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Ghost in the machine

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You may not be surprised to learn that many so-called 'autobiographies' of celebrities such as David Beckham and Jackie Chan were not really autobiographies, but were written by another, uncredited author.^{1,2} Even the autobiography of the prolific writer Charles Darwin was partly 'ghost-written' by his son, Francis.³ Ghost-writing is the act of authoring a book, manuscript, or other text that is officially credited to another person.⁴

One perspective is that just because Beckham can bend a football and Jackie Chan appears to be able to survive falls with better dexterity than the average feline, it does not mean that they have a literary talent. Not that this should deter them from pleasing their fans with titbits from their personal lives. Ghost-written autobiographies do not harm the people who read them. Ghost-written articles published in peer-reviewed medical journals, however, may not be so innocuous and authors who lend their names to them should consider the possibility of plagiarism or even fraud. Why is this a problem in the medical literature and who engages in this practice? The most unethical scenario is when a pharmaceutical company employs a professional writing service to compile the results of clinical trials or scientific reviews (often the manuscript will be favourable towards the company paying for this service), then credits the writing to key opinion leaders (KOL), usually clinicians in the appropriate field, to lend credibility. The clinician 'author' may never have seen the raw data from the trials in the manuscript that he or she is supposed to have authored and, in some cases, may not even have seen the completed manuscript prior to submission. The KOL will receive some reward in the form of money or a professional accolade. The company is then able to embed favourable marketing messages into the medical literature that is read by other clinicians and may influence their prescribing practice. Marketing of off-label or unlicensed use of drugs is illegal in most countries, including Hong Kong, but such use can be advocated in peer-reviewed medical literature.

Although this practice has been known for decades, public attention was particularly drawn to it in 2009 when it was revealed, during a class-action against Wyeth's (now owned by Pfizer) hormone replacement drug Prempro, that the pharmaceutical giant had employed a medical writing firm to develop

and implement a publication plan to promote hormone replacement therapy for a number of conditions. The writing firm ghost-authored four trial reports, 20 reviews, and more than 50 scientific abstracts, posters and journal supplements, all of which were published in peer-reviewed medical literature, and credited to various clinician KOL. When the results of the Women's Health Initiative (WHI),⁵ a randomised trial involving 16 608 women, revealed that despite its claims, hormone replacement therapy did not reduce the risk of coronary heart disease but instead increased the risk of stroke and breast cancer, the same medical writing firm systematically published reports to attack WHI, even going so far as to ghost-write responses to peer reviewers who questioned the continued citation of flawed studies advocating hormone replacement.

The process of scientific publishing, from inception to writing the manuscript, relies heavily on an honour system. Investigators report on trials, diseases, chemical analyses, and simulations but seldom are they requested to produce the raw data, spreadsheets, or other supporting material. When submitting work for publication, we are asked to disclose any conflicts of interest with little fear that anyone at the journal will investigate our declaration. It is obvious from the profuse infiltration of ghost-written articles that this honour system can be easily abused.

Recently, there has been a surge in demand for the pharmaceutical industry to make their unpublished study raw data available.⁶⁻⁸ De-identified raw data may help our understanding of the various facets of large studies. Pharmaceutically sponsored or published results may well have significant implications for clinical practice but a certain degree of scepticism is healthy. Nonetheless, despite the growing awareness of the detrimental effects of ghost-written articles, their prevalence remains high. In a survey of corresponding authors in *Annals of Internal Medicine*, *Journal of the American Medical Association*, *Lancet*, *Nature Medicine*, *New England Journal of Medicine*, and *PLOS Medicine* published in 2008, 7.9% of authors reported that their articles included a ghost author.⁹ It is clear that more has to be done to curb this unsavoury practice.

Ghost-writers should not be confused with technical writers who work to polish manuscripts by

scientists or clinicians whose native language is not English. Writing articles to disseminate complicated medical or scientific data is not a simple task and there is a definite place in the medical literature for technical writers who can aid in the process of making this information more accessible to not only the public, but researchers who may not have specialised in that particular field. Ghost-written articles published in medical journals and paid for by commercial pharmaceutical/device companies are nothing more than advertisements masquerading as science. These intricately placed marketing messages are a blight to scientific writing and degrade the public's trust in the medical profession. Attempts are being made by journal editors to crack down on ghost-writing. For example, senior editors in the medical journal *PLOS Medicine* suggest that journal policies should include enforceable sanctions such that any manuscript discovered to be written by people other than the named authors should be retracted and those authors banned from subsequent publication and their misconduct reported to their institutions.¹⁰ A well-conducted scientific and ethically performed study should have nothing to hide.

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Answers to CME Programme

Hong Kong Medical Journal April 2016 issue

Hong Kong Med J 2016;22:124–30

I. Mushroom poisoning in Hong Kong: a ten-year review

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|---|----------|---------|---------|----------|----------|
| A | 1. False | 2. True | 3. True | 4. True | 5. True |
| B | 1. True | 2. True | 3. True | 4. False | 5. False |

Hong Kong Med J 2016;22:171–7

II. A new paradigm of genetic testing for hereditary breast/ovarian cancers

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|---|----------|----------|----------|---------|---------|
| A | 1. True | 2. False | 3. False | 4. True | 5. True |
| B | 1. False | 2. True | 3. True | 4. True | 5. True |