Mattress Ventilation System

Adithya Bimsara Senanayaka, Senanayaka Mudiyanselage (School: Saranath College)

Bed sores are a hidden, critical problem in society. The elderly population, stroke, coma, and spinal cord injury patients or any other immobile patients face this problem. Dead cells, formed due to the continuous pressure, bed surface temperature and moisture (sweat, urine) are the main causes of these wounds. So, this project aims to prevent bed sores by controlling the causes of bed sores. Therefore, this directly reduces the caregiver and immobile patients' engagement time and indirectly affects the speedy recovery of the patients. So, this bed cover can reduce the continuous pressure on the skin and maintain below the recommended temperature of 33.4 °C on the bed surface. This bed cover has been created for single-beds. The bed has been divided into six parts. Each part can control temperature and pressure individually, using only an air-flowing mechanism. So, identified bed sores risk areas can be treated by this. High-temperature areas can be identified and reduce the temperature in that area. Pressure-reducing pre-set patterns can be operated on the bed cover, and the air used to control pressure and helps to maintain the bed surface temperature. This plays the role of reducing sweat too. In the day or night, patients can be sweaty and that may cause for inflecting bed sores. Therefore, this has the capability of identifying the room temperature and reducing the temperature by connecting an external cooler. This mattress cover works in two formats. In the general format, this can be used for single beds individually. But in the other format, this can be used as an interconnected system in hospitals and other multi-bed healthcare centres. In this format, all the bed covers are operated using only one air compressor.

Awards Won: