

Medical Textiles- a new horizon to explore

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A nation's economic power and quality of life of the people depend on the ability of the industrialists to innovate and manufacture socially relevant products. One does not need to be a great scientist to innovate and discover new things; some times simple techniques developed using common sense can be used to make high value products. Medical Textiles is an exciting and rewarding field that has great potential to positively transform how people live their daily lives. Medical Textile industries in India are still taking baby steps, compared to the international scenario. Indian industries engaged in Medical Textile products generally search for fastest manufacturing methods, moderately advanced technologies and quickly salable products, but we should not overlook potential low cost techniques for developing high value products.

Three important lessons might be useful for present and future entrepreneurs interested to develop Medical Textile products:

1. Manufacturing is an integrated system: Manufacturing of Medical Textile product is a lot more than what goes in factories, textile mills. It includes conceptualization, designing, selection of source materials, engineering, producing, distribution, marketing and selling products.

(a) Designing for manufacturing is the process of designing a product for low-cost, high quality manufacturing.

(b) Engineering such as computer-aided design brings great help in optimizing the process.

(c) Six sigma quality: a process that uses data and statistical methods to measure and improve quality of a companies operational performances by identifying and eliminating the causes of defects and minimizing variability in manufacturing.

(d) Maximize value by eliminating waste

(e) Life cycle analysis: a technique to assess environmental impacts associated with all stages of a product's life from cradle to grave (selection of biocompatible materials, leaving minimal carbon foot prints during manufacturing, disposal, possibility of recycling)

2. Manufacturing must be driven by customers' experiences and needs, not solely based on profitability:

Customers generally connect products with brands. If you think about wound dressing, first thought that will come to your mind is 'Band-Aid' brand of Johnson and Johnson. In 1920, an employee of Johnson and Johnson, USA, developed a simple home-made prototype for his wife, who used to frequently cut and burn herself while cooking. This simple, low-tech product has become one of the most successful medical textiles product world wide.

"Sanitary Protection: Every Woman's Health Right", a recent study by AC Nielsen reports that only 12% of India's 355 million menstruating women use sanitary napkins. Most of the napkins are imported from abroad. Cost of any high productive Napkin making instrument is in the range of Rs 1 crore. However Government of India's Department of Science and Technology (DST) and National Innovation Foundation (NIF) have various schemes of funding projects which can generate napkins of cost Rs 1 per pack. This challenging task needs drastic innovation and cost-effective strategies, without making any compromise in functional efficiency.

Due to progress in Medical sciences, average age is rapidly increasing. Elder people also would like to spend an active life despite their age. Various new medical technologies are coming up to enhance function and independence of senior citizens of the country- such as smart prosthesis, monitoring devices. These technologies are likely to be expensive. But Medical textile products, such as adult diapers, are quickly gaining popularity among older persons so that they remain independent and functionally active. One challenging problem is how to develop an adult diaper, which is low weight and retain fluids for at least 1 whole day, without causing discomfort to the user.

It is now crucial for the manufacturers to respond quickly to these customers' needs and changes in market, while minimizing costs and maximizing values. Gaining profit from a certain product may take some time. Consistent positive experiences of any product generate trust and higher brand equity. Then customers do not hesitate to pay superior prices.

3. Embrace innovation and bring changes before your competitors adopt that: So far Indian Medical Textile industries concentrated on production of gauge, bandage, low absorbent pads, etc. Now we should focus in implementing innovative designs to bring a paradigm shift in the field. For example, one intriguing question could be how smart textile materials and electronic sensors can be integrated. Tissue engineering strategies need textile materials for developing the scaffold for fabrication of bioengineered tissues.

Government of India has developed various schemes for promoting these type of activities, so funding is not at all any issue. Multi-disciplinary approach of problem solving is essential for such challenging tasks. Last but not the least, manufacturers of Medical Textile products must keep them abreast of the ethical issues and international standard norms. With great strength of Textile technologists in our country, India has a huge potential to be the leader in the World in the field of Medical Textiles.