's sample is idle over 50% of the total turnaround time. The amount of time it takes to deliver a product or service is far greater than the actual time spent adding value to the product or service. Most products and services only receive value for 5% of the total delivery time. Why does it take so long? Delay. The patient's sample is sitting idle far too long between steps in the process.

**Examples:** A 5-minute lab test may take a total of 20-40 minutes due to unnecessary delays and travel time. Insufficient or unusable samples may require redraws which further delay the results.

### The 25-2-20 Rule

Every time you reduce the time required to provide a product or service by 25%, you double productivity and cut costs by 20%.

**Value Stream Mapping and Spaghetti Diagramming** will help you find ways to eliminate the non-value added delays between each step of the process. Technicians won't have to work any harder; you just eliminate the delay.

**Walking is waste!** Unnecessary movement of samples causes delay. One hospital found ways to reduce movement by 54%—four miles of unnecessary movement per day in the lab (seven hours of delay per day). Over the course of a year, this is the distance between Denver and Pittsburgh.

**Elevator Rides are Waste!** One hospital found that it takes three to five minutes to catch an elevator in a seven story hospital. That means 6 to 10 minutes of delay for each test just waiting for elevators. By leaving phlebotomists on the floors at peak rounding times, using existing pagers, delivering orders to the floors via pneumatic tube and returning samples via the tube, it was easy to save 6-10 minutes per test which accelerates discharges as well.

### Lean Simplified

The great thing about Lean is that you can start applying it immediately and you already understand most of the key principles.

**The 5 S's:** The first step in leaning your lab is to sort, straighten, and shine. This should take no more than four hours. You'll be stunned by how much unusable stuff is stored in your lab's cubbyholes. Then standardize and sustain the first three S's.

**Redesign the Lab to Increase Flow:** Most labs are designed around the tests—chemistry, hematology, coag, UA, or micro. When you redesign the lab to optimize the movement by sample type, you'll gain dramatic improvements in speed because you've eliminated the delay.

**Tip: Watch Your Sample, Not Your People!** If you look at the racks, rockers and other resting places for samples, you'll soon see why results are delayed. Redesign your lab and your lab processes to smooth the flow of patient samples.

# Double Your Speed

Lean has simple, achievable goals like:

- .. 30-60% reduction in Turnaround Time (TAT)
- .. 20-40% reduction in floor space requirements
- .. 20-30% improvement in equipment capacity
- .. 20-50% improvement in productivity
- .. 30-60% reduction in inventory
- .. Reduction in defects
- .. Increased quality
- .. Financial savings
- .. Organized workplace
- .. Predictable, manageable workload

## The Economies of Speed

Patients and payers today demand speed and customized solutions. I don't know about you, but I grew

**It's not the big that eat the small, it's the fast that eat the slow!**

up on the wisdom of Henry Ford: mass production and the economies of scale. But while I was learning about Ford in the 50's, Toyota was mastering the art of speed production and the economies of speed.

### The 3-57 Rule

The amount of time it takes to deliver a product or service is far greater than the actual time spent adding value to the product or service. Most products and services only receive value for 3 minutes of every hour. Why does it take so long? Delay. The product is sitting idle far too long between steps in the process.

**Examples:** A patient spends two hours in the Emergency Department, but only 10 minutes with a nurse or doctor. The best EDs turn outpatients in 40 minutes or less and inpatients in 90 minutes or less.

It takes 300 days to resolve an appealed insurance claim, but the claims processing group only spends 15 minutes every month tweaking the claim.

A human resources staffing group takes 10 days to screen, test and interview candidates, but there's only 1.5 hours of actual work in those 10 days. By combining the telephone screening with the interview and having applicants take a test on-line, they took 9 days out of the process and saved one hour of staff time per candidate (estimated at 20 hours per month).

### The 15-2-20 Rule

Every time you reduce the time required to provide a product or service by 15 minutes/hour, you double productivity and cut costs by 20%.

**Watch Your Product, Not Your People!**

### The 3X2 Rule

When you slash your cycle time to do mission-critical processes, you enjoy growth rates three times the industry average and twice the profit margins.

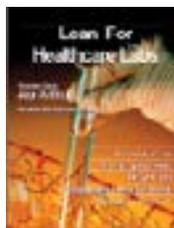
**Lean Thinking and Value added analysis** will help you find ways to eliminate the delays between each step of the process. Employees won't have to work

## Two-Day Lean Labs Workshop

- 1/2 day Overview of Lean and 5S principles.
- 1/2 day Use 5S principles in your lab to sort, straighten, and shine the lab.
- 1/2 day Learn and apply Lean redesign principles to your lab. Implement design improvements immediately.
- 1/2 day Learn how to standardize and sustain the 5S improvements.

