

TB Matters More

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Abstract Tuberculosis (TB) is the second leading infectious cause of mortality worldwide and arguably the most important neglected topic in bioethics. This chapter: (1) explains the ethical importance of TB, (2) documents its neglect in bioethics discourse, (3) maps the terrain of ethical issues associated with TB, and (4) advocates a moderate pluralistic approach to ethical issues associated with TB.

Keywords Ethics, infectious disease, tuberculosis (TB), drug resistance, quarantine, health care access, essential medications, justice

Bioethics and Infectious Disease

Medical research resources are poorly distributed. This is illustrated by the 10/90 divide, a phenomenon whereby less than 10% of medical research resources focus on diseases responsible for 90% of the global burden of disease (Resnik 2004). While medical research focuses on development of profitable products, research and development (R&D) on infectious diseases remains largely neglected. This is because infectious diseases primarily affect poor people who cannot afford even inexpensive medications. The world's most urgent health care needs remain largely neglected as a result.

An analogous misdistribution of research resources applies to bioethics. Though infectious disease should be recognized as a topic of primary importance for bioethics, it has historically been neglected by this discipline (Selgelid 2005; Francis et al. 2005). There are numerous reasons why infectious disease warrants the central attention of bioethics. First, the historical and likely future consequences of infectious diseases are almost unrivalled. Throughout history, infectious diseases have caused more morbidity and mortality than any other cause, including war (Price-Smith 2001); and they are currently the biggest killers of children and young adults. The continuing threat of infectious disease is revealed by the extent of AIDS, TB, and malaria; the increasing number of newly emerging infectious diseases (such as Ebola, SARS, West Nile Virus, and avian influenza); the growing problem of drug

resistance (which may imply return to a situation analogous to the pre-antibiotic era); and the specter of bioterrorism. Second, because they can be contagious and cause acute illness and death, infectious diseases raise difficult ethical questions of their own (Smith et al. 2004; Selgelid 2005). Public health measures for controlling epidemics may include surveillance, mandatory treatment or vaccination, and coercive social distancing measures such as isolation and quarantine. Because measures such as these may conflict with human rights to privacy, consent to medical treatment, and freedom of movement, an ethical dilemma arises. How should the social aim to promote public health be balanced against the aim to protect human rights and liberties in the context of diseases that are to varying degrees contagious, dangerous or deadly? Third, because infectious diseases primarily affect the poor and disempowered, the topic of infectious disease is closely connected to the topic of justice, a central concern of ethics.

Bioethics has not entirely ignored the topic of infectious disease. AIDS, in particular, has received a great deal of discussion in the bioethics literature. In a related development, public health ethics has become a rapidly growing subdiscipline of bioethics as is evidenced by a number of recent books (Coughlin et al. 1998; Beauchamp and Steinbock 1999; Gostin 2002; Boylan 2004; Anand et al. 2004; Selgelid et al. 2006; Balint et al. 2006; Dawson and Verweij 2007) and (as of 2008) a new journal—*Public Health Ethics* (Oxford University Press). At least some of this literature has emphasized infectious disease in particular. With the exception of AIDS, however, bioethics discussion of infectious disease remains in its infancy, and coverage of topics has been patchy at best (Tausig et al. 2006). Much of the emerging literature has focused on SARS, pandemic influenza, and bioterrorism in particular. There has also been an increase in relevant debate about intellectual property rights in pharmaceuticals—and the barriers patents pose to medication access in poor countries (Schüklenk and Ashcroft 2002; Cohen and Illingworth 2003; Sterckx 2004; Pogge 2005; Cohen et al. 2006).

Neglected Disease

Tuberculosis (TB) is a bacterial infectious disease that is usually spread by coughing. TB illness is debilitating in the short term; and it is associated with high mortality if untreated, and with significant disability even if successfully cured. Whilst pulmonary TB (disease affecting the lungs) is the most common and most infectious form of the disease, TB can affect any part of the body. TB is strongly associated with poverty and is common in less-developed countries, particularly in Asia, Africa, and South America. There has been a resurgence of TB in relation to the HIV/AIDS pandemic, particularly in sub-Saharan Africa (Dye et al. 2007). The public health implications of TB are enormous. Until recently TB was the world's leading infectious cause of mortality, and it is now second only to AIDS.

