

Cannabis revisited

Since we are probably all suffering from a bit of COVID-19 fatigue, I decided to write about something a little more calming and relaxing—cannabis. In the October 2018 issue, I authored an editorial on the legalization of cannabis in BC for residents aged 19 and older. Since almost 2 years has passed, I thought it was time to revisit this topic.

I suggested that cannabis might trend toward its big brother, alcohol, as a significant part of our social culture. In my circles, this really has not happened but, admittedly, I do not have much of a social life due to my unpleasant and increasingly grumpy demeanor. In addition, get-togethers have certainly been limited the last 6 months (due to the pandemic that should not be mentioned).

Regardless, cannabis use at functions appears to be pretty much as it was before. Individuals who liked to smoke are still using it. Cannabis certainly has not showed up on any restaurant or bar menus that I have seen. I guess we will have to continue to wait for the chef's menu with cannabis pairings. Also, cannabis-infused alcoholic beverages are not flooding the drink market.

I was worried that cannabis use in public spaces would become a problem but, to be honest, other than perhaps getting more frequent wafts of cannabis smoke, this has not happened.

As for the issue of driving while under the influence of cannabis, I could not find any statistics that show offences have climbed since the legalization of cannabis. This does not mean individuals are not driving under the influence, just that they are not being caught or charged.

One change I have noticed is the increasing use of cannabis, particularly CBD (cannabidiol), products by the general population for health-related reasons. Some patients are rubbing CBD creams on every body part while others are using drops and edibles for every type of ailment.

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A few years ago, cannabis consumption in seniors was a rare event, but among my patients and according to Statistics Canada, medicinal use in this population is increasing rapidly.


Perhaps there is a benefit to using cannabis for certain medical conditions, but it is unlikely to be a panacea for all the diseases it is currently being promoted for. One problem is that a controlled double-blinded study is unlikely to ever be done, as who would fund it? Cannabis producers would not want a study to show a lack of benefits and drug companies have no interest in funding something they cannot patent.

The major driving force behind legalization was to remove the criminal element behind cannabinoid production. For this to occur, legal cannabis would have to be of good quality and the same price as the black-market product, which has not happened. My savvy patients relate that criminal cannabis is much cheaper and often of a superior quality. Therefore, significant money is still being made illegally without much in the way of prosecution as the opioid crisis is consuming most of the law enforcement resources.

I am relieved that legalization of cannabis does not appear to have negatively impacted

the citizens of BC. Admittedly, it is still early in the process of legal cannabis production, but it seems that most of the concerns I expressed in my 2018 editorial have dissipated like a puff of acrid smoke. ■

—David R. Richardson, MD




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Peer reviewers, editors, experts, and statisticians—do we need them?

My views on statistical relevance and peer review have evolved over the years. At a recent Zoom session of the *BCMJs* Editorial Board we discussed the topic of peer review. Peer review has been defined as a process of subjecting an author's scholarly work or research to scrutiny by other experts in the same field.

I, like Richard Feynman ("Science is the belief in the ignorance of experts"), have become aware of the dangers of believing in experts, and I have acquired some reservations regarding editorial peer review.

Early in my medical career I was anxious to publish in peer-reviewed journals. In Britain, my promotion as a junior doctor in a university centre required that I "publish or perish." I was fortunate that, within 2 years of graduation, I had published in the two premier British journals, namely the *British Medical Journal* and the *Lancet*. I was pursuing specialty training in both internal medicine and general surgery at the Hammersmith Hospital in London.

Since then I have published over 200 articles, mostly in peer-reviewed journals. Statistical validations in surgery are difficult, and I was proud to co-author what has been referenced as the first-ever randomized prospective blinded study in the field of general surgery. I believed that validated scientific studies were the only ones worthy of publication, and that peer review was reliable.

I became even more involved in the publication and review of articles by serving on the governing board, or as editor or editorial board member, of international journals including eight medical journals. I have always been aware of Mark Twain's famous 1906 comment on editors: "How often we recall, with regret, that Napoleon once shot at a magazine editor and missed him and killed a publisher. But

we remember with charity, that his intentions were good."

Despite my involvement on both sides of the peer-review process, I recognize its flaws and limitations. The trend in many prestigious journals, such as *Nature* and *Science*, is to rapidly evaluate the work using a few experienced reviewers, and then expose it quickly and openly to feedback, and possible rebuttal, by other researchers in the field.

Many of the major scientific discoveries in history were rejected by established journals. Only one of Einstein's over 300 publications was peer reviewed. Important landmark papers have been rejected based on bias, or personal disagreement with the results or conclusions. All members of the *BCMJs* Editorial Board are opinionated, and therefore, at risk of displaying bias.

Nobel Prize-winning studies, such as Krebs' work on the citric acid cycle, work on scanning probe microscopy, and radioimmunoassay were initially rejected for publication. Another Nobel Prize paper, "The market for lemons: Quality uncertainty and the market mechanism," was rejected by three journals.

Mistakes occur in the opposite direction as well. A serious example is the early-2000s tragedy when Vioxx was approved for general distribution because the complications and deaths in pre-release studies were "not statistically significant." Statistically significant studies may be insignificant.

According to the *Economist* (despite lacking trust in many economists, I am a subscriber), of 53 previously so-called landmark cancer studies, only six had reproducible results. Another group could validate just a quarter of 67 similarly rated research papers. Post-publication evaluation is now the trend in physics and mathematics. As a United States Supreme Court justice once

stated, sarcastically: "This statistical significance always works and always doesn't work."

Journals prefer positive results. Negative results can be more important, but account for relatively few published papers. In the era of Donald Trump, knowing what is not true ("fake news") is as important as knowing what is true. However, if a study with positive results is accepted and published by a journal, there may be less enthusiasm for publishing a subsequent article that fails to replicate the results.

If lightning struck and destroyed a major ancient monument, the event would be front-page news. If it were later discovered that there had been a mistake, and the lightning bolt had missed the monument, the follow-up report would likely be hidden deep inside the newspapers.

When a prominent medical journal editor asked experts to review research papers that she had deliberately riddled with mistakes, she found that almost all of the reviewers failed to spot most of the mistakes.

This is the era of predatory journals, where desperate authors pay to have their papers published. In the past, authoritative journals have published fake research. German physicist Jan Hendrik Schön was a world leader on semiconductors until *Nature*, *Science*, and *Physical Review* retracted 21 of his papers.

My faith in the peer-review process has waned over time but, like democracy as a system of government, it's perhaps better than most of the alternatives.

Note, this editorial has no statistical validity, is written by a non-expert, and has not been peer reviewed. ■

—Brian Day, MB