# The InterTASC Information Specialists' Subgroup: collaboration to improve access to search filters

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#### Introduction

The InterTASC Information Specialists' Sub-Group (ISSG) is the group of information professionals supporting research groups providing technology appraisals to the National Institute for Health and Clinical Excellence (NICE).

Health technology assessments (HTAs) or appraisals are reviews of the effects and/or cost effectiveness of new healthcare technologies. These technologies may be drug or other treatments, surgical interventions, equipment, diagnostic tests or services. HTAs are undertaken in England and Wales to provide information to NICE on whether new healthcare interventions offer improvements in health outcomes at an acceptable cost. NICE decisions are sometimes seen as controversial and can generate much media debate. For example, NICE's decision not to fund beta interferon and glatiramer acetate for the treatment of multiple sclerosis

(http://www.nice.org.uk/Guidance/TA32) in 2002 generated much media discussion and lobbying from patient organisations. Such important decisions about health care should be informed by the best possible high quality research.

Six academic research groups currently provide health technology appraisals for NICE (http://www.york.ac.uk/inst/crd/intertasc/). These groups are known collectively as InterTASC (Technology Assessment Services Collaboration). InterTASC technology appraisal groups comprise experienced multidisciplinary teams of reviewers, information professionals, health economists, statisticians and research support staff.

The information retrieval issues for the production of HTAs are diverse. To produce a high quality HTA requires the identification of information on the effectiveness of the technology, its adverse effects, the epidemiology of the disease, and the costs and potential impacts of the intervention on the delivery and organisation of health care. Efforts are also made to identify the potential impact of the new technology on patients' quality of life. The state of evidence on efficient information retrieval for many of these topics is sparse. Recognising the need to ensure that technology appraisals are informed by high quality information retrieval, the information professionals involved in InterTASC developed a special interest subgroup. This group meets twice each year and has an email discussion list. As well as InterTASC members, the group also includes invited information specialists with special skills, subject knowledge or responsibilities relevant to the HTA process. Guest speakers are

also invited to present at the meetings. They have included information specialists, researchers and health economists who provide insight into health technology assessment processes, methods and contexts.

The ISSG focuses on the professional development of its members through networking and information-sharing. It also seeks to identify and share best practice and best evidence in information retrieval for technology assessment. The group explores common research issues with the objective of improving the consistency and quality of approach to information retrieval across the InterTASC research groups and more widely. The ISSG aims to improve the efficiency of its searches and has identified the use of effective and efficient search filters as one potential way to achieve this.

One focus of the ISSG's collaborative efforts has been to identify, appraise and summarise search filters. Filters of interest to the group tend to be those designed to capture specific study designs such as randomised controlled trials, or types of study such as quality of life studies. They can be useful tools for all health information professionals and others seeking to search databases efficiently and reliably for research evidence. They are developed to make searching more efficient and effective by saving searchers' time and bringing consistency and focus to the searching process. They also benefit researchers and reviewers, saving their time by improving the precision of searches and thus reducing the number of irrelevant records retrieved. They are produced by identifying and combining search terms to capture records with a common topic or feature. Search filters can be expert-informed, research-based or developed using a combination of approaches. Information about the methods of development, along with the results of testing, is important to reassure potential users inexperienced in the specific search filter topic that it may be relevant and reliable. The increasing focus on evidence-based approaches to health care has generated the need to identify records of publications which describe evidence produced by specific research designs, such as randomised controlled trials. This has, in turn, been answered by the development of many new search filters.

Over the last two decades research approaches have been used increasingly to develop and test search filters, with the aim of making them more robust and reliable. Some research-based search filters have been built into major bibliographic databases, such as the Clinical Queries filters developed by Haynes and colleagues for PubMed.[1, 2] Other filters have been developed to assist with international study identification exercises for the production of databases such as the Cochrane Central Register of Controlled Trials (CENTRAL) and the Database of Abstracts of Reviews of Effects (DARE).[3-6] For some study types there is now a choice of filters which makes selection challenging. For example, there are at least 8 search filters available for retrieving diagnostic test accuracy studies

(http://www.york.ac.uk/inst/crd/intertasc/diag.htm) from MEDLINE identified by ISSG (see Figure 1). Choosing which of these filters to use, or advising researchers which to use, if any, is becoming a challenge to even the most experienced searcher.

