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Editorial

Reclaiming the midnight hours: up-to-date evidence in just one click

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For decades, oncologists have burnt the midnight oil searching for evidence and writing or updating treatment protocols. The products of this work often lie dog-eared on clinic desks, thumbed over by registrars and nurses intent on providing best care to patients. The work of keeping up to date and ensuring patients receive the highest standard of care has long been a labour of love in oncology that relies on the passion of individuals committed to the task of evidence translation. Essentially, this is a process in which evidence (and the need to use evidence) is accepted, analysed and then utilised in practice (Hersh *et al.* 2002; Westbrook *et al.* 2004). Imagine a world where this effort is collaborative, automated and available at the click of a button! Imagine no longer – that world is here in the form of eviQ.

eviQ (https://www.eviQ.org.au) is an independent, state government funded, web-based, point-of-care information repository of over 600 treatment protocols to support standardised, evidence-based and safe delivery of cancer treatments (Langton & Pearson 2011). Importantly, eviQ removes the burden for individual clinicians trying to keep abreast of current evidence through the use of clinician-led reference committees and eviQ program staff who are responsible for identifying and collating new evidence and determining the need for protocol review and amendment. The collective efforts are housed on a web-based system accessible to all free of charge and now reach an audience of over 43 000 clinicians in more than 140 countries. In Australia, eviQ protocols are the standard of care in all states and territories. A more recent advance embeds eviQ into oncology medical information systems including the two market leaders – MOSAIC and ARIA, leading to easier access and a reduction in prescribing errors when these systems are used for prescribing (Elsaid *et al.* 2013). Each eviQ protocol includes a unique identifier embedded into cancer clinical information systems which will enable comparative effectiveness research and greater understanding of variations in the delivery of cancer treatments and the impact of such variations on patient outcomes and system effectiveness.

However, despite the success of the system, eviQ staff face the growing burden of ensuring that new evidence is identified in a timely manner and utilised in protocol review. Being time responsive is identified as crucial to keep eviQ users assured of the quality of the information provided. eviQ needed a sustainable and less labour-intensive means of staying abreast of new and emerging

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evidence among the tsunami of more than 560 000 new articles appearing each year on Medline and the 20 000 new trials on Cochrane Central (Glasziou & Haynes 2005). The team wanted to be able to identify seminal new evidence easily to enable rapid integration of new information and to achieve this with minimal human effort.

A partnership was established with Flinders Filters (a research group specialising in information retrieval) to devise a sustainable and standardised model for efficient evidence retrieval to ensure ongoing currency of content – the eviQ bibliometrics project. Bibliometrics utilises quantitative analyses and statistics to describe patterns of publication within a given field or body of literature. In a broader context, bibliometrics refers to where and how research is disseminated in a field of study or body of literature, and the impact of that research.

Flinders Filters used a combination of approaches to develop searches that would retrieve evidence required by eviQ. They undertook a systematic approach to building evidence retrieval searches that consisted of 'background' or 'constructed' searches. Background searches were built, providing overviews or contextual information on a topic, retrieving all clinically relevant evidence. These searches are like 'building blocks' and can be combined together to build a protocol search string around a particular treatment or management of a side effect.

Constructed searches consisted of a cancer type, intervention or drugs, and methodological search filters. These filters (entitled specific, balanced and sensitive) ensure retrieval of clinically relevant evidence from within a topic. For example, the treatment protocol for mesothelioma Cisplatin and Pemetrexed ID: 229 contains a variety of methodological searches for the clinician to further explore the evidence within this treatment regimen. The 'specific' filter will retrieve randomised controlled trials and systematic reviews. The 'sensitive' filter will retrieve all clinically relevant evidence on mesothelioma and is the broadest search (and may include results from the 'specific' search), and 'balanced' is the middle ground between both sensitive and specific searches.

Filters were also developed to retrieve 'Guidelines and Reviews', which can be applied where there is a low volume of high level evidence, such as for the Immediate Management of Neutropenic Fever ID: 123. The ability to combine these search components in multiple ways (i.e. treatment intent and/or drugs) provides flexibility for future content development. The searches can be adapted and refined to deal with emerging content, such as increased tailoring of treatments to address specific genetic alterations, increasing both sustainability and versatility of the searching solution.

The resultant search strings retrieve searches that can interrogate PubMed in real time, enabling timely, high level evidence retrieval. Automation means that checking for new literature is much less time consuming and can be conducted routinely and frequently to determine the need for protocol review. The PubMed database was chosen as it is openly accessible and comprises more than 23 million citations for biomedical literature from Medline, life science journals and online books. Being openly accessible, the underpinning searches are now available within the protocols, enabling a 'one click' retrieval of relevant evidence. While the primary purpose for the searches is for use by the eviQ content development team, the searches are also available at the click of a button from the eviQ website to support busy clinicians and researchers in keeping up to date on new publications relevant to their practice or specific research interests. The open access to the searches reflects the transparency, objectivity and quality of eviQ processes.

Ultimately, the outcomes of this project enable system sustainability and help to future-proof eviQ's ability to be a trusted and up-to-date decision support tool. The beneficiaries of this are patients who are more likely to receive best practice treatment and clinicians who can stop burning the midnight oil. After all, a well-rested clinician provides far better care.

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