Vaccine 32 (2014) 7179–7183

Contents lists available at ScienceDirect

Vaccine

journal homepage: www.elsevier.com/locate/vaccine

The ethics of disease eradication

James Wilson*

University College London, Philosophy Department, Gower Street, London WC1E 6BT, United Kingdom

ARTICLE INFO

Article history:
Available online 22 October 2014

Keywords:
Eradication
Vaccination ethics
Time discounting
Global public goods
Symbolic value
Ethics

ABSTRACT

This paper provides an examination of the ethics of disease eradication policies. It examines three arguments that have been advanced for thinking that eradication is in some way ethically exceptional as a policy goal. These are (1) global eradication has symbolic importance, (2) disease eradication is a global public good and (3) disease eradication is a form of rescue. It argues that none of these provides a good reason to think that individuals have special duties to facilitate eradication campaigns, or that public health authorities have special permissions to pursue them. But the fact that these arguments fail does not entail that global disease eradication is ethically problematic, or that it should not be undertaken. Global eradication of a disease, if successful, is a way of providing an enormous health benefit that stretches far into the future. There is no need to reach for the idea that there is a special duty to eradicate disease; the same considerations that are in play in ordinary public health policy – of reducing the burden of disease equitably and efficiently – suffice to make global disease eradication a compelling goal where doing so is feasible.

1. Introduction

Global eradication of disease has fired the imagination since the introduction of vaccination, a possibility that Jefferson brilliantly expressed in his letter to Jenner: 'Medicine has never before produced any single improvement of such utility. . . Future nations will know by history only that the loathsome smallpox has existed and by you has been extirpated' [1]. Whilst it was over 170 years before Jefferson's dream was realised, smallpox was indeed globally eradicated by the end of the 1970s, and remains an iconic achievement of the twentieth century.

In general, to eradicate a disease is to reduce to zero the incidence of the disease through deliberate efforts [2]. To eradicate a disease globally is to remove the disease threat from the whole world, permanently: in a recent consensus definition, "the worldwide absence of a specific disease *agent* in nature as a result of deliberate control efforts that may be discontinued where the agent is judged no longer to present a significant risk from extrinsic sources (e.g. smallpox)" [3].

This paper is concerned with the ethics of global disease eradication. No one could reasonably deny that the global eradication of smallpox, which had been a major cause of morbidity and mortality for thousands of years, was a good thing. To this extent, the ethics of eradication is straightforward. However, it is important to counterbalance this ethical commonplace with the recognition that there were a number of failed and expensive eradication campaigns in the twentieth century, including yellow fever, yaws and malaria [4]. In some cases – like yellow fever – the disease should probably not have been a candidate for eradication attempts in the first place, as it has an animal reservoir. In other cases, the failure may more accurately reflect the intrinsic difficulty of globally eradicating a disease, even where it is correctly judged to be technically feasible to do so. Factors responsible for this high level of difficulty include the degree of international coordination and cooperation over a prolonged period that are required for successful global eradication campaigns, the challenges of ensuring that enough individuals continue to be vaccinated to maintain herd protection everywhere in the often long period between the disease being eradicated locally and being eradicated globally, and the continual risk that cases will be exported back into territories that were previously free of the disease as a result of war or political instability [5]. The long endgame of the polio eradication campaign provides a vivid example. The World Health Assembly committed to the eradication of polio in 1988, with eradication originally scheduled to be completed by the year 2000. Recent instability has seen an increase in the number of countries exporting wild poliovirus, a WHO declaration of a Public Health Emergency of International Concern, and doubts about the achievability of the most recent target date of 2018.

Eradication campaigns differ markedly from standard medical treatments, and even from standard vaccination campaigns, in the way that their burdens and benefits are distributed. In standard

* Tel.: +44 2076790213.
E-mail address: james.wilson@ucl.ac.uk

http://dx.doi.org/10.1016/j.vaccine.2014.10.009

contexts of medical treatment, the expectation is that the recipient of the treatment will be its main beneficiary; to give just one example, the International Code of Medical Ethics states that "a physician shall act in the patient's best interest when providing medical care" [6]. In standard vaccination campaigns, the expectation that the individual person vaccinated is the main beneficiary remains, but such campaigns also aim to create spillover benefits to others from herd protection.

As a global eradication campaign moves closer to success, less and less of the expected benefits of a vaccination will accrue to the person vaccinated, and more and more to the world at large through the elimination of the health threat from the environment. As the number of cases of the disease approaches zero, the expected benefit to individuals who are vaccinated may become less than the expected costs, if the vaccine itself poses at least a minimal risk [7]. It is sobering to realise that there were between 200 and 300 deaths in childhood as a result of complications such as encephalitis following smallpox vaccination in the US between 1948 and 1965, but only one US death from smallpox in this period [8]. Whilst the risks of the oral polio vaccine are much smaller than those from the smallpox vaccine, they are far from infinitessimal. It is thus not immediately clear that a global vaccine-based eradication campaign could be successfully completed if all healthcare professionals took literally the demand that each intervention they provide should be in the best interest of each patient considered as an individual.

