So You Think You Want to Be a Black Belt? Here's the Real Scoop on What You Should Know!

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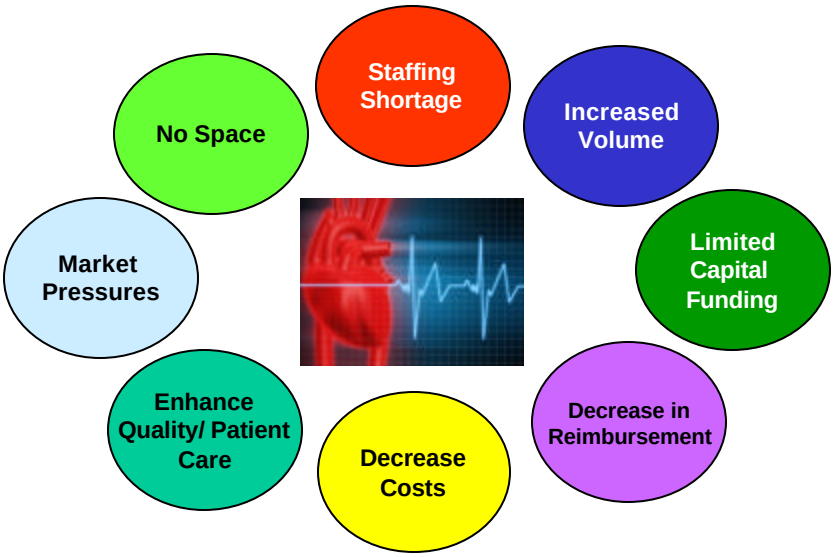
Laboratory Challenges



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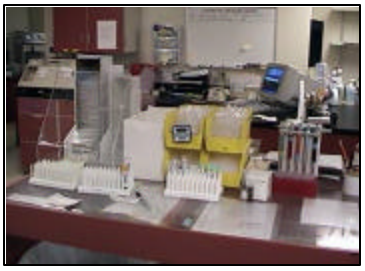
Any Problem?





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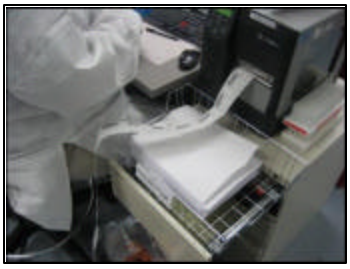
Any Problem?

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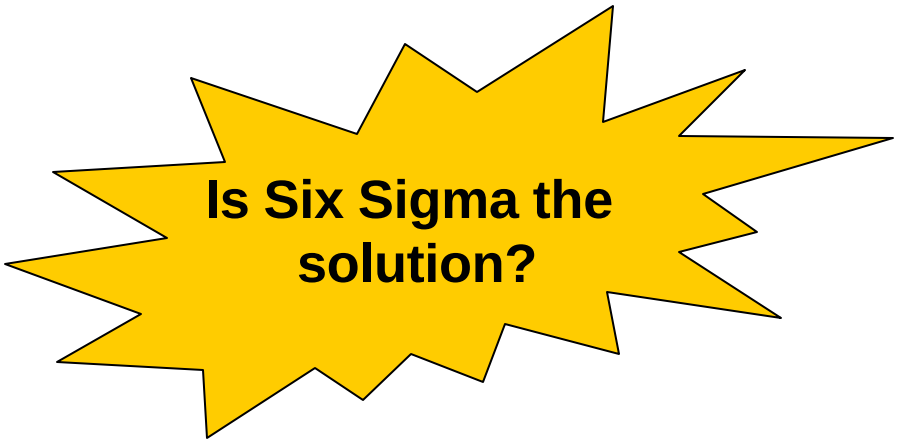

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Learning Objectives

- Understand the minimum skills, expectations, requirements and experience of belts
- Learn how to compare different Lean/Six Sigma educational programs for the development of belts
- Determine the type of belt required to successfully execute different projects

