Partnering with technology

Janet Struber[1]
[1]Centre for Remote Health, NT

Janet Struber has a background in physiotherapy, having held clinical roles in the public, private, education and aged care sectors. She worked primarily in regional and rural areas, with remote outreach. Since completing her Master of Health Studies in Primary Health Care Janet has focused on non-clinical roles, which have incorporated primary health care management, models of rural and remote health service provision, chronic disease, information systems, clinical governance, and Aboriginal and Torres Strait Islander health. Janet is currently a Senior Research Fellow and Coordinating Editor for the Remote Primary Health Care Manuals. She is based at the Centre for Remote Health in Alice Springs.

Introduction

Clinical guidelines are "systematically developed statements to assist practitioner and patient decisions about appropriate health care for specific clinical circumstances".[1] Designed "to make explicit recommendations with a definite intent to influence what clinicians do",[2] they are particularly useful for those who are unsure how to proceed.[3] The concept of pooling clinical knowledge and experience to produce practice guidelines is at least 3,300 years old, with the Ebers Papyrus (circa 1552 BC) not only describing medical conditions but recommending treatments.[4] The emergence of evidence-based medicine in the 1990s heralded, "the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients".[5] Since then, interest in clinical guidelines has escalated rapidly, strengthened by changes in the way medical knowledge and practice are organised and understood.[6,7]

The development and implementation of evidence based clinical guidelines is now considered one of the most promising and effective tools for improving quality of care.[8,9] Large amounts of potentially complex research findings and/or expert opinion can be translated and summarized into a concise, relevant and accessible format.[10] This ensures that robust best-practice advice is readily available, even to clinicians without the capacity to research specific topics themselves.[7,10] Clinical practice guidelines can:

- balance benefits, burdens, and risks to articulate clear goals of care;
- improve clinical decision making;
- make care more consistent and efficient by reducing variations in clinical practice and the use of unnecessary, ineffective or harmful interventions;
- close the gap between what clinicians do and what the current evidence supports.[3,7,8,9,11,12,13]

Clinical guidelines have been shown to contribute to improved patient outcomes and consumer confidence, staff having more positive attitudes, organisations using available resources more appropriately, and improved efficiency through use of tools such as recall systems and standardised equipment and imprest lists.[9,12,14] From a quality improvement perspective clinical guidelines provide a common point of reference for audits of clinicians' or health services' activities and practices.[7] They can also promote public goodwill by sending a message of commitment to excellence and quality.[3]

Fit-for-purpose practice guidelines are particularly important in remote practice where remote area nurses and Aboriginal health workers frequently function as isolated, autonomous practitioners in an environment that experiences high staff turnover, and where visiting medical and allied health practitioners are often unfamiliar with the context.

Background

Central Australia Rural Practitioner Association (CARPA) Standard Treatment Manual

The Central Australia Rural Practitioner Association (CARPA) was formed in 1984 as a peer support and clinical practice education forum for remote and rural practitioners across professions, services, and state borders. It arose out of a shared recognition of the need to support professional development and clinical practice in remote and rural communities in Central Australia. The formation of a CARPA working group by a "group of remote practitioners with fire in their bellies"[15] culminated in the release of their first Standard Treatment Manual (STM) in 1992. It was a pocket sized set of clinical practice guidelines developed for clinicians by clinicians in an era when guidelines were still rare, and were non-existent in rural or remote practice. It grew out of a shared concern for how best to manage the crippling diseases that killed and harmed in unacceptable proportions—such as acute pneumonia and gastroenteritis in babies and children, and infections, respiratory disease, trauma and syphilis in adults.

Guideline adoption

It is accepted that creating a guideline is no guarantee of its being widely adopted, and that guidelines tend to be inconsistently implemented or used in practice.[1,4,16] Characteristics which have been shown to improve uptake include: incorporation of supporting evidence, clinical expertise and experience (in almost half of clinical decisions there is no good scientific evidence), and patients' values and preferences;

- an attractively laid out, clear structure with specific recommendations in concrete terms such as how, what, when, where, and why (for improved comprehension, recall, planning and behaviour);
- transparent and frequent periodic review and updating;
- flexibility to allow a balance between standardised practice and clinical judgement;
- recognition of the characteristics of target users (implicit norms, educational levels and backgrounds) and the demands of local situations;
- involvement of end users in their development to ensure that while the are 'scientifically based' they are 'consumer driven';
- support from peers and workplaces for their use (users perceptions of guideline reliability are more closely linked to their promoters than to the scientific evidence).[1,7,17,18,19]

