Human Computer Interaction and Clinical Skills

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Anaesthetic infusion pumps are extensively used in Intensive Care Unit (ICU), Accident & Emergency (A&E), theatres, and elsewhere. Over-delivery of drugs can lead to injury or death and under-delivery to poor pain management.

The control panel on most of the infusion pumps violates conventional Human Computer Interaction (HCI) design principles: creating mapping, feedback and confusion errors, including international standards such as ISO 13047 — well-known HCI issues. Pumps have error-prone abbreviations, symbols, and dose designations, which can be misinterpreted and induce adverse incidents.

In principle, the safety of infusion pumps could be improved by prioritising the most helpful and effective HCI principles, agency (e.g., NPSA, FDA) guidelines, etc. A new prototype has been developed by and compared with an existing commercially available device. The design and issues raise many issues for debate. From HCI theory it can be argued and is expected that the prototype will reduce errors and improve the usability of the devices. In the presentation, the prototype will be demonstrated and the audience invited to comment and criticise it.

Arguably, device manufacturers and purchasing groups should incorporate or test standard HCI design principles, adhere to guidelines provided by national regulatory agencies, avoid error-prone abbreviations, symbols, and dose designations, fix software programming bugs, etc, for the design, regulation and procurement of devices, products, and systems. Recommendations are made for testing conformance to HCI standards.