



Lono Medical Systems  
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On Design:  
The Need For Design in the Medical Device Industry

In the current space of consumer product design, cutting-edge technology, ease of use and good looks are among the most significant selling points for any successful product. The same is not true, however, in medical device design. Historically, the medical device industry has not been a hotbed for groundbreaking design. Its products have certain highly specialized tasks to perform, and the users considered successful operation satisfactory and all that was required of the device. Until lately, little attention or care was paid to how the product looked or necessarily whether it accomplished its task in the most comfortable manner relating to the patient.

Notable, memorable design fuels success in consumer markets. One need only look at Apple and its iPod, Bose and its speakers, or Nike and its shoes to see how design, beyond functionality, plays a vital role in a product's success. Professional markets such as medical devices, however, do not always give attention to such design. Take, for example, the fetal monitoring segment – an area ripe for reinvigorated design considering the intimate relationship, both physically and emotionally, its devices have with the patient. A GE Healthcare fetal heart monitor looks extremely similar to a Philips

Medical Systems counterpart – one grey and boxy with numerous plugs, the other lightly colored and held on with a belt like its counterpart. But design in the sense of Apple and Nike simply does not exist, defended in the past by the fact that unlike a consumer product such as a good sounding stereo speaker, medical devices are responsible for someone's health. A lack of precision could cause physical harm, not just an unappealing sound, and so companies typically overlooked the crucial role patients play in medical device use. Technological advances allow medical device companies to add value to three key areas: design, health/safety, and cost. New devices in the marketplace are expected to enhance the latter two; however, the most revolutionary improvements incorporate all three.

The medical device industry is unique both as a healthcare-oriented professional industry and, more importantly and somewhat counter intuitively, as not a strictly professional market. The devices are bought by purchasers and operated by doctors or nurses, but they are used on patients. The same patients who demand new technologies and excellent design out of their consumer products are, more and more, demanding the same out of their hospital experience. While patients don't necessarily maintain the same level of choice as with their consumer purchases, they often interact with medical devices on a physical level close enough to warrant consumer-product caliber design. As an example, consider again fetal monitoring products. The current fetal heart detector is a grey disc roughly the size of a hockey puck that must be strapped to the patient using an elastic belt. Women in labor routinely describe the device as bulky, cumbersome, and uncomfortable and the setup confines the patient to her bed. Picture a woman with sweat pouring down her face, nauseous, in pain, performing a labor of love with a too-tight

elastic belt cinched around her abdomen securing a cold, gel-covered plastic puck that doesn't conform to her distended belly and must be consistently readjusted by a nurse. The detector may work as engineered, but its design seemingly ignores the situation of use.

Simultaneously, another important factor is driving the introduction of better design to medical devices: doctors are changing. A new generation of doctors has grown up with today's fast-paced technological advancements and has, in other areas of their life, kept up with the new. Adapting this to their work, new doctors carry Blackberrys instead of pagers and use voice-recognition software to convert audio files on digital voice recorders into text notes. Unlike before, they now desire new, high-tech solutions to the devices they use in their practices. These young dogs are eager for new tricks.

According to Professor Marco Steinberg of the Graduate School of Design, companies in industrial design markets commonly shift the basis of their competitive advantage over time from technology to price to experience; in essence, a shift from technology driven advantages to design driven advantages. Automotive and cellular phone companies, among others, have exhibited such a progression and so, too, should medical device companies.

For medical device design to account for the shift to personalized healthcare, it would do well to borrow heavily from consumer product design. Aesthetics should begin to play a more prominent role. The laboring mother described earlier should look at the device monitoring her baby's heartbeat and feel comforted, not alienated. Other medical situations and device solutions abound. Designers must remember the intended-user dichotomy of professional doctor and consumer patient that makes the medical device

industry unique and must shift products' looks and feel towards the consumer side of this divide. Technologies emerging and thriving in other marketplaces, such as wireless communication, should be introduced as soon as they are robust enough for regulated healthcare. Since better-designed medical devices have the potential of leaving the hospital and making their way into the home they form an even closer connection with the consumer marketplace. In doing so they will further broaden their cultural value as devices that provide reassurance through technology not only in hospital-bound emergencies but on a daily, routine basis.