Investment: \$14,000

## Do-it-Yourself - Lean Lab Video



Want to learn the essential skills of Lean and apply them to your lab? You might consider our Lean for Labs video which covers Lean Simplified concepts and specific applications to Lean in the Lab. (2 DVDs - 90 min) Only \$197 plus S&H

# Accelerating Patient



Every hospital succeeds or fails through a combination of people, process and technology. **Lean Six Sigma** will show you how to make dramatic performance improvements in clinical outcomes, operational efficiency and boost the bottom line.

## Four Steps to Patient Flow and Profitability

Almost every hospital experiences diversion due to delayed patient flow!

### The High Cost of Diversion

- Every hour on divert costs two ambulances
- Every inpatient is worth \$6,000 on average
- LWOBS are worth \$600 on average

Most hospitals push patients through the hospital—from ED to nursing units to discharge. **Switch to pull thinking.**

Discharge orders pull the patient out of their bed and pull housekeeping to clean the room. Nurses on the floors can pull a patient up from the ED whenever the ED is too busy. The ED can pull a phlebotomist from the lab during peak hours.

Reduce or eliminate unnecessary delays like patient movement. This is why so many EDs are adding CT scans, portable X-Rays and point of care lab tests.

Reduce delays in the lab and imaging by using the 5 S's and Lean redesign.

Reduce defects in all aspects of daily operation (including purchasing, payments, billing, and collection) using Six

**Accelerate Patient Flow Using This Four-Step Improvement Strategy: FISH—Focus, Improve, Sustain, and Honor.**

1. **Develop Laser Improvement Focus**
  - ◆ Reduce delays in ED, Lab, Imaging, and Nursing Units.
  - ◆ Reduce defects, mistakes and errors in clinical and operational processes.
2. **Double Your Speed** by eliminating the speed bumps that delay patients. Use Lean Thinking and the Power Laws of Speed.
3. **Double Your Quality** Using Six Sigma and the Power Laws of Quality.
4. **Monitor and Sustain** the improvement using control charts and a healthcare dashboard, because **you can't improve what you don't measure.**

If you already have a system that tracks the time a patient spends in every step of their journey, then you're ready to use the QI Macros software (page 13) to analyze your data and start making improvements.

If all of your records are on paper, then it's too costly to type them into a computer after the fact. And maybe you can't afford a medical record system that tracks this information. You still need a way to capture patient flow measures in real time. One of the ways to do this is with Excel! (See next page.) You can use our tools "off the shelf" or have us customize them to meet your needs.

# Workshops

## One-Day Lean Six Sigma for Healthcare Workshop Jump Start Your Productivity and Profitability!

Typical Lean Six Sigma training takes 10-20 days spread over 2-4 months at costs ranging from \$5,000 to \$40,000 per person.

**We do it in one day with up to 25 people for as little as \$9,500.**

Sound too good to be true? It's not because most Lean Six Sigma training covers methods and tools you'll never use in healthcare. It violates one of the key rules of Lean: avoid overproduction. Too much training dilutes the understanding you need to use these methods and tools in healthcare. So we decided to teach only the methods and tools you will need to succeed and Lean Six Sigma in Healthcare.

We call it Lean Green Five Sigma training, because we focus on teaching the essential methods and tools you need to start achieving results and moving toward 5-sigma. Most people aren't ready for all of the complex methods and tools required to achieve Six Sigma.

If your hospital is like other successful and profitable companies, you may not be sure that Lean Six Sigma can improve your bottom line. But after working with many hospitals, I can tell you that most are successful and profitable while barely 3 sigma. If a typical 3-sigma company is losing 25-40% of its expenses on waste and rework, defects and delay, think what your profit margins could be if you started reducing that waste. Think how clinical outcomes would improve if patients, doctors, and nurses weren't constantly waiting for lab results, X-rays, medicines, and so on.

You don't need to be a Black Belt in statistical methods to start making big gains. You only need a few key methods and tools and lots of improvements to achieve 5-sigma.

You don't have to be a statistician to use statistical process control (SPC) to start improving healthcare quality. You just need to know how to select your data, run control charts in the QI Macros and evaluate the results.

And we tailor our training to your company's data and needs, because you learn better when it's relevant to your job. We like to develop improvement stories right in the classroom so that you'll be

### Workshop Outline

#### Overview

- What are Lean and Six Sigma?

