

Pills and profits

How drug companies make a killing from public research

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The NHS spent more than £1 billion on drugs that were researched and developed with UK public funding in 2016. Innovative discoveries based on public funding are often bought by drug companies who then charge the NHS extortionate prices for the drugs.

Public funding for developing new medicines should benefit public health but high drug prices are exacerbating the pressures on the NHS budget.

Also vital drugs are increasingly not available or rationed because of soaring prices.

This briefing documents examples of where publicly funded research and development has led to drugs that the public have found difficult to access and calls for conditions to be attached to public research to ensure drugs are affordable for all patients.

Public support for research and development of new drugs

The UK spent £2.3 billion on health research and development (R&D) in 2015.¹ About a third of new medicines originate in public research institutions² and even medicines discovered by drug companies are often built on a large body of scientific work done in the public sector. Some estimate that the public pays for up to two-thirds of all drug R&D.³ In spite of this, there is no guarantee that these medicines will be accessible to patients in the UK or worldwide.

Instead, the commercialisation of these discoveries by pharmaceutical companies has generated huge private profits out of public funds. Pharmaceutical companies claim that high prices are needed to recoup R&D costs. However, evidence suggests that pharmaceutical companies often spend more on either marketing⁴ and/or buying back their own shares to artificially boost their shareholder value than on R&D for new drugs.⁵

In many cases, the UK taxpayer effectively pays twice for medicines: first, through investing in R&D, and again, by paying high prices to pharmaceutical companies for the resulting medicines. The NHS spent more than £1 billion last year alone on drugs whose development substantially relied on UK public research funding, while two of the five drugs with the highest costs for the NHS were developed in large part through UK publicly funded research.⁶

Examples of public funding of medicines⁷

UK public funding has played a substantial role in the discovery and development of effective and often life-saving treatments.

No strings attached

Public funding for medical R&D is predominantly managed by three government departments: the Department for Health, the Department for Business, Energy and Industrial Strategy and the Department for International Development.

Though there are some guidelines in these departments on public funding these are vague and not specific to affordability of the final product or real-world access by patients. In addition to the absence of conditions to safeguard access, funding for medical R&D is shrouded in secrecy.

Information on commercialisation of discoveries and the overall funding of a drug's discovery and clinical trials are rarely publicly available.

This lack of transparency disrupts accountability and impedes the development of improved ways of financing R&D.

The following examples show that the high prices charged by pharmaceutical companies for these very effective drugs have restricted access for the patients that need them, despite upfront investment by taxpayers:

- Abiraterone is an effective drug for treating advanced prostate cancer. It was discovered at the Institute of Cancer Research, a largely publicly funded UK research institute, and eventually came under the ownership of Janssen (a division of Johnson & Johnson). The high price of abiraterone has led to repeated rejections by the National Institute for Health and Care Excellence (NICE) and delayed approval over a five year period.
- Monoclonal antibodies (mabs) are artificially created antibodies and have been developed to treat a wide range of diseases - predominantly for cancers and autoimmune diseases. Mabs were developed at the UK Medical Research Council Laboratory of Molecular Biology (MRC LMB) in Cambridge, which is publicly funded via the UK Medical Research Council. Six of the top-ten all-time highest selling medicines have been mabs, and the discoveries were hailed as one of the biggest medical discoveries of the last decades.

The following cases are examples of medicines that are based on the mab technology developed at the MRC LMB:

- Alemtuzumab was originally developed at Cambridge University and first approved for the treatment B-cell chronic lymphocytic leukaemia (B-CLL). Cambridge scientists then led further investigations of its usefulness, at a smaller dosage, in treating multiple sclerosis (MS). Subsequently, Genzyme who had acquired the innovation, removed it from the market as a B-CLL medicine, in order to re-launch it as a medicine for MS. When it was used off-label prior to being withdrawn from the market, the price in the UK was around £2,500 per MS treatment course. It now costs £56,000 per treatment – a 22-fold increase.
- Adalimumab is an effective drug for treating a

range of diseases including rheumatoid arthritis, psoriasis, and Crohn's disease. Also based on the mab technology from MRC LMB, adalimumab was completed by researchers from the MRC LMB in a spin-off company they had formed. Adalimumab represented the highest expenditure on a single medicine by the NHS between 2014-2016, with a total cost of nearly £800 million pounds over this period.

Public returns on public investment

Public investment in R&D should benefit public health. Even when the government has funded a large part of the R&D of innovative new drugs, there is no guarantee that the drugs will be available to patients in the UK and beyond. The government needs to introduce measures to ensure that publicly funded health R&D leads to drugs that are both affordable and accessible.

What can MPs do?

UK public funding for the research and development of medicines is mainly channelled through the Department of Business, Energy and Industrial Strategy via the Medical Research Council (MRC) and the Biotechnology Biological Sciences Research Council (BBSRC) and the Higher Education Funding Bodies (also called UK funding councils).

MPs can write to the Secretary of State for Business, Energy and Industrial Strategy (BEIS) and call for public interest conditions to be attached to all publicly-funded health research and development to ensure that drugs produced from public money are affordable and accessible for patients everywhere.

Members of the public accounts, health or BEIS select committees can also call for a select committee inquiry into ensuing public return on public investment in health research and development so that publicly funded research and development leads to drugs that are affordable and accessible for patients that need them.

If you would like to do more to support this campaign or to find out more about this issue, please get in touch with: heidi.chow@globaljustice.org.uk

This briefing is a summarised version of the longer report - Pills and Profits: How drug companies are making a killing from public research: globaljustice.org.uk/pillsandprofits

Endnotes

- 1 Office for National Statistics. UK government expenditure on science, engineering and technology. 2017; published online June 15.
- 2 Robert Kneller. The Importance of New Companies for Drug Discovery: Origins of a Decade of New Drugs. *Nature Reviews. Drug Discovery* 9, no. 11 (November 2010): 867–82, doi:10.1038/nrd3251.
- 3 Michele Boldrin, David K Levine. The Pharmaceutical Industry. In: *Against Intellectual Monopoly*. Cambridge University Press. <http://levine.sscnet.ucla.edu/papers/anew09.pdf> (accessed Sept 3, 2017)
- 4 Richard Anderson. Pharmaceutical industry gets high on fat profits. BBC. 2014; published online November 6. <http://www.bbc.co.uk/news/business-28212223> (accessed Sept 28, 2017)
- 5 William Lazonick et al. US Pharma's Financialized Business Model. Institute for New Economic Thinking, July 13, 2017
- 6 Global Justice Now and StopAIDS, Pills and Profits: How drug companies make a killing from public research, page 43 <http://www.globaljustice.org.uk/news/2017/oct/21/new-report-drug-companies-%C2%A31bn-nhs-rip>
- 7 All examples are taken from Global Justice Now and StopAIDS, Pills and Profits: How drug companies make a killing from public research, chapter 2 <http://www.globaljustice.org.uk/news/2017/oct/21/new-report-drug-companies-%C2%A31bn-nhs-rip>