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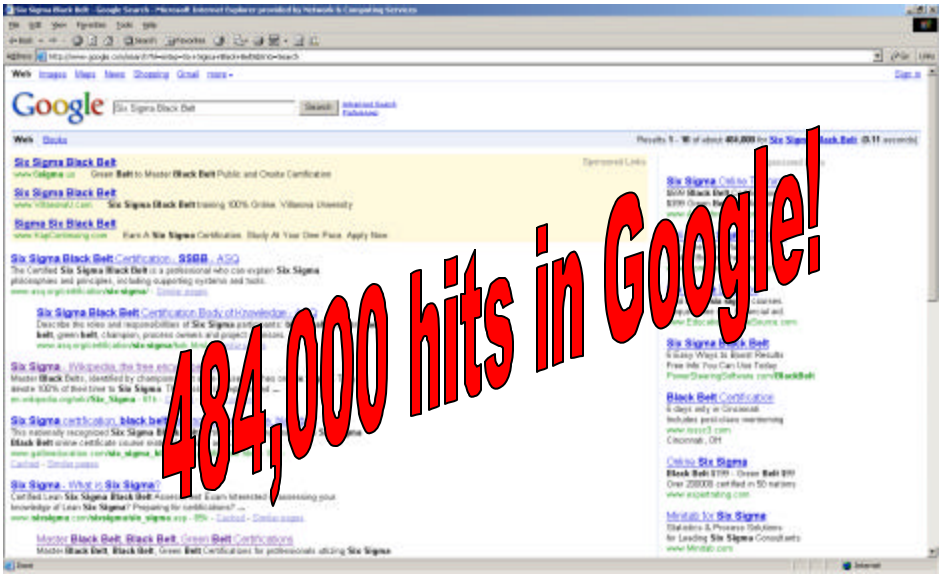
Six Sigma Black Belt



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Origin and Definition of the Term *Six Sigma (6?)*

- Bill Smith (originator of the six sigma concept in 1984)
- Motorola coined the term in 1986
- Registered service mark and trademark of Motorola, Inc.
- Six Sigma has statistical roots in the technique known as process capability (how capable (able) the current processes are at satisfying customer requirements).
- Six Sigma Capability is assumed to produce long-term defect levels below 3.4 defects per million opportunities (DPMO).
- Six Sigma's implicit goal is to improve all processes to that level of quality or better.

Reference: Thomas Pyzdek
http://www.qualitydigest.com/feb00/html/sixsigma.html

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Origin of the Term *Black Belt*

- Dr. Mikel Harry is the creator of the term Black Belt (1986-1987)
  - Ex-Motorola trainer working at the Unisys Salt Lake Printed Circuit Facility
  - Clifford Ames, Facility Manager
  - *Process characterization experts* ✍ Black Belt
- Motorola
- Black Belt program began in Motorola in 1990 with the organization of a DOE (Design of Experiment) symposium committee

Reference: Gail C. Chadwick
http://www.isixsigma.com/library/content/c031006a.asp

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Six Sigma Has Two Key Methodologies
(both inspired by Deming's Plan-Do-Check-Act Cycle)

DMAIC

- ***D****efine* process improvement goals that are consistent with customer demands and the enterprise strategy.
- ***M****easure* key aspects of the current process and collect relevant data.
- ***A****nalyze* the data to verify cause-and-effect relationships. Determine what the relationships are, and attempt to ensure that all factors have been considered.
- ***I****mprove* or optimize the process based upon data analysis.
- ***C****ontrol* to ensure that any deviations from target are corrected before they result in defects. Set up pilot runs to establish process capability, move on to production, set up control mechanisms and continuously monitor the process.

DMADV (aka DFSS*)

- ***D****efine* design goals that are consistent with customer demands and the enterprise strategy.
- ***M****easure* and identify CTQs (characteristics that are **C**ritical **T**o **Q**uality), product capabilities, production process capability, and risks.
- ***A****nalyze* to develop and design alternatives, create a high-level design and evaluate design capability to select the best design.
- ***D****esign* details, optimize the design, and plan for design verification. This phase may require simulations.
- ***V****erify* the design, set up pilot runs, implement the production process and hand it over to the process owners.