#### Focus for Laser-Like Improvement

- Create Your Master Improvement Story
- 4-50 Rule

#### Improve the Process

- How to Double Your Speed Using Lean
- How to Double Your Quality Using Six Sigma

#### Sustain the Improvement

- Flow Charting and Value Stream Mapping
- Choosing and Using Control Charts
- Analyzing Stability and Capability

#### Honor Your Progress

- Recognize, Review, and Refocus

#### Materials Provided

- Lean Simplified Book
- Six Sigma Simplified Book
- Lean Quick Reference Card
- Six Sigma Quick Reference Card
- SPC Quick Reference Card
- QI Macros Lean Six Sigma Software

**Investment: \$9,500**

**Includes QI Macros for up to 25 participants  
(only \$300/person including software)**

[qimacros.com/training/lean-six-sigma-for-healthcare/](http://qimacros.com/training/lean-six-sigma-for-healthcare/)

# Workshops

## Excel Tips for Quality Professionals Find the Improvement Project Lurking in Your Data

Do you have lots of data from patient incident reports, but don't know what to do with it?

Are you struggling with denied or rejected claims but don't know where to start?

Does the problem feel like too much data instead of not enough?

In this session you'll learn to use Excel PivotTables and other tools to find the improvement project lurking in your data spreadsheets.

To find and create successful Six Sigma projects, you'll often have to do some data mining in your corporate systems and Excel spreadsheets. It doesn't matter if you're analyzing scrap in a metal shop or physician behavior in a maternity ward, the answers you seek lie in the scrap-by-scrap, birth-by-birth analysis.

There's a wealth of improvement project information hiding in the acronyms, text and raw numbers associated with each of these events. To find the hidden improvement projects in this kind of data, you'll want to learn how to use Excel PivotTables to transform these data and text files into numbers you can analyze.

Then use pareto and control charts to graph the results. You'll find it easy to narrow your focus to the 4% of your business that causes over 50% of the waste and rework.

Bring your data to this workshop. We'll help you slice and dice it and turn that raw information into charts and graphs you can use. We like to develop problem statements right in the classroom so that you'll be ready to start root cause analysis immediately.

qimacros.com

### Workshop Outline

#### Learn to Analyze Data using PivotTables

- Overview of Excel's PivotTable Function
- Spreadsheet set up and data cleanup tips
- Group and Ungroup by Day, Month, Year
- Change Field Settings to Count, Sum, Avg
- Drill Down to find the 4% of your process that creates over 50% of the waste and rework

#### Learn to use Excel's Data Validation Settings

#### Learn to Select Subsets of Your Data

- Overview Of Excel's Autofilter Function
- Create Custom Auto Filter Formulas

#### Learn to Merge Data from Various Sources

- VLookup and HLookup Functions
- Offset and Match Function

#### Learn to Analyze Text Data

- Learn Excel's Count IF function
- Use QI Macros Word Count Tool

#### Learn to Create Color Coded Scorecards

- Overview of Excel's Conditional Formatting

#### Learn to Draw Paretos, Control Charts, Histograms and More Using the QI Macros

#### Materials Provided

- SPC Quick Reference Card
- QI Macros Lean Six Sigma Software

**Investment: \$9,500**

**Includes QI Macros for up to 25 participants  
(only \$300/person including software)**

# Control Chart Wizard Software for JCAHO and Healthcare Quality!

The QI Macros **New Control Chart Wizard** makes choosing a chart easier than ever before. When I taught SPC classes, it often took all afternoon to help people learn how to choose the right chart. Then one day I had an insight: the QI Macros have to analyze your data to figure out how best to graph it, **why not let the QI Macros figure out which control chart to choose automatically?** Just select your data and click on the Control Chart Wizard and the QI Macros will analyze your data and pick the best chart based on what you've selected.

Six Sigma gurus say that the next wave of Six Sigma benefits will come from yellow belts, white belts, and no belts. But it's clear that you can't afford to send all of these people to a five-day class to learn a complicated and expensive SPC package. You'll need a powerful, yet inexpensive, all-in-one tool kit that anyone can learn to use. With the QI Macros you can start drawing charts and graphs in a matter of minutes. It's that easy.

The QI Macros are easy to install and easy to use. Using Microsoft Excel, simply select your data and click on the pull-down menu to choose the chart you want; the QI Macros will do all the math and draw the graph for you. Or choose one of the fill-in-the-blank templates for everything from flow charts and control charts to FMEA, Pareto Charts, Scatter Diagrams, Fishbones (Ishikawa) and QFD.

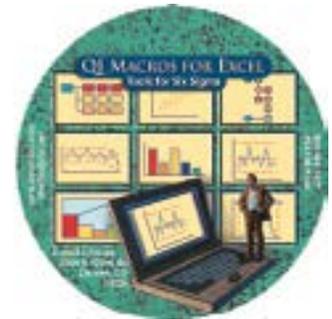
The QI Macros save time! The QI Macros work directly from your Excel data. No more copying Excel data into other SPC applications. And you can share the charts with anyone who has Excel. It's a cinch to copy the charts into PowerPoint and Word as well.