The CARPA 'by the user for the user' guideline development model of combining evidence review, expert advice, and user participation—arrived at out of necessity and extreme health need—has stood the test of time and been validated by the literature.[2,12,19,20] In line with best practice recommendations,[2,12,21] this multi-level process for updating the manual considers not only available evidence and expert opinion, but also the target context, service capacity and health profile, ensuring a quality product that is appropriate to the circumstances. The multi-professional and iterative nature of the review brings the considerable collective experience and wisdom of content experts, local and context specialists, and remote area practitioners to bear on the recent literature. All the guidelines are reviewed by remote practitioners (end users) for clarity, practicality and acceptability before finalisation, ensuring that it remains a manual by remote practitioners for remote practitioners.

Although clinical guidelines are now more widely available, the CARPA STM has maintained its multi-professional and population health focus with the intention of making best practice evidence accessible and meaningful to all remote and rural practitioners in the primary health care context. The standardised format, at the request of the users, remains:

- a brief, easy-to-read 'cookbook' style;
- plain language without compromise in the content;

- one simple, easily portable manual for Aboriginal health workers, nurses, doctors, allied health professionals and visiting specialists.

Evaluation of uptake and acceptance

Formal evaluations carried out on the second, third and fourth editions of the STM have consistently shown that the manual is used widely and regularly, with higher than average acceptance and adoption by the target group.[22] This is due in no small part to the involvement of multi- professional primary health care practitioners in the development, evaluation, updating and implementation of the guidelines, and the resultant sense of 'ownership' of the manual. Other implementation strategies that have contributed to its widespread integration into practice include:

- its acceptance as the professional 'norm' with local champions, peer pressure and client expectations contributing to its uptake;
- its formal adoption as policy by health service provides and health care organisations;
- its use as the clinical basis for the orientation of medical practitioners and specialists, nurses, and allied health professionals entering remote practice, and in ongoing professional development;
- its protocols being incorporated into Aboriginal health worker training, benchmarking, and credentialing against Aboriginal health worker competencies;
- its promotion by professional support organisations such as CRANAplus, Aboriginal Medical Services Alliance Northern Territory, and Divisions of General Practice;
- being linked to the Northern Territory Poisons Legislation governing the appropriate supply and dispensing of medication by remote area nurses and Aboriginal health workers, and to drug imprest lists for remote clinics;
- being used to inform audit tools for continuous quality improvement programs and research, such as the Audit for Best Practice in Chronic Disease.

Wider utilisation

Its knowledge based approach to providing scientifically sound yet realistic guidelines that are culturally appropriate for use in remote and Aboriginal and Torres Strait Islander communities has also been utilized by the organisations producing the following suite of companion remote primary health care manuals.

- The *Reference Book for the CARPA Standard Treatment Manual* (Reference Book). Provides the evidence base for the protocols in the CARPA STM. It was first produced by CARPA in 2004 for the 4th edition of the CARPA STM.
- The *Clinical Procedures Manual for remote and rural practice* (CPM). Provides general principals and practical best-practice guidance for many routine and emergency procedures. A companion manual to the CARPA STM. First produced by CRANAplus in 2001, now in its second edition (2009).
- The *Women's Business Manual* (WBM). Covers women's health issues such as well women's screening, obstetrics, gynaecology, infertility, menopause, and contraception. First produce by Congress Alukura and Nganampa Health Council in 1990, now in its 4th edition (2008).
- *Medicines Book for Aboriginal Health Workers* (Medicines Book). A guide to the medications suggested in the CARPA STM, in an easy to read format with illustrations, aimed primarily at Aboriginal health workers with a low to moderate English literacy level. First produced by Central Australian Division of General Practice in 2005, 2nd edition currently being finalised by CARPA under licence.

Partnering with technology for an integrated suite of manuals

Now for the first time this suite of manuals is being reviewed and updated under a single project banner, involving a partnership between the copyright/licence organisations, CARPA, CRANA*plus* and the Central

Australian Aboriginal Congress Alukura branch, and the Centre for Remote Health as the organisation managing the project. Pivotal to this combined project is the use of an electronic Content Management System (CMS) to support both the revision and the publication of the manuals.

