Title: *Bad Pharma*: A critical assessment of patient care and its implications on scientific research and the future of medicine

Catch phrase for twitter: Are we still taking bad drugs six years later? Are we still on a bad trip?

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Did you wake up and take your pill this morning? Who made sure of that? Was it your doctor who believes your current treatment includes the crucial drugs you need to take towards recovery? Or rather the pharmaceutical making sure you continuously buy their product? Who has your ultimate health care in mind? Are we still caught up in Bad Pharma?

It's been six years since the release of Ben Goldacre's literary work *Bad Pharma*. Upon its release, the novel revealed some critical issues regarding patient care, western approaches to medicine, and scientific research. However, we must ask ourselves are our current scientific practices beyond the scope of the problems he references in his work? Are these flaws still relevant ten years later?

Presently, self-interest drives the outcomes of pharmaceutical studies which are aligned with the interests of the investors. Their practice potentially cross an ethical boundary due to capitalistic reasons. However, there are far more profound concerns etched into the minds of the readers. Deep mistrust and prejudices surrounding the international medical communities stem from mismanagement and numerous incidences of withholding high risk side effects from patients. Goldacre highlighted how GSK withheld information regarding increased suicide rates among children and adolescents after taking their product. Consequently, the company placed the most unprotected members of our society, children and adolescents, in direct harm in order for financial gain. Full transparency, acquisition of data, and diligent criticism of the experimental process is essential for any progress and avoiding unnecessary losses. By cutting corners, pharmaceutical companies attempt to accelerate the approval of drugs. The scientifically unideal group of volunteers participating in drug trials to begin with already make the production of legitimate data tricky. It is pivotal drug manufacturers undergo the critical main trial phases in an ethical and pragmatic manner, from the lab bench to get on the market, to improve the efficiency and safety of the drug.

The current medical system is directed towards treatment of symptoms rather than treating the direct cause of the aliment. Pharmaceutical companies manipulate the outcome and reporting of drug trials; this effect trickles down into the presentation of data in academic journals, many of which are supported by pharmaceutical companies. By paying for conference attendance and continuing education programs, drug companies are able to manipulate the likelihood of medical professionals prescribing their product despite the efficacy to an individual patient. To evade these challenges, the FSA in 2015, consisting of 54 of the biggest pharmaceutical companies in Germany, decided to establish a transparency code by publishing every sponsorship of research institutions and medical

professionals. Conclusively, it seems like at least a part of modern pharma strives towards a change in direction towards transparency and appreciates the importance of a direct and honest relationship with their patients.

The structural flaws within the medical system disseminates down to academic research as well. There are high occurrences of pharmaceutical companies funding of academic institutions to conduct research on their individual products (Figure 1). This has driven researchers to misrepresent their data and create a “spin” to reflect “unambiguously negative results” into positive results in order to be funded (Goldacre pg. 222-224). As a result, there is an increasing number of irreproducible data in its “unverified [state with] preliminary ideas and theories” which is communicated as reliable data from the scientific community (Warden 2010). It yields the question is scientific research now a product of true research and independent curiosity or “measured by how much gr

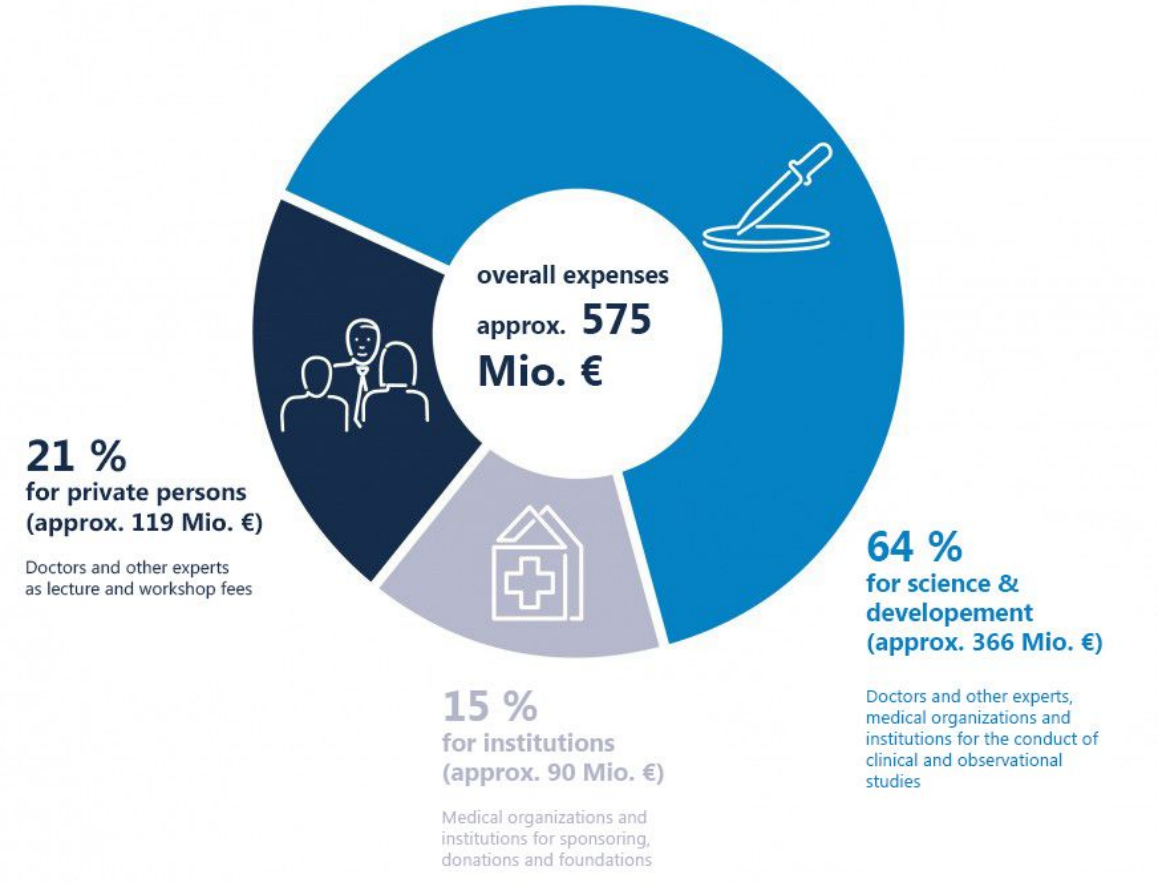

Figure 1. Voluntary contributions of research-based pharmaceutical companies (vfa) in Germany in 2015 (vfa/FSA)

ant money they win” (Belluz, et al. 2016)? Our main problem is that our current practice directly affects the younger generation of scientists. They are learning from the current leading scientists who use this standard of scientific practice. How do we change our systemic approach to science to instill trust back in science? How do we return to good scientific practice? This literary work illuminates the surmounting issues within current scientific research and its relationship with the media. There is still a pervading thought that all evidence-based medicine and research is the gold-standard of science due to the fact

that “popular new media [is]...poor at reporting accurately on basic [scientific] research” (Warden 2010). Researchers need to communicate science and scientific research which is accessible towards all levels of education as well as “popularize science” with the general public to ensure that the highest level of care is administered to the global population (Warden 2010).

By highlighting the flaws in our past approach to medicine, we can now utilize transitional medicine to reconstruct our approach to patient care and scientific research. Through a collaborative effort and hard work, we can improve the health and well-being of our global population.

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