**Global Compatibility:** The QI Macros work in all versions of Excel (97, 2000, XP, 2003 and 2007) including ALL 30+ international versions! We also support Macintosh OSX.

Don't think you can afford control chart software for your nursing staff? Think again! While the Cadillac of SPC software is great for black belts and statisticians, the QI Macros start at only \$229. Significant discounts are available when you buy ten or more licenses.

Who is using the QI Macros? Thousands of hospitals, manufacturers, services and government facilities. With the QI Macros, paretos, histograms, and control charts are just a mouse click away. They also include 80+ easy-to-use, fill-in-the-blanks templates: FMEA, Flowcharts, Fishbones, control charts and histograms.

Download Your  
**FREE 30-day  
Evaluation Copy  
Today!**

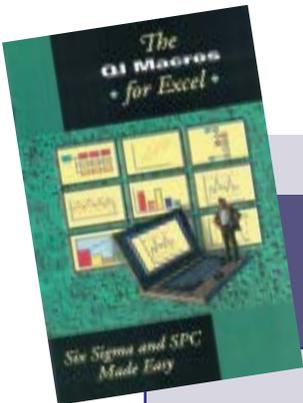


**FREE!** You can download the QI Macros for Excel evaluation copy and user guide from our website: [qimacros.com/free-resources](http://qimacros.com/free-resources) Or you can order them for only: \$229 + \$9 S&H. (Item #230)

**SPECIAL BONUS:** Get \$90 of FREE ebooks (PDFs) with the QI Macros CD-ROM including Six Sigma Golf.

Can't brag enough about the QI Macros. It is the most easy to use, inexpensive tool out there. Best of all it's for real people, not just statisticians and computer nerds.

Quantity Discounts		
Quantity	Price:	S&H
2-9 licenses	\$229	\$10
10-49 Licenses:	\$179	\$15-35
50-99 Licenses	\$159	\$50



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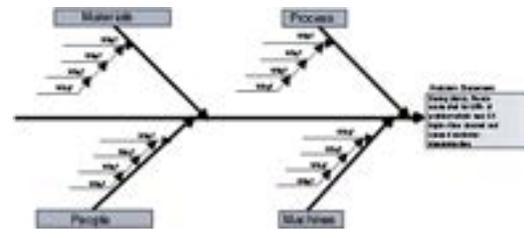
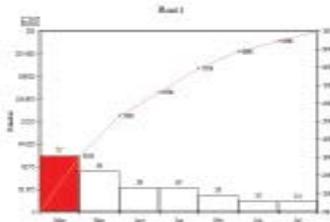
- Six Sigma Tools — 30 macro charts, over 80 templates, and 17 statistical tools like ANOVA.
- QI Macros User Guide (36 pages)
- Six Sigma Simplified Training, Email Course, Action Plan, Ezine, and Quick Reference Cards
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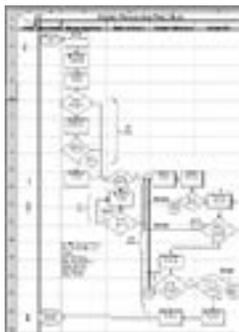
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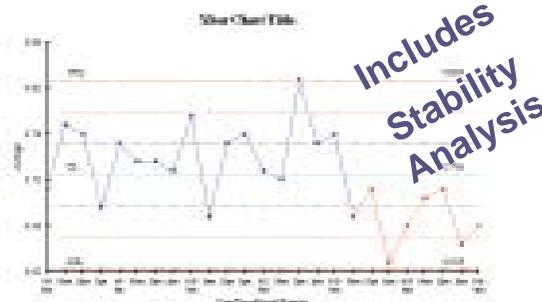
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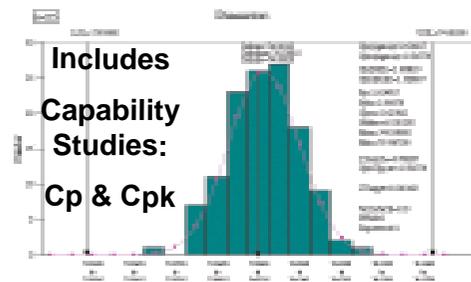


Flow Chart



Control Chart

Includes  
Stability  
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Histogram

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Histogram with Cp, Cpk	c, u, np, p Chart	EMEA/FMEA	ROC Curve	F-Test: Two-sample
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