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EDITORIAL

Living Guidelines for Absolute Cardiovascular Disease Risk Assessment and Management

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Despite rapid declines over the last half-century, ischaemic heart disease remains the leading cause of death in Australia [1] and cardiovascular disease (CVD) is the single biggest contributor to the health gap between Aboriginal and Torres Strait Islander and non-Indigenous Australians [2].

While CVD risk assessment and management according to absolute risk are considered best preventive practice globally, within Australia uptake is low and under-treatment with recommended medications is widespread. Only 24% of the general population at high absolute risk of a primary CVD event are estimated to use both lipid- and blood pressure-lowering medications [3] and 42% of Aboriginal and Torres Strait Islander adults at high primary CVD risk use lipid-lowering therapies [4].

Key enablers of effective CVD prevention include having up-to-date and aligned national absolute CVD risk assessment and management guidelines, with appropriate mechanisms for communication and implementation. New evidence to inform absolute CVD risk assessment and management, particularly in relation to Aboriginal and Torres Strait Islander peoples, is emerging rapidly. For example, recent evidence supports lowering the age for commencing absolute CVD risk assessment in Aboriginal and Torres Strait Islander peoples to less than 35 years [4]. This evidence has been incorporated into the latest national primary health care guidelines updated in 2018 [5]. However, the National Health and Medical Research Council (NHMRC)-endorsed national CVD risk assessment and management guidelines for Australia were last updated in 2012 [6] and do not incorporate recent published evidence. Furthermore, evidence relating to blood pressure targets in people at high risk of CVD has been published since 2012 and has been

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incorporated into the latest national hypertension guidelines, but not into the absolute risk guidelines [7]. This illustrates the importance of guideline updating processes that support timely responses to emerging evidence, and consistency between complementary guidelines. One promising option for improvement is using a 'living guidelines' approach, in which guideline recommendations are updated frequently as new evidence becomes available, rather than intermittent updating of the guidelines in full, as is current practice [8].

Current Guideline Updating Process

To date, Australian guidelines on absolute CVD risk assessment and management have used a periodic, comprehensive approach to guideline development and updating. Such conventional approaches involve a combination of: systematic literature searches; reviewing, grading and interpretation of the evidence; formulation of recommendations; and public consultation [6]. Systematic reviews are conducted to address a series of clinical questions and, where there is evidence to inform the questions, NHMRC grading methods [9] are applied to generate an evidence statement. The evidence statements, in addition to other evidence such as commissioned economic modelling, are used by expert working groups to formulate recommendations [6]. The process of updating full guidelines can take several years to complete, such that some aspects of the guidelines are likely to be out of date by the time they are published. It is estimated that around a quarter of systematic reviews not updated within 2 years miss emerging evidence which would substantially change the outcomes of the review [10] and, potentially, the corresponding guideline recommendations.

The 'Living' Guidelines Approach

Living guidelines are defined as ''optimisation of the guideline development process to allow updating individual recommendations as soon as new relevant evidence becomes available" [8]. Evidence surveillance systems incorporating new technologies [11] are able to support living systematic reviews [12,13] which in turn enable ongoing incorporation of evidence into guidelines, ensuring they remain current. Living guidelines can be regularly updated based on a partial update methodology. Specific sections of the guidelines are updated depending on where new and practice-changing evidence has been identified, according to agreed protocols. Draft updates in relation to specific chapters of the guidelines can then be presented to an advisory committee or core group of health care experts and published online for public consultation before being approved. Crucially, the updating of individual recommendations does not rely on updating of other sections, although dependencies between recommendations need to be identified and managed. This allows guideline changes to be iterative and carried through into practice in a more rapid manner than would occur under the full updating process.

Why Transition to Living Guidelines?

Living guidelines are recommended particularly where a topic is a priority for stakeholders, emerging evidence is likely to result in a change to existing recommendations and new evidence is likely to be generated rapidly [8,13]. Although the decision of whether to move to a living guidelines approach ultimately lies with the guideline custodians, these criteria are particularly applicable to absolute CVD risk management guidelines in Australia. For example, several Aboriginal and Torres Strait Islander guideline recommendations are currently based on grade D evidence (weak evidence) or are consensus-based, where there is no direct evidence [6]. Relevant evidence to inform Australian guidelines is expected to increase with future availability of linked national datasets. This highlights a substantial opportunity to update recommendations as new data become available.

Converting to living CVD risk management guidelines would likely have several benefits for guideline developers, clinicians and patients. First, they facilitate more rapid translation of research discoveries into practice, enabling best practice recommendations to be implemented in a timely way to improve patient outcomes. Second, updates are triggered only when enough new evidence is available to influence a recommendation, potentially improving efficiency compared to traditional full guideline updating processes [8]. Third, there is the opportunity to prioritise which recommendations are updated [8]. For example, priority could be given to recommendations in relation to Aboriginal and Torres Strait Islander CVD risk management where emerging evidence is most likely to result in substantive changes to current recommendations.