It is surprising and unfortunate that there has not been much focused discussion of ethical issues associated with TB,¹ which is arguably the most important neglected topic in bioethics. Because TB kills nearly as many people as AIDS each year, one would expect TB to receive a proportionate amount of discussion in health ethics literature. There are, furthermore, good reasons for thinking that the problem of TB is even more ethically important than AIDS. In the vast majority of cases TB drugs can provide cure, and they are much less expensive than AIDS medications. While 1.6 million people die from TB each year (WHO 2007a) and 2.1 million die from AIDS (UNAIDS 2007), the former deaths are, economically speaking, much easier to prevent. A standard course of TB medication can cost as little as US\$10 or US\$20, and TB therapy is considered to be one of the most cost-effective health care interventions. In best case scenarios, AIDS medication costs as little as \$100 for a year of treatment in developing countries, but it often costs much more. In the case of AIDS, furthermore, lifelong treatment is required because no cure exists. Given cost considerations, the case for increasing access to TB medication appears stronger than the case for increasing access to AIDS medication (which is not to say that the case for increasing access to AIDS medication is not itself enormously powerful). In 1998, only 56% of those in need had access to TB therapy recommended by World Health Organization (WHO), and the rate was only 23% just a few years earlier in 1995 (Lienhardt et al. 2003). There have been impressive gains in access to TB services in many countries in recent years, and approximately 62% of those in need were receiving treatment in 2007 (Floyd 2007). Significant gaps remain, however, in many of the countries where TB is most prevalent (Dye et al. 2007).

A final reason for thinking that TB is ethically more important than AIDS is that the former, being airborne, is both contractible via casual contact and much more contagious. While behavior modification (with respect to IV drug use and sexual practice) can essentially eliminate the risk of infection with AIDS, TB can be passed from one individual to another via coughing, sneezing, and even talking. In many ways, then, the threat to “innocent individuals”—and public health in general—is greater in the case of TB.

Though the ethical importance of TB at least rivals, if it does not surpass, the ethical importance of AIDS; the former has received comparatively little attention from bioethicists. The lack of attention to ethical issues associated with TB is revealed via searches on the Internet. A *PubMed* search of titles and abstracts (conducted in October 2007) for the terms “ethics” and “AIDS” yielded 2,998 entries; while a similar search for the terms “ethics” and “tuberculosis” yielded only 179. Rather than reflecting difference in ethical importance, the disproportionate amount of bioethics attention to AIDS in comparison with TB reflects the fact that

¹A recent exception was the workshop organized by Anne Fogot-Largeault—with participation of Mary Edginton, Lourdes Garcia-Garcia, and Brigitte Gicquel—on “TB Ethics” at the 8th World Congress of the International Association Bioethics (2006) in Beijing. We also admit that the New York epidemic of the 1980s and 1990s received some important coverage.

the former disease has affected an economically powerful and articulate community and has been much more highly politicized.

The global TB status quo, meanwhile, is alarming. The World Health Organization (WHO) declared TB a global health emergency in 1993. One third of the world population is currently infected with latent TB. Approximately nine million people develop active illness each year, and “there are between 16 million and 20 million persons with active tuberculosis at any one time” (Gandy and Zumla 2002, 385). Though a cure for TB has existed for over 50 years, and though in the 1950s TB was believed to be eradicable, TB “is now more prevalent than in any previous period of human history” (Gandy and Zumla 2002, 385). The TB burden is highest in Asia, which accounts for two thirds of the global burden of TB (WHO 2006b). The Southeast Asia Region has the *largest number* of new incident cases, accounting for 34% of incident cases globally. The *incidence rate* in sub-Saharan Africa, however, is nearly twice as high—“at nearly 350 cases per 100,000 population” (WHO 2007b). Like most other infectious diseases, the burden of TB is most heavily shouldered by the poor: 95% of TB cases and 98% of TB deaths occur in developing countries (Gandy and Zumla 2002). This is because the poor lack good nutrition, and this weakens their immune systems. It is also because crowded living and working conditions, and lack of sanitation and hygiene, increase chances of exposure and infection. Because the poor so often lack access to (even inexpensive) medical care, they are more likely to suffer adverse outcomes when infection occurs. Direct and indirect costs of illness can have a catastrophic effect on TB sufferers and their families (Bates et al. 2004; Jackson et al. 2006). Matters have been made worse by the growing HIV/AIDS epidemic. Those living with HIV/AIDS are much more likely to contract TB, and more likely to develop severe illness when they do (Harries and Dye 2006).

