THE DISTORTED RESEARCH AGENDA IN THE HEALTH SCIENCES AND JAMES ROBERT BROWN'S POLICY PROPOSAL[1]

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1. INTRODUCTION

According to Martin Carrier (2009), the most questionable aspect of the commercialization of science is that it distorts the research agenda. This problem is especially prominent in the medical sciences: lines of research that are crucial for the improvement of global health are not pursued because they are not profitable enough, and while the health problems of the affluent, including their most trivial ailments such as acne and hair loss, are extensively investigated, life-threatening diseases that disproportionately affect the poor receive little attention (Carrier 2008: 219, Pogge 2009: 81). In order to solve this problem, James Robert Brown (2008*a*;*b*) suggests that we should eliminate patents in medicine and that all funding of medical research should be made public. Does this research policy solve the problem of the distorted research agenda in the health sciences?

In section 2 of this article, the problem of the distorted research agenda in the health sciences is analyzed in more detail. Section 3 describes Brown's way of dealing with this problem, and reveals that Brown's research policy solves only part of the problem. Another objection against this research policy is that it leads to inefficiency. Brown has tried to rebut this objection, but, as is shown in section 4, this rebuttal is not convincing. I conclude in section 5.

2. THE PROBLEM

The problem of the distorted research agenda in the health sciences can be divided into at least two sub-problems: (1) research is tailored to the health problems of the rich, rather than to the health problems of the poor (also known as the 10/90 gap),[2] and (2) for given health problems, the most promising lines of research are often neglected because they are not profitable enough. Let me elucidate these two sub-problems.

In the introduction I already pointed to the fact that health researchers pay disproportionately little attention to the health problems of the poor. This can in part be explained by the privatization of health research. Private investors are mainly interested in health research that

[1]For a more extensive discussion of the problem of the distorted research agenda in the health sciences and proposals for a solution, see De Winter (2012).

[2]The 10/90 gap is the idea that more than 90 % of medical research concerns diseases that constitute less than 10 % of the world's health problems.

contributes to the development of products that can be sold with a large profit margin. As poor people cannot afford such expensive products, investigating their diseases is not very interesting from a business perspective, contrary to investigating the diseases of those who do have the money to afford them (WHO 2006: 28-29, Pogge 2009: 81). Of course, there are also diseases from which both the rich and the poor suffer (e.g., diabetes, cancer). The poor can then benefit from the solutions developed for the people with purchasing power. But this is not always the case: the poor often lack the resources to obtain the products developed for the rich. So research and development (R&D) for preventive, diagnostic and therapeutic tools that are adapted to the resources and social and economic conditions of the poor, is needed (WHO 2006: 28). However, private companies are only minimally interested in such R&D, as it does not provide the large profit margin they seek.

But privatization is only part of the explanation. Public R&D funds go, just as private R&D funds, primarily to research on the health problems of the rich. This is because high-income countries, which have the largest R&D budgets at their disposal, are more interested in solving the health problems of their own inhabitants than in solving the health problems of the inhabitants of middle- and low-income countries. As the World Health Organization has put it:

> The significant fact about public funding of R&D is that its focus is predominantly shaped by domestic priorities. Thus, the priorities for public sector R&D funding in developed countries will necessarily be shaped by their own disease burden (mainly Type I diseases and HIV/AIDS), and on finding solutions that reflect the resources they have available for new methods of diagnosis, prevention and treatment. Although accurate figures are hard to come by, the global imbalance in publicly funded research in relation to the health needs of developing countries is likely to follow the same trends as the global imbalance in private funding driven by market forces. (WHO 2006: 59)

This means that making all R&D funding public is not sufficient to solve the 10/90 problem (additional measures are required).

The 10/90 gap is not the only way in which the research agenda is distorted in the health sciences: health research is also skewed towards lucrative solutions to given health problems. When there are several routes towards solving a given health problem, the route taken is usually the one that yields the largest profit margin, and this is not necessarily the one that contributes most to global health. Consider, for instance, the following two ways to approach a certain disease. The first is to develop guidelines on how one can avoid being infected by the disease, and the second is to develop a patentable pill that cures it. Suppose the first strategy is more effective at extinguishing the disease than the second. Nevertheless, it will be easier to find financial support for the second strategy, because the development of a patentable pill is much more profitable than the development of guidelines, and this will attract sponsors seeking financial rewards.

