

Death in the Marijuana Market

☒ A tragedy took place earlier this week in France, when a man died after taking part in a drug trial for a painkiller based on a compound similar to cannabis. Five other test subjects were hospitalized and it appears at least three have suffered irreversible brain damage.

This article from the *International Business Times* describes the experimental drug as “...an oral pain and mood disorder medication”. *The National Post* said the drug was, “...based on a natural brain compound similar to the active ingredient in marijuana.” Similar information can be found at *The Guardian*.

Sadly, this kind of experimental disaster has not been unexpected in the marijuana market. There has been very little formal testing of marijuana, partly because of an excess of regulation over the past 80 some years and partly because the industry didn't want to know. Cannabis benefitted more from its implied benefits than it would from clear hard science.

This lack of proven casual connection between cannabis and health benefits is one of the legitimate reasons why some jurisdictions have resisted authorizing medical marijuana. Why authorize a medicine when there is no empiric third party proof that it actually does something? Medicine must be rooted in science. Until there is a proven link between a given medical condition and cannabis as a cure / treatment for that condition, it is difficult to argue that cannabis is really “medicine” for that condition.

And no, “my cousin took it and felt better” does not count as science. That's anecdotal. At some point, the marijuana industry is going to have to undergo stringent trials to prove up the various claims being made about its medical efficacy.

Does it treat epilepsy? Prove it. Does it shrink tumours? Prove it. Alleviate post traumatic stress? Prove it.

The basis of proof is the Scientific Method, involving a repetitive cycle of hypothesis, testing, observation, refinement, and most importantly, "Reproducibility". To be proof positive in linking a cause with an effect, that same experiment or series of experiments must be capable of being carried out the same way, with the same tools, by someone other than the first experimenter, and must be able to be reach the same result. If the same experiments result in different findings, then the original hypothesis may be flawed and new experiments must be designed to better test that hypothesis. That's the nature of science.

To date, there has been little real science conclusively linking marijuana cause and medical effect.

One of the challenges facing any cannabis researcher is that there are at least 66 cannabinoids and close to 500 natural components in the plant. This makes it extremely difficult to isolate the one, two, or ten components that have the medical effect.

The latest theory in the industry is that no one element in cannabis has any substantive medical effect at all. Rather, a combination of elements work together in some way to deliver an "entourage effect". The challenge here is that researchers don't know which elements, if any, work together how to cause a medical conclusion.

It's like working in the kitchen to prepare a new meal, without a recipe and not knowing what ingredient does what. You might get eggs and baking powder and flour – you might get lemon peels, chicken feet and pig eyes. Would you want to eat that cake?

This brings us back to the human tragedy in France. Right now marijuana occupies a murky world, with one foot on either side of the science line. Some would prefer it stay in the non-medical "natural products" world – that would allow them to

make almost any claim about it and not be wrong. But the patients, the sufferers, the people who might actually enjoy a real medical benefit from cannabis must be given a chance, and the only way that comes to pass is if science continues to challenge, think, re-think and experiment.