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Medical manufacturing output and quality improvements result in increased capacity

Background

Our pharmaceutical manufacturing client was on a journey of change having moved to new premises, appointed a new Managing Director, their order book had grown and made good commercial progress for the NHS Trust, all within 12 months.

The challenge

Although progress had been made since the move to the new facility, there were a number of areas for improvement around the business's Quality Management System and the implementation of the processes contained within it.

The business recognised it required a holistic programme to address the systemic issues and behaviours linked to a prevailing culture of accepting production deviations as the norm and not addressing the root cause.

Bourton Group was asked to review the operations to provide a route map that would increase efficiency, allowing an increase in capacity to support the business strategy for worldwide sales growth

The production facility was assessed, and through a combination of work-study methods, process mapping, data collection, and detailed analysis, we quickly identified opportunities to increase output through improved quality.

We conducted a series of focused Lean workshops which identified several quality improvement opportunities.

The solution

Phase 1 of the assignment included a data collection exercise to establish focus areas for scrap reduction. Graphical analysis of the data showed scrap due to particle contamination on the 10ml Ampoule product was highest at 31% and constant adjustments were being made to the auto inspection process during production runs.

Benefits achieved

The team anticipates a return on investment of 5:1 through product quality improvements alone.

- Phase 1 - 10ml Ampoules Line Project reduced scrap rate due to particle contamination from 31% to 5% with only eight days of Bourton support resulting in estimated cost saving in scrapped units of £80k/year
- If similar projects were completed across 1ml, 2ml, and 5ml Ampoules products additional cost benefits of over £100k could be achieved
- Scrap levels on other products are estimated at approx. 26% (74% yield). If similar levels of improvement could be achieved on non-ampoule products further significant scrap saving could be achieved

This led the team to conduct measurement systems analysis to assess the capability of the inspection system which showed the system to be inconsistent during operation resulting in the good products being rejected.

With the help of our client's Engineers, the measurement system was improved to give a more effective auto inspection process which resulted in the reduction of falsely rejected products.

Once confidence was gained in the measurement team we then undertook data analysis using DOE (Design of Experiment) techniques to determine the optimal machine settings to further reduce scrap levels. Phase 2 focused on transferring the benefits to other Ampoule products whilst also addressing the different failure modes identified in Phase 1; which will result in further quality improvement and associated savings.



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