Citation, citation, citation

The importance of primary care research in building the evidence base for clinical management and service delivery is now widely accepted, as demonstrated by the growth of university departments of primary care and family medicine around the world. The strength of primary care research is evident in its contribution to primary care research networks and databases and in the quality of research produced by primary care researchers and published in primary care research journals.

In the UK, the Academy of Medical Sciences' publication *Research in General Practice: Bringing Innovation into Patient Care* provides a valuable overview of the field.[1] A benchmarking exercise carried out by Hobbs and colleagues on behalf of the Society for Academic Primary Care analysed research output in terms of peer-reviewed, indexed papers from primary care departments in the UK, Netherlands, and North America, and it confirmed the health and strength of the discipline (FDR Hobbs, personal communication, 2010). The Primary Health Care Research, Evaluation and Development Strategy, funded by the Australian Government, was initiated in 2000 to improve Australia's capacity to produce high quality primary healthcare research.[2] In addition, the international political and financial climate,

with an imperative to work more effectively and collaboratively, offers further opportunities for primary care researchers to test and evaluate new approaches to problems such as the long-term management of chronic disease, selective screening for serious illness, and new and more accurate methods of diagnosis.

CITING PRIMARY CARE
Accurate indexing and citation analysis of papers published in peer reviewed journals are essential for many reasons. Science policy and funding bodies may wish to search for evidence to inform developments in primary care, and need to

Table 1. Total general practice journal articles in PubMed from 1960 to 2007, compared with the number of articles retrieved from PubMed queries with different sensitivities.

Journal Name	Total articles[a]	Family Practice [MeSH][b] (%)	Family Practice [MeSH] OR Family Physician [MeSH][c] (%)	GP/FP search query[d] (%)
General practice/family medicine journals				
American Family Physician	9021	727 (8)	893 (10)	2215 (25)
Journal of Family Practice	7211	2234 (31)	2501 (35)	3870 (54)
Australian Family Physician	7162	2039 (28)	2247 (31)	2813 (39)
British Journal of General Practice	4515	2576 (58)	2733 (60)	3097 (69)
Canadian Family Physician	3392	1373 (40)	1522 (45)	1782 (52)
Family Medicine	2873	1916 (67)	2067 (72)	2407 (84)
Family Practice	2263	1073 (47)	1270 (56)	1648 (73)
The Journal of the American Board of Family Practice	1679	489 (29)	577 (34)	1073 (64)
Archives of Family Medicine	1077	190 (18)	231 (21)	464 (43)
Scandinavian Journal of Primary Health Care and Supplement	1263	472 (37)	535 (42)	758 (60)
Family Practice Management	892	538 (60)	574 (64)	611 (68)
Annals of Family Medicine	501	186 (37)	202 (40)	329 (66)
Family Practice Research Journal	297	135 (45)	164 (55)	228 (77)
BMC Family Practice	271	148 (55)	172 (63)	205 (76)
European Journal of General Practice	204	98 (48)	123 (60)	160 (78)
Totals	42 621	14 194 (33)	15 811 (37)	21 660 (51)
General medical journals				
Lancet	107 786	604 (1)	650 (1)	910 (0.8)
British Medical Journal	34 820	1002 (3)	1049 (3)	1180 (3.4)
Journal of the American Medical Association	58 284	512 (1)	617 (1)	790 (1.4)
New England Journal of Medicine	54 942	183 (0)	266 (1)	303 (0.6)
Medical Journal of Australia	31 207	1306 (4)	1413 (5)	1666 (5.3)
Canadian Medical Association Journal	12 430	346 (3)	457 (4)	659 (5.3)

PubMed 'Queries' used in the table: [a]Journal ID. [b]Journal ID AND family practice[MeSH]. [c][Journal ID] AND (family practice[MeSH] OR physician, family[MeSH]). [d]GP/FP search query: (family practice[MeSH] OR physicians, family[MeSH] OR "family practice"[TIAB] OR general practice*[TIAB] OR general practitioner*[TIAB] OR family medicine*[TIAB] OR family physician*[TIAB] OR family doctor*[TIAB] OR family medicine*[AD] OR family practice*[AD] OR "general practice*"[AD]) NOT "General Practice, Dental"[MeSH]. GP/FP = general practice/family practice.

be able to access the entire literature without missing important contributions. Similarly, researchers conducting systematic reviews of the literature in preparing research funding applications need to ensure that their search strategies will capture the majority of the relevant literature. Systematic reviews and meta-analyses, conducted to determine effect sizes of interventions and to identify gaps in the evidence, also need to include as full a sample as possible of the relevant publications — quite apart from enabling clinicians to find clinical evidence.

