

Recent advances in Pharmacology

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Introduction

- Over the past 40 years, information technology has had a major impact on the working lives of millions of people. Many industries have embraced computer technology because of the benefits of automated information processing.
- These include enabling routine, repetitive and monotonous tasks to be conducted with consistent accuracy; standardisation and consistent use of terminology and nomenclature; and mass customisation (the capacity of information technology to provide services to a large population, yet in a way that can be customised to the individual)

Advances

- **Making the most of systems**
- Pharmacists are already using IT systems to support their daily work and, when considering the IT requirements for emerging working practices, pharmacists should consider what functions could be provided by systems that they already use

- **The power of the internet**
- The internet has been widely adopted for business and social communications. In future, as internet use becomes universal, there may be an increase in the number of internet pharmacies, and use of the internet to display and disseminate information on medicines and health from pharmacies.

- **Electronic prescribing and discharge**
- Electronic prescribing (EP) systems automate prescribing, supply and administration of medicines in hospitals, where they have been shown to reduce medication errors and have a major impact on patient safety. However, the effect on error reduction is dependent on system design and a poorly implemented system can actually increase error rates.

- **Automated dispensing**
- Robots have been used in logistics and distribution for many years, but only recently in pharmacy. In 2001, the Audit Commission's "Spoonful of sugar" report advocated the use of automation to transform pharmacy services and, since then, many UK hospitals installed dispensary robots. Pharmacy robots have been shown to reduce the incidence of dispensing errors, improve the speed and efficiency of the dispensing process, and optimise use of space in the pharmacy.

- **Adherence monitoring**
- Various technologies are now available to support approaches to adherence monitoring. A number of vendors have developed “smart” packaging, where a microchip-containing tablet blister pack is able to monitor when doses are popped out (not necessarily taken) and prompt the patient to record side-effect monitoring information for the medicine in question. These data can then be transmitted to a mobile telephone or tablet device.

- **Telecare**

- Telecare involves the use of digital communications technology (audio and visual) to provide healthcare consultations and services to patients remotely at home. Telecare has various potential benefits: it puts patients at the centre of their care and supports personalised medicine; it improves access to healthcare by reducing the need for hospital attendance (for people with poor mobility, or those in remote areas); and it can reduce the travelling times and costs of healthcare professionals.

However, the exact benefits provided by telecare vary between different applications and care scenarios, and, at present, the literature suggests that more evidence of outcome benefits, and more cost-effectiveness data are required to justify further investment in telecare.