Due to the remarkable positive effect of Lean adoption in various firms in manufacturing sector, it has been adopted by several organizations within healthcare industry. Although the rate of adopting Lean by hospitals in the developed countries is slower than it should be, it proved to be effective in helping healthcare organizations maintain or even improve their quality of care while containing their related costs. However, such adoption did not take place until the beginning of the new millennium. And with such adoption, it has been accompanied with major challenges related to proper Lean implementation, sustainability of achieved levels of performance, and staff engagement in infinite cycles of continuous improvement towards perfection. Thus, the purpose of this study is to develop a framework that helps healthcare organizations quantify their experience with Lean. Such quantification is obtained by measuring the agreement level of hospital staff members about degree of adopting two sets of critical factors of successful Lean implementation within their hospital. These two sets of factors are classified as process factors and organizational factors. The proposed framework has been validated by determining the sustainability level of Lean implementation within one of U.S. hospitals in State of Florida.

The developed framework provides a balanced assessment of both process and organizational factors essential for achieving sustainable levels of Lean implementation. In order to accommodate for the observed variation in Lean adoption in hospitals, individual hospital departments are considered the analysis units of the developed framework. In order to quantify the implementation status of Lean within a hospital department, a survey-based lean sustainability assessment tool has been developed based on the defined sets of factors. The sustainability level of Lean implementation of a hospital can be obtained by combining various responses of its surveyed departments. The developed framework is the first that addresses both process and organizational factors of sustainable lean implementation in a balanced manner while fulfilling the assessment needs of all healthcare organizations regardless of their current level of lean adoption. In addition, utilizing the framework within a hospital enhances employee involvement and respect for employee which are essential for sustainable lean implementation. Finally, the developed framework provides healthcare supervising authorities (i.e. ministries of health or corporate offices of hospitals’ groups) a macro-level benchmarking view regarding the progress of their hospitals towards implementing sustainable levels of Lean.

Major: Industrial Engineering

Educational Career:
Bachelor’s of Electrical Engineering (Bio-Medical), BS, 1996, King Abdulaziz University, Saudi Arabia
Master’s of Industrial Engineering, MS, 2003, King Abdulaziz University, Saudi Arabia

Committee in Charge:
Dr. Ahmad K. Elshennawy, Chair, Industrial Engineering
Dr. Gene Lee, UCF/ Industrial Engineering
Dr. Mansooreh Mollaghasemi, UCF/ Industrial Engineering
Dr. Nizam Uddin, UCF/ Statistics
Dr. Sandra Furterer, Holy Cross Hospital/ Enterprise Performance Excellence Center

Approved for distribution by Dr. Ahmad K. Elshennawy, Committee Chair, on July 1, 2011.

The public is welcome to attend.