

ABSTRACT

The use of Business Process Management Systems (BPMS) to improve the continuity of service has been shown in industry, service and health care environments. The purpose of this research paper is to investigate the possible benefits of applying a BPMS such as Lean Six Sigma (LSS) in the National Drug Treatment Centre (NDTC) Laboratory.

The current challenges the NDTC Laboratory face are a moratorium on the recruitment of new staff, so none of the existing staff can be replaced, if they leave or take a career break. An increased number of Specimen Sample testing requests (over one million routine tests conducted in 2012), with an average increase of 37.49% from 2012 to 2013 and the pressure of sustaining a 48 hour Turn-Around Time (TAT), these and the constant pressure of maintaining an accredited Laboratory are having a negative effect on staff morale.

A series of interviews were conducted with the Senior Laboratory Team, consequently ten processes were defined where it was believed that LSS could be used to improve the Laboratory Specimen Sample Process Flow. A template was developed using a selection of LSS tools which could be reused on different Laboratory process problems. The template was divided into five different stages Define, Measure, Analysis, Implement and Control, this LSS methodology is known as DMAIC and allowed for the problems in the ten processes to be identified.

The project was divided into two Phases; Phase I was completed in July 2013 and Phase II is currently in the Analysis stage and is scheduled to be completed in January 2014.

The process improvements demonstrated a 50% reduction in time for some of the processes, a complete reduction in transcription errors, as several of the process improvements are now fully automated and controlled by the Laboratory Management Information System (LIMS). Based on figures in 2012 for the offsite storage and retrieval of Laboratory reports, which are now

no longer paper based, the Laboratory will make substantial cost savings this year and exponentially over time as shown by similar projects carried out by the Mayo Clinic (Mayo Clinic, 2007) and the Louisiana State Police Crime Laboratory (Richard, Kupferschmid, 2011).

A survey in the form of a questionnaire was conducted to examine the attitudes and perceptions of the Laboratory staff and to measure the user acceptance of the LSS interventions. Overall the findings indicated the staff did believe the implementations were an improvement to the process work flow, they rated the efficiency of the proposed solution as high or very high.

The Implementation of LSS has demonstrated that a coherent approach to continuous improvement (Pepper, Spedding, 2010) has been achieved within the NDTC Laboratory. By reducing and eliminating waste and identifying the value streams, the NDTC Laboratory can provide an effective framework for producing systematic improvements with a reduction in effort (de Koning, 2006) and costs.