Though the impact of TB is most heavily felt in developing countries, the emergence and spread of multidrug-resistant TB (MDRTB) poses serious threats to developed nations as well. A primary cause of drug resistance is the failure of patients to always complete a full course of TB medication. This often occurs in developing countries when patients cannot afford to continue therapy, cannot afford time off work to visit health providers, or cannot afford travel to clinics. Another cause of drug resistance is the weakness of health care infrastructures in poor countries. Patients often fail to complete therapy because hospitals and clinics in poor countries fail to maintain a steady supply of standard TB medications (Farmer 1999; Farmer 2003). Drug resistance is also driven by the market presence of drugs that are low quality, old, or often counterfeit.

Like ordinary TB, drug-resistant TB is contagious. With increased global trade and travel, drug-resistant TB spreads frequently from country to country. Though it is usually curable, MDRTB requires longer and more expensive treatment. Ordinary TB can be treated with a six month course of medication costing US\$10–20. MDRTB takes two years to treat, and treatment can be up to 100 times more expensive. The “second-line” medications used to treat MDRTB are, furthermore, both more toxic and less effective than the “first-line” drugs used to treat ordinary TB.

The problem of untreatable TB is suddenly on the rise. In 2006, the US Centers for Disease Control and Prevention (CDC) and WHO announced the emergence and spread of “extreme” or “extensively” drug-resistant TB (XDR-TB). MDRTB is defined as TB resistant to at least two (namely isoniazid and rifampicin) of the four first-line TB medications. XDR-TB is defined as TB resistant to at least two of the four first-line TB medications and at least two of the six second-line medications (a fluoroquinolone and an injectable agent; CDC 2006; WHO 2006a). A recent study showed that 20% of TB isolates from around the world were MDRTB and that 10% of these were XDR-TB. XDR-TB was found in every region, and the study showed that isolates of MDRTB obtained from the USA, Latvia, and South Korea were, respectively, 4%, 19%, and 15% XDR-TB (CDC 2006). The most dramatic epidemic of XDR-TB is currently underway in South Africa. A study in March 2006 showed that 41% of suspected patients in Tugela Ferry were infected with MDRTB and that 24% of these had XDR-TB. Of the 53 patients with the latter, 52 died within 25 days (MSF 2006). Many are worried that XDR-TB may “swiftly put an end to all hope of containing the [AIDS] pandemic [in Africa] through treatment”. According to one expert: “There is no point investing hugely in ARV [anti-retro viral] programmes if patients are going to die a few weeks later from extreme drug-resistant tuberculosis” (Boseley 2006). Implications of XDR-TB for the international community are starkly revealed by the CDC’s conclusion that XDR-TB “has emerged worldwide as a threat to public health and TB control, raising concerns of a future epidemic of virtually untreatable TB” (CDC 2006).

Mapping the Terrain of Ethical Issues Associated with TB: A Research Agenda

Bioethics research in the context of TB should address the following issues.

Duty to Treat

A common topic in bioethics discussion of infectious disease has been the question of health workers’ duty to treat patients infected with diseases that pose risks to health workers themselves. A related question concerns the duty of society, or the health care system, to provide safe conditions for health workers through provision of masks, room ventilation, and other infection control measures in hospitals and clinics. Most of the debate has thus far focused on AIDS, SARS, and avian influenza. The existing literature reveals that there are no simple answers to these kinds of questions and that different issues arise in the context of different diseases (Reid 2005). Though these questions are pertinent to TB, given that it is highly contagious—and increasingly dangerous in the context of MDRTB and XDR-TB, and/or when health workers are living with HIV (Cobelens 2007)—they have in the specific

context of TB received little if any dedicated discussion in mainstream bioethics literature. Bioethics should examine the extent of risk involved with treating TB patients; the nature and extent of health care workers' "duties" to face such risks; possible means (and ethical justification) for reducing such risks through improvement of infection control in health care settings; and the propriety of rewarding health workers willing to face greater risks (Savulescu, in discussion) and/or the propriety of compensating those who actually become infected on the job (University of Toronto Joint Centre for Bioethics 2005).

