Editorials

It is time for clinical guidelines to enter the digital age

Digital guidelines can be easily updated with new evidence, continuously reviewed and widely disseminated

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The purpose of clinical practice guidelines is to enhance the quality of care by promoting consistent clinical decision making based on the best evidence.[1] A major problem with traditional printed guidelines is that it is impossible to update them promptly enough to keep pace with rapidly emerging evidence.[2] Publishing and disseminating written material and receiving feedback from stakeholders are subject to physical limitations. These limitations cause delays in implementation and the added expense of time-consuming non-automated electronic searching of bibliographic databases.

Although there is a paucity of data on the impact of guidelines in changing health outcomes, characteristics such as ease of understanding and familiarity have been shown to influence uptake of guidelines.[3,4] Having multiple strategies for disseminating guidelines improves their implementation.[4] The quality of guidelines, including methodological rigour, can be tested using tools like the validated Appraisal of Guidelines for Research and Evaluation tool.[5]

With the advent of targeted therapies, cancer treatment is rapidly evolving. At Cancer Council Australia, our solution to the limitations of printed guidelines was to develop electronic guidelines built on a MediaWiki platform (open source software for building a collaborative website that allows the creation and editing of interlinked pages, similar to Wikipedia). An advantage of online guidelines is that the platform makes it easier for geographically dispersed multidisciplinary teams to write guidelines together. The guidelines can be electronically searched, instantly updated as new evidence becomes available, widely disseminated using the internet, and provided in a format in which stakeholders can comment or submit new evidence online at any time.[6] Information within a guideline can be easily reconstructed in real time, for example, into evidence tables. Guideline content can be linked to other information on the internet, such as references to their PubMed abstracts. Wiki platforms are beginning to be customised for use in health care and life sciences.[7] The first Cancer Council Australia guidelines project on a wiki platform was the development of the clinical guidelines for treating lung cancer.[8]

The key steps necessary for ensuring the rigour of hard-copy guidelines can be integrated with the wiki capability. All of the information about expert working groups, systematic literature reviews on key questions, literature appraisals and evidence-based recommendations are available for audit, as are previous versions of guidelines.

A range of stakeholders, including experts from colleges and specialist societies as well as consumers, are invited to comment on each guideline section online, and this can continue indefinitely. After the feedback is evaluated, only the writing group can actually change the guideline.

To keep guidelines updated, small writing groups appraise new publications for each question as they are identified by automatic database literature alerts; this is supplemented by online submissions from expert authors and stakeholders who flag new articles.[9] The new articles can be viewed by readers as soon as they are posted to the wiki.

Using the wiki lung cancer treatment guidelines as an example, the literature search provided 2035 articles, with another 571 added through snowballing (scanning the reference lists of articles) and other methods. The working party used the wiki to exchange 156 internal comments in the first 9 weeks. Both the public and clinicians engaged with the wiki, as evidenced by 1055 users visiting during the 30-day public consultation period. This level of participation at least paralleled our experience with printed guidelines. Digital guidelines are also accessed internationally, and although most respondents were from Australia (799), New Zealand (60) and the United States (47), there were visits from 42 other countries.

Dissemination on the internet has been found to increase the timely accessibility of guidelines, but not necessarily their implementation.[10] Active learning has been found to change behaviour more successfully than passive distribution of material, and combining multiple strategies is often more effective than single methods of education. Dissemination of guidelines by colleges and through websites (as happened with the lung cancer treatment guidelines) is common, and adding other strategies, such as workshops, may increase uptake.[11]

Other studies of guidelines have shown that common reasons for failure of uptake are that target clinicians may have time constraints, be unfamiliar with or disagree with the guideline, or may find it too long to read.[5] The wiki guidelines are easy to navigate to find specific information and summary tables. Their non-linear nature reduces the impact of length.

As a strategy for boosting implementation and keeping clinicians engaged with and aware of major guideline updates, we are writing education modules to accompany each guideline. We are adopting spaced education (now called Qstream) techniques for online education for time-

poor clinicians. Clinical scenarios are presented in a short-answer test question format with further information provided in response to answers, and wrong answers resulting in presenting the questions again iteratively over several weeks. New questions are added when revisions occur. In a randomised study of urologists' use of prostate-screening guidelines, spaced education modules were shown to have changed their clinical practices.[12] Qstream courses have been shown to increase both knowledge and retention of guideline content.[13]

Guidelines in an electronic format could also be linked to other useful online resources such as clinical trials registries which would allow researchers to access information about which trials are ongoing, so that they could identify gaps requiring further research. General therapy recommendations could be linked to sites providing specific information, for example on drug delivery. This can be optimised for access from mobile devices. It is the flexibility of constructing and connecting data and the ease of dissemination and engagement with stakeholders that give digital guidelines an advantage over print guidelines.

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