



KEY POINT SUMMARY

OBJECTIVES

To describe, examine, and develop future application strategies for 3P lean production techniques in an endoscopy unit and other healthcare settings.

Applying lean principles to the design of healthcare facilities

Hicks, C., McGovern, T., Prior, G., Smith, I., 2015 | *International Journal of Production Economics*. Volume 170, Issue B, Pages 677-686

Key Concepts/Context

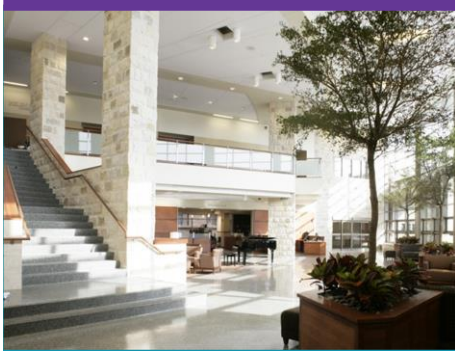
Hospitals are complex environments that require multiple stakeholder perspectives to successfully design, build, and operate. Planning the construction of a new healthcare facility involves considering how priorities and resources must adapt as needed while multiple workflows, materials, perspectives, and outcomes intersect on a daily basis. Lean production techniques can be applied to hospital planning and operation processes in order to reduce costs and maximize quality while incorporating multidisciplinary perspectives. 3P (production, preparation, and process) is a Lean design methodology that aims to accomplish this, and more research is needed to understand how this might be applied to healthcare facilities.

Methods

The authors provide a literature review and brief explanation of hospital design challenges and Lean production techniques. Several studies are referenced to show how Lean methodologies might be applied to hospital design scenarios. The 3P method was employed within an endoscopy unit, where the researchers gathered quantitative data on cost effectiveness and staff productivity. These data were compared with the previous workflows of the unit to determine the impact of 3P.

Findings

The authors note that endoscopy units must be designed to not only meet hospital goals for care quality and cost effectiveness, but also to meet independent accreditation requirements and stakeholder expectations. The completion of 3P design workshops and implementations resulted in the construction and operation of an endoscopy unit that proved to be more cost efficient and productive overall. This indicated that the Lean methodology was successfully applied and could be a constructive tool for future healthcare design collaborations.



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Limitations

This study examined the application of a complex multidisciplinary design method that involved many parties; the unique nature of different stakeholders involved in different hospital design projects may drastically affect the efficacy of Lean production techniques. This study took place in a single healthcare setting; the results may not be applicable to hospitals with different design features, budgetary constraints, or staff workflows.

Design Implications

Lean production techniques can help designers involve a wide variety of stakeholder perspectives while planning new construction or renovation projects. Since designs should work to optimize productivity and safety while ensuring that no financial or other resources are wasted, the inclusion of patient, staff, and other relevant perspectives could not only streamline the design process but produce higher-quality results.

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