

Case study

New generation ambulance carry chair

THE CHALLENGE

The NHS National Innovation Centre (NIC) set up a series of workshops across the UK to identify common healthcare issues that had quick win solutions. Frazer-Nash put forward a number of design proposals, and were subsequently awarded multiple grants to develop a range of innovative healthcare product concepts to support the needs of NHS patients.

One of the key issues raised at these workshops was the need to support paramedics in transporting injured patients quickly and safely from the accident site to the ambulance. To do this, Paramedics currently use a patient carry chair. However, they often have to lift loads far greater than the safe working limits in order to negotiate difficult areas such as stairs, doorsteps and gravel. As a result, many paramedics develop long term back injuries which account for 75% of ill health within the profession.

OUR SOLUTION

Frazer-Nash proposed to redesign the carry chair, and develop an innovative model that performed the same functions, whilst significantly reducing the risk of accident and injury to both the patient and paramedic.

After in-depth consultations with both the NIC and patient/paramedic end-users, we defined key and desirable feature requirements, and evaluated the feasibility of each. Also, by generating a computer model which illustrated the task of carrying the chair on stairs, we were able to evaluate a range of features that would improve working conditions for the paramedics. We then developed three contrasting design schemes for review by the NIC, before finalising the design for prototype production.

BENEFITS

Engaging all stakeholders throughout each stage of the process gave us the necessary insight to develop an appropriate requirements framework for the new design.

The Frazer-Nash carry chair now features a much greater ergonomic hold position and more control on the stairs, due to its larger diameter wheels and brake assist. These features enable the paramedics to maintain wheel contact on tough obstacles, thereby reducing their lifting loads and the potential for back injury.

Wipe clean seams and fabrics reduce the risk of infection, whilst well positioned restraints prevent further injury to the patient. The new design has been reviewed by the NIC and is planned to go through trials and assessment with the clinical group in order to inform final development to make it suitable for mass production.

Client

NHS National Innovation Centre

Business need

Design an ergonomic ambulance carry chair to overcome current operational issues.

Why Frazer-Nash?

We have significant experience in capturing system requirements and designing innovative solutions to complex problems.



Figure 1: Final design prototype

For more information, please contact customercontact@fnc.co.uk or visit www.fnc.co.uk