*DFSS – Design for Six Sigma

Reference: Wikipedia
http://en.wikipedia.org/wiki/cite_note-mikel-11

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Why and When to Use Six Sigma

DMAIC

- To reduce defects and variation in an existing process
- When the causes of the problem are uncertain
- When the solution is not already obvious or prescribed
- When the improvement will have a significant business impact

DMADV

- To design new processes from scratch
- When the customer requirements are uncertain or unmet
- When the solution is not already obvious or prescribed
- When the new design will have a significant business impact

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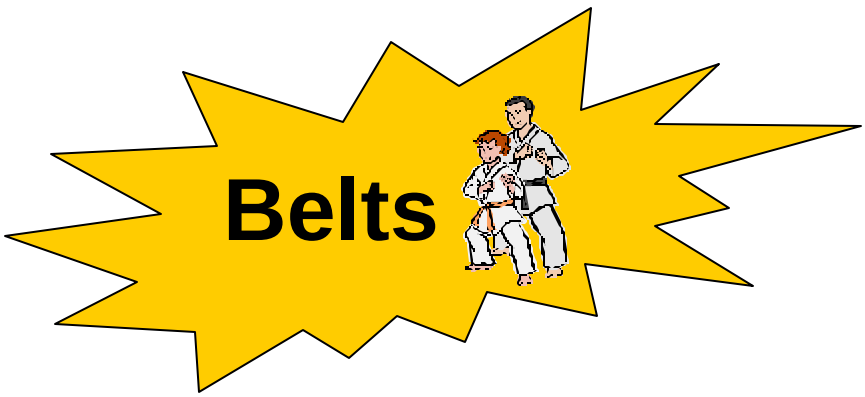
Who Drives Six Sigma Initiatives?



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Black Belt Responsibilities and Skills

Responsibilities	Technical Skills	Soft Skills
✍ Lead high impact process improvement projects (DMAIC or DMADV) and improvement teams to increase customer satisfaction levels and business productivity (full time job). ✍ Coach Green Belts and receive coaching and support from Master Black Belts. ✍ Communicate project progress on a routine basis to process owner and other key stakeholders. ✍ Monitor process improvement results to ensure sustainability. ✍ Leverage learning through communicating across functional divisions. ✍ Continue his/her education in improvement methodologies.		

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Adapted from: *Making Six Sigma Last* by George Eckes

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Adapted from: *Making Six Sigma Last* by George Eckes

Green Belt Responsibilities and Skills

Responsibilities	Technical Skills	Soft Skills
✍ Lead process improvement projects and improvement teams as part of their full time job. ✍ Operates under the guidance of Black Belts and support them in achieving the overall results. ✍ Guide Yellow Belts and improvement teams through project completion by providing project coaching/ consulting in the basic quality tools and techniques of Six Sigma. ✍ Communicate project progress on a routine basis to the Black Belt, process owner and other key stakeholders. ✍ Leverage learning through communicating within functional division.		

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Green Belt Responsibilities and Skills

Responsibilities	Technical Skills	Soft Skills
✍ Lead process improvement projects and improvement teams as part of their full time job. ✍ Operates under the guidance of Black Belts and support them in achieving the overall results. ✍ Guide Yellow Belts and improvement teams through project completion by providing project coaching/ consulting in the basic quality tools and techniques of Six Sigma. ✍ Communicate project progress on a routine basis to the Black Belt, process owner and other key stakeholders. ✍ Leverage learning through communicating within functional division.	✍ Working knowledge of basic statistics and quality tools and demonstrated proficiency in the use of the appropriate subset of tools and techniques of Six Sigma (not as much knowledge as a BB). ✍ Typically completed one to two weeks of Six Sigma training. ✍ Experience with computers and data analysis.	

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Green Belt Responsibilities and Skills

Responsibilities	Technical Skills	Soft Skills
✍ Lead process improvement projects and improvement teams as part of their full time job. ✍ Operates under the guidance of Black Belts and support them in achieving the overall results. ✍ Guide Yellow Belts and improvement teams through project completion by providing project coaching/ consulting in the basic quality tools and techniques of Six Sigma. ✍ Communicate project progress on a routine basis to the Black Belt, process owner and other key stakeholders. ✍ Leverage learning through communicating within functional division.	✍ Working knowledge of basic statistics and quality tools and demonstrated proficiency in the use of the appropriate subset of tools and techniques of Six Sigma (not as much knowledge as a BB). ✍ Typically completed one to two weeks of Six Sigma training. ✍ Experience with computers and data analysis.	✍ Good project management, and people management skills. ✍ Able to translate data and other information into action steps. ✍ Able to assist Black Belts in clarifying and maintaining focus on the most significant process variables to measure. ✍ Able to coach improvement team members as required. ✍ Good oral and written communications skills. ✍ Able to monitor change initiatives and provide feedback.

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Yellow Belt Responsibilities and Skills

Responsibilities	Technical Skills	Soft Skills
✍ Often responsible for running smaller process improvement projects using the PDCA Cycle (Plan, Do, Check, Act) methodology. ✍ Communicate project progress on a routine basis to Black Belts and Green Belts, process owner and other key stakeholders. ✍ Leverage learning through communicating within department. ✍ Participate as a core team member or subject matter expert (SME) on a project or projects.		

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✍ Often responsible for running smaller process improvement projects using the PDCA Cycle (Plan, Do, Check, Act) methodology. ✍ Communicate project progress on a routine basis to Black Belts and Green Belts, process owner and other key stakeholders. ✍ Leverage learning through communicating within department. ✍ Participate as a core team member or subject matter expert (SME) on a project or projects.	✍ Basic knowledge of statistics and Six Sigma tools and techniques (2-3 day training). ✍ Some experience with computers and data analysis. ✍ Able to collect data and use descriptive statistics to interpret the data.	

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Belt Levels and Certifications Are Not Universal

- Although belt levels are common, they are by no means universal.
- Companies and consulting firms often create their own titles to describe the work done by these technical leaders.
- There is no standard describing the body of knowledge people with ‘belt’ titles must master.
- There is no standard describing licensing or certifying credentials.
- The use of “Belts” as change agents has created an industry of training and certification.

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Black Belt: To Be or Not to Be?

CONS

- The work pace won't slow down.
- You won't become the "big kahuna."
- Everyone will not be glad to see you.
- You have to deal with numbers.
- You won't be able to hide from people.
- You will not single-handedly and heroically save the company ten million dollars.

PROS

- You'll never be bored.
- You'll make a meaningful contribution.
- You'll be highly visible.
- You'll pick up new skills.
- You'll become more influential.
- You'll increase your promotability and marketabiltiy.

Reference: Jim Fishbein and Mary Federico
http://www.isixsigma.com/library/content/c031013a.asp

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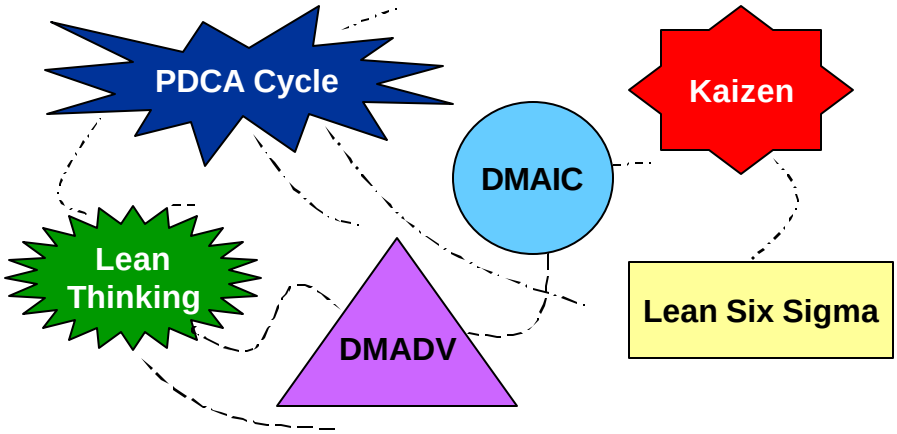
Is Six Sigma Always the Answer? Perhaps "Not"…



There are many improvement methodologies!

