

Finding POEMs in the Medical Literature

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Articles about primary care topics that measure patient-oriented outcomes (eg, morbidity, mortality, quality of life) should change practice, if the reported results are valid. We call these types of articles POEMs—Patient-Oriented Evidence that Matters. The extent and distribution of POEMs in the medical literature is unknown.

We identified 85 medical journals of potential interest to primary care physicians, and counted 8085 original research articles over a 6-month period; 211 of those articles were POEMs (2.6%). Ten journals accounted for 50% of the POEMs identified during the study period: *Journal of the American Medical Association*, *Annals of Internal Medicine*, *New England Journal of Medicine*, *Archives of Internal Medicine*, *Lancet*, *British Medical Journal*, *Obstetrics and Gynecology*, *Arthritis and Rheumatology*, *American Journal of Obstetrics and Gynecology*, and *Journal of*

the American College of Cardiology. Other journals with a high percentage of POEMs were: *Journal of Family Practice*, *Journal of the American Board of Family Practice*, and *American Journal of Emergency Medicine*. Half the journals we surveyed published 0 or 1 POEMs during the study period.

Not all clinicians have the time, inclination, or access to review a large number of journals on a regular basis. By focusing on POEMs and the journals that publish them, busy physicians can avoid reading 98% of the original research published each month. This will not only drastically cut physicians' reading time, but also help them obtain the information that is most valuable for their patients.

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Physicians face a daunting challenge as they attempt to keep current with the medical literature. Each year, hundreds of medical journals publish thousands of original research articles. Clearly, even the most motivated physicians cannot read every article, every abstract, or even every title. In addition, traditional continuing medical education has significant limitations.^{1,2} A better approach is needed to help physicians remain up-to-date with the most valuable information available in the literature.

An evidence-based approach to practice encourages physicians to answer clinical questions by searching the literature and critically appraising the results of relevant studies. However, standard approaches to evidence-based medicine have focused primarily on the assessment of validity, without developing a consistent framework for

evaluating the relevance of an article to the typical family physician.³

An approach to evaluating the relevance of medical literature to primary care physicians using the concept of POEMs—Patient Oriented Evidence that Matters—has been described previously.^{4,5} POEMs are articles that (1) address a clinical question encountered by a typical family physician at least once every 6 months; (2) measure patient-oriented outcomes (ie, morbidity, mortality, symptom reduction, quality of life, or other end points of importance to patients and physicians), rather than disease-oriented or intermediate outcomes (ie, the glycohemoglobin level, left ventricular end-diastolic volume, or the percentage of coronary artery stenosis, and so forth); and (3) present results that will require a change in the practice of the typical family physician.

The first characteristic assures us that the article is not about a rare condition or about a clinical decision that generalists do not make. It is not a good use of a physician's limited reading time to keep current on the management of Lesch-Nyhan syndrome (because it is so rare) or to read about the decision to use atherotomy or balloon angioplasty (since that choice is not made by generalists).

The second characteristic assures that the information does not represent intermediate or premature evidence. Too often, intermediate outcomes prove unreliable. For

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FIGURE

The taxonomy of POEMs (Patient-Oriented Evidence that Matters) and DOEs (Disease-Oriented Evidence)

| | Common problem | Uncommon problem |
|---------------------------|----------------|------------------|
| Patient-oriented evidence | Common POEM | Uncommon POEM |
| Disease-oriented evidence | Common DOE | Uncommon DOE |

Note: Common denotes a problem seen at least once every 2 weeks by the typical family physician; uncommon denotes problems seen at least once every 6 months, but less often than once every 2 weeks.

example, although encainide suppresses ventricular arrhythmias, it increases mortality;⁶ gemfibrozil lowers cholesterol, but it does not reduce cardiovascular or all-cause mortality;⁷ and while calcium-channel blockers reduce blood pressure, they increase the risk of acute myocardial infarction when compared with angiotensin-converting enzyme inhibitors in hypertensive patients with diabetes.⁸

Finally, the third characteristic assures that physicians do not waste time reading articles that merely confirm their existing practice patterns. An article that confirms that penicillin reduces the duration of symptoms among patients with streptococcal pharyngitis is a POE (it uses Patient-Oriented Evidence), but this type of article is not a POEM because it does not change current practice. Because practice varies considerably, however, it is possible that one physician's POEM is another physician's POE. POEMs are either common (the problem addressed can be expected to occur at least every 2 weeks in the practice of a full-time family physician) or uncommon (occurs less than every 2 weeks). We have focused our comments on the information needs of family physicians, but the needs of our consultant colleagues are similar. The use of POEMs is just as applicable to them. The POEM taxonomy is summarized in the Figure. We believe that family physicians should focus their reading on common POEMs, and read about uncommon POEMs when they have extra time. POEs (patient-oriented evidence that does not change practice) are useful as a reference, but are not critical for keeping current. We further suggest that DOEs (articles measuring disease-oriented evidence) can usually be ignored or deflected (read but not acted on) by family

physicians, since such evidence is premature and should not change clinical practice. In most cases, a physician can decide whether an article is a potential POEM simply by scanning the abstract's results (ie, are the outcomes patient-oriented, and would this change my practice?).

