

ME 450, Senior Design Project, Winter 2008

Team 19: Design of a Novel Hospital Bed to Reduce Bed Sores

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Pressure sores continue to present serious problems in the management and rehabilitation of the acute and chronically ill. On any day, 10% of all acute care patients in the US and 12% in Europe suffer from pressure ulcers (decubitus ulcers or bed sores) Pressure sores occur when the tissues are compressed and distorted, causing impaired local blood circulation, insufficient nutrients and oxygen delivery. The incidence of pressure sores among patients with spinal cord injuries are estimated to be between 24% and 85%.

The goal of this project was to design a novel hospital bed with an array of cells with controlled compliance. The project scope includes (a) benchmarking and development of design requirements (b) design of constant force springs or other compliant means using specialized software that is available (c) design and fabricate a scaled version of a hospital bed mattress and demonstrate its characteristics.

For information on the outcomes of the project, please contact Professor Sridhar Kota (kota@umich.edu) of the Department of Mechanical Engineering at the University of Michigan, Ann Arbor.