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Lean Management of Animal Facilities

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Lean Management has gained popularity in the laboratory animal science field for improving the quality and efficiency of animal care programs.

"Lean," is an industrial production practice that considers the expenditure of resources for any goal, other than the creation of value for the end customer or organization, to be wasteful, and thus a target for elimination. "Value" can be defined as any action or process that adds benefit to the service or product. Essentially, lean is centered on *"maintaining or increasing value with less work or resources"*.

Animal facilities are not the same as manufacturing environments and a simple "lean" template does not work. However, careful adaptation of lean techniques, based on a thorough understanding of laboratory processes can deliver significant benefits in terms of "better, safer and faster" operations.

The author manages a 600 m² mouse facility housing around 6,000 ventilated cages used both for experimental activities and for breeding of colonies of genetically modified mice. Over the years, several upgrades (ranging from the introduction of dirty side automation systems, to optimization of the logistics) were implemented in order to increase the efficiency of the operations. In order to further improve, the main animal care activities were re-evaluated and reorganized using a lean approach during the summer of 2011. The initial transformation was carried out with the support of a team of consultants and involved mainly cages and bottles processing, both in the animal rooms and in the washing area. Operations were balanced and new workflows defined together with new process layouts and time schedules. A second lean transformation was subsequently carried out on the animal care tasks not involved in the initial transformation, such as daily cages and health checks, using only internal resources. Lean was finally spread also to the activities related to the management of colonies of genetically modified mice.

The benefits deriving from the application of lean management will be discussed using as a case scenario the facility managed by the author, where striking results were achieved over the eight years of continuous implementation. This experience will be discussed in details together with the challenges encountered during and after the lean transformation.