For the past 3 years, each of us has each reviewed 21 to 23 medical journals per month (for a total of 85). We have used the POEM criteria to select 8 articles each month for critical appraisal in *The Journal of Family Practice*. These criteria also guide the selection of 20 to 25 articles per month for briefer treatment in the subscription newsletter *Evidence-Based Practice*.^{*} The purpose of our study was to identify the total number of articles, the number of POEMs, and the percentage of POEMs in each of the 85 journals reviewed for these 2 publications.

JOURNAL REVIEW

The 85 journals we review each month consist of the major general medical journals, family medicine journals, and specialty journals within the scope of practice of family medicine (Table 1).

During the 6-month study period (January 1997 through June 1997), we recorded the total number of original research articles in every issue of each journal. We included meta-analyses and brief reports that represented a systematic collection of original data on more than 1 patient, but excluded case reports, review articles that were not meta-analyses, editorials, and letters. Each editor also counted the number of POEMs in each journal during those 6 months. This information was used to calculate the percentage of POEMs in each journal for the study period.

During the review period, we identified 8085 original research articles that met our inclusion criteria. Of these, 211 (2.6%) were classified as POEMs. These results are summarized by journal in Table 1. The following journals published at least 10% POEMs: *Journal of the American Medical Association*, *Annals of Internal Medicine*, *New England Journal of Medicine*, *Journal of the American Board of Family Practice*, *Journal of Family Practice*, *Archives of Internal Medicine*, and *American Journal of Emergency Medicine*. The following journals published 10 or more POEMs during the 6-month study period: *Journal of the American Medical Association*, *Annals of Internal Medicine*, *New England Journal of Medicine*, *Archives of Internal Medicine*, *British Medical Journal*, and *Obstetrics and Gynecology*. Table 2 lists the 10 journals that published the most POEMs per month. Eight journals published at least 4 common POEMs during the study period: *Archives of Internal Medicine*, 8; *New England Journal of Medicine*, 7; *British Medical Journal*, 6; *Journal of the American Medical Association*, 6; *Lancet*, 6; *Obstetrics and Gynecology*, 5; *Journal of Family Practice*, 4; and *Diabetes Care*, 4.

*For more information, visit www.info poems.com.

TABLE 1

Total Number of Articles, POEMs, and the Percentage of POEMs in Each of the Study Journals During the 6 Months from January 1997 to June 1997

