Top 10 POEMs 2013-2014

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Objectives

- Describe and use the principles of “Information Mastery,” including relevance, validity and usefulness of information.
- Define patient oriented evidence that matters (POEMs)
- Know the top 10 POEMs for 2013-2014 that apply to family physicians.
- Develop an approach for reviewing medical literature that is based on identifying POEMs as they are published.
POEM

Patient-Oriented Evidence that Matters

matters to the clinician, because if valid, will require a change in practice

• **POE**: Patient-oriented evidence
  – mortality, morbidity, quality of life
  – Longer, better or both

• **DOE**: Disease-oriented evidence
  – pathophysiology, pharmacology, etiology
### Examples of patient-oriented evidence contradicting disease-oriented evidence

<table>
<thead>
<tr>
<th>Disease-Oriented Outcome</th>
<th>Patient-Oriented Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intensive glucose lowering for Type 2 DM can decrease A1c</td>
<td>Intensive glucose lowering <em>does not</em> decrease mortality</td>
</tr>
<tr>
<td>Beta-carotene, Vit E are good antioxidants</td>
<td>Neither prevents cancer or CV disease</td>
</tr>
<tr>
<td>Erythropoietin in patients with chronic renal failure increases Hemoglobin</td>
<td>Erythropoietin <em>increases mortality</em> in patients with chronic renal failure</td>
</tr>
<tr>
<td>Abx treatment of acute otitis media in children can sterilize the middle ear</td>
<td>Abx treatment of acute otitis media <em>does not affect</em> sx, <em>increases likelihood</em> of recurrence</td>
</tr>
</tbody>
</table>
Relevance

<table>
<thead>
<tr>
<th>Frequency of Problem</th>
<th>POEMs</th>
</tr>
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<tbody>
<tr>
<td>Common</td>
<td></td>
</tr>
<tr>
<td>Rare</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Type of Evidence</th>
<th>Patient-Oriented Evidence</th>
<th>Disease-Oriented Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Best</td>
<td></td>
<td>Only if Time</td>
</tr>
<tr>
<td>Caution</td>
<td></td>
<td>Worst</td>
</tr>
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</table>

