

An Exploratory, Scoping Study into the Human Factors Issues of Transferring Medical Capability into Community Settings

Claire Munro
Canmore House, 31 Canmore St, Dunfermline, KY12 7NU
Claire@hfsolutions.co.uk

The Population of the western world is ageing. Medical capability is increasingly being moved into the community. The interaction of these two factors has implications for safety and usability of medical products and of the systems which will support healthcare in the community. This study aims to explore the issues of systems of healthcare and medical products from the point of view of older adults. Interviews and focus groups will be used to generate issues and recommendations for ergonomists, medical device manufacturers and service designers to consider in relation to older adults.

Older Adults, Healthcare, Ergonomics, Kerr Report

1. BACKGROUND

The healthcare system in Scotland is currently undergoing change. The Centre for Change and Innovation is an NHS centre to help health boards manage and improve the healthcare system in their area. The Kerr Report [1] is a recent Scottish Executive publication which outlines changes recommended for the entire healthcare system. It suggests that people will be encouraged to be more responsible for their own health and well being and that there will be a move toward more self care. Healthcare will be increasingly proactive and based within communities. New technology will be introduced and systems will be better integrated. Design Council publications mirror this movement. The Red Paper 01 [2] purports the spread of healthcare systems to the community, to preventative services, and into people's homes through telemedicine, the internet, and home testing and diagnostic kits. Living Longer: The New Context for Design [3] encourages designers to be inclusive and thus reactive to this market trend.

Population demographics are also changing. The western world is ageing. There are progressively more and more people over 65 compared to those under 65. The percentage of people aged 65 or over in Scotland in the year 2000 was 15.4% and the estimated figure for 2031 is 24.1%. This is a 51.6% increase. [4]. There are regional differences in ageing and in health throughout Scotland. Greater Glasgow region is experiencing the worst levels of morbidity and limiting illness in Scotland but the population there is not ageing. Older adults in more rural areas such as the Highlands and Islands, Dumfries and Galloway and the Borders are experiencing less limiting illnesses and living longer and the population here is ageing. This indicates that the ageing population in Scotland is region specific. New technology may be used best if implemented differentially across urban and rural populations.

A key question then is whether existing or future systems are suitable for the people at which they are aimed. This study aims to discover the issues which older people face. The general concomitant factors of ageing are decreases in kinaesthetic ability, hearing, vision and cognition [5]. Other factors are increased rates of illness, co-existing disorders, and reduced dexterity. The interaction between the normal ageing process and the illnesses that the patient suffers from may make it difficult for older adults to receive optimally beneficial care. Any new system should improve efficiency, reduce repeat visits, and produce better outcomes for patients. Systems and elements in the process of healthcare will have to be carefully designed with older users in mind in order to do this.

The elements of healthcare include products, delivery systems, people and places. Any one of these elements can be further characterised and fragmented. Products can be assistive, testing, diagnostic, invasive, non-invasive, etc. Assistive products include walking sticks, bath seats, electric toothbrushes, hearing aids, glasses, which all come in many varieties. Delivery systems of the moment are telemedicine, self-monitoring of chronic illness, internet searches for information, peer to peer support networks, carers, doctors and referral services, nurses, practitioner nurses, community nurses, super nurses, ambulance services, pharmacists. People are hugely different in the symptoms they present in relation to an illness, reaction to medicine, cognitive abilities, desire to take responsibility, attitude to health, health, motivation, and physical capabilities. Places may be people's homes, GP surgeries, gyms, hospitals, alternative health practices. Homes can differ in the number of occupants, space, and

condition. Furthermore there is scope in home care for smart home technologies to be incorporated into the network.

1.1 OUTLINE OF STUDY

As can be seen, healthcare is a highly complex system and to study it comprehensively from a user perspective would be interesting and worthwhile research for many. This study aims to tentatively investigate the human factors implications of the move of healthcare into the community for system and medical equipment design. The first task is to discover how older adults differ from the population at large in terms of illness and treatments and the generic effects of ageing. Interviews with health professionals are intended to provide information as to the most common categories of illnesses in men and women in Scotland and how these groups of patients move through the healthcare system at the moment. The steps the patient and health professionals have to take from diagnosis to combating or managing their illness will be mapped in order to identify potential problem areas for older people e.g. reading labels or remembering instructions. From this, and knowledge of age related decline in function from literature review, the high level requirements of a self/home care system will be generated through extrapolation and expert panel agreement. An example of a high level requirement might be that there should be a monitoring system to alert healthcare staff to misuse or non- use of devices. These high level requirements would feed into future system issues to be addressed ideally at conceptualisation stages for a new healthcare system or element.

To narrow the focus and concentrate on a concrete example of an element of the healthcare system which is applicable especially to older adults the study will also examine a piece of medical equipment which is already used in the home. The interviews mentioned in the previous paragraph will discover which medical equipment is applicable. A representative medical device or set of medical devices for a particular disorder will be selected, for example one or a set of glucose tests for Diabetes. The medical device(s) will be assessed using the Telscan project assessment system [6]. The Telscan Assessment system involves a list of disabilities against which potential areas of difficulty can be systematically attended to. There will also be focus group evaluations. The results of the Telscan assessment and the focus group discussions will contribute to recommendations for the specific medical device, for other medical devices and areas of further study.

REFERENCES

- [1] Kerr, D. (2005) Building a Health Service Fit for the Future: A National Framework for Service Change in the NHS Scotland. Scottish Executive.
- [2] Cottom, H and Leadbeater, C. (2004) Red Paper 01 HEALTH: Co-Creating Services. Design Council Publication.
- [3] Coleman, R. (2001) Living Longer- The New Context for Design. Design Council Publication.
- [4] Wood, R and Bain, MRS. (2001) The Health and Well Being of Older people in Scotland: Insights from National Data. Edinburgh: Information and Statistics Division. NHS.
- [5] Fisk, A.D., Rogers, W.A., Charness, N., Czaja, S.J., and Sharit, J. (2004) *Designing for Older Adults: Principles and Creative Human Factors Approaches*. CRC Press
- [6] Nicolle, C., Burnett, G., Ross, T., Stahl, A., Petzall, J., Veenbaas, R., Hekstra, A., Marin-Lamellet, C., Oxley, P., Barham, P., Simoes, A., Naniopoulos, A. (1998) Nicolle, C. (ed.) Inventory of ATT System Requirements of elderly and disabled drivers and travellers. Transport Telematics Project TR 1108, TELSCAN Deliverable No. 3.1.