

Moving patient care forward

Injuries associated with transferring patients between wheelchairs and beds cost the European healthcare industry an estimated £20 billion a year. A European consortium including the UK Health and Environment Research Institute has developed a radical solution to the problem.



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The problems of safely moving people with limited mobility and preventing the sores and ulcers which can result from lying or sitting in one position for long periods are major concerns for the care industry, and sources of great psychological stress for care professionals. The Ergosystem project has looked carefully at both issues to create a novel ergonomically designed patient management system.

The consortium, led by Cranfield Solutions Ltd and including partners from Germany, Poland and France, has been working over the past two years to create and test a unique actuator and patient management system in this EU co-funded Framework Programme 6 research project.

Through a novel process converting rotary motion into linear, the Ergosystem actuator is able to dynamically extend a rigid pillar of up to one metre in length through a change in direction of up to 90 degrees. It functions by aligning segments arranged in a chain manner, forming a sturdy and safe supporting column.

The patient management system can smoothly and safely raise the patient from horizontal to sitting position and onto an integrated wheelchair, and reverses the procedure with minimum carer assistance. It also functions to oscillate the bed to reduce patient bed sores. The project incorporates a programmable embedded control system that customises the Ergosystem technology to both patient and carer personal physiological characteristics.

The control system is remote from the patient management system, and uses an easy to use, visually based interface. It has six settings for speed of movement and allows the system to be immediately stopped. The control system also has an inbuilt fault-finding mode for engineer interface and servicing, and a programmable in-circuit function for ease of software updates.

With development complete, the consortium is aiming to deliver up to 200,000 Ergosystem units into the international market over the next five years. It is also looking at other applications for the novel actuator.

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From sitting position...



Controller concept



...to horizontal



Patient system