Only if Time

Worst
Determining Validity

• Levels of Evidence (LOE):
  – 1a, b, c; 2a, b, c; etc., 5- expert opinion
  – A, B, C, D
  – SORT Criteria
  – Therapy, diagnosis, prognosis, reviews, etc.
<table>
<thead>
<tr>
<th>Level</th>
<th>Therapy/Prevention, Prognosis</th>
<th>Diagnosis</th>
<th>Differential diagnosis/symptom prevalence study</th>
<th>Economic and decision analyses</th>
</tr>
</thead>
<tbody>
<tr>
<td>1a</td>
<td>SR (with homogeneity*) of RCTs</td>
<td>SR (with homogeneity*) of inception cohort studies; CDRIT validated in different populations</td>
<td>SR (with homogeneity*) of Level 1 diagnostic studies, CDRIT with 1b studies from different clinical centres</td>
<td>SR (with homogeneity*) of prospective cohort studies</td>
</tr>
<tr>
<td>1b</td>
<td>Individual RCT (with narrow Confidence Interval)</td>
<td>Individual inception cohort study with ≥80% follow-up; CDRIT validated in a single population</td>
<td>Validating** cohort study with good reference standards, or CDRIT tested within one clinical centre</td>
<td>Prospective cohort study with good follow-up****</td>
</tr>
<tr>
<td>1c</td>
<td>All or none case-series</td>
<td>Absolute SpPins and SnNouts***</td>
<td>All or none case-series</td>
<td>Absolute better value or worse value analyses 1111</td>
</tr>
<tr>
<td>2a</td>
<td>SR (with homogeneity*) of case-control studies</td>
<td>SR (with homogeneity*) of either retrospective cohort studies or untreated control groups in RCTs</td>
<td>SR (with homogeneity*) of Level ≥2 better studies</td>
<td>SR (with homogeneity*) of Level ≥2 economic studies</td>
</tr>
<tr>
<td>2b</td>
<td>Individual cohort study (including low quality RCT, e.g., &lt;60% follow-up)</td>
<td>Retrospective cohort study or follow-up of untreated control patients in an RCT; Derivation of CDRIT or validated on split-samples only</td>
<td>Exploratory** cohort study with good reference standards, CDRIT after derivation, or validated only on split-samples or databases</td>
<td>Retrospective cohort study, or poor follow-up</td>
</tr>
<tr>
<td>2c</td>
<td>“Outcomes” Research, Ecological studies</td>
<td>“Outcomes” Research</td>
<td>Ecological studies</td>
<td>Audit or outcomes research</td>
</tr>
<tr>
<td>3a</td>
<td>SR (with homogeneity*) of case-control studies</td>
<td>SR (with homogeneity*) of 3b and better studies</td>
<td>SR (with homogeneity*) of 3b and better studies</td>
<td>SR (with homogeneity*) of 3b and better studies</td>
</tr>
<tr>
<td>3b</td>
<td>Individual Case-Control Study</td>
<td>Non-consistently applied reference standards</td>
<td>Non-consistently applied cohort study, or very limited population</td>
<td>Analysis based on limited alternatives or costs, poor quality estimates of data, but including sensitivity analyses</td>
</tr>
<tr>
<td>4</td>
<td>Case-series (and poor quality cohort and case-control studies***</td>
<td>Case-control study, poor or non-independent reference standard</td>
<td>Case-series or superseded reference standards</td>
<td>Analysis with no sensitivity analysis</td>
</tr>
<tr>
<td>5</td>
<td>Expert opinion without explicit critical appraisal, or based on physiology, bench research or “first principles”</td>
<td>Expert opinion without explicit critical appraisal, or based on physiology, bench research or “first principles”</td>
<td>Expert opinion without explicit critical appraisal, or based on physiology, bench research or “first principles”</td>
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Highly Controlled Research
- Randomized Controlled Trials
- Systematic Reviews

Physiologic Research
- Preliminary Clinical Research
  - Case reports
  - Observational studies

Uncontrolled Observations & Conjecture

Effect on Patient-Oriented Outcomes
- Symptoms
- Functioning
- Quality of Life
- Lifespan

Effect on Disease Markers
- Diabetes
- Arthritis
- Peptic Ulcer

Effect on Risk Factors for Disease
- Improvement in markers (blood pressure, cholesterol)

Validity of Evidence

SORT A
- Highly Controlled Research
  - Randomized Controlled Trials
  - Systematic Reviews

SORT B
- Physiologic Research
  - Preliminary Clinical Research
    - Case reports
    - Observational studies

SORT C
- Uncontrolled Observations & Conjecture

Relevance of Outcome
Updating clinical knowledge: An evaluation of current information alerting services

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Databases

ABSTRACT

Purpose: Clinicians are overwhelmed by the sheer magnitude of new clinical information that is available on a daily basis. Despite the availability of information tools for finding this information and for updating clinical knowledge, no study has examined the quality of current information alerting services.

Methods: We developed a 7-item checklist based on the principles of evidence-based medicine and assessed content validity with experts and face validity with practicing clinicians and clinician researchers. A list of clinical information updating tools (push tools) was generated in a systematic fashion and the checklist was used to rate the quality of these tools by two independent raters. Prior to rating all instruments, the raters were trained to achieve good agreement (>80%) by applying the checklist to two sets of three randomly selected tools. Descriptive statistics were used to describe the quality of the identified tools and inter-rater reliability was assessed using Intraclass Correlation (ICC).

Results: Eighteen tools were identified using our systematic search. The average quality of these tools was 2.72 (range 0–7). Only two tools met all suggested criteria for quality. Inter-rater reliability for the 7-item checklist was .82 (ICC).

