

Reducing Average Length of Stay in an Emergency Department

- A Lean Sigma Project

Project Background

The facility is a medium-sized hospital serving five communities in south central Texas. It had gained a reputation for long emergency room waiting times, resulting in local residents driving 30 miles or more to hospitals in neighboring major metropolitan areas. The facility also experienced declining customer satisfaction ratings. The hospital hoped to improve its wait times in order to keep more of the communities' residents visiting their facility, closer to home.

SBTI was selected to send a Black Belt consultant to select the project team and lead the project. Team members were selected from the Emergency Department (ED) and other ancillary departments including laboratory, radiology, materials management, and registration. The team worked through SBTI's Lean Sigma DMAIC roadmap using Six Sigma and Lean tools to identify the sources of the problems leading to long wait times.

Define

The project began with the project team developing a Project Charter. The team sought and received sign-off on the charter from the CEO to ensure project goals were aligned with the strategic goals of the hospital. A brief memo was sent to all hospital staff communicating the nature and objectives of the project. The memo was placed in each employee's paycheck so that everyone was aware of the project and the management's commitment to its success.

In 50 Words or Less

- A hospital Emergency Department used Lean Sigma to address patient average length of stay
- Goals: Reduce cycle time from triage to bed by 50%; improve patient satisfaction
- Results: Cycle time decreased by 60%; satisfaction improved; and the rate of patients who left without being seen declined 50%



Fig 1: Material Supply Area pre-changes

After all data was collected and analyzed, most of the areas for improvement “jumped off the page” to the team

Measure

Cycle times or metrics around clinical processes are often not adequately tracked or captured. The team spent considerable time using Six Sigma and Lean tools to map the process and identify which steps were causing the largest amount of variation. Some of these decisions relied on native intelligence from the team, as data was not available to validate all areas of concern.

After working through the exploration tools to get the team to the detailed level required, a passive study was conducted to try and understand the process at its current state. This approach gave the team the necessary data to validate whether the identified variables were indeed the variables needed for analysis.

Analyze

After all data was collected, it was analyzed to determine the source of variation and its cause. Most of the areas for improvement “jumped off the page” to the team and most areas of concern were validated with statistical analysis.

Improve

The improvements were implemented within all departments relatively quickly. Some improvements implemented within this facility include:

- Triage nurse given responsibility for moving the patient and chart instead of the registration clerk
- Improved clipboard system to allow triage nurses to know exactly which beds are available to new patients
- Number of chart racks decreased, reducing occurrence of confusion and chart misplacement

Culture change was also underway during this time. It became imperative that management step forward to assist with needed changes, including the required staff buy-in. The project would have been considered successful solely from the commitment to change by the hospital staff.

Control

Controls were put in place around each improvement area. Metrics were established and are tracked weekly using spreadsheets. Not all departments included in the project team required change. However, because of their understanding of data being necessary for change, they have now begun tracking cycle times and other metrics to help them improve in other areas of the department.



Figure 2: Material Supply Area post changes

General Results and Conclusions

Project results include:

- LWBS decreased by more than 50%
- Cycle time from Triage to Emergency Room bed decreased by 60%
- Unacceptable lab specimens dropped from 5% to 2%
- Lab turnaround times decreased considerably
- Customer satisfaction ratings increased from 8th to 2nd in the region
- Hard dollar savings from organization and rework of minimums from material areas within the Emergency Department.
- Improvement to patient throughput increased maximum capacity for a potential revenue growth of \$600,000 per year.

As a result of improvements experienced by the Emergency and ancillary departments, the hospital looks to continue using Six Sigma and Lean tools to improve in other areas. Many team members are now becoming trained Green Belts and Black Belts to deliver additional results.

References:

1. Wedgwood, Ian. Lean Sigma: A Practitioner's Guide. Prentice-Hall: Upper Saddle River, NJ, 2006.
2. Zinkgraf, Stephen. Six Sigma: The First 90 Days. Prentice-Hall: Upper Saddle River, NJ, 2006.

Contributor:

Maria Madrigal, Master Black Belt, SBTI

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Sigma Breakthrough Technologies Inc[®]



About Sigma Breakthrough Technologies, Inc :

Our History

Dr. Stephen Zinkgraf developed and deployed the Six Sigma methodology while working in various leadership positions at Motorola, Compaq, ABB, and AlliedSignal. Recognizing an opportunity to expand Six Sigma in combination with Lean into every area of a company's business, Dr. Zinkgraf founded SBTI in May 1997. Beginning with 2 corporate clients, SBTI has grown organically through referral to more than 50 global corporate deployments with an additional 50 clients using SBTI methodology. This proven track record of success has made SBTI a global leader in transforming companies.

Our People

SBTI Executive Directors and Master Consultants have a minimum of 10 years industry experience (many have 25 or more years experience). All of our consultants have a common characteristic of having actually led successful initiatives inside a corporation.

Our Services

SBTI defines its core competencies around its support of clients in the rapid deployment of Six Sigma and Lean Enterprise methodologies as business changing improvement initiatives. To accomplish this, SBTI delivers a full range of services. These services include strategic planning and assessments, multi-level leadership workshops and specialized "Belt" training at the tactical level. SBTI's methods and offerings are all based on business results and internalization through highly tailored programs that reflect our client's specific needs.

Our Capabilities

SBTI has offices in the US, Latin America, Europe, China, Hong Kong, and Korea, which offer unmatched experience and capability. These regional offices provide local language and bilingual instructors who are familiar with the SBTI roadmap and materials. These instructors have led multiple waves of training completing projects and mentoring Black Belts. Supporting those experienced MBB's is SBTI's world-class material translated into French, German, Korean, Spanish, Italian, Swedish, Portuguese, Japanese, and Mandarin Chinese.

Our Results

SBTI encourages our clients to internalize the deployment and training as quickly as possible - usually between one to two years. SBTI clients average 30X return on investment within the first 24 months of the engagement. By bringing our clients world-class consultants, materials, and experience, we can guarantee your program is a successful business and culture change.

SBTI has delivered the fastest and highest return on investment in the industry by providing:

- Customized solutions for the client's specific business needs
- Accelerated knowledge transfer of the business process excellence methodologies
- Development of future leaders and process experts
- Truly global solutions (including material translations and home language)

For more information, contact SBTI at: healthcare@sbtimail.com or visit us at www.sbtionline.com
1-888-752-7070