Practical Considerations

Living guidelines require some ongoing infrastructure including human resources and substantive changes to updating and publication processes. Living guidelines require continuous literature surveillance and processes to support ongoing expert review and recommendation development. Several technologies have recently emerged to support these processes. For example, Cochrane has developed text mining, machine learning and crowd-sourcing technologies that substantially improve the efficiency of evidence surveillance [11]. Covidence is an Australian not-for-profit online program, designed in partnership with Cochrane to improve the efficiency of systematic reviews [14]. Making GRADE the Irresistible Choice (MAGICapp) [15] is a digital tool for collaborative authoring and publishing of living guidelines using the GRADE framework.

A switch from publishing hard-copy guidelines to online-only versions is also required. Living guidelines are published online using purpose-specific software so that users accessing the guidelines for a specific topic area will always see the latest recommendations and the evidence to support that recommendation.

As with a conventional approach to updating, workforce and resource requirements for high quality living guidelines need to be considered. An ongoing core team is needed to maintain living systematic reviews, decide on whether an update should be triggered and co-ordinate the updating process. Expert working groups need to be assembled and maintained. As with other elements of a living approach, their work is spread out more evenly, rather than the peaks and troughs of conventional updating.

Managing the Risks of a Living Guideline Approach

Conventional guideline development processes involve periodic, public and often highly scrutinised occasions for reviewing evidence, input from stakeholders and consideration by expert panels. Converting this to a more continuous process, with more frequent updating of guidance is accompanied by some risks which must be managed. Although some of these challenges are broadly applicable to all guideline updating processes, others, particularly around knowledge translation, are specific to a living guidelines approach.

Guideline recommendations are informed by the totality of relevant evidence. Although all guidelines must develop some recommendations where the evidence is sparse and only just beginning to emerge, this is more common for more frequently updated guidelines. Particular attention must be paid to the certainty of the available evidence and the chance that future evidence may change a recommendation, given that early evidence tends to overestimate the effect size established over time.

Stakeholder engagement is critical to high quality guidelines and their implementation. There needs to be the same opportunity for scrutiny and input with living guidelines as there is for full updates. With more frequent updates, public consultation can be more focussed, but consultation processes and periods need to be adequately and consistently communicated to stakeholders.

Guidelines are most effective if clinicians can internalise and construct mental models to implement them [16]. When guidelines are updated periodically, clinicians are alerted to the release of a new guideline and develop a general awareness of their contents. If updating is more frequent, effective 'what's new' push dissemination mechanisms are particularly important to get right. The constant availability of up-to-date guidelines creates new opportunities for knowledge translation, but the most effective approaches remain to be defined.

Suitable mechanisms for implementation of updated recommendations into practice are important [8]. A key avenue for this is to incorporate guideline recommendations with electronic decision support tools [8] with the capacity to roll-out updates quickly and, ideally, the development of common data exchange formats allowing health applications to be run across different IT systems [17]. Other options for communicating guideline updates include adding links to the online guidelines within electronic decision support tools (in the absence of integrating recommendations within decision support tools), disseminating information through Primary Health Networks and other regional organisations, and publishing succinct evidence and recommendation summaries aimed at clinicians, such as those being developed under The BMJ Rapid Recommendations initiative [18].

Current Opportunities

Within Australia, a consortium of guideline developers is supporting a shift towards living guidelines [19]. This includes other CVD guidelines, led by Australia's NHMRC-endorsed Clinical Guidelines for Stroke Management [20]. In 2017, a full update of the stroke guidelines was undertaken, and future updates of the guidelines will be published using a living guidelines approach [20]. This process allowed the Stroke Guidelines development team and reviewers to become familiar with new technologies while performing the necessary full, 'baseline' update, prior to transitioning into a living mode. A similar framework could be applied to other guidelines, drawing on, and contributing, robust evaluations over time.

The next iteration of Australia's absolute CVD risk management guidelines provides an opportunity to take advantage of the availability of technologies aimed at improving the efficiency of updating processes, and the experience of other guideline developers, to start the transition to a more responsive living guidelines system.

Conclusions

Living guidelines are a promising option for keeping Australia's CVD risk assessment and management guidelines in line with emerging evidence. Any process of transitioning needs to be managed carefully to ensure high quality evidence-based practices are maintained. Implemented appropriately, more dynamic guideline updating has the potential to speed up the translation of practice-changing evidence, enhancing our ability to prevent morbidity and mortality from CVD.

Ethics Approval and Consent to Participate

Not applicable.

Consent for Publication

Not applicable.

Availability of Data and Material

Not applicable.

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Authors' Contributions

EP drafted the manuscript. LOJ and AD undertook a literature review on living guidelines to inform the work. All authors revised the work for intellectual content and approved the final version of the manuscript.

Declaration of Interest

JE is the Lead for Evidence Systems with Cochrane and CEO of Covidence, a non-profit platform for systematic review production. All other authors declare that they have no competing interests.

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