Conclusions: We developed a checklist that can be used to reliably assess the quality of clinical information updating tools. We found many shortcomings in currently available clinical knowledge alerting tools. Ideally, these tools will evolve in the direction of applying basic evidence-based medicine principles to new medical information in order to increase their usefulness to clinicians.
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<td>Are specific criteria designated for which types of research are reviewed (filter criteria)?</td>
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<td>Are specific recommendations made regarding how to apply the results of the current research into clinical context?</td>
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<td>Other</td>
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<td>Is a high-quality coordinated hunting tool available?</td>
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<td>Overall score (max = 7)</td>
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| Abbreviations: N - no, Y - yes.                                                   |                                                  |                |                                                                 |                                                                 |                                                                 |                                                                 |                                                                 |
|                                                                                   | * See definition of high-quality hunting tool in Appendix 1. |                |                                                                 |                                                                 |                                                                 |                                                                 |                                                                 |
Finding the POEMS

• Reviewed all Essential Evidence Plus (http://www.essentialevidenceplus.com/) daily updates from Jan 2013-Feb 2014 identifying studies that would affect the highest #’s of patients and significantly affect the way most of us practice.
  – EE+ reviews over 100 journals each month including JAMA, BMJ, Lancet, NEJM, ER, Surgery, Psychiatry, Dermatology, Urology and Family Medicine journals
  – Also reviews Cochrane library
Actual Causes of Death in the United States, 2000

Ali H. Mokdad, PhD
James S. Marks, MD, MPH
Donna F. Stroup, PhD, MSc
Julie L. Gerberding, MD, MPH

In a seminal 1993 article, McGinnis and Foege described the major external (nongenetic) modifiable factors that contributed to death in the United States and labeled them the "actual causes of death." During the 1990s, substantial lifestyle pattern changes may have led to variations in actual causes of death. Mortality rates from heart disease, stroke, and cancer have declined. At the same time, behavioral changes have led to an increased prevalence of obesity and diabetes.

Most diseases and injuries have multiple potential causes and several factors and conditions may contribute to a single death. Therefore, it is a challenge to estimate the contribution of each factor to mortality. In this article, we used published causes of death reported to the Centers for Disease Control and Prevention to identify the causes and number of deaths. The estimates of cause of death were computed by multiplying estimates of the cause-attributable fraction of preventable deaths with the total mortality data.

Main Outcome Measures Actual causes of death.

Results The leading causes of death in 2000 were tobacco (435,000 deaths; 18.1% of total US deaths), poor diet and physical inactivity (400,000 deaths; 16.6%), and alcohol consumption (85,000 deaths; 3.5%). Other actual causes of death were microbial agents (75,000), toxic agents (55,000), motor vehicle crashes (43,000), incidents involving firearms (29,000), sexual behaviors (20,000), and illicit use of drugs (17,000).

Conclusions These analyses show that smoking remains the leading cause of mortality. However, poor diet and physical inactivity may soon overtake tobacco as the leading cause of death. These findings, along with escalating health care costs and aging population, argue persuasively that the need to establish a more preventive orientation in the US health care and public health systems has become more urgent.

JAMA. 2004;291:1238-1245

www.jama.com
Smoking Cessation

What is your current practice approach to selecting smoking cessation medications with your patients?

If you are using varenicline for smoking cessation, how are you using it and with which patients?
#1 Should We Be Using Varenicline?

Bottom line
Unlike a previous meta-analysis of the same studies, this meta-analysis found no difference in cardiovascular events in patients using varenicline as compared with placebo for smoking cessation. This study may not be the last word, though, given the limitations of both meta-analyses. Stay tuned. (LOE = 1a)

Reference
They included 22 trials with a total of 9232 mostly white male patients. The studies were randomized double-blind trials comparing varenicline to placebo.

Study quality was high.

All studies excluded patients with a history of cardiovascular disease and followed up for adverse events for 6 months to 12 months.

