Pressure Ulcer Prediction and Prevention for Personalized Healthcare

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Technology description

A new patient support system to prevent pressure ulcers and provide early detection.
Sensor networks are incorporated into this system to provide information to medical personnel and the patient. The unique support structure adjusts pressure in order to improve blood circulation. Furthermore, the system is modular so that the treatment can be personalized to the patient.

Background

Pressure ulcers usually develop on the skin over a bony prominence as a result of pressure, or pressure in combination with shear stress and/or friction. Pressure ulcers affect approximately 2.5 million people in the United States each year and around 60,000 patients die as a direct result of their complications. The cost of treating a single pressure ulcer can be as high as $70,000 and the total annual cost of treating pressure ulcers is approximately $11 billion.The cost of treating pressure ulcer is about 2.5 times the cost of the prevention of the ulcers themselves.
Impairment is typically caused by the tissue being compressed between hard surfaces such as bone and the patient support surface for long periods of time. It is well documented that the risk of pressure ulcer development varies widely from patient to patient. Risk factors include body composition, age, nutritional state and overall health, but the blood flow response to any situation is unique. Thus, the risk of pressure ulcers is not easy to predict. The current prevention methods for pressure ulcers are based on repositioning of the patient at regular intervals to enhance blood circulation. However, the prevalence of pressure ulcer remains high. Currently, pressure ulcer detection and its staging are performed by visual evaluation by trained personnel. Unfortunately, the origin of pressure ulcers occurs deep within the dermal layer and develops outwardly until visible at the surface. There exists a present market need for new technologies to address pressure ulcers and prevent them from developing.

Technology Description

Researchers at The University of New Mexico have developed a new patient support system to prevent pressure ulcers and provide early detection. Sensor networks are incorporated into this system to provide information to medical personnel and the patient. The unique support structure adjusts

pressure in order to improve blood circulation. Furthermore, the system is modular so that the treatment can be personalized to the patient.

About STC.UNM

As the technology-transfer and economic-development organization for the University of New Mexico, STC.UNM protects and commercializes technologies developed at the University of New Mexico (UNM) by filing patents and copyrights and transferring the technologies to the marketplace. We connect the business communication (companies, entrepreneurs and investors) to these UNM technologies for licensing opportunities and the creation of startup companies.

Application area

Prevention and early detection of pressure ulcers for personalized care
Temperature may be adjustable for patient comfort
Displays collected data for medical personnel and the patient
Real-time monitoring
Applications in hospitals, nursing homes, and other environments to reduce the incidence of pressure ulcers

Institution

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