

## **Interactive Medical Devices Workshop Report (2009, UCL)**

The workshop took place on the 10<sup>th</sup> June at UCL. The stated objective of the workshop was to discuss progress towards understanding the causes of human error, and the state of the art with regards to design interventions and workarounds. Some of the themes that emerged from the presentations and discussions that took place during the workshop included:

- Safer medical devices through re-design
- Minimising risks by supporting clinicians
- Reducing the opportunities for error
- Understanding the barriers to improvement

Presentations focussed on varying aspects pertaining to the improvement of patient safety. However, there was a shared concern about the need for a collective effort when attempting to influence regulators and procurement processes. Despite widespread criticism of poor programming skills and human computer interaction oversights, little progress has been made by academia in communicating these vulnerabilities to the relevant stakeholders.

### **Can a usability study identify problems during design of interactive medical devices?**

There are many barriers to performing such an evaluation. Manufacturers are only required to adhere to existing regulatory guidelines. These are not situated in the use of the device so are simplistic and are not sufficient to assure safety. What is needed is a way of communicating responsibilities. One way of doing this is aggregating evidence and producing a safety argument. An understanding of accidents that have triggered an increase in regulatory pressure in other safety-critical domains might also be useful. It is important to be explicit about the assumptions that are made about the context of use, what requirements need to be met over time, and the ownership of risk.

### **Motivating change**

We need to discover what measures can be used to motivate change both from a political perspective and in terms of measures in context. Motivating change by using simulations that estimate death rates based on the probability of erroneous behaviour might be needed. The scale and complexity of healthcare organisations lend themselves to simulation modelling but there may be problems in assigning value judgements that are not about cost effectiveness (i.e., those that are about safety). We need a way of encouraging good interaction design practice by fostering this behaviour from the ground-up.

Progress needs to be made towards:

- Usability test-beds for device manufacturers.
- Overcoming ethical issues associated with accessing real device users.
- The use of other data sources to 'assure' interaction design, requiring not just 'n stage' trials, but also data based on existing similar devices.
- Engaging with practitioners and helping to support their evolving work practices.

The workshop provided a great opportunity for networking. Members of the Healthy Interactive Systems project (UCLIC / FIT Lab) were joined by representatives from The National Centre for Product Design & Development, The Royal College of Art Helen Hamlyn Centre, and the MATCH project. Specialists from the Warwick Medical School, Singleton Hospital, Murrison Hospital, and Royal Free Hospital also made valuable contributions. It was agreed that continuing participation, by organising follow-up events, would be worthwhile for all parties.