Besides guidelines on how to avoid being infected, there are also other kinds of solutions to health problems for which R&D funds are hard to get: vaccines, herbal medicines, diets, exercise schemes, measures to reduce pollution (e.g., the introduction or improvement of water purification plants), measures to eliminate social disparities in access to proper nutrition, decent housing, and medical care, measures to eliminate exploitation and unhealthy working conditions, etc. Vaccines are not as profitable as curative or symptom-relieving medicines because they are normally purchased by governments, who can command large volume discounts

(Pogge 2009: 81). The problem with herbal medicines is that they are very difficult to protect by the existing patent law (Kartal 2007: 115-116). This explains why multinational pharmaceutical companies hesitate to venture into herbal drug development (Muhammad and Awaisu 2008: 123, 128). Under the current patent regime, investors in R&D can recoup their investments by acquiring a patent on an invention, which gives them the power to demand compensations (e.g., money) from anyone who wants to use the patented invention (see, e.g., Boyd 1996). If no patent can be acquired, it is much harder to recoup R&D costs. Consequently, pharmaceutical companies may be less inclined to invest in R&D for drugs that cannot easily be patented, such as herbal drugs. The problem is even worse for diets, exercise schemes, and measures to reduce pollution and eliminate social disparities, exploitation and unhealthy working conditions. Such solutions are not commercially interesting at all (see also Brown 2008*a*;*b*, De Vreese et al. 2010).

Distortion towards the most lucrative lines of research seems mainly due to the privatization of health research. In general, private corporations only invest in health research if this has high returns. Therefore, it is easier to find private funding for research that holds out prospects of a lucrative product, than for research that is not commercially promising. But the problem is not restricted to privately funded research. The Bayh-Dole Act, which has been enacted by the United States in 1980, permits government funded agencies, such as universities, to obtain patents on products that are developed using federal grant money (Siepmann 2004: 209, WHO 2006: 38). Other countries have adopted similar legislation (Siepmann 2004: 220-224). These patents enable government funded agencies to make money on the basis of the products they develop. As such, government funded agencies are, just as private companies, stimulated to develop lucrative products instead of solutions such as lifestyle changes or social measures.

3. BROWN'S PROPOSAL

In order to make certain lines of research that are neglected under the current regime, more attractive to health researchers, Brown offers the following recommendations:

> Socialize research. Eliminate intellectual property rights in medicine. Make all funding public (including government and independent foundations and charities). (Brown 2008*b*: 762)

If all funding is made public, a lot of private funding for medical research would be lost. Therefore, public funding should be raised. According to (Brown 2008*a*: 209-210), public funding should be adjusted to appropriate levels. He does not think that this means that current levels of funding (including both private and public funding) should be matched. He states that:

> Drug companies claim that it costs on average more than $800 million to bring a new drug to market. This, however, is a gross exaggeration. Something like $100 million is a more reasonable estimate, since marketing costs (which they include) are not part of genuine research. Moreover, many research projects are for "me too" drugs, which bring little or no benefit to the public. When we take these factors into account, it is clear that we can maintain a very high level of research for considerably less public money. (Brown 2008*a*: 210)[3]

[3]I do not endorse this quotation. DiMasi et al. (2003) estimate that total R&D cost per new drug is $802 million, and these costs do not include marketing costs. Although this may be more than is strictly needed to bring

Table 17.1: Comparison of Medical Services. From Brown (2008*b*: 758)

	U.S.A.	Canada	Mexico	Cuba
Population with health coverage	≈ 75%	100%	?	100%
Cost per person (in U.S. dollars)	5,711	2,669	372	211
Cost as a percentage of GNP	15.2%	9.9%	6.2%	7.3%
Avg life expectancy (m/f in years)	75/80	78/83	72/77	75/80
Infant mortality (per 1,000 births)	6	5	23	6

Does Brown's research policy solve the problem of the distorted research agenda in the health sciences? Let us start by considering the 10/90 gap. We saw that the lack of interest in solving the health issues of the poor is not only a problem for privately funded research, but also for research that is publicly funded. Making all funding public will not significantly reduce the 10/90 gap as long as high-income countries, who have the largest R&D budgets at their disposal, are primarily interested in reducing their own disease burden. The needs of the poor living in middle- or low-income countries will remain more or less neglected. Hence, Brown's research policy does not solve the 10/90 problem.

What about distortion towards the profitable (second sub-problem, see above)? Under the existing regime, developing curative or symptom-relieving medicines that can easily be protected by patent law is, generally spoken, the most profitable strategy to deal with health problems. This causes distortion towards such lines of inquiry: sponsors who want profit maximization are more inclined to invest in R&D for patentable curative or symptom-relieving medicines than to fund R&D for vaccines, herbal medicines, diets, exercise schemes or social measures, even if the latter kinds of R&D are more promising from a public health perspective. If patents would be eliminated in medicine, as Brown recommends, most, if not all health research would become unprofitable, and the reason to prefer R&D for certain curative or symptom-relieving medicines over R&D for vaccines, herbal medicines, diets, exercise schemes, or social measures, would disappear. As there would be no more reason to prefer the former kinds of R&D over the latter kinds, we can expect the second kind of distortion to be reduced if Brown's proposal is implemented.

