

Top 20 POEMs of the Past 20 Years: A Survey of Practice-Changing Research for Family Physicians

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ABSTRACT

POEMs (patient-oriented evidence that matters) are studies that address a relevant clinical question, demonstrate improved patient-oriented outcomes, and have the potential to change practice. For 20 years the authors of this article have reviewed more than 100 English language clinical journals monthly to identify POEMs in the medical literature relevant to primary care practice. This article identifies the POEMs in each of the last 20 years that were highest ranked for having recommended a major and persistent change in practice that year. They include POEMs that recommend a novel, effective intervention, a second group that recommends abandoning an ineffective practice, and a third group that recommends abandoning a potentially harmful practice. The top POEMs of the past 20 years illustrate the breadth of practice change in primary care and the need for family physicians to have a systematic approach to keeping up with the medical literature, such as that in POEMs, especially because many of these important articles did not appear in the primary care literature.

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INTRODUCTION

In 1994, Slawson, Shaughnessy, and Bennett published the first of several articles that established the key concepts of "information mastery."¹ Information mastery is an approach to evidence-based practice that helps physicians identify the most important evidence for practice.² Traditional approaches to evidence-based practice emphasize evaluation of a study's internal validity and leave the issue of relevance and application to the end user. Information mastery emphasizes studies that address a relevant clinical question, demonstrate improved patient-oriented outcomes, and have the potential to change practice. An individual article that hits all 3 elements is called a POEM, or patient-oriented evidence that matters.

From 1994 to 1997, the authors generated a few POEMs each month that were published in *The Journal of Family Practice*. In late 1997, the publisher of the journal noted that POEMs were popular with readers and requested that the authors boost POEM production. In 1998, the authors of this article began to systematically review more than 100 clinical medical journals monthly to identify original research meeting the definition of a POEM (a current list of the journals is found in Supplemental Appendix 1, at <http://www.annfammed.org/content/16/5/436/suppl/DC1>). Each article is summarized by an independent primary care expert using a concise, structured format that identifies any methodologic strengths and weaknesses and provides a brief bottom-line recommendation for practice. The authors of POEMs (the "POETs") who have written these summaries are the authors of this article; Drs Ebell, Barry, and Slawson are family physicians; Dr Shaughnessy is a clinical pharmacologist; Dr Kulkarni is a hospital medicine specialist, and Dr Speer is a family physician and expert in women's health. Each POEM is also peer reviewed by the faculty and fellows of the University of Missouri Department of Family Medicine. After copy editing by our professional medical editor, Maria Vlasak, that

month's POEMs are then e-mailed on a daily basis to subscribers of *Essential Evidence Plus* (<http://www.essentialevidenceplus.com>). Selected POEMs each month are also published in *American Family Physician* and are disseminated as a free audio podcast. Previous research has shown good interrater reliability for POEM selection,³ and work by others has shown the important impact of POEMs on learning,⁴ knowledge retention,⁵ and practice change.⁶⁻⁹

In the 20 years from 1998 to 2017, the authors identified 5,664 POEMs (mean = 283/y, range = 230-368). To celebrate the 20th anniversary of POEMs, we have selected the POEMs in each of the past 20 years that, in our judgment, have had the greatest impact on primary care practice. We also selected 4 runners-up for each year.

METHODS

The original group of 4 POETs (Slawson, Shaughnessy, Ebell, and Barry) were each assigned a 5-year period and reviewed all the POEMs written during those years. They then selected at least 5 POEMs for each year that they deemed most important in terms of recommending a major and persistent change in practice. These findings were compiled into a list 108 POEMs, stratified by year. Each POET then independently rated the candidate POEMs from 1 to 10, where 10 represented "the most important POEM to recommend a major and persistent change in practice that year." The scale was otherwise not defined or anchored. Using a Delphi-like process, each POET was given the opportunity to change his or her ratings after reviewing the points assigned by the others. In the event of a tie, which occurred in 2014 and 2015, the POETs voted for their favorite of the 2 finalists. When the same topic was selected in 2 separate years, the first appearance was used and the POEM with the second most votes was used for the year of that topic's second appearance. For example, articles estimating the overdiagnosis of breast cancer were chosen as the top POEM for both

2004 and 2006, so for 2006 the POEM with the second highest number of votes was used.

RESULTS

Table 1 displays the title and the original reference for each of the final 20 selected POEMs from 1998 to 2017.¹⁰⁻²⁹ The top-scoring POEM for each year received between 34 and 39 points of a maximum of 40. The 100 top POEMs from 1998 to 2017 (5 from each year) are summarized in Supplemental Appendix 2 (<http://www.annfammed.org/content/16/5/436/suppl/DC1>), including hyperlinks to the original POEM in *Essential Evidence Plus*.

DISCUSSION

This article summarizes the most important studies that recommended an important and persistent change

