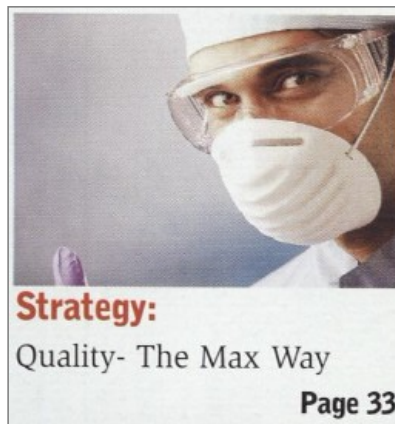


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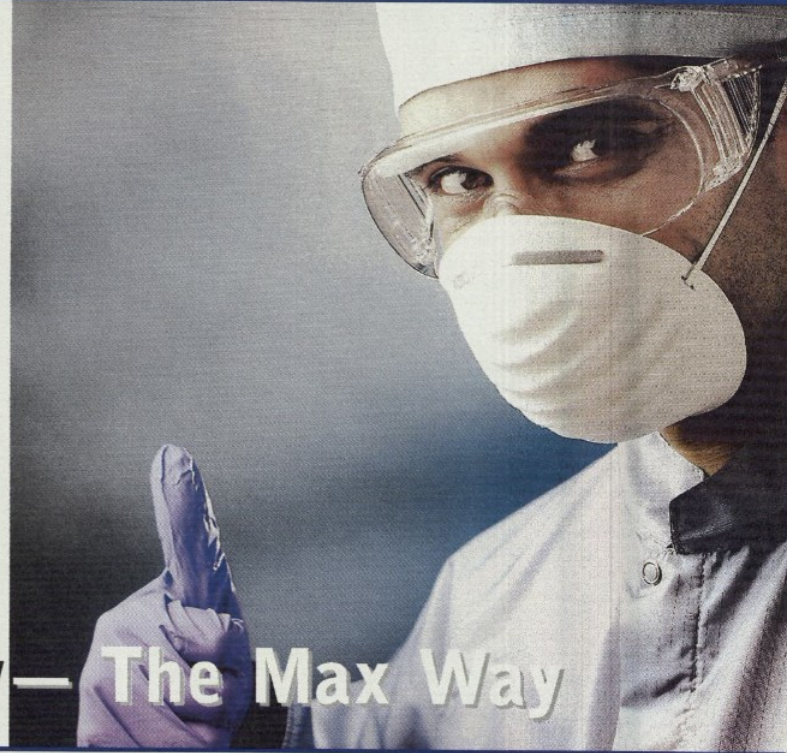


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FOCUS

Max Healthcare has successfully implemented Six Sigma in six key areas. Sonal Vij analyses the implementation of the system that makes perfect sense for hospitals wanting to improve quality of care and service to patients

Quality — The Max Way



Improving quality standards without adding costs is a challenge that most industries face today. This is true for healthcare industry also. So, how does a hospital ensure the optimum utilisation of the available resources to provide services as desired? Max Healthcare (MHC) has the reply.

From the beginning, the hospital has been striving to attain the quality standards. Focus on quality was initiated in 2005. Informs Shubhra Verma, Senior Manager Quality and Six Sigma Master Black Belt, "We implemented ISO to have systematically defined and written down processes for all non-clinical and most clinical departments and had performance dashboard measures for improvements to ensure continual improvement based on process-approach." For excel-

lence, MHC has recently received DL Shah award on 'Economics of Quality' from QCI for a Six Sigma project on standardisation and consolidation of housekeeping items.

Need for Perfection

Realising considerable gaps in customer expectations and services delivered, MHC felt the need to measure these gaps. As compared to all quality management tools, Six Sigma methodology was identified as most suited to healthcare needs. Six Sigma was implemented in September 2006. Instead of taking help from an outsider, MHC chose to train its own resources. Explaining the reason for not outsourcing the process, Verma says, "We, as a process owner, know our strengths and weaknesses and we can develop modules to our needs. An outsider will not be able to

understand our operational capabilities as much as the in-house process owner."

