

Can clinical decision support systems improve the provision of health care?

Decision support systems are increasingly being used to support prescribing and dispensing. Lin-Nam Wang reports on their uses and limitations

A decision support system (DSS) is a knowledge-rich system that processes data. Patient data entered into the system are encoded and put through a program, and advice is generated. Use of such systems in health care is increasing. For instance, a study of intensive care units indicated that clinicians are more willing to consult clinical DSSs than guidelines.

Describing the use of a system to support the prescribing of aspirin to stroke patients, Stephen Chapman, professor of prescribing studies and head of the department of medicines management at Keele University, reported increased prescribing certainty and decision-making more consistent with national guidelines. Practitioners commented that the system helped them to organise their thoughts, increased levels of satisfaction with decision-making and helped with communication. Could clinical DSSs be used to support new supplementary and independent prescribers? This is a possibility, especially since, as Professor Chapman remarked, lack of confidence is a key factor for why there are more nurses trained to prescribe than are actually prescribing.

However, "there are some serious concerns for the safety of [decision support] systems, particularly if they are not well-

designed", said Jeremy Wyatt, professor of health informatics at Dundee University. An example of poor design is where similar drug names are dealt with in an impractical way so that entering "pen*" will throw up a screen that lists penicillamine above the more commonly prescribed penicillin. Use of such systems has also been shown to increase the time taken to prescribe.

One study showed that the top four systems used by GPs only pick up a quarter of the potential risks (eg, of contraindicated drugs and drug interactions). Most worryingly, Professor Wyatt said, many systems allow users to override alerts without justification — one study showed that doctors were overriding 89 per cent of high severity interaction alerts.

Professor Wyatt summarised studies that have looked at cost-effectiveness and whether or not DSSs improve prescribing. A systematic review found that although clinical DSSs improved practitioner performance, only 10 per cent improved patient outcomes. Professor Wyatt described this result as "disappointing, particularly because systems can be expensive and require change in clinical practice".

DSSs could also be applied to the supply of over-the-counter medicines. They could



Jeremy Wyatt: a lot of clinical decision support systems are technology-led when practitioners should be driving their development

be used to support pharmacists or even be designed for direct patient access, Professor Chapman said. "Who needs pharmacists? There could be a health care professional on hand if wanted, but patients could be allowed to do it themselves," he explained.

NHS Direct could give pharmaceutical advice

NHS Direct is considering employing pharmacists, according to its medical director, Mike Sadler. Dr Sadler said that although primary care trusts need to make sure that there is 24-hour pharmaceutical advice available for both patients and prescribers, for much of England this does not exist. The special health authority has suggested to the Department of Health that NHS Direct could keep a bank of two or three pharmacists. "What we do not want is to have 24-hour pharmacists in every PCT in England because they will have nothing to do," Dr Sadler reasoned.

NHS24, the Scottish equivalent of NHS Direct, already employs pharmacists to handle medicines-related calls. Dr Sadler pointed out that a major difficulty is finance. "If the DoH wants to facilitate [24-hour pharmaceutical

advice] through us, we will start doing that soon," he said. However, if it is left for NHS Direct to fund, the service will wait to see what the cost-benefit is in addition to the evidence of benefit or otherwise in Scotland. Forty per cent of the calls NHS Direct receives involve medicines. Dr Sadler said that employing pharmacists "would make a lot of sense", adding that he was "more keen on that aspect than [employing] GPs." However, he also expressed reservations about mixing professions in a call centre setting.

In terms of a strategic vision for NHS Direct, Dr Sadler wants to see the service doing more about long-term conditions. He added: "NHS Direct should get involved in e-prescribing — we have nurses". Dr Sadler predicts that telephone and new media will cost-effectively improve quality of care. Giving the large percentage of e-mail enquiries on mental or sexual health matters as an example, he added: "We have to recognise that in the health service, there is a need for remote access to advice."

QOF is changing prescribing habits

Within the first year of the introduction of the general medical services contract, the prescribing of drugs mentioned in the quality outcomes framework has significantly increased, researchers in Scotland have found.

Sean MacBride-Stewart, a primary care pharmacist, and Tom Walley, professor of clinical pharmacology at Liverpool University, looked at the prescribing habits of 117 GP practices in Lothian. They compared the defined daily dose (DDD) of drugs mentioned by the QOF with other drugs in 10 chapters of the British National Formulary, before and after the GMS contract was introduced.

The pair were awarded the McGavock bursary (£500) for their abstract. Mr MacBride-Stewart told *The Journal* that the bursary would probably go towards the costs of attending an International Society for Epidemiology meeting in Lisbon later this year.

The Drug Utilisation Research Group 17th annual scientific meeting was held at the Royal Society of Medicine, London, on 9 February