Computerised decision support systems can improve clinical practice

In this month's *Pharmacy in Practice* professor Stephen Chapman describes computer based systems that can be used to determine specific prescribing recommendations for patients with stroke and with type 2 diabetes (p219).

One of the limitations of evidence-based medicine derived from randomised controlled trials is that results describe average outcomes — they are not specific to an individual. It might therefore be difficult for prescribing decisions to be made for specific individuals because it is not known how likely that individual is to benefit, or to experience a risk such as an adverse drug reaction. In contrast, computerised decision support 'provides an assessment or prompt specific to the patient and selected from a knowledge base on the basis of individual patient data.'

There are unfortunately few clinical areas where data exists to populate a computerised decision support programme. The most widely-used example is 10-year cardiovascular risk. Another example might include the benefits of warfarin in preventing stroke in atrial fibrillation verses the risk of a bleed. Chapman and colleagues designed a decision support tool for aspirin in secondary prevention of stroke. The output is prescribing information and explicit risk (GI bleed) and benefit (preventing a stroke) information for individual patients. They have also produced a diabetes decision support tool. The beauty of the diabetes and stroke tools is that they provide illustration for patients to help them make decisions about treatment based on the benefits and risks, and from changing a behaviour, such as stopping smoking.

The use of clinical decision support systems is likely to be an expanding area that pharmacists, especially those prescribing for individual patients, need to be familiar with. Decision support systems can significantly improve clinical practice.[1] Features found to be associated with improved clinical practice include: having the system automatically available as part of clinician workflow; providing recommendations rather than just assessments; being available at the time and location of the decision-making and being computer-based.[1]

Our series on *Basic pharmacy skills* (p202) continues this month with Daniel Greer looking at understanding bio-chemical test results. We are reminded that the reference range for tests is based on a sample of the healthy population. This is normally the mean +/- 2 standard deviations, which includes 95% of the population. This means that 5% of the healthy population will have results outside the normal range. It is therefore important to treat the individual and not to be over-reliant on the test result. GPs order tests for one in every 25 patients they see and hospital doctors order even more — so this is a lot of tests. In addition tests are often ordered when they are not needed because it is simpler to just tick the boxes, and nobody ever seems to ask about the costs.

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A randomised controlled trial from Holland has applied decision support for ordering of blood tests and found that the numbers of tests could be reduced from 1.14 tests per patient per year without computer-generated guideline support to 0.89 tests per patient per year with guideline support.[2] In particular haematological tests and liver enzyme tests could be reduced. The implication for a laboratory serving one million people would be that guideline-assisted test ordering would reduce the workload by 250,000 tests a year, or about 5,000 tests per week. This might be a significant amount of money for cash-strapped NHS trusts and PCOs.

One of the *Learning points* features this month is by Annett Blochberger (p196). The article illustrates how it can be difficult to recognise well known adverse effects, because the pharmacist is distracted by other

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clinical events or because insufficient information has been given. It shows how a systematic approach to assessment and management of adverse drug reactions can be used to focus on potential drug causes of symptoms.

Duncan Petty, consultant editor

References

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