Table 1. Top POEM for Each Year From 1998 to 2017

Year	Title of POEM	Reference
1998	Metformin is best for obese patients with type 2 diabetes mellitus	UK Prospective Diabetes Study Group ¹⁰
1999	β-Blockers are effective in heart failure	Lechat P, et al ¹¹
2000	3 Years between Papanicolaou tests are adequate for many women	Sawaya GF, et al ¹²
2001	Managing heart rate and rhythm are similar for atrial fibrillation	Hohnloser SH, et al ¹³
2002	Hormone replacement overall is not beneficial	Writing Group for the Women's Health Initiative Investigators ¹⁴
2003	Self-breast examination does not reduce mortality	Thomas DB, et al ¹⁵
2004	Breast cancer screening results in overdiagnosis	Zahl P, et al ¹⁶
2005	Vaccine prevents human papillomavirus infection	Harper DM, et al ¹⁷
2006	Delayed prescription for acute otitis media reduces unnecessary antibiotics	Spiro DM, et al ¹⁸
2007	Home blood glucose monitoring is ineffective for type 2 diabetes mellitus	Farmer A, et al ¹⁹
2008	Intensive control of blood glucose in type 2 diabetes mellitus may be harmful	Gerstein HC, et al ²⁰
2009	Prostate-specific antigen screening does not reduce mortality from prostate cancer	Andriole GL, et al ²¹
2010	Statin + fenofibrate is no better than statin alone in type 2 diabetes mellitus	The ACCORD Study Group ²²
2011	Rivaroxaban is similar to warfarin for patients with nonvalvular atrial fibrillation	Patel MR, et al ²³
2012	Conservative therapy with antibiotics is an option for early uncomplicated acute appendicitis	Varadhan KK, et al ²⁴
2013	Fasting is not necessary before measuring lipid panels	Sidhu D and Naugler C ²⁵
2014	Niacin does not improve clinical outcomes in patients with vascular disease	The HPS2-THRIVE Collaborative Group, Landray MJ, et al ²⁶
2015	Steroids are beneficial as adjunctive treatment for community-acquired pneumonia	Siemieniuk RAC, et al ²⁷
2016	Active surveillance for localized prostate cancer: no increased mortality, but higher rates of clinical progression	Hamdy FC, et al ²⁸
2017	Semaglutide reduces cardiovascular events in high-risk patients with type 2 diabetes mellitus	Marso SP, et al ²⁹

POEM = patient-oriented evidence that matters.

in primary care practice in each of the years between 1998 and 2017. A review of these practice changers illustrate the breadth of primary care practice and the extent to which it has changed in the past 20 years. They can be broadly divided into 3 groups: (1) POEMs that recommend a novel, effective intervention, (2) those that recommend abandoning an ineffective practice, and (3) those that recommend abandoning a potentially harmful practice.

In the first group, a number of POEMs identified novel (at the time) treatments with the potential to improve patient-oriented outcomes. These treatments include β -blockers in heart failure, systemic corticosteroids for patients with community-acquired pneumonia, metformin as the drug of first choice for type 2 diabetes mellitus, antibiotics as the primary therapy for uncomplicated acute appendicitis, a vaccine to prevent human papillomavirus infection, semaglutide for high-risk patients with type 2 diabetes mellitus, delayed prescriptions to reduce antibiotic use, and the direct-acting oral anticoagulants for atrial fibrillation and venous thromboembolism.

Other POEMs recommended abandoning a practice that was widely practiced but ineffective, such as routinely recommending hormone replacement therapy for postmenopausal women, self-breast examination, an annual Papanicolaou test replaced by a longer interval between tests for most women, home blood glucose monitoring, fasting before a lipid panel blood test, the need for heart rhythm control in atrial fibrillation, and the use of fibrates and niacin for dyslipidemia.

Some POEMs identified practices that were not only ineffective but could lead to harm, including intensive blood glucose control for patients with type 2 diabetes mellitus, routine screening for prostate cancer with prostate-specific antigen, aggressive therapy for low-grade prostate cancer, and the harms of overdiagnosis that are increased with overly frequent or intensive screening for breast and prostate cancer.

When reviewing the full list (Supplemental Appendix 2), it is notable that some topics appeared more than once. These include increasing intervals between Papanicolaou tests (years 2000 and 2004), the use of delayed prescriptions to reduce antibiotic use (2002 and 2004), overdiagnosis of breast cancer (2004, 2006, and 2009), primary antibiotic therapy for acute appendicitis (2012 and 2015), aspirin to prevent preeclampsia in pregnancy (2007, 2014, and 2017), and the lack of benefit from self-monitoring for type 2 diabetes mellitus in patients not using insulin (2007 and 2008). The duplication likely reflects the intense research interest on the topic and the importance of the study findings to primary care physicians. The POETs also believed that it was sometimes important to reinforce an

uncomfortable or major change in practice using multiple studies in the hope of increasing the likelihood that it would be accepted into clinical practice.

Some POEMs served as a reminder of why primary care physicians need unbiased sources of credible information. A study's abstract is written by its authors and therefore may reflect their biases when interpreting the research. Studies often underemphasize harms and overemphasize benefit,³⁰ report relative risks rather than absolute risk reduction or number needed to treat, or are industry-sponsored and therefore more likely than nonsponsored studies to report benefit.³¹ Thus, an objective and independent perspective is often beneficial. In some cases, variation in local practice patterns may result in overuse or underuse of therapies. After internal disagreement of the relevance of the results of a study of Unna boots (<http://www.essentialevidenceplus.com/content/poem/30>), we concluded that the disagreement was not related to the quality of the study, but rather to whether it would change practice. One POET had been using them for several years whereas another could not spell Unna!

We observed greater challenges in choosing the best POEMs in recent years, largely because it is difficult to know whether a 3-year-old study will withstand the test of time and the rigors of replication in real-world settings. This judgment is even more difficult because of the increasing amount of industry-sponsored research published in journals and the relatively small amount of public funding for research to support the study of real-world problems in real-world settings.

It would be difficult for any clinician in any specialty or discipline to read all of the journals publishing studies of potential importance, not to mention critically evaluate the validity of individual relevant articles. Clinicians regularly reading POEMs can confidently change practice with the knowledge that they are using the very latest, most relevant, and valid information to provide for the very best care for their patients. The current POEMs are oriented toward primary care, including obstetrics and general hospitalists. We hope to encourage the development of POEMs for other specialties and disciplines in medicine, as well as such other health care disciplines as dentistry and veterinary medicine.

To read or post commentaries in response to this article, see it online at <http://www.AnnFamMed.org/content/16/5/436>.

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