There are, at present, some problems with how PubMed papers are indexed using MeSH terms (a branching taxonomy of Medical Subject Headings[3]) attached to papers by the National Library of Medicine at publication. We have confirmed this in a bibliometric analysis of 'tagging' of over 42 000 papers published in 15 family/general practice journals between 1960 and 2007 (Table 1). It was found that only about 50% of papers could be retrieved even using a sensitive search query (a sensitive PubMed query including 'MeSH' and 'Text' words retrieves more articles than only MeSH words; however, the cost of this is more false 'hits'). Journals with fewer 'original research papers' and with higher 'review' articles had lower tagging rates (*American Family Physician*, 25%; and *Australian Family Physician*, 39%). The journals with higher 'original research papers' but lower 'review' articles had a higher tagging rate (*Family Medicine*, 84%; *European Journal of General Practice*, 78%).

Two of the main MeSH categories include 'Diseases' and 'Disciplines and occupations'. The 'Diseases' tags are based on body systems such as respiratory, cardiovascular, and neurological systems. The clinical 'Disciplines', such as cardiology and neurology that are based on body systems, can be accurately tagged using both MeSH categories which complement each other.

Organ-specific specialisation which aims to understand organ systems in detail are 'specialisations-in-depth'. General practice is a specialisation directed at interconnectedness — of organ systems, between body and mind, humans and their environment, individuals and populations — and this makes it a 'specialisation-in-breadth'.

At the time of PubMed indexing, 'Diseases' tags get priority over 'Disciplines'. Unfortunately, as a specialisation-in-breadth, general practice can be tagged only using the 'Disciplines' category. To remedy this we propose that authors be encouraged to include in their papers the phrase 'Family Practice' or 'General Practice' in the title, abstract, or list of authors' affiliations (and that journal editors try to ensure this too), and the National Library of Medicine considers the need to use the 'Disciplines' category of tags whenever appropriate.

In terms of the visibility of primary care research in the citation indices, it is good to be able to report that, thanks to a concerted effort orchestrated by Wonca (the World Organization of Family Doctors) and the North American Primary Care Research Group, Thomson Reuters' ISI Web of Knowledge will identify and refine the subset of journals presently included among 132 titles under 'Medicine, General & Internal', as a new, separate category entitled 'Primary Health Care'.

ISI has followed PubMed which created a Journal Subject Term 'Primary Health Care' in 2009[4] and included 34 primary healthcare journals. We request this to be upgraded and included in the 'Topic-Specific Queries' page under the Journal Collection group with core clinical, dental, and nursing. This will be helpful for many reasons, including the ability to review and search primary care papers immediately, and to avoid the asymmetrical comparison in citation scores between the primary care journals and the high-impact general medical publications such as the *New England Journal of Medicine* and *The Lancet*.

In the Journal Citation Reports subject category of 'Medicine, General & Internal' there are 14 primary healthcare journals, including the *Annals of Family Medicine* (impact factor [IF] 4.130), the *British Journal of General Practice* (IF 2.442), the *Scandinavian Journal of Primary Health Care* (IF 2.205), and the *Journal of the American Board of Family Medicine* (IF 2.106). Impact factor calculations are taken to reflect the level of interest in a journal, as evidenced by the number of times original papers are cited in other publications.[5] Although regarded as a limited, even flawed, measure of true impact, the impact factor announcements each June are awaited with a good deal of anticipation by journal editors, authors, and publishers.

The new citation arrangements reported here are a welcome way of ensuring that primary care journals can be readily identified. Authors and editors will still need to pay attention to the details of their papers and publications to ensure that citation indices reflect the extent, as well as the quality, of primary care research.

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