MHC boasts of training over 200 personnel for Six Sigma over the last two years (which includes black, green and yellow belt). The training was imparted cross functional and across all hierarchies.

Steps to Implementation

Key areas were identified wherein the scope of improvement was required. "MHC has a established customer feedback system, Total Customer Experience Questionnaire (TCEQ) and measurement performance dashboard 'Service Paves All Road to Superlative Healthcare' (SPARSH) helped us in identifying the areas of improvements," says Verma.

TCEQ is the dashboard of output process measurement as seen and conveyed by the customer. The consistent con-

cern areas that reflect in our customer feedback analysis, provide an input for taking-up six sigma projects," she adds.

SPARSH is the dashboard of 'input process parameters'. Over 90 parameters are being tracked across functions, inclusive of 'medical operations' and 'service quality' parameters. "This is to measure our own performance as per the process capability," informs Verma. The next step was identification. Through Value Stream Mapping (VSM), MHC identified all the concern areas which were reflecting through TCEQ and SPARSH. Informs Atik Gupta, Manager Quality, MHC, "We looked at all the concerns areas at different customer touch points like security, OPD, food and beverages, diagnostics and Max chemist that needed focus for improvement." For each areas, non-value adding activities (like repetition of same activity which increases the turn-around-time) were identified and there was removal of unnecessary activities to save time and avoid confusions.

Methodologies Used

MHC makes use of Six Sigma DMAIC (Define, Measure, Analyse, Improve, and Control) methodology for project targeted to focus problem resolution specifically on process capability and cost optimisation. In healthcare organisations, patients don't feel only averages, they feel the variance in each transaction or procedure. For instance, a patient comes to OPD two times, on one occasion its waiting time is 10 minutes and on second occasion it was 60 minutes, the average is 35 minutes but the range is 50 minutes. "Our Six Sigma focus was first on reducing the variation in a process and then on improving the process capability," says Gupta.

MHC also has a comprehensive performance measurement system (SPARSH) - for key processes- both medical and services related activ-

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The TAT was reduced at Max Chemist



Gaps were identified between nursing and pharmacy

macy, medical quality and nursing.

Pharmacy

Increase Capacity of Dispatch System: In pharmacy, there was the demand and supply gap. "Also, there was high wait time at Max Chemist (average waiting time was 16.4 minutes), poor fill rate, and uneven distribution of work load. For the customer, either it meant lack of availability of the required medicines or undue wait time," explains Devarati Majumdar, Chief - Pharmacy and a green belt holder.

To tackle this issue, the total number of indents (requestion) in a day and the total number of issues happening against that were measured and gaps identified. Explaining the change, Majumdar adds, "Resource allocated for each activity was reviewed and keeping in mind the capability of each person, they were realigned to suit the current requirement." Batch process was converted to continuous process and auto indent was implemented. Shift timings, courier timings, item stacking - all were reviewed and realigned. For instance courier timing was adjusted as per the non-peak traffic hours to avoid undue time wastage.

ities. 92 key indicators are tracked uniformly across all hospitals, which are regularly reviewed against preset targets to see the performance trend and identify opportunities for improvement.

Need for a Change

There were various areas covering clinical and non-clinical (support services) that required considerable improvement. "We decided to first focus on the non-clinical project. The idea was to first show the results in service areas where the potential risks were less and then replicate the same in clinical areas," opines Verma. Based on the prioritisation matrix, the team identified around 40 processes across all functions that needed focus. A few of key projects undertaken were mainly phar-

To tackle the problem of tracing medicines, visual controls, colour coding for various transactions was done, such as green for 'ready to dispatch', yellow for 'fresh receipts' and red for 'rejected items'. This automatically increased traceability and thus productivity. The results were an increase in dispatch capacity by 33 per cent, manpower productivity by 33 per cent, and increase in customer satisfaction by 12 per cent (as reflected in TCEQ). The tangible benefit was also reflected with 1/3rd increase in pharmacy revenue.