4. EFFICIENCY

The fact that Brown's research policy does not solve the 10/90 problem, is not the only objection one can have against this research policy. One of the main worries with respect to socialism is that it is hopelessly inefficient (Brown 2008*b*: 757). The argument against Brown's proposal is then that socializing research leads to inefficiency. Brown counters this argument as follows. First, he offers Table 1, which includes two rich countries (United States, Canada) and two poor countries (Mexico, Cuba), and of each pair, one has a socialized system of health care (Canada, Cuba), and the other does not (United States, Mexico). Brown concludes from Table 1 that socialized medicine[4] is most efficient because it is able to get better health results (higher aver-

a new drug to market, Brown's estimate of $100 million seems far from the mark, as the mean cost of Phase III clinical trial is $115.2 million for approved drugs (DiMasi et al. 2003: 171).

[4]It is not entirely clear what Brown means by the term "socialized medicine". I do not think he uses it as a synonym for government administered medicine, since medicine is not government administered in Canada (Deber

age life expectancy and lower infant mortality) at a lower cost. Then, he claims that socialized medical research is analogous to socialized medicine in terms of efficiency; because socialized medicine is efficient, we can expect socialized medical research to be efficient as well. Is this argument valid?

I do not think so. Before I offer my two main concerns with the argument, let me offer a minor criticism. Cuba has a high abortion rate, and high-risk pregnancies are selectively terminated (Sixto 2002: 338). This, rather than that a minimum of money is used to save a maximum of infant lives, may explain low infant mortality in Cuba.

I also have two more general criticisms. My first general criticism is that even if the health care systems of Canada and Cuba are more efficient than those of, respectively, the United States and Mexico, they can still be hopelessly inefficient. I think it is evident that a health care system in which there is unequal access to health services, as is the case in the United States and Mexico,[5] will not be efficient in terms of average life expectancy per cost or infant mortality per cost. In such a system, some can use health care for trivial ailments, while the basic medical needs of others are not served. This is a very inefficient way of organizing health care. So when Canada and Cuba turn out to be more successful than the United States and Mexico, this does not say much about the efficiency of Canadian and Cuban health care, since outperforming very inefficient health care systems is not very difficult.

In this context, it is useful to point to an important inefficiency of Cuban health care that is exposed by Sixto (2002). Sixto contends that the Cuban government lost a lot of money on superfluous hospital beds that could better be used for other health purposes. While a lot of hospital beds were not being occupied, the lack of investment in potable water and sanitation lead to the increase of mortality from infectious diseases. The point is that the fact that Cuban health care is more efficient than Mexican health care does not imply that it cannot suffer from important inefficiencies.

My second general criticism is that it is not because socialized *medicine* can be efficient, that the same holds true for socialized *medical research*. Medicine and medical research are very different in nature, and therefore, they may require very different kinds of policy and funding. An example of a difference between medicine and medical research, is that, in medicine, the patient often meets the health care provider (e.g., physician, dentist) in person, which enables him to address his complaints or acknowledgements directly to the health care provider. Someone benefiting from medical research, on the other hand, does not meet the medical researcher in person. A second difference is that a single health service is typically delivered to one specific patient, while a research effort is not. Research efforts are part of a larger research project which, as a whole, affects a lot of people at once. But taken separately, a research effort usually does not affect anyone in particular. A third difference is that the goal of medicine is to solve health problems, while the goal of medical research is to generate knowledge that is useful for solving health problems. I could go on, but the point is that, because there are several differences between medicine and medical research, it is possible that a policy that works quite well for medicine, leads to major inefficiencies if applied to medical research. Thus, we cannot infer from the fact that public funding works for medicine, that publicly funded medical research will not be hopelessly inefficient.

2003). My guess is that he uses it as a synonym for publicly funded medicine.

[5]For more information on inequity in Mexican health care, see Barraza-Lloréns et al. (2002).

5. CONCLUSION

The distorted research agenda is one of the most problematic aspects of the way in which the health sciences are organized today. I have shown that the research policy proposed by James Robert Brown does not entirely solve this problem; while it does avoid distortion towards the most profitable lines of research, it does not avoid distortion towards the health problems of the rich. Another problematic aspect of Brown's account is that his rebuttal of the claim that socializing research leads to inefficiency, is not convincing. Despite these shortcomings of Brown's account, I do not think that his policy proposal should be definitely rejected; I think that it needs further development in order to be recommendable. If Brown's research policy is supplemented by measures that lead to a reduction of the 10/90 gap and guarantee efficiency, this may well be the best policy option in the health sciences.

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