Even if it will be against the self-interest of some individuals to be vaccinated, this does not entail that eradication campaigns are unethical. Eradication campaigns are large-scale policy interventions. No one expects that an ethically acceptable government policy must be conducive to the best interests of each person considered as an individual [9]. Indeed, government policies frequently allow suffering and death to occur in the pursuit of broader social goals, without these policies being thought to be automatically unethical on this basis. For example, road traffic accidents are a major cause of morbidity and mortality in every country. It would be possible to significantly reduce the number of deaths by greatly reducing speed limits – but both governments and the vast majority of their citizens take the view that doing so would be disproportionate given the economic benefits of fast road transportation, and the importance of personal liberty. To the extent that eradication campaigns are compared to ordinary medical practice they may look ethically problematic, but to the extent that they are compared to public policy contexts such as transport they may seem relatively unproblematic.

Which is the right frame to bring to the ethical consideration of eradication policies? This article provides an initial answer, by examining whether there is anything that is ethically exceptional about eradication [10]. If there is, we should expect eradication policies to be subject to *sui generis* ethical considerations; if there is not, we should expect standard approaches to the ethics of public health policy to be sufficient. I begin by examining three arguments that have been put forward for thinking that eradication is in some way special as a policy goal. These are (1) that global eradication has symbolic importance; (2) disease eradication is a global public good, and (3) disease eradication is a form of rescue. I argue that none of these arguments succeeds in showing that eradication is *sui generis* as a policy goal. None of these arguments provides a reason for thinking that public health authorities have special duties to pursue eradication campaigns, or that individuals have special duties to facilitate them. I then argue that the fact that these arguments fail does not entail that global disease eradication is ethically problematic, or that it should not be undertaken. Global eradication of a disease, if successful, is a way of providing an enormous health benefit that stretches far into the future. There is no need to reach for the idea that there is a special duty to eradicate disease; the same considerations that are in play in ordinary public health policy – of reducing the burden of disease equitably and efficiently – suffice to make global disease eradication a compelling goal where doing so is feasible.

2. The symbolic value argument

Eradication is often thought to have an important symbolic value. The tangible goal of eradicating polio has energised donors – such as members of the Rotary Club – for many years. Margaret Chan, the Director General of the WHO, put it thus in a speech to the Rotary International Convention in 2008, 'We have to prove the power of public health. The international community has so very few opportunities to improve this world in genuine and lasting ways. Polio eradication is one' [11].

It is sometimes argued that this symbolic value makes eradication an ethically special case – and hence that eradication policies should be pursued over and above the actual health benefits they provide. Certainly, as we explore in more detail later, eradication policies need to stay the course, and large-scale success stories like smallpox help to make the goal seem achievable. But this is merely to say that eradication requires a firm long-term commitment *if* it is to be successful, rather than to take the symbolic value of eradication to be a reason to undertake such a policy in the first place. The symbolic value of eradication does not create ethical duties by itself. Even if it is agreed that eradication has a high symbolic value for many individuals, this does not provide a reason for thinking that anyone has an additional ethical duty to facilitate eradication campaigns by agreeing to be vaccinated, or that governments have an additional permission to do things that would otherwise constitute a violation of someone's rights, such as enforcing vaccination.

If the person to be vaccinated agrees that disease eradication has high symbolic value, then it seems plausible to suppose that she would be willing to take the steps necessary in her own conduct to facilitate disease eradication, and to allow others to interfere with her life for this purpose. But the operative moral principle here is informed consent, and the symbolic value of eradication plays only a derivative role. If someone does not think that disease eradication has an important symbolic value, it is difficult to see how the fact that it had symbolic reason *for others* could either generate a moral duty for her to subject herself to risk, or a permission for others to coerce her in order to preserve this symbolic value.

When symbolic values are weighed in the balance against things that have intrinsic value, then the merely symbolically valuable must give way. We can see this clearly if we take something that uncontroversially has only a symbolic value, such as the US flag. Suppose that a factory in China that makes US flags for the export market catches fire by accident. Passers-by, who do not personally endorse the symbolic value of the US flag, would have no duty to endanger themselves to prevent the flags from being immolated. A committed US patriot might conceivably believe that he had a reason to rescue the flags, but even in this case, it would be ethically indefensible to choose to rescue the flags instead of rescuing a human being [12].

3. The global public goods argument

Barrett argues that global eradication of disease is a key example of a global public good – a good that is both non-excludable and non-rival: 'Once provided, no country can be prevented from enjoying a global public good, nor can any country's enjoyment of the good impinge on the consumption opportunities of other countries. When provision succeeds, global public goods make people everywhere better off' [13].