Clinical Research

A major topic of debate in the context of HIV/AIDS research has been the question of what should count as an ethically acceptable control arm in studies involving human subjects. Most of the attention has focused on placebo controlled studies of mother-to-child transmission of HIV in Africa. Critics argued that these studies conflicted with the Declaration of Helsinki requirement that patients in the control arm of a study should receive the "best proven" or "best current" therapy for the condition in question (Lurie and Wolfe 1997). Others argued that it would have been too expensive to provide such treatment in developing world contexts—and that no harm was done because patients were denied no treatment they would have received if they had not participated in the studies (because the standard of care in poor countries was *no treatment* to prevent vertical transmission of HIV). Given that the WHO has recently declared that the standard of care for MDRTB requires provision of second-line drugs, it will not be surprising, given what commonly occurred in the context of HIV, if there are proposals for studies where control arm subjects would not receive this expensive, high level of care (apparently) still required by the Declaration of Helsinki. Would it be wrong to deprive control arm subjects of second-line drugs if they would not receive them if they did not participate in the study in question—given the poverty situation in the local context? How are the ethical issues in the context of TB similar to, or different from, those that arose in the context of HIV/AIDS?

Another issue arising in clinical research involves the management of third-party risks. A study of a new drug for resistant strains of TB, for example, may pose risks to third parties. If the investigational drug is not effective, then a patient-subject who receives it may remain infectious and thus endanger family members and other close contacts. Isolation of the patient-subject or informed consent of third parties might thus be called for. This general issue has been neglected by research ethics guidelines (Francis et al. 2006).

Treatment Exclusion

There have been reports of prescription practices in poor countries where health workers decide to exclude TB patients from treatment in cases where it is believed that the patient is unlikely to complete therapy (Singh et al. 2002). While

withholding treatment from unreliable patients may serve the aim to avoid promotion of drug resistance, a practice like this may be inappropriately discriminatory. Such a practice may also have counterproductive results if infectious patients remain at large in the community. Because the ability of health workers to make sound judgments about such matters is suspect, the extent and quality of institutional policy calling for patient exclusion warrants further analysis. In addition to concerns about unjust discrimination, a major question is whether or not, or why, it is reasonable to think that the harm to excluded individuals would be outweighed by greater goods to society in the way of public health. These are partly, though not entirely, empirical questions—i.e., about what the actual harms and benefits are (to individuals and society, respectively). The more ethico-philosophical question is how benefits to society should be weighed against harms to individuals.

Obligation to Avoid Infecting Others

If there is a duty to do no harm, then infected—or potentially infected—persons have duties to avoid infecting others (Harris and Holm 1995; Verweij 2005). This interesting and important topic has received surprisingly little attention in general, and discussion to date has primarily focused on AIDS and influenza. Bioethics should examine the extent to which a duty like this applies in the context of TB in particular. Because it would be unreasonable to expect potentially infected persons to take all possible measures to avoid infecting others, appropriate limitations to the duty must be considered. Because TB is transmissible via casual contact, anyone who has been breathed or coughed on by someone who *might* (for all one knows) be infected with TB should, epistemologically speaking, consider herself to be “potentially-infected”. But that means almost all of us! (This is just one of the ways in which the case of TB is different from AIDS.) Even those who actually have been in (limited) contact with someone sick with active TB, however, will usually not themselves become infected as a result. Though potentially deadly and considered highly contagious, TB is not nearly so contagious as the flu. (This is just one of the ways in which the case of TB is different from flu.) To what extent should someone who knows she has been exposed to TB limit her interactions with others afterwards? The answer will partly depend on whether we are talking about ordinary TB, MDRTB or XDR-TB—if *these details are known*.

Third-Party Notification

In cases where a contagious patient fails to take adequate precautions to avoid infecting others—and fails to warn close contacts about his infectious status—then the question of whether or not the health worker should inform identifiable third

parties at risk arises. On the one hand, notification of third parties about a patient's health status would breach the widely acknowledged patient right to confidentiality. On the other hand, failure to warn could (especially in the context of XDR-TB) conflict with the innocent third party's right to life—which many would say is more important than the incautious patient's right to confidentiality. This matter is complicated because a routine practice of breaching confidentiality may decrease trust in the health care system, reduce health-seeking behavior, and thus drive the epidemic underground. What the actual public health implications of third-party notification would be is an empirical question that warrants further study.