| Journal | Common POEMs | Uncommon POEMs | Total POEMs | Total Articles | % POEMs | POEMs per Month | Common POEMs per Month |
|--|--------------|----------------|-------------|----------------|---------|-----------------|------------------------|
| Journal of the American Medical Association | 6 | 10 | 16 | 92 | 17.4 | 2.67 | 1.00 |
| Annals of Internal Medicine | 3 | 9 | 12 | 70 | 17.1 | 2.00 | 0.50 |
| New England Journal of Medicine | 7 | 9 | 16 | 97 | 16.5 | 2.67 | 1.17 |
| Journal of the American Board of Family Practice | 2 | 1 | 3 | 19 | 15.8 | 0.50 | 0.33 |
| Journal of Family Practice | 4 | 1 | 5 | 35 | 14.3 | 0.83 | 0.67 |
| Archives of Internal Medicine | 8 | 7 | 15 | 125 | 12.0 | 2.50 | 1.33 |
| American Journal of Emergency Medicine | 3 | 0 | 3 | 27 | 11.1 | 0.50 | 0.50 |
| Medical Decision Making | 0 | 2 | 2 | 21 | 9.5 | 0.33 | 0.00 |
| Journal of the American Geriatric Society | 1 | 1 | 2 | 59 | 3.4 | 0.33 | 0.17 |
| Journal of General Internal Medicine | 2 | 2 | 4 | 43 | 9.3 | 0.67 | 0.33 |
| Birth | 1 | 0 | 1 | 11 | 9.1 | 0.17 | 0.17 |
| Lancet | 6 | 3 | 9 | 102 | 8.8 | 1.50 | 1.00 |
| Family Practice | 2 | 0 | 2 | 33 | 6.1 | 0.33 | 0.33 |
| Dermatology | 0 | 2 | 2 | 33 | 6.1 | 0.33 | 0.00 |
| British Medical Journal | 6 | 4 | 10 | 166 | 6.0 | 1.67 | 1.00 |
| Preventive Medicine | 2 | 1 | 3 | 50 | 6.0 | 0.50 | 0.33 |
| Obstetrics and Gynecology | 5 | 5 | 10 | 169 | 5.9 | 1.67 | 0.83 |
| Annals of Emergency Medicine | 2 | 2 | 4 | 69 | 5.8 | 0.67 | 0.33 |
| Arthritis and Rheumatology | 1 | 5 | 6 | 110 | 5.5 | 1.00 | 0.17 |
| Pediatrics | 3 | 2 | 5 | 95 | 5.3 | 0.83 | 0.50 |
| Canadian Medical Association Journal | 1 | 0 | 1 | 20 | 5.0 | 0.17 | 0.17 |
| Archives of Family Medicine | 0 | 1 | 1 | 21 | 4.8 | 0.17 | 0.00 |
| Clinical Pharmacy and Therapeutics | 1 | 1 | 2 | 48 | 4.2 | 0.33 | 0.17 |
| British Journal of General Practice | 1 | 1 | 2 | 48 | 4.2 | 0.33 | 0.17 |
| Archives of Ophthalmology | 1 | 1 | 2 | 64 | 3.1 | 0.33 | 0.17 |
| Diabetes Care | 4 | 1 | 5 | 164 | 3.0 | 0.83 | 0.67 |
| American Journal of Obstetrics and Gynecology | 1 | 5 | 6 | 197 | 3.0 | 1.00 | 0.17 |
| Archives of Otorhinolaryngology | 0 | 2 | 2 | 66 | 3.0 | 0.33 | 0.00 |
| Journal of the American College of Cardiology | 3 | 3 | 6 | 199 | 3.0 | 1.00 | 0.50 |
| Quarterly Journal of Medicine | 1 | 0 | 1 | 34 | 2.9 | 0.17 | 0.17 |
| Archives of Pediatric and Adolescent Medicine | 1 | 1 | 2 | 71 | 2.8 | 0.33 | 0.17 |
| American Journal of the Medical Sciences | 0 | 1 | 1 | 36 | 2.8 | 0.17 | 0.00 |
| American Journal of Gastroenterology | 1 | 2 | 3 | 124 | 2.4 | 0.50 | 0.17 |
| Journal of Bone and Joint Surgery (American) | 0 | 2 | 2 | 89 | 2.2 | 0.33 | 0.00 |
| Archives of Surgery | 0 | 2 | 2 | 91 | 2.2 | 0.33 | 0.00 |
| Surgery | 0 | 2 | 2 | 91 | 2.2 | 0.33 | 0.00 |
| Medical Journal of Australia | 0 | 1 | 1 | 46 | 2.2 | 0.17 | 0.00 |
| Journal of Internal Medicine | 0 | 1 | 1 | 46 | 2.2 | 0.17 | 0.00 |
| American Heart Journal | 0 | 2 | 2 | 93 | 2.2 | 0.33 | 0.00 |
| New Zealand Medical Journal | 0 | 1 | 1 | 48 | 2.1 | 0.17 | 0.00 |
| Journal of Pediatrics | 1 | 2 | 3 | 149 | 2.0 | 0.50 | 0.17 |
| American Journal of Medicine | 0 | 1 | 1 | 51 | 2.0 | 0.17 | 0.00 |

