



58th Advanced Manufacturing Forum

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The Center for the Management of Technological and Organizational Change

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Marion, North Carolina

Baxter Healthcare North Cove is the largest producer of IV solution in the world, producing 1.5 million units per day. Located in Marion, North Carolina, the 33-year-old facility employs approximately 2500 employees and measures 1.4 million square feet. The size of the facility and the large number of employees were both concerns as the company began its implementation of Lean in May of 2004. Chris Boyce, operations supervisor at North Cove, provided a narrative of the first steps taken in Baxter North Cove's Lean implementation.

One product line was chosen for Lean implementation: the 1-liter, 0.9% Sodium Chloride bag. It represents a large percentage of both the volume and the value of total operations within the facility. For this reason, it was seen as offering the best opportunity to make a big impact with Lean. A value stream team was assembled with a mission: remove waste.

While the primary value stream team consisted of 17 members from all functional areas of the plant, Boyce emphasized that everyone in the plant was involved and had input. Every manager first read *Lean Thinking* (by James Womack and Daniel T. Jones) and then participated in a one week boot camp. At the camp, 25 employees at a time learned Lean techniques, experienced simulations, and built comradery within the team. They learned the definitions of two very important terms: waste and value. Waste is anything beyond the minimum amount of equipment, materials and time essential to add value to the product. Value is what is important to your customer. After this boot camp, teams were excited about Lean and eager to implement Lean concepts at the plant.

The primary value stream team created a value stream map during a two-day Kaizen event, involving individuals from many areas of the company. The team looked at cycle times, the people involved, the number of pieces produced, changeover times, percent yields, etc., as well as the value- and non-value-added steps. By analyzing the map, they identified individual sources of waste, determined what Lean tools could best be used to eliminate the waste, and grouped the Lean projects into four categories depending on the expected time needed to implement them. Next: get buy-in from the rest of the employees.

As Wyatt Younts next described, employees at Baxter did not know what to expect from Lean and were fearful that they would not fair well with the new systems. Many were used to the goal metrics that had been in place for a long time. The Lean team replaced this fear of the unknown by teaching Lean concepts to all employees. Younts and his team created paper layouts of

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the plant's current and planned systems and shared them with the employees. Employees received basic training in Lean principles and learned about the value stream, what the new requirements of them would be and what the benefits would be. Forum attendees took part in a Lean training exercise on one-piece flow versus batch flow – the same demonstration used to illustrate Lean theory to employees at Baxter. This and other training methods were used very effectively at Baxter. Supervisors then dealt with any remaining resistance by working directly with employees.

Andrea Darsey and Jennifer Buchanan completed the presentation by describing some of the systems that had been improved. Prior to Lean, some of the production areas were disorganized and very little smooth flow existed. The Lean teams recognized this as a large source of waste and dedicated equipment to create flow and a KANBAN system of pull production. This led to massive decreases in WIP and inventory levels, and a reduction in the need to move product. To better manage production operations, a visual control board replaced the ineffective computerized reporting system. Now, the operations team meets once a day to discuss the state of the plant. Employees are given weekly briefings of the plant's performance and senior leadership receives a complete report every month.

The results of the initial Lean implementation at Baxter are dramatic:

- the elimination of more than 2,400 product moves per day (a change of approximately 25%);
- a 5% increase in available floor space;
- cost avoidance of more than \$1 million dollars, primarily from reducing the number of product carriers;
- an increase in inventory turns from 25.5 to 41.9;
- a 5% productivity improvement in packing.

The minimal capital investment at this facility has shown tremendous returns and the journey to Lean at this facility is just beginning.