Previously, even if a substitute medicine was available, the chemist couldn't find the substitute. Thus, the challenge to implement bio-equivalent alternate substitute items of high margin was accepted. "Analysis of consumption value, based on each manufacturer was done. Potential items where cost savings were possible with equivalent quality substitutes were selected. Lower specification limit of selected items was 32 per cent profit margins on MRP with 1.197 process sigma before the start of the project," Majumdar says.

Reduction in Procurement Cost: Implementation of bio

equivalent alternate substitute items of high margin was always a challenge. Potential items where cost savings was possible with equivalent quality substitutes were selected. Lower specification limit of selected items was 32 per cent profit margins on MRP with 1.197 process sigma before the start of the project.

After rigorous negotiation exercise of the running items, followed by the right substitute implementation of the remaining items average margin of selected items increased to 49 per cent leading to substantial cost savings. "Our process sigma was now 2.568 after the project," she informs.

Medical Quality

A Six Sigma project was initiated with the goal of reducing CRBSI rate in the medical ICU. A defect in this project was defined as a patient with CRBSI. During the initial phase of the project, the team developed a detailed business case and collected data on the percentage of patients acquiring an infection during their hospital stay. The team developed a Supplier, Input, Process, Output Customer (SIPOC) flow chart - a high-level process map.

Drivers or 'Xs' were identified by the team's cause-and-effect fishbone diagram. This fishbone diagram was used to identify the critical 'Xs' of focus for this initiative. Critical 'Xs' included hand hygiene, maximal barrier precautions, skin preparation. Before any insertion of catheter line the skin is sterilised using Betadine or other chemicals, CRBSI monitoring and awareness among the staff. The team defined criteria for CRBSI and set the guidelines for catheter insertion. All the doctors and nurses of medical intensive care unit were trained using educational videos etc and monitored for 10 patients to ensure effectiveness of training. The hand hygiene practices were reinforced and the drying time for the site was increased to three to five minutes as per WHO standards. A two per cent Chlorhexidine Tincture preparation was used for skin antiseptics. Close monitoring and assessment of the progress of patient on central line was done by MICU head on daily basis.

"The quality improvement project achieved major success. Over the period of seven months, the process sigma was brought to 4.10 levels and the CRBSI rate reached the lowest level reported interna-

tionally," says Verma. As per the CDC, CRBSI rate in the US has reached 5.7 per thousand patient days on catheter. MHC has now reached upto 3.9.

Nursing

Medication management between pharmacy and nursing is the key indicator for the patient health "There was a great dissatisfaction amongst nurses with respect to medication receipts from pharmacy. The turn-around-time was high and below expectations," shares Gupta. To solve this problem, the activities of pharmacy and nursing were narrowed down to understand the entire process and identify the gaps. One of the major areas of concern was the indent-load on the pharmacy. It was analysed that nearly 33 per cent of items indented were being returned leading to duplication of work at both ends.

A multi-disciplinary team was formed consisting of key-stakeholders in order to consider interests of all contributors. The team included administrators, nursing heads, pharmacy heads, HR and the quality group. The team achieved consensus for standardising the process through classifying indents as immediate/ routine/ urgent for better prioritisation and meeting time lines, indenting one indent per patient for routine medicines and returning of medicines at non-peak hours to reduce workload. This led to a success rate of 27 per cent with only five per cent of items indented being returned. Also, the Six Sigma level increased from 2.17 to 3.23 which directly resulted into increased customer satisfaction.

Challenges & Future Plans

A new introduction in any workforce faces resistance. It is a challenge to implement a new methodology and ensure success. So, it was decided to show success in simpler areas first, where the dependent factors are not in plenty, and where implementation faces the least cost-incurring and resistance and later take the learning to other difficult areas of improvement.

Changing the mindset was also a challenge. "It was also tough to ensure implementation of operational complexity new application, device, or service," adds Verma. Future plans include implementation of Six Sigma in all the clinical areas. ■

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Our customer feedback analysis provide an input for taking-up six sigma projects

Shubra Verma
Senior Manager - Service Quality
Six Sigma- Master Black Belt



Resource allocated for each activity was reviewed and re-aligned to suit the current requirement

Devarati Majumdar
Chief - Pharmacy
Six Sigma - Green Belt