However, unlike the authors of a previous meta-analysis, these authors limited cardiovascular events to those occurring during active treatment or for the 30 days following discontinuation, a total of 4 months for most studies.
• Rates of treatment emergent, cardiovascular serious adverse events were 0.63% (34/5431) in the varenicline groups and 0.47% (18/3801) in the placebo groups. The summary estimate for the risk difference, 0.27% (95% confidence interval −0.10 to 0.63; \( P=0.15 \)),

• There was no difference in the rate of cardiovascular events between the 2 groups.
Put into perspective....

• Number needed to treat with varenicline for one additional person to successfully quit smoking=10 (95% CI 8-13).
• Number needed to harm (the number needed to cause one additional serious cardiovascular event) with varenicline is estimate to be 625.
• Therefore, for every 625 people treated with varenicline, 63 people will quit smoking and one person will experience a serious cardiovascular event.
#2 Smoking cessation counseling for children and adolescents

Do you include smoking prevention/cessation counseling in your teenage annual visits? What about sports physicals?

How do you currently counsel adolescents in your practice regarding smoking?
#2 Smoking cessation counseling for children and adolescents

Brief advice (to not start smoking) in a primary care setting to patients aged 11 years to 17 years has a small preventive effect. There is no evidence to suggest that smoking cessation efforts work in this age group and setting. The time spent for the small benefit of abstinence counseling should be weighed against the relative effect of advice-giving about other risky behaviors in this age group. \( \text{(LOE = 1a)} \)

Reference

• These authors employed the standard methods of systematic review used by the United States Preventive Services Task Force.
• The studies used interventions that are feasible for primary care settings -- targeting children, their parents, or both -- and included a control group that received no intervention.
Eighteen studies evaluated interventions aimed at preventing initiation of tobacco use or promoted cessation among young persons.

Most of the interventions were brief counseling in medical or dental offices that addressed current smoking or abstinence.

Overall, smoking prevention advice resulted in a small average decrease in the number of adolescents who initiated smoking (average risk difference of 2 percentage points).

Neither behavior-based interventions nor bupropion use improved cessation rates.
“If we see you smoking we will assume you are on fire and take appropriate action.”

—Douglas Adams

1-800-QUIT NOW

http://www.youtube.com/watch?v=ZBUvA7I1RIE
#3 Which is the best Gliptin for your Type 2 Diabetics

- How many are using Gliptins for Type 2 Diabetes treatment?
- Under what circumstances do you use them?
#3 Which is the best Gliptin for your Type 2 Diabetics

Saxagliptin lowers blood sugar and doesn't cause cardiovascular events. Remember that metformin is proven to reduce all-cause mortality. (LOE = 1b)

#4 Mediterranean Diet for High-Risk Patients

How many of you are currently counseling patients to follow a Mediterranean diet for their patients who are at high risk for cardiovascular disease mortality and morbidity?
#4 Mediterranean Diet for High-Risk Patients

In a high-risk population, a Mediterranean diet, either supplemented with nuts or olive oil, reduces the likelihood of a composite outcome of cardiovascular events or death over a 5-year follow-up period (number needed to treat = 70). The relative risk reduction is approximately 30%. This is the strongest evidence yet to support any particular approach to diet. Best of all, what's not to like about seafood, red wine, paella, nuts, fresh fruit, and chicken? (LOE = 1b)