A searcher deciding which search filter to use is in a similar position to a healthcare professional deciding if they should use the results of a new research study in their decision-making. The evidence-based health care approach has generated critical appraisal instruments, quality assessment tools, and checklists to help us to assess the

quality and features of different types of research. Critical appraisal tools focus on drawing out the key elements of a study that bear on its quality and can help us decide whether the study meets our needs. In terms of search filters, a critical appraisal tool might offer information on elements such as the filter's focus, the methods used in its development, the extent of its reliability established through testing and other features.



Figure 1. ISSG Diagnostic studies search filters webpage

In January 2005 the ISSG established a website listing search filters identified by members and others: http://www.york.ac.uk/inst/crd/intertasc/. Filters are identified by extensive searching in a number of resources or through personal contacts. Bibliographic details of relevant filters are added to the ISSG website.[7] Where possible there is a link to the original paper, an abstract or the full text of the filter. The filters are categorised according to their topic or focus, for example randomised controlled trials or diagnostic test accuracy studies. As the number of filters on the web site began to rise, the ISSG started to discuss search filter assessment as an aid to choosing between filters. The group was aware of a search filter appraisal checklist designed to assess methods filters published by Jenkins in 2004 and some of its members had met with Jenkins during the course of her research to discuss issues around search filter design and evaluation.[8] However, members were not aware of any published evidence that the Jenkins checklist had been used widely to assist decision-making about filter choice, or to assess the usefulness or quality of search filters. A citation search conducted using the ISI citation indexes in July 2007 and repeated in May 2009 revealed papers that cited the Jenkins paper [8], but none of them had evaluated the tool. Using the Ovid MEDLINE citation feature to track the Jenkins MEDLINE record in May 2009 revealed one citing reference. So although a tool was available, as far as the ISSG could tell, there seemed to be no published validations of the checklist and its usage levels were unreported. The ISSG decided to test the suitability of the Jenkins search filter appraisal tool for assessment and

decision-making, and to explore the development of its own tool in the event that the Jenkins tool proved unsuitable for ISSG purposes.

## **Objectives**

The ISSG undertook a collaborative project to explore the feasibility of developing, testing and publishing a search filter appraisal (SFA) checklist by consensus methods.

### Methods

The ISSG search filter appraisal tool was developed over three consensus meetings during 2006 and early 2007. Between meetings, drafts were circulated for further discussion by email.

The ISSG, as a group of experienced healthcare information specialists, had the relevant skills to develop a tool. The group includes individuals who have designed and published search filters, have tested out search filter performance and are experienced in critical appraisal. It also includes individuals who have been involved with checklist development, structured abstract development and other related information retrieval research.

During its development the ISSG SFA tool concept and drafts were presented at relevant conferences and feedback was invited from the attendees.[9-11]

At the first of the three ISSG meetings devoted to this project, three options as aids to analysing search filters and presenting information to assist decision-making were evaluated: the Jenkins' critical appraisal checklist, a draft ISSG checklist and a draft ISSG brief summary (abstract). The usefulness of each of these options was discussed in assessing a recently published search filter by Zhang and colleagues.[12] It was agreed that the Jenkins' tool did not meet the needs of the ISSG members because it had a different focus (see below). It was also decided that the brief summary alone was inadequate and the draft ISSG checklist should be developed further.

The draft search filter appraisal tool was revised in the light of comments and circulated to the group for further discussion. The revisions focused on the issues that the group members felt were important when assessing the usefulness of a search filter, namely the quality of the methods reported in the development of the filter and information on the relevance of the filter. The revised tool was pilot-tested at the second meeting. The group members examined the usefulness of the tool in assessing three different filters.[13-15] These filters were chosen because they had been developed using different methods of filter design, in order to test the usability of the tool, and included one filter which has been published on a website but for which little development information was reported. In addition, two summary formats were discussed: a structured abstract and a 100-word summary abstract. The group discussed the usability, clarity, practicality and reproducibility of the tool in assessing the three filters. Following these discussions the tool was revised again and underwent a further round of feedback. The final ISSG tool and abstract were agreed in a meeting in April 2007.

Subsequently a paper describing the tool and its development and testing was drafted and submitted for publication to the Journal of the Medical Library Association.