| Journal | Common POEMs | Uncommon POEMs | Total POEMs | Total Articles | % POEMs | POEMs per Month | Common POEMs per Month |
|--|--------------|----------------|-------------|----------------|---------|-----------------|------------------------|
| British Journal of Clinical Practice | 0 | 1 | 1 | 53 | 1.9 | 0.17 | 0.00 |
| British Journal of Obstetrics and Gynecology | 0 | 2 | 2 | 111 | 1.8 | 0.33 | 0.00 |
| Gut | 1 | 1 | 2 | 126 | 1.6 | 0.33 | 0.17 |
| Circulation | 0 | 4 | 4 | 253 | 1.6 | 0.67 | 0.00 |
| Annals of Surgery | 1 | 0 | 1 | 64 | 1.6 | 0.17 | 0.17 |
| Diabetes | 0 | 2 | 2 | 143 | 1.4 | 0.33 | 0.00 |
| Journal of Clinical Epidemiology | 1 | 0 | 1 | 82 | 1.2 | 0.17 | 0.17 |
| Neurology | 0 | 3 | 3 | 258 | 1.2 | 0.50 | 0.00 |
| Scandinavian Journal of Gastroenterology | 1 | 0 | 1 | 91 | 1.1 | 0.17 | 0.17 |
| Diseases of Colon and Rectum | 0 | 1 | 1 | 99 | 1.0 | 0.17 | 0.00 |
| AIDS | 0 | 1 | 1 | 109 | 0.9 | 0.17 | 0.00 |
| American Journal of Cardiology | 0 | 2 | 2 | 226 | 0.9 | 0.33 | 0.00 |
| American Journal of Psychiatry | 1 | 0 | 1 | 114 | 0.9 | 0.17 | 0.17 |
| Journal of Infectious Disease | 1 | 1 | 2 | 237 | 0.8 | 0.33 | 0.17 |
| Journal of the American Academy of Dermatology | 0 | 1 | 1 | 126 | 0.8 | 0.17 | 0.00 |
| Journal of Urology | 0 | 3 | 3 | 409 | 0.7 | 0.50 | 0.00 |
| Chest | 0 | 1 | 1 | 183 | 0.5 | 0.17 | 0.00 |
| Gastroenterology | 0 | 1 | 1 | 184 | 0.5 | 0.17 | 0.00 |
| American Journal of Respiratory and Critical Care Medicine | 1 | 0 | 1 | 243 | 0.4 | 0.17 | 0.17 |
| Journal of Clinical Endocrinology/Metabolism | 0 | 1 | 1 | 310 | 0.3 | 0.17 | 0.00 |
| American Journal of Surgery | 0 | 0 | 0 | 95 | 0.0 | 0.00 | 0.00 |
| Archives of General Psychiatry | 0 | 0 | 0 | 57 | 0.0 | 0.00 | 0.00 |
| Eye | 0 | 0 | 0 | 38 | 0.0 | 0.00 | 0.00 |
| Journal of Allergy and Clinical Immunology | 0 | 0 | 0 | 138 | 0.0 | 0.00 | 0.00 |
| Journal of Gerontology | 0 | 0 | 0 | 37 | 0.0 | 0.00 | 0.00 |
| Journal of Nurse-Midwifery | 0 | 0 | 0 | 8 | 0.0 | 0.00 | 0.00 |
| Journal of Women's Health | 0 | 0 | 0 | 18 | 0.0 | 0.00 | 0.00 |
| Archives of Neurology | 0 | 0 | 0 | 69 | 0.0 | 0.00 | 0.00 |
| Critical Care Medicine | 0 | 0 | 0 | 136 | 0.0 | 0.00 | 0.00 |
| Family Medicine | 0 | 0 | 0 | 54 | 0.0 | 0.00 | 0.00 |
| Medicine | 0 | 0 | 0 | 16 | 0.0 | 0.00 | 0.00 |
| Southern Medical Journal | 0 | 0 | 0 | 55 | 0.0 | 0.00 | 0.00 |
| Archives of Dermatology | 0 | 0 | 0 | 35 | 0.0 | 0.00 | 0.00 |
| Digestive Diseases and Sciences | 0 | 0 | 0 | 152 | 0.0 | 0.00 | 0.00 |
| European Journal of General Practice | 0 | 0 | 0 | 5 | 0.0 | 0.00 | 0.00 |
| Medical Care | 0 | 0 | 0 | 43 | 0.0 | 0.00 | 0.00 |
| Ophthalmology | 0 | 0 | 0 | 147 | 0.0 | 0.00 | 0.00 |
| Scandinavian Journal of Infectious Disease | 0 | 0 | 0 | 29 | 0.0 | 0.00 | 0.00 |
| American Journal of Public Health | 0 | 0 | 0 | 80 | 0.0 | 0.00 | 0.00 |
| Journal of Bone and Joint Surgery (British) | 0 | 0 | 0 | 87 | 0.0 | 0.00 | 0.00 |
| Spine | 0 | 0 | 0 | 143 | 0.0 | 0.00 | 0.00 |
| Total | 87 | 124 | 211 | 8085 | 2.6 | 35.17 | 14.5 |

