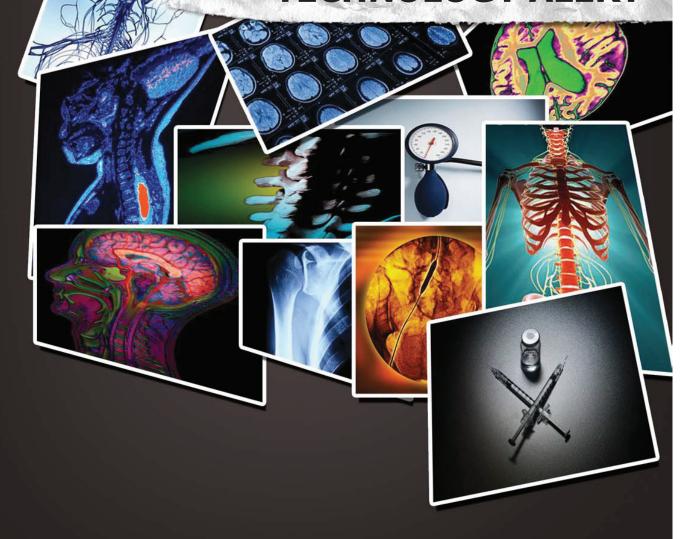
TECHNICAL INSIGHTS

MEDICAL DEVICE

TECHNOLOGY ALERT



17th February 2012

7. MEDICAL DEVICES IN THE DEVELOPING WORLD

Many innovations in diverse fields are being discovered almost daily, yet there is a huge deficit when it comes to any sort of development catering to the medical industry in under-developed economies. According to the World Health Organization (WHO), approximately 86% of the world's population spends \$6 per capita on medical equipment as compared to \$290 per capita spent by developed countries. Underdeveloped countries lack basic infrastructure to support medical healthcare as implemented in developed countries. Health care providers in developed countries at times donate their equipment to underdeveloped economies, however such donations don't work as the medical equipment were designed for environments, which were safer, clean, and have a good energy infrastructure support. Underdeveloped countries (such as Mali and Cameroon) have a major hurdle in the form of obtaining energy-major black outs are common, consumables are tough to find, and additionally there are no qualified personnel to work these equipment. Additionally, other issues such as high humidity (most under-developed countries lie in the equatorial/tropical belt), lack of periodic calibration, language barriers, culture difference, and other environmental conditions. Highly sophisticated medical equipment requires paid maintenance on an annual basis. However, in under-developed countries they are not used to such concepts invariably leading to the equipment lying defunct due to unplanned maintenance protocol. This brings about the necessity to build or rebuild or build anew the whole value chain associated with medical devices. Such situations require developing a product/technology from the ground up recognizing the limitations involved when compared to the medical device infrastructure in developed countries. Medical devices, which work in developing economies are based out of frugal engineering ideas where the device has to be rugged, should withstand outdoor wear and tear, and be built of locally available resources (reduces spare part costs and maintenance issues).

EssentialMed (Lausanne, Switzerland) is a non-profit organization started by Klaus Schonenberger in 2010. Klaus has a history working for top medical device companies, in various leading positions. His responsibilities included creating strategic vision for each core technology of the company, leading business development and in charge of the aspects related to technology. Klaus came up with the concept for EssentialMed nearly ten years ago when going through the annual reports of a major medical device player; he noticed that nearly 98% of their revenue came from Japan, Western Europe, and the United States. This realization triggered an interest to address this everwidening gap. EssentialMed has close ties with several research institutes such as the Swiss Federal Institute of Technology, University of Applied Sciences, Swiss Tropical and Public Health Institute, and Paul Scherrer Institute among others. EssentialMed did a study of the market and quickly came to the conclusion, with the help of studies conducted by WHO for the past 30 years, that diagnostic imaging was one of the most essential aspect of medical care. According to WHO, two-third of the world's population does not have access to radiography, which clearly shows the huge deficit in accessibility to medical care. EssentialMed has developed two projects,

GlobalDiagnostiX and GlobalNeoNat. The GlobalDiagnostiX project is to design an appropriate diagnostic imaging (X-ray) system, while the GlobalNeoNat project is a combined neonatal hypothermia and phototherapy system. Both systems are built to include affordability and adaptability to the context of resource-poor settings. The GlobalDiagnostiX project came about through EssentialMed's study of the market, while the GlobalNeoNat project was initiated when it was brought to Klaus's attention that though overall child mortality (under 5 years) was decreasing, the neonatal share (death in the first 4 weeks) was not decreasing. Here, the hurdle is that there are no incubators or infant warmers, which are adapted to the energy infrastructure of an under-developed country. EssentialMed has come up with some really strong ideas to capitalize on new technologies and new solutions, which can solve issues such as energy storage.

For the GlobalDiagnostiX project, EssentialMed has already completed its first round of financing. The project is in research phase, which will most probably last for another two to three years. After this, a prototype can be expected to be developed, industrialized, and deployed. As for the GlobalNeoNat project, it is still in the fund raising phase; however, EssentialMed's sources believe that this project will have a quicker run than the GlobalDiagnostiX project.

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