## Results

During the first meeting the ISSG assessed the Jenkins' checklist and concluded that it was focused on determining, at a general level, whether the filter design methods were reported, but did not focus on the detail of the design or summarise the data from the study. The ISSG members also agreed that the Jenkins' checklist framed questions that might be technically difficult to answer or involved several questions, with the risk that not all would be answered. The Jenkins' checklist, as its name suggests, seemed to represent an *aide memoire* for someone experienced in critical appraisal of search filters and the ISSG felt that it might be less helpful for users with limited experience of search filter design methods.

The ISSG felt that the issues of search filter methods and purpose should be broken down into more focused questions and the data from a search filter paper should be extracted to provide more assistance to readers with different needs and perspectives. It was also agreed that an ISSG tool should be developed to incorporate more space for narrative comment. In comparison, the use of a brief summary alone was felt to be inadequate to address the number of important elements in a search filter paper.

The collaborative effort produced a draft search filter appraisal tool and a structured summary. Since the tool was prepared critical appraisals using the tool have been added to the ISSG web site. Examples can be seen at http://www.york.ac.uk/inst/crd/intertasc/diag.htm. A paper describing the tool and its development was accepted for publication by the Journal of the Medical Library Association. The publication process required two rounds of revisions to respond to referees' comments and was published in 2008.[16]

## Discussion

The ISSG members worked well together, with a common interest in producing a helpful tool for members' own work supporting technology appraisals and with the aim of achieving a publication which would promote the tool to other health information professionals. The benefit of the exercise to ISSG members was in achieving something practical to assist them and other information professionals in their daily work. The process of learning about search filter development methods was also valuable along with the feeling of becoming more informed about one of the key resources in information retrieval in health care. Critically appraising search filters brings with it an appreciation of the importance of clear research methods and research reporting. It also highlights that most filters receive little validation testing, and that more performance figures are required to give a detailed picture of filter reliability. The process has made ISSG members much more aware of the strengths and weaknesses of search filters as information retrieval tools.

The development process was such that group members could choose their level of involvement according to their interest and availability at any given stage in the project. However, the number of members involved did mean that there was adequate, if informal, staffing to complete the project. This project was informally funded with some members able to devote some work time to it and others working in their own time. There was a core group of project co-ordinators who worked to maintain the project momentum. The pattern of meetings interspersed with email correspondence and exchanged Word documents seemed to work well, and the meetings served to keep the project progressing. The feeling of achievement from having produced a tool and a formal publication has been a positive experience for the group members, and the ISSG website continues to receive positive feedback and to be recommended by colleagues in email discussion groups.

The downside of this form of collaborative project was the time taken to get comments from members. Everyone was very busy so we could not realistically expect rapid turnarounds and retain the collaborative approach. We used deadlines, but the deadlines had to be long-term enough to encourage continued involvement. This meant that the project extended over 18 months and there was always the potential that it would lose momentum and that with gaps between meetings members would lose track of the state of play of the project and the project detail.

In retrospect the co-ordination of comments on, testing and editing the critical appraisal tool and drafting the journal publication might have been aided by the use of shared documents. Subsequent projects could explore the use of a resource such as Google Docs or a wiki. The use of a weblog, or blog, for the project might have provided avenues for less formal project co-ordination and for members to record thoughts on the project that occurred to them as they were going about their daily work. The ISSG will shortly be testing a wiki for the group to use for a variety of purposes including further development of the website.

The absence of extensive validation of search filters has already been noted and this is currently also true for the ISSG search filter appraisal tool. There were no resources for extensive formal validation and this remains to be undertaken. Ideally, the group should have taken more time to validate the tool, and this is a topic the group intends to discuss with funders, along with support for the website as a whole.

Although the group achieved a publication in the Journal of the Medical Library Association, the amount of work that this required should not be underestimated. Drafting a paper collaboratively, managing feedback from ISSG members on referees' comments and managing the submission process involving a large group of people took significant amounts of time.

In parallel with the ISSG tool, another research team was working on a development of the Jenkins' tool called the CADTH Critical Appraisal Instrument (CAI).[17] There is potential for comparative evaluations of the ISSG search filter appraisal checklist and the CAI to explore the relative benefits of each.

### Conclusion

The ISSG is an example of a highly successful collaboration of research-oriented health information professionals. The members' high levels of common interests, skill-sharing and clear objectives have been the main factors in its success, despite minimal funding. The group has produced a website and information resources which

benefit not only its own members but also a much wider audience of healthcare information professionals and researchers.

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