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Consider Lean Thinking

Methodology and tools for transforming processes to deliver customer value faster, improve work flow and eliminate waste.

- Concept of Lean is Simple
- Implementation of Lean is **Challenging**
- Results of Lean can be Outstanding

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Lean Thinking Wastes

Type of Waste	Description
Over-production	Doing more than you need to - output of a process
Waiting	Things just don't happen when they should
Transportation	Moving stuff to different locations
Inventory	Keeping stuff on-hand when it isn't required
Over-processing	Doing more than you need to - within a process
Motion	Excess movement - person within a process
Defects	It just doesn't meet expectations
People	Not utilizing highly trained staff effectively

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Compare Six Sigma With Lean Thinking

Methodology	Six Sigma	Lean Thinking
View of Waste	Variation is waste	Non-value add is waste
Application	1. Define 2. Measure 3. Analyze 4. Improve 5. Control	1. Identify Value 2. Define Value Stream 3. Determine Flow 4. Define Pull 5. Improve Process
Tools	Math-Statistics (Difficult to teach and learn)	Visualization (Easy to teach and learn)
Focus	Problem focused	Process flow focused
Primary Metric	Defects	Time
Discipline Required	Anyone responsible for process improvement	Everyone
Time to Change	Slow (weeks to months)	Quick

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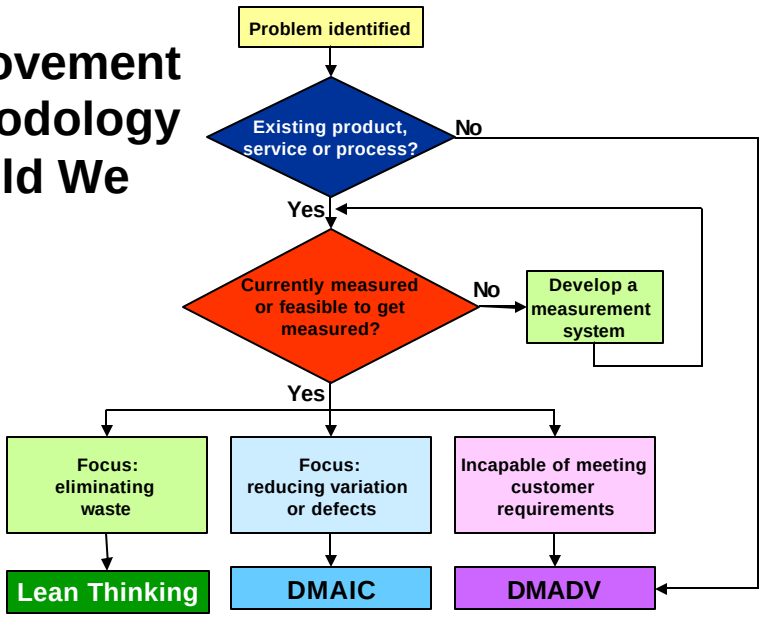
What Improvement Methodology Should We Use?