TABLE 2

Journals with the Most POEMs per Month During the 6-Month Study Period

| Journal | POEMs per Month | POEMs per Issue |
|---|-----------------|-----------------|
| Journal of the American Medical Association | 2.67 | 0.62 |
| New England Journal of Medicine | 2.67 | 0.62 |
| Archives of Internal Medicine | 2.50 | 2.50 |
| Annals of Internal Medicine | 2.00 | 2.00 |
| British Medical Journal | 1.67 | 0.39 |
| Obstetrics and Gynecology | 1.67 | 1.67 |
| Lancet | 1.50 | 0.35 |
| Arthritis and Rheumatology | 1.00 | 1.00 |
| American Journal of Obstetrics and Gynecology | 1.00 | 1.00 |
| Journal of the American College of Cardiology | 1.00 | 0.5 |

HOW TO RECOGNIZE A POEM

The definition of a POEM has 3 components: (1) outcomes (patient-oriented); (2) practice content (addresses a decision made by family physicians or a problem encountered by them at least once every 6 months); and (3) practice impact (changes current practices). For an article to be a POEM, it must meet all 3 criteria.

Approximately 50% (42 of 83) of the 85 journals of potential relevance to primary care practitioners published 0 or 1 POEMs during the 6-month monitoring period. Clinicians regularly reviewing the contents of these journals would waste a great deal of time looking for valid and clinically relevant articles. The following 10 journals, however, accounted for approximately 50% (106 of 211) of all POEMs and 53% (46 of 87) of common POEMs we encountered during the study period: *Journal of the American Medical Association*, *Annals of Internal Medicine*, *New England Journal of Medicine*, *Archives of Internal Medicine*, *Lancet*, *British Medical Journal*, *Obstetrics and Gynecology*, *Arthritis and Rheumatology*, *American Journal of Obstetrics and Gynecology*, and *Journal of the American College of Cardiology*. Clinicians who do not review these journals would have missed 46 research findings that might require a change in their practice. In addition, *Diabetes Care* and the *Journal of Family Practice* were important sources of common POEMs. Busy practitioners interested in reading original research and applying the results to practice should therefore focus their attention on the journals that publish POEMs.

POEM OR NOT A POEM?

Future work will focus on determining the interrater reliability of the decision regarding whether an article is a POEM. In discussions that take place each month during our editorial process, we rarely disagree on whether an article uses patient-oriented or disease-oriented evidence, or whether a study addresses a primary care problem. We do have occasional discussions regarding whether a problem is common (encountered at least once every 2 weeks) or uncommon. A physician serving a largely African American population, for example, may encounter a patient with sickle cell anemia at least every 2 weeks, but a physician practicing in a largely white community may not encounter the condition at all.

The most common topic for disagreement is whether the study's findings would change clinical practice. In some cases, these disagreements reflect variation in community practice patterns. Unna's boots, for example, were widely used in 2 of our communities, but they were not the standard of care in the other 2. The 2 editors in the latter communi-

ties considered a meta-analysis that reported the effectiveness of Unna's boots to be a "practice-changer," while the others did not. Another source of disagreement involves the discrepancy between what physicians should already be doing as indicated by the results of previous research, and what most physicians actually do in their practices. For example, although there is ample evidence from randomized controlled trials to support the use of beta-blockers and diuretics as first-line treatment of hypertension, physicians prescribe them less often than calcium-channel blockers or angiotensin-converting enzyme inhibitors.⁸

THE FUTURE OF POEM IDENTIFICATION

In future work we will examine databases of primary care practice, such as the National Ambulatory Medical Care Survey, to more accurately and consistently distinguish between common and uncommon POEMs by identifying the kinds of problems typically managed by family physicians. Internet-based surveys of family physicians, such as those proposed by the Center for Family Medicine Research at the University of Missouri (Bernard Ewigman, MD, MPH, personal communication), can be used to clarify current physician practice and help us distinguish which results will change practice for most physicians. Until then, we will continue to cast a broader net when there is variability in actual practice.

BETTER CARE, LESS READING

Our work has demonstrated that the POEMs framework can help physicians identify the small fraction of articles

that should change the way primary care physicians practice. However, not all clinicians have the time, inclination, or access to review a large number of journals on a regular basis. Even if they review the 10 journals that published half of the POEMs during our study period, they will miss the other POEMs that are published in 75 less widely read journals. Of the 211 articles identified as POEMs in our 6-month search, 48 were highlighted in the POEMs feature of *The Journal of Family Practice*. Many of the remaining POEMs were abstracted in *Evidence-Based Practice*. These and other POEM-related materials can be used to identify POEMs in the medical literature. The sources a physician uses should have an explicit means of evaluating relevance and finding POEMs. Physicians can be confident that they are staying up-to-date and providing the best possible care for their patients if they focus their limited reading time on POEMs.

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