Domestic Surveillance

Mandatory TB testing in schools, the workplace, or elsewhere in the community may potentially conflict with the right to privacy. If information concerning the health status of individuals is not well protected, then stigma and discrimination will result. Surveillance measures, on the other hand, are sometimes important to the protection of public health. Bioethics should consider the extent to which current surveillance measures are—or the extent to which more wide-reaching surveillance measures would be—justified in the context of TB, especially now that MDRTB and XDR-TB are growing threats to global public health.

Migrant Screening

It is common for countries to screen migrants for TB before granting entry visas. Some have questioned the public health efficacy and/or cost-effectiveness of a practice like this in comparison with other means of TB control (Coker 2003). Whilst identification of active disease offshore is a commonly used method for TB control in countries with a low prevalence of TB (and sometimes countries with high prevalence), it is not always possible to perform due to the lack of resources or a lack of time prior to arrival (Coker 2003). Additionally, one-off screening for TB with x-ray does not completely eliminate the risk of TB transmission to the public in the receiving nation due to the lifetime latency of the disease (MacIntyre et al. 1997). The offshore TB screening policy relies on a “user pays” philosophy, where visa applicants are responsible for the costs incurred. Aside from questions of equity, where the poor who are most likely to have TB are also least likely to be able to pay for the screening tests, this model works well when a private sector health system is in operation. The International Organization for Migration (IOM) has called for a “paradigm shift from exclusion to inclusion” to address this, amongst other unintended effects of premigration screening for the benefit of the migrant and the host nation (Maloney 2004). In many countries from which refugees are resettled, there are no private for-profit radiological or microbiological

facilities and government clinics are stretched to capacity. Is it appropriate for developed countries to shift costs for their public health onto the overburdened health systems of other, less well-resourced, countries? Additional ethical issues arise in the context of asylum seekers. This form of migration has posed enormous problems in the northern hemisphere. In situations like this, host countries' duties of beneficence potentially conflict with duties to protect public health. Ethical issues associated with migrant screening in the context of infectious disease are a generally neglected area of discussion that is becoming increasingly important in the contemporary era of "globalisation" and "emerging infectious diseases". These issues are especially pertinent in the context of TB.

Social Distancing

In the past, patients with infectious TB were isolated in sanatoria for prolonged periods—and sometimes even for life. This was done to protect others from infection. Even today, in many countries, it is common to isolate patients with pulmonary symptoms (i.e., "active TB") until they are deemed uninfected—usually about two weeks after therapy is started. Such detention is usually brief and voluntary. It is common, however, to coercively confine patients with active TB, and sometimes patients with inactive TB, when they refuse to take their medicine or when it is believed they are unlikely to adhere to treatment regimens (Coker 2000).

Bioethics should consider the extent to which (coercive) restriction of movement is ethically justified in the name of public health protection against TB. Of particular importance is the question of what should be done with XDR-TB patients, who pose threats of infection with an especially dangerous form of TB whether they take their medicines or not. Defenders of confinement in the context of treatable TB sometimes suggest that confinement is justified when patients are at least given a choice between confinement and treatment—the idea being that this respects their autonomy (Bayer and Dupuis 1995). If XDR-TB patients are confined because they are untreatable, then no autonomous choice would remain. Though this does not go to show that mandatory confinement is therefore inappropriate, the point is that the question of what to do with XDR-TB patients is not automatically settled by conclusions about what to do with noncompliant patients with treatable TB. Additional new questions are whether or not, the extent to which, or the conditions under which, it would be ethical to quarantine the large number of people exposed to, though not known to be infected with, XDR-TB—or those suspected, though not known, to be infected with XDR-TB (Singh et al. 2007)—while diagnostic confirmation is awaited.

Coercive long-term confinement may again become common in the case of patients actually diagnosed with (untreatable) XDR-TB. In a widely reported case in Arizona, for example, an XDR-TB patient has been detained in a prison hospital for over a year (Democracy Now 2007). And there are already calls in Africa for a return to compulsory sanatoria for such patients (Sakoane 2007). If the spread of untreatable

XDR-TB becomes sufficiently alarming, we may be faced with quarantine and confinement at a scale not seen for decades. In 2007 a patient suspected of infection with XDR-TB was subjected