Process

In 2009 the four organisations created a partnership in the form of the Remote Primary Health Care Manuals (RPHCM) Governance Committee with the purpose of:

- complementing and supporting existing organisational roles and processes in relation to the production of the CARPA STM, CPM, WBM, Medicines Book and a RPHCM Reference Book;
- being the principal advisory group providing strategic guidance to project staff employed by the Centre for Remote Health, including setting directions and establishing reporting responsibilities;
- ensuring information sharing, coordination and consistency between participating manuals;
- being involved in establishing roles and job descriptions, and assist in recruiting and orientating members of the project team.[23]

While theses organisations had all used similar development and/or review models and most had been supported by the Centre for Remote Health, the organisations had previously applied individually for funding in a rather ad hoc fashion. The different review schedules had made it difficult to link and cross reference between the manuals. The RPHCM Governance Committee have submitted a successful combined funding application to the Australian Government Department of Health and Ageing, Office of Aboriginal and Torres Strait Islander Health for the coordinated review and updating of all five books and their publication in both hard copy and electronic formats.

While the funding allowed for the recruitment of a three person project team, the bulk of the work will continue to be done, as it traditionally has, by an army of volunteers who willingly donate their time and expertise to sustain these grass roots innovations, thus maintaining the 'by the user for the user' philosophy.

The governance and working structure for the RPHCM project (Figure 1) aims to maximise the functionalities of the CMS to:

- streamline the review of the manuals by removing duplication of effort for reviews;
- make the fundamental voluntary components more sustainable;
- facilitate the joint electronic publication of the manuals.

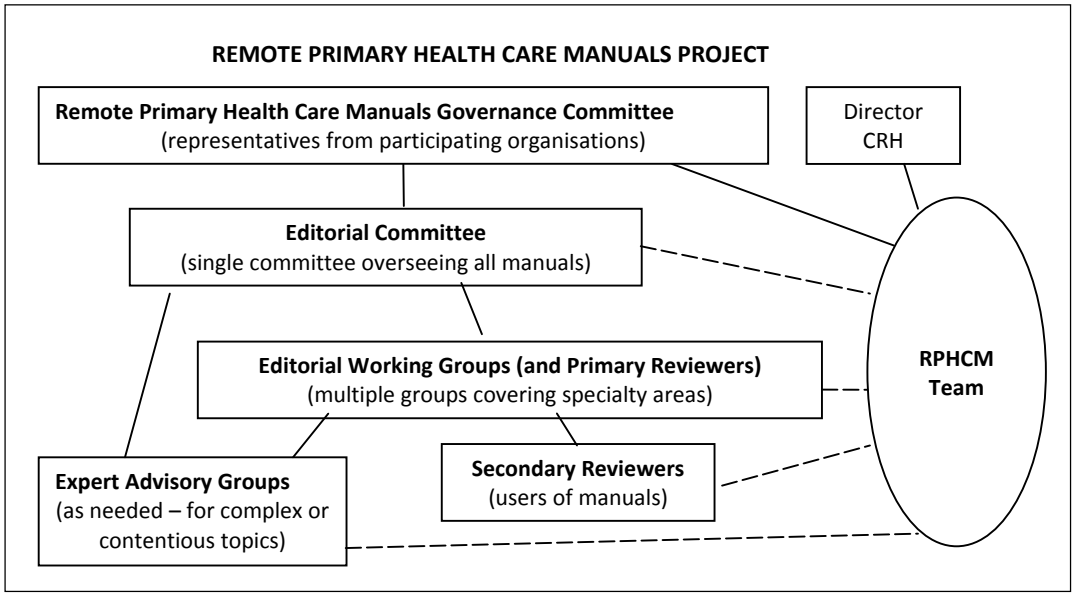

Figure 1 Structure of the Remote Primary Health Care Manuals project

The use of a CMS as an integral part of the reviewing process, creates the ability to package together like-themed protocols and procedures from different manuals for reviewing convenience and reconfigure them into their original context for publication. The CMS allows for multi-user, auditable, web-based reviewing and editing of documents. Multiple access levels determine the functionalities available to different users.