Reference
• This large Spanish study identified men between the ages of 55 and 80 years and women between the ages of 60 and 80 years (n = 7447) who either had type 2 diabetes mellitus or who had 3 or more of the following risk factors:
  – hypertension, smoking, low-density lipoprotein cholesterol > 160 mg/dL (4.1 mmol/L), high-density lipoprotein cholesterol ≤ 40 mg/dL (1.0 mmol/L, body mass index (BMI) ≥ 25 kg/m2, or a family history of premature cardiovascular disease.
• Patients were randomized to follow 1 of 3 diets: (1) a Mediterranean diet supplemented with olive oil, (2) a Mediterranean diet supplemented with nuts, or (3) a low-fat diet.
<table>
<thead>
<tr>
<th>Food</th>
<th>Goal</th>
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<tbody>
<tr>
<td><strong>Mediterranean diet</strong></td>
<td></td>
</tr>
<tr>
<td>Recommended</td>
<td></td>
</tr>
<tr>
<td>Olive oil*</td>
<td>≥4 tbsp/day</td>
</tr>
<tr>
<td>Tree nuts and peanuts†</td>
<td>≥3 servings/wk</td>
</tr>
<tr>
<td>Fresh fruits</td>
<td>≥3 servings/day</td>
</tr>
<tr>
<td>Vegetables</td>
<td>≥2 servings/day</td>
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<tr>
<td>Fish (especially fatty fish), seafood</td>
<td>≥3 servings/wk</td>
</tr>
<tr>
<td>Legumes</td>
<td>≥3 servings/wk</td>
</tr>
<tr>
<td>Sofrito‡</td>
<td>≥2 servings/wk</td>
</tr>
<tr>
<td>White meat</td>
<td>Instead of red meat</td>
</tr>
<tr>
<td>Wine with meals (optionally, only for habitual drinkers)</td>
<td>≥7 glasses/wk</td>
</tr>
<tr>
<td><strong>Discouraged</strong></td>
<td></td>
</tr>
<tr>
<td>Soda drinks</td>
<td>&lt;1 drink/day</td>
</tr>
<tr>
<td>Commercial bakery goods, sweets, and pastries§</td>
<td>&lt;3 servings/wk</td>
</tr>
<tr>
<td>Spread fats</td>
<td>&lt;1 serving/day</td>
</tr>
<tr>
<td>Red and processed meats</td>
<td>≤1 serving/day</td>
</tr>
<tr>
<td><strong>Low-fat diet (control)</strong></td>
<td></td>
</tr>
<tr>
<td>Recommended</td>
<td></td>
</tr>
<tr>
<td>Low-fat dairy products</td>
<td>≥3 servings/day</td>
</tr>
<tr>
<td>Bread, potatoes, pasta, rice</td>
<td>≥3 servings/day</td>
</tr>
<tr>
<td>Fresh fruits</td>
<td>≥3 servings/day</td>
</tr>
<tr>
<td>Vegetables</td>
<td>≥2 servings/wk</td>
</tr>
<tr>
<td>Lean fish and seafood</td>
<td>≥3 servings/wk</td>
</tr>
<tr>
<td><strong>Discouraged</strong></td>
<td></td>
</tr>
<tr>
<td>Vegetable oils (including olive oil)</td>
<td>≤2 tbsp/day</td>
</tr>
<tr>
<td>Commercial bakery goods, sweets, and pastries§</td>
<td>≤1 serving/wk</td>
</tr>
<tr>
<td>Nuts and fried snacks</td>
<td>≤1 serving/wk</td>
</tr>
<tr>
<td>Red and processed fatty meats</td>
<td>≤1 serving/wk</td>
</tr>
<tr>
<td>Visible fat in meats and soups†</td>
<td>Always remove</td>
</tr>
<tr>
<td>Fatty fish, seafood canned in oil</td>
<td>≤1 serving/wk</td>
</tr>
<tr>
<td>Spread fats</td>
<td>≤1 serving/wk</td>
</tr>
<tr>
<td>Sofrito‡</td>
<td>≤2 servings/wk</td>
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Stop overeating, stop drinking, stop staying out late, stop fighting, stop worrying, stop eating sweets, stop gambling...

What did the doctor say?

I don't know...

