

Using Knowledge Wisely

The most beautiful thing we can experience is the mysterious. It is the source of all true art and science. (Albert Einstein, 1879-1955).

A ride in an iconic black cab is a must during a visit to London. London taxi drivers are arguably the best in the world. The cab drivers never use satellite navigation, rather, they are rigorously trained to know every street and address in London, in fact, they cannot be granted a taxi license until they pass an examination on London and its streets, called “The Knowledge” (The Knowledge Taxi, no date). Health professionals are like London cabbies – they have “The Knowledge”. This paper discusses the importance of health professionals’ highly specialised scientific knowledge, the responsibilities that come with it, and how it can be used and protected.

Health professionals come from different branches and types of science; nonetheless, it is important to realise that the scientific knowledge that they hold is special. This knowledge sets health professionals apart from others. Such knowledge is unique; it can be gained only at university; and it will guide one’s life as well as career. Health professionals are very privileged to have that knowledge, and it is incumbent on all to hold it and protect it.

Scepticism is one of the cornerstones of good science. Carl Sagan said “Skeptical scrutiny is the means, in both science and religion, by which deep insights can be winnowed from deep nonsense” (Quotationspage.com & Moncur, 2016a) The world is seeing extreme examples of how science and religion are being tortured into deep nonsense to meet preconceived motives that are used to control people and populations to nefarious ends. This is not new; from the Spanish Inquisition to Adolf Hitler, science has been used to underpin policies and politics that did great harm and undermined humanity (Watts, 2007). Violent extremism has been justified by science that has been so twisted that it is a parody of its original, for example, the Nazi racial hygiene “science” which was used to justify the killing of millions deemed “subhuman” (Benedict & Shields, 2014). Science is being used by extremist groups now – for example, ISIL is using a “digital blitzkrieg” to hack into websites to cause chaos and catastrophe (Foley, 2015). It is by maintaining a healthy scepticism that one has some defence against such pseudoscience, and evil uses of science.

Concomitant with the privilege of holding scientific knowledge and scepticism are obligations and responsibilities. Health professionals are responsible for the health of the world; for example, understanding, through research, how climate change affects health, to give but one instance. With that goes a responsibility to ensure that the research is as good as possible – rigorous, translatable into everyday life, and ethical.

Health professionals have an obligation to use their knowledge with integrity. This is, of course, self-evident, but scientific fraud is fairly common, and historical. The experiments in the Nazi (Benedict, 2003; Weindling, 2004) and Japanese (Nie, 2002) prisoner-of-war camps are notorious examples of unethical research, but even as late as the 1980s, a highly unethical experiment about cervical cancer was conducted in Auckland, which saw the deaths of at least 26 women who received no treatment even though it was available, for the sake of a clinical trial (Bryder, 2010). In September 2015, a researcher in Melbourne admitted to fabricating data in studies published in the prestigious *Journal of the American Medical Association* (Scott & Branley, 2015). Honesty is integral to science, and health professionals’ knowledge embraces an understanding of the ethics of science and the imperative to use knowledge with integrity. Health professionals may not be doing research themselves, but, from their extensive university education, have the knowledge to judge and critique research findings, to recognise when they may not be correct, and to be able to use evidence effectively and ethically.

New graduates do this by applying it in their new workplaces, and as they grow into their careers, their confidence grows, and they see increasing opportunities for using their newfound knowledge. Those with postgraduate degrees, and those working in the academy already know the adage “publish or perish”. This rather flippant cliché covers the imperative to tell the world what is found by scientists and academics in their research. It is unethical to conduct research, particularly if one has human or animal participants (in other words, those whose lives have been affected by being part of a research study) and not to publish the findings. If a researcher is lucky enough to be provided with the wherewithal to do the research by a funding body,

then that researcher has a moral and ethical obligation to not only do the research with as much rigour as possible, but also to tell the world about the results so the world can benefit.

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So newly graduated health professionals have their special knowledge, and are using it in their workplaces, or, in the case of those with postgraduate degrees, have produced a huge thesis, or have published our results in a peer reviewed journal with a high impact factor, and everyone’s bosses are

pleased. Now what? Does that research really have any value if no-one reads the thesis, or the papers? Who does read them anyway? How can one make sure that the world knows about one's research? There are two ways.

Firstly, health professionals must not be scared of using the media. Journalists are good at writing about new studies and science, but they will not find it by themselves. New ideas and good results need to be publicised, in fact, it is unethical not to do so. Scientists are not good at contacting the media, in fact, many are scared by it. Some are worried about being misquoted and having one's results twisted into something one did not mean. But there are responsible media outlets available. In Australia (and there are similar sites in other countries), one of the best is the web-based *Crikey* (<http://www.crikey.com.au/>) (and its health-related cousin, *Croakey* (<http://blogs.crikey.com.au/croakey/>)). Both welcome submissions and contact from other countries. A brief media release summarising a study and its results can be sent to *Crikey* and *Croakey*, who are keen to publish responsibly, and will usually contact the researchers for confirmation of anything that is unclear. Of course, social media, for example Twitter, is a very good way to get research results into the public domain. A word of caution, though, to remember the privacy constraints on some research, for example, when humans are the subjects, and use social media judiciously.

