



that commended an exhausted physician for distributing articles on DVT prophylaxis while relentless circadian and other hidden demons were consuming his soul.

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Reference

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Secondhand smoke and statistical analysis

In their letter about secondhand smoke and cancer,¹ Dildar Ahmad and W. Keith Morgan correctly note that there is a lack of proof that secondhand smoke causes lung cancer. Indeed, there is growing awareness that many of the "facts" about environmental tobacco smoke have been exaggerated for what appear to be political purposes.

Publication bias is troublesome in meta-analyses based solely on the published scientific literature. The "publication threshold" for peer-reviewed journals appears to have fallen in recent years, especially for topics concerning public health and "risky" personal behaviour, because studies deemed to be "of great reader interest" are more likely to be reported in the mass media.

In addition, there is a selection bias favouring publication of positive results. Studies with no statistically significant association or a negative correlation are not published. Foreign-language publications, another wealth of material, are also frequently ignored. Responsible researchers should be urged to take the time and trouble to include these studies or to use "trim and fill" algorithms² to account for their absence.

A larger problem is the troubling trend toward reporting "positive cor-

relation" for relative risks of less than 2.0 — particularly when the lower bound is less than 1.0. In a press release³ accompanying publication of a study on breast cancer and abortion,⁴ the US National Cancer Institute noted that "In epidemiological research, relative risks of less than 2 are considered small and are usually difficult to interpret. Such increases may be due to chance, statistical bias or effects of confounding factors that are sometimes not evident." Thus, the relative risk of 1.16 (confidence interval 0.93–1.44) reported by the World Health Organization regarding environmental tobacco smoke and lung cancer is meaningless.

Even the best and most rigorous calculations of risk are but shaky estimates, providing only an upper bound for the effect of a variable. Although it is possible to account for some confounders, multiple factors are often simply not recognized. Unrecognized confounders are important in the issue of environmental tobacco smoke as well as smoking itself, given that smoking or being in the presence of environmental tobacco smoke is often just one in a cluster of risky behaviours.

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Competing interests: None declared.

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Smoking out the tobacco connection

Dildar Ahmad and W. Keith Morgan ask for proof of the relation between secondhand smoke and cancer.¹ Numerous respected studies have shown a clear link between the two, including lung cancer.^{2,3} Granted, the link is not as strong as for smokers, but that is to be expected.

Barnes and Bero, writing in the *Journal of the American Medical Association*, have stated that "the only factor associated with concluding that passive smoking is not harmful was whether an author was affiliated with the tobacco industry."² In the US, situations have recently been uncovered in which the tobacco industry paid thousands of dollars to physicians in return for writing letters to the editor,⁴ submissions that are not generally reviewed before publication to the same extent as many other medical articles.

I suggest that *CMAJ* should require anyone who writes a letter to the editor to state that he or she has not received anything of value from anyone for doing so.

Roger Ellis

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Competing interests: None declared.

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4. Hanners D. Scientists were paid to write letters: tobacco industry sought to discredit EPA report. *St. Paul Pioneer Press* 1998 Aug 4. Available: junkscience.com/news3/pioneer.htm (accessed 1998 Dec 4).



[The authors respond:]

Since we believe in the redemption of ignorance and the forgiveness of sinners, we feel compelled to reply to Mr. Ellis's diatribe. Neither of us has ever received a penny from the tobacco industry. Indeed, one of us (W.K.M.) has been at the receiving end of abusive and vituperative letters from the United Mine Workers of America, the Tobacco Institute and sundry other anonymous sources following publication of a paper in *JAMA*. That article showed that the chief cause of respiratory disability in US coal miners was cigarette smoking.¹

Ellis's self-righteousness ill becomes him. The US legal profession does not have a reputation for generosity or for providing free legal advice. True, it has a contingency fee arrangement that has been described this way: "If I lose, my lawyer gets nothing; if I win, I get nothing."

In any case, it should have been evident from our letter that we despise the tobacco industry. The last paragraph of the letter began with the following statement: "We loathe and detest tobacco companies for their evasion, lies and attempts to trick adolescents and others into taking up smoking." Hardly an attempt to curry favour with the tobacco industry!

Finally, we both read the medical literature. Because of our background and training, we may be in a better position than Ellis to judge its validity.

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Competing interests: None declared.

Reference

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Finding the right words

For those of us who have experienced the scene described by Catharine Dewar,¹ her poem paints a picture that is accurate, sympathetic, tender and, in the final lines, so humble and true. For what, indeed, are the right words, the best words, the kindest words to say to the survivor when someone dies? After 50 years in medical practice, I have not found the answer either.

Gordon Murray, MD

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Reference

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Two solitudes

The editorials on the nature of evidence in medicine¹⁻³ present timely comment on the divergent views being urged upon harassed practitioners of medicine, those who treat the Mrs. Joneses of this world. I have been privileged to spend the nearly 40 years since I completed my undergraduate medical degree in various academic environments, where opportunities for "keeping up" have been optimal. My sympathy for those working in clinical practice has only increased.

As the clamour surrounding evidence-based medicine has grown, intimate knowledge of human biology has exploded. But increasingly these have become two solitudes. Evidence-based medicine provides more clinical trials that might illuminate decision-making for Mrs. Jones, while basic biology tells us more that is of unknown clinical relevance about Mrs. Jones herself.

While I read with interest Richard Horton's description of Toulmin's work, I found the presentation unsatisfactory. First, there was no mention of Rev. Bayes, whose theorem formalizing decision-making in terms of prior

and posterior probabilities contributes powerfully to clinical decision-making. Second, Horton gives us the example of "a 56-year-old man with retrosternal pain," but there is no such patient. There is only Mr. Jones, age 56 years, a medical history with details relevant to the presenting retrosternal pain, and a functional inquiry to illuminate the patient's present health. Within 10 minutes, a canny physician subconsciously using combinations of Bayes' and Toulmin's logic, along with other heuristics, will have myocardial infarction in mind, and on that will base immediate management and further testing. Horton does not do justice to the studies of clinical decision-making already available.

My second comment concerns medical education. Academic medicine has accepted evidence-based medicine into clinical teaching at the undergraduate level but has failed to help current graduates to incorporate the concepts of basic biology into clinical problem-solving. The General Professional Education of the Physician report⁴ urged a reduction in the amount of detailed fact taught in basic science classes and urged instead that students be taught "broad concepts." There has certainly been a reduction in the time devoted to the basic sciences, and it seems likely that less detail is being taught. But I know of little evidence that broad concepts have been identified, let alone that they are being taught. Further, I know of no evidence to indicate that students in undergraduate medical programs are learning their basic science so that they will be better able to make decisions regarding Mrs. Jones.

The medical practitioner is awash in a sea of information and desperately needs help. The evidence-based medicine movement has made an important contribution to clinical decision-making but alone it is incomplete. Academic medicine must work much harder to unite the two solitudes. Clinical decision-making is at