



# Saving lives and the environment

While referred to by multiple names: Sustainable Design, Green Design or Design for the Environment (DfE); environmentally friendly design has become a topic of great significance in recent years. On the back of eco-conscious products, such as hybrid cars, and publicly accessible information like the global warming manifesto, “An Inconvenient Truth”, the average global citizen is learning the benefit and the impending necessity of buying and using more eco-friendly products and services. While the concept of sustainability is supported in many consumer industries, it has yet to take hold in the medical device industry.

Medical products account for an enormous amount of solid, industrial and chemical waste. In the United States alone, hospitals produce over 6,600 tons of waste per day, including 800 tons of non-hazardous, potentially recyclable, plastic parts. In addition, numerous medical products employ hazardous chemicals and solvents during manufacture. The disposal of medical waste is costly from a financial and environmental point of view, so why hasn't the medical device industry embraced sustainable design?

Historically, the industry has been risk-averse due to stringent regulatory requirements, fear of adding expense or decreasing quality and an overarching theme of legal liability. The addition of sustainability to an already rigorous set of design requirements, including biocompatibility and aseptic assembly, can put additional burden on design teams whose primary goals are time-to-market and regulatory compliance. Additionally, numerous medical device companies generate the bulk of their revenue from disposable products. Fears of product contamination, the high costs of reprocessing and a desire for continuous revenue, encourage the disposable products business model.

While the US has lagged in the passage of applicable legislation, the European Union has moved to ban numerous hazardous materials, promote recycling and encourage energy efficiency using legal standards which, while not enforced for many

medical products, have enjoyed growing support. Experts agree that similar standards will be enacted in the US and become applicable to medical devices in the near future. Forward-thinking companies that design future products to comply with these standards will have a significant advantage over those forced to scramble and retrofit products to meet new requirements. Staying ahead of the regulations can decrease long-term costs.

In addition to the influence of outside entities, such as Group Purchasing Organizations and hospital conglomerates, there are significant financial gains in adopting more sustainable design and manufacturing techniques. Proactive design for sustainability at the product concept level can assist with waste reduction, reduction in packaging costs, improved manufacturing efficiency, as well as decrease raw material usage. Tools such as lean manufacturing, Six Sigma and Current Good Manufacturing Process promote the ideas of process flexibility, zero-defect manufacturing and elimination of over-production. While originally billed as cost-saving measures, these tools advocate the critical tenets of sustainable design.

Concepts such as design for disassembly, part count reduction and elimination of hazardous materials are useful if enacted during product conception. Considering material input, waste, and energy usage at every stage of a product's lifecycle early in development can lead to cost reduction and facilitate the design of more efficient products.

Sustainable design has become a reality in many industries throughout the world. While not currently required for medical devices, companies that understand the challenges and embrace sustainability prior to the development of industry environmental requirements will, we believe, have a significant competitive advantage.

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