There is an important and effective way to use scientific knowledge wisely that is often overlooked. Many of us are privileged to live in some healthy democracies. Winston Churchill famously said "No one pretends that democracy is perfect or all wise. Indeed, it has been said that democracy is the worst form of Government except all those other forms that have been tried from time to time." (Jasiewicz, 1999). Democracies can be very different; for example, consider the seemingly unique governmental processes in countries like the United States of America. Citizens of democracies have the freedom and the system to use their democratic rights effectively. Consequently, they can lobby politicians to tell them of their new knowledge and how science can be used. In general, citizens in some democracies are not very good at asserting their democratic rights. It is incumbent on citizens to use their rights and to make sure their political representatives know their wishes. It is citizens who pay the politicians, therefore politicians are the servants of the people. One is often perplexed at the level of subservience one finds around the advent of a visit by a politician to somewhere like a university, or a hospital. Of course, they must be afforded the highest level of respect, and treated with politeness and good manners, but sometimes people demonstrate fear when a politician comes to visit. Fear of what? As a recent example, Queensland, Australia, had a particularly punitive conservative state government from 2012 to 2015, which saw one of the worst abuses of Australian's democratic rights in Australian history. The very real fear that the Premier, Campbell Newman and his ministers engendered amongst ordinary people was palpable. People were scared of speaking out because of Newman's well demonstrated ability to have people sacked or removed from positions in society. However, Queensland voters exerted their democratic rights and in the 2015 election threw the Newman government out, thus demonstrating that a democratic system may have a hiccup from time to time, but if the democracy is effective, the hiccups are soon remedied if citizens exercise the rights they hold.

So it can be with health professionals who hold scientific knowledge. Health professionals must tell politicians what they are doing, what they find, what the results mean, and how they can be translated into benefits for the world community. Letters and emails to politicians, letters to editors, and social media texts are read and followed by politicians; in fact, they are an important part of any politician's life. Politicians monitor such activities closely, as they are really the only way the politicians can make decisions informed by their constituents' wishes. As scientists who want to get a message to the place where it will do the most good, this is the best option. Health professionals must ensure their knowledge reaches parliaments and council chambers where the decisions are made that have profound effects on everyone. Politicians rely on information given by their constituents, so health professionals must advise, teach, and inform politicians about their science and their knowledge.

Sometimes, this can take courage. In one of the most famous episodes of whistle blowing in Australia, a nurse, Toni Hoffman, used her special scientific knowledge to recognise that a surgeon, Dr Jayant Patel, was harming his patients at Bundaberg Hospital (Thomas 2007). He was eventually tried for murder and manslaughter. At first she was not listened to, but eventually, with much persistence and courage, and helped by the media, she was able to convince the government that an inquiry was needed, and so subsequent patients were protected (Thomas, 2011). Courage can be required to speak up, to point out where things might be going wrong, but as scientists of all kinds, health professionals have a serious obligation to do so. Health professionals are privileged to hold this wonderful knowledge, and so are also privileged to use it for good.

To finish with Bertrand Russell, he said "*Science may set limits to knowledge, but should not set limits to imagination*" (Quotationspage.com & Moncur,2016b).

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References

- Benedict S (2003) The nadir of nursing: nurse-perpetrators of the Ravensbrück Concentration Camp. *Nursing History Review* 11: 129-146.
- Benedict S, Shields L (2014) Nursing in Nazi Germany: the "euthanasia" programs. New York: Routledge History.
- Bryder L (2010) Women's Bodies and Medical Science: An Inquiry into Cervical Cancer (Science, Technology and Medicine in Modern History). Houndmills: Palgrave MacMillan.
- Foley L (2015) Britain assaulted by "digital blitzkrieg". *examiner.com*. Available: <http://www.examiner.com/article/britain-assaulted-by-digital-blitzkrieg>
- Jasiewicz K (1999) The Churchill Hypothesis. *Journal of Democracy* 10(3), 169-173. The Johns Hopkins University Press. Available: https://muse.jhu.edu/login?auth=0&type=summary&url=/journals/journal_of_democracy/v010/10.3jasiewicz.html
- Nie JB (2002) Japanese doctors' experimentation in wartime China. *Lancet*, 360 Suppl5-s6
- Quotationspage.com, Moncur M (2016a) The Quotations Page. Available: <http://www.quotationspage.com/quote/14340.html>
- Quotationspage.com, Moncur M (2016b) The Quotations Page. Available: <http://www.quotationspage.com/quote/33020.html>
- Scott S, Branley A. (2015) High-profile researcher admits fabricating scientific results published in major journals. ABC News. Available: <http://www.abc.net.au/news/2015-09-17/high-profile-researcher-admits-to-fabricating-scientific-results/6781958>
- The Knowledge Taxi (no date). The Knowledge Taxi: London Knowledge. Available: <http://www.theknowledgetaxi.co.uk/>
- Thomas H (2007) Sick to death. Crows Nest: Allen & Unwin.
- Thomas H (2011) Jayant Patel whistleblower 'treated like a leper' by Queensland Health. The Australian, December 16. Available: <http://www.theaustralian.com.au/news/investigations/patel-whistleblower-treated-like-a-leper-by-queensland-health/story-fn6tcs23-1226223423898>
- Watts S (1997) Epidemics and History: Disease, Power and Imperialism. New Haven and London: Yale University Press.
- Weindling P (2004) Nazi medicine and the Nuremberg Trials: From medical war crimes to informed consent. Houndmills: Palgrave MacMillan.