I stopped listening.
#5 What is the best diuretic for HTN
In this retrospective analysis, chlorthalidone and hydrochlorothiazide (HCTZ) produced the same clinical outcomes in older adults. In general, chlorthalidone was more likely to be associated with hospitalization for hypokalemia and hyponatremia. When comparing equivalent doses, though, the rates of these adverse effects were the same. If prescribing chlorthalidone, remember that it is 1.5 to 2 times as potent as HCTZ, with a longer duration of action. Use 12.5 mg as a starting dose. *(LOE = 2b)*

Reference

• These Canadian researchers enrolled all patients older than 65 years who were newly treated with either chlorthalidone or hydrochlorothiazide, using an administrative database.

• They included a total of 29,873 patients who were followed up for up to 5 years.

• The rates of the composite outcome of death or hospitalization for heart failure, stroke, or myocardial infarction were low and similar in both groups: 3.2 to 3.4 events per 100 persons per year of follow-up. However, patients treated with chlorthalidone were more likely to be hospitalized for hypokalemia (hazard ratio [HR] = 3.06) or hyponatremia (HR = 1.68).
#6 Is d-dimer testing always necessary in patients with possible deep vein thrombosis?

What is your usual approach for working up suspected DVT?
Use the Wells criteria to determine the likelihood of deep venous thrombosis (DVT); patients at moderate to high risk should go straight to ultrasound. Patients at low risk should have d-dimer testing, followed by ultrasound only if the results are positive. This approach decreases the use of d-dimer testing, as well as the need for ultrasound, while producing the same clinical results. *(LOE = 1b)*

• Enrolled 1732 consecutive patients with suspected first DVT.
• The patients were randomly assigned, using concealed allocation, to receive either usual testing or selective testing.
• In the usual testing group, all patients had d-dimer testing; if positive, the affected leg was examined by ultrasound. In the selective testing group, patients were evaluated based on their pretest probability of DVT, calculated using the Wells clinical prediction rule.
#7 How long should a cough last?

- What is the typical duration of a cough?
#7 How long should a cough last?

In published studies of patients with cough not treated with antibiotics, the average cough duration is approximately 18 days, although patients anticipate coughing for only 5 days to 7 days. Physicians can educate patients about this discrepancy to reduce inappropriate antibiotic use. (LOE = 1a)

#8 What is the best treatment for acute bronchitis?
#8 What is the best treatment for acute bronchitis?

Treating acute bronchitis with amoxicillin/clavulanate or the nonsteroidal anti-inflammatory ibuprofen is no more effective than placebo in decreasing symptoms in general or duration of frequent cough. Treatment does, however, produce adverse effects in 1 in 8 patients. (LOE = 1b)

#9 How do you diagnose bacterial sinusitis in children?
#9 How do you diagnose bacterial sinusitis in children?

Bacterial sinusitis is likely in children with persistent symptoms of nasal discharge of any quality, daytime cough, or both, for at least 10 days without improvement (or worsening) or with a new onset of symptoms after initial improvement. Also, the diagnosis can be made on the basis of severe symptoms for at least 3 days in a febrile child (39 degrees C) who has purulent nasal discharge and seems ill (recommendation).

#10 Can probiotics help for colic?

- What treatments do you usually recommend for colic?
Overall, the amount of data on probiotics for preventing or treating infantile colic is limited to a handful of small, biased studies that show mixed results. We need large, well-conducted trials to sort out whether probiotics are truly effective. (LOE = 1a-)

One more time….

#1 Should we be using varenicline for smoking cessation?
#2 Emphasize smoking prevention with adolescents
#3 Remember “the hand” for Type 2 diabetics
#4 Mediterranean diets are probably a good thing
#5 Chlorthalidone may not be the best diuretic for hypertensives
#6 Use the Wells criteria and appropriate d-dimer testing when evaluating for DVTs
#7 Coughs probably last longer than physicians or patients expect
#8 For simple, uncomplicated URI’s, consider ibuprofen over antibiotics (if anything at all)
#9 New guidelines for sinusitis in children
#10 Probiotics may be helpful for colicky babies