Outcomes

The RPHCM Editorial Committee, RPHCM Editorial Working Groups, primary reviewers and authors, will be able to alter the text of the documents, and review, comment on and discuss changes, as they are responsible for ensuring that the content is current and accurate. Secondary reviewers will be able to post comments about the documents and discuss amongst themselves proposed changes, which will then be fed back to the RPHCM Editorial Working Groups. Their key role is to consider not only the content but the readability, usability and practicality of the protocols, ensuring they are fit for purpose in the remote and/or Indigenous context. The project team has administrative level access to the content management system, providing access to others and maintaining its functionality. They will also be responsible for maintaining the electronic versions of the manuals and preparing versions for hard-copy publication, both of which are facilitated by the content management system.

CMSs are now generally accepted as necessary tools for any organisation that is managing and publishing content. Benefits of an electronic CMS include:

- Accessibility—Increased participation by geographically isolated authors and reviewers. Electronic distribution via the web or CD-Rom. CD-Rom content can be linked and presented within heath systems. Hard copy versions can be printed on a regular basis for situations where electronic versions are not appropriate or accessible.

- Linkages—Context sensitive cross-linkage of content within and between publications, meaning multiple uses but only one point of maintenance. There is an increased opportunity to link with other resources and electronic medical record programs and patient information and recall systems already in use (eg Medical Director, Ferret, Communicare), providing electronic decision support to enhance patient safety and quality of care.

- Review process—The content development and review process is much more structured and efficient, resulting in less chance of errors or omissions, and more timely completion of updates. Content cannot be published without having gone through the correct editorial process.

- Updating—Updating becomes easier and can be undertaken more frequently, providing the capacity for electronic content to remain current and relevant to needs. Electronic updates do not need to be linked to the release of a hard copy version.

- Audit trails—ability to track changes and the people making those changes. The capacity to 'roll back' the system, should unauthorised changes occur, to a point in time pre changes.

Discussion

Overarching challenges for producers of clinical guidelines are to maintain their currency and accuracy, improve accessibility, establish and retain user credibility, and deal with the increasing complexity of health care. Guidelines are only useful when they are up-to-date, yet reviewing clinical guidelines can be as time and resource intensive as creating them.[11,14,24] This makes sustainability an ongoing concern for guidelines that are reviewed and updated by voluntary editorial groups—and yet user participation is widely believed to be the key to their success. Similarly, while the development of a suite of cross-referenced manuals has ensured more complete guidelines it has also made their management more complex.

In recent years, there has been increasing recognition within the medical community of the relative advantages of computer-based programs for the distribution, promotion and implementation of clinical guidelines, as well as education, critical review and evaluation.[10,16,25] Such computer systems can overcome a significant barrier to the uptake of guidelines by making guideline-based advice available at the point of care, rather than relying on the clinician's ability to remember and properly apply information contained in guidelines read or discussed elsewhere.[4] The opportunity a CMS provides to develop a single, combined and cross-linked electronic reference of all protocols, procedures and references is seen as a positive step by all the organisations involved in developing the current suite of manuals. It is expected to further strengthen the uptake of the guidelines and so enhance patient quality and safety in rural and remote settings.

Computer-based decision support systems, linked to electronic medical records, could be programmed to sort between or integrate multiple evidence-based recommendations based on information available at the time of consultation. It could also promote patient engagement by incorporating their personal goals for treatment.[8,10] The development of a sophisticated decision support system such as this would require electronic guidelines that incorporated information on the expected benefits from interventions, and the impact of patient-specific factors such as age, estimated life expectancy, baseline risk, and the effect of a proposed change on the complexity of an existing treatment regimen.[21] However, such processes would be more easily achieved in the electronic environment than through complex paper based algorithms. Similarly an electronic system has greater capacity to be programmed to take into account ongoing and evolving complexities in health care, including the impact of co-morbidities and new treatment technologies.[16]

Ongoing challenges for the RPHCM project are to come to grips with the opportunities created by this evolving electronic era and work collaboratively with the software vendors to make modifications which ensure the CMS is fit-for-purpose, maximizing its potential to support health literacy and address some of the complexities of remote practice. It is anticipated that this project will result not only in enhancements for the Remote Primary Health Care Manuals, but in the development of a tool that will assist others in the development, revision and implementation of guidelines.

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