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Examples of Six Sigma Trainings in the Market

Training	Instruction Method	Duration	Company
3-Day Healthcare Jumpstart Rx©	Face-to-Face	3 days	Six Sigma.us
Six Sigma Yellow Belt Training for Healthcare	**Face-to-Face**	**2 days**	**ValuMetrix Services, Ortho-Clinical Diagnostics**
Six Sigma Green Belt Training — Healthcare	Face-to-Face	2 weeks	American Society for Quality
Lean Six Sigma Black Belt for Healthcare — Blended Format	Blended course (online, self-study and face-to-face)		American Society for Quality
Six Sigma Green Belt Training	Face-to-Face	5 days	Healthcare Excellence Institute
Six Sigma Black Belt Training	Face-to-Face	4 weeks	Healthcare Excellence Institute
Online Six Sigma Green Belt Healthcare Program	Online	Self-paced	University of Michigan Engineering

Which one is best?

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The Best Training Program for You Depends On…

- The type of problem you want to solve (e.g., defect reduction, waste elimination, flawless new services, etc.).
- The content of the training (focus on healthcare is a must!).
- The cost of the training program.
- The duration of the training program.
- The coaching/mentoring offering from training program.
- The reputation/quality of the training program.
- The transferability of learnings.
- Etc.

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What Makes Six Sigma and Other Improvement Methodologies Work?

- The right projects
- The right people
- The right training
- The right leadership
- The right culture
- The right roadmap

Quality

Cost

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Roadmap for Success

…from an Experienced Master Black Belt

- Executive engagement
- Ready, able and willing to change/improve mentality
- Alignment of improvement goals and strategy
- Well-known success indicators and performance measures
- Established criteria for problem identification, project selection and corresponding improvement methodology
- Selection of the right “belts”
- Selection of the right training program
- Sharing lessons learned

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Learning Objectives

- Understand the minimum skills, expectations, requirements and experience of belts ☞
- Learn how to compare different Lean/Six Sigma educational programs for the development of belts ☞
- Determine the type of belt required to successfully execute different projects ☞

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Questions

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Technical Reference Books and Pocket Guides

- *Six Sigma DeMystified: A Self Teaching Guide,* P. Keller, McGraw Hill, 2005.
- *Managing Six Sigma*, F. W. Breyfogle III, J.M. Cupello, and B. Meadows, John Wiley and Sons, 1999.
- *Implementing Six Sigma*, F. W. Breyfogle III, John Wiley and Sons, 1999.
- *Six Sigma for Green Belts and Champions*, H.S. Gitlow and D.M. Leivne, Prentice Hill, 2005.
- *The Six Sigma Handbook*, T. Pyzdek, McGraw-Hill, 2003.
- *The Lean Six Sigma Pocket Toolbox*, M.L. George, D. Rowlands, M. Price and J. Maxey, McGraw Hill, 2005.
- *Rath & Strong's Six Sigma Pocket Guide*, Rath & Strong, a Division of Aon Consulting Worldwide, 2001.
- *The Lean Healthcare Pocket Guide,* D. Hadfield and S. Holmes, MCS Media, Inc., 2006.

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Leadership Books

- *Lean Hospitals*, M. Graban, CRC Quality Press, 2009.
- *The Best Practice*, C. Kenney, Public Affairs, 2008.
- *Improving Healthcare Using Toyota Lean Production Methods,* 2nd Edition, Robert Chalice, ASQ Quality Press, 2007.
- *Improving Healthcare Quality and Cost with Six Sigma,* B.E. Trusko, C. Pexton, H.J Harrington and P. Gupta, FT Press, 2007.
- *Creating a Lean Culture,* D. Man, Productivity Press, 2005.
- *Making Six Sigma Last*, G. Eckes, John Wiley & Sons, 2001.
- *The Six Sigma Revolution*, G. Eckes, John Wiley & Sons, 2001.
- *The GE Way Fieldbook*, R. Slater, McGraw-Hill, 2000.
- *Jack - Straight from the Gut*, J. Welch, Warner Books, 2001.
- *What is Six Sigma?*, P. Pande and L. Holpp, McGraw-Hill, 2002.

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Internet Resources

- www.valumetrixservices.com
- www.isixsigma.com
- www.ihi.org
- www.library.nhs.uk/HealthManagement/SearchResults.aspx?catID=4038

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