

PETER LOUGHEED HOSPITAL CALGARY SIX SIGMA ED CTAS 3 STREAMING



Editor's Summary: In *Peter Lougheed Hospital Calgary's Six Sigma ED CTAS 3 Streaming Project*, of Alberta Health Services, a focus was put on patients who present to the Emergency Department and who are considered 'urgent' or 'less urgent' according to the Canadian Triage Assessment Standards. These patients account for 75% of all patients at the Emergency Department so an improvement in this group would have a high impact overall on the ED capacity. The objectives were to ensure that 80% of these cases are completed within 3.25 hours. Strategies such as *Lean Six Sigma* were used to understand the value of each step in the process and identify the opportunity to reduce inefficiencies. A 'Rapid Assessment Zone' was also used within the Emergency Department. The result was an average cycle time improvement of 10% or 19 minutes per case. What does this mean? An additional 276 people could be treated per month because staff can see 5 people in the time it used to take to see four people.

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Purpose:	The CTAS (Canadian Triage and Acuity Scale) rating provides a guideline time for an Emergency Department (ED) physician to see a patient after they have been triaged. In baseline 2006, 13.9% of patients were seen within the recommended CTAS guidelines. The focus of this project was patients with CTAS ratings of 3 (urgent) and 4 (less urgent), which constituted 75% of all patient ED throughput. To improve CTAS response times, the project was designed to reduce cycle time of CTAS 3 and 4's from 210 minutes to 195 minutes (80% of patients through in 195 minutes), based on short term process capability. The project also focused on reducing the rate of patients Left Without Being Seen (LWBS) from 10% to 5% for CTAS 3 and 4.
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Context:	The project was chartered under the umbrella of GRIDLOCC (Getting Rid of Inappropriate Delays that Limit our Capacity to Care), a two-year project funded by the Alberta government's Wait Times Management Initiative. GRIDLOCC focuses on system redesign to reduce waiting times and overcrowding in Calgary's Emergency Departments.
Resources:	Operating \$: ____ FTEs: __1.2 FTE (total during 48-week project including internal Quality Improvement Consultants, Operational team members from ED, sponsor)
Source of resource:	<input checked="" type="checkbox"/> <i>In kind</i> contributions from the organization <input type="checkbox"/> Dedicated internal funding <input checked="" type="checkbox"/> External funding (example grant, Ministry etc.)
Population group:	The population group consisted of patients (residents from the Northeast Calgary) seeking emergency services and accessing the PLC ED. The population group specifically consisted of patients classified with a CTAS rating of 3 (urgent) or 4 (less urgent), which constituted 75% of all patient ED throughput.
Patient flow entry and end points:	The patient flow was measured from the time of the start of ED physician assessment (patient in the ED bed) to the point of the patient leaving the ED stretcher bay bed.
Description/ approach:	The methods used in this project included learning and integrating Six Sigma and Lean methodology into both measuring and improving the services in the PLC ED. This initiative resulted in applying rigorous data collection, measurement and improvement strategies to optimize patient access to health services. The ED department used the Six Sigma data to support their streaming project in RAZ (Rapid Access Zone) to optimize patient flow through the department. At the conclusion of the project, the ED dedicated a permanent RN in the RAZ area to maintain this optimized patient flow process.
Tools and tactics:	A total of 200 data points were collected representing 24 hour coverage over 13/14 days for all CTAS 3 and 4 patients treated in the ED. Data collection tools were developed, and programs such as Minitab were utilized for comprehensive and rigorous analysis of the data. Data tools such as statistical process control (SPC), control charts, failure mode and effects analysis and flowcharting were used in this project. Circles of Work and Spaghetti Mapping of ED physicians and nursing staff were also used throughout the data collection process.
Measurement approach:	The Six Sigma (quantitative) measurement process was used to collect time cycles (MD Assessment to Discharge) as processes that were defined, measured, analyzed, improved and controlled. Process input factors (x) such as calling for old charts, nursing protocols, lab and Diagnostic Imaging requests were identified as having an impact on the corresponding output (y) cycle times. By understanding and better controlling the inputs, the output (cycle times) were improved; expressed as $y = f(x)$.

Impact/ evaluation:	Within a week of reporting the Six Sigma findings for the PLC ED, the department implemented a change in process, calling for the old chart to be retrieved when the patient presented to triage. With the changes implemented by the team the mean cycle time of CTAS 3 and 4 patients improved by 19 minutes from a baseline of 210, a 10% improvement. This improvement resulted in freeing capacity for an additional 276 CTAS 3 and 4 patients to be seen at the PLC ED per month as existing staff were able to see 5 patients in the time it previously took to see four.
Observation/ Discussion:	The improvements achieved through this Six Sigma project have been sustained through the efforts of the manager, physicians and support staff of the PLC ED. A sustainability committee was organized at the conclusion of the project and continues to meet monthly to review ongoing performance measures. Sustainability efforts continue to work on decreasing rates of patients left without being seen and improving the patient cycle times through the ED. Improvement measures introduced by the Six Sigma projects such as improving access to the patient's old chart and improving flow through the rapid access zone and minor treatment departments continue to be supported as a sustainability activity. Improving the quality of patient care has become operationalized by the PLC ED and the unit continues to measure and improve patient care.
Critical success factors/ lessons:	Data analysis confirmed frontline staff feedback that the use of nursing protocols reduced the mean patient cycle time. Use of any of the Emergency Department standard nursing protocols reduced the mean cycle time by 38 minutes, a reduction of 29% and have been identified as best practice for the PLC ED.
Limiting factors:	<p>The process of calling for old charts (charts not available at time of physician assessment) increased the cycle time mean by 38 minutes. Ultrasound services continue to have difficulty meeting the needs of the ED (outside of modality hours), and resulted in 51% of scheduled patient returns to the ED in baseline measurement.</p> <p>Physician scheduling between the Minor Treatment area and rest of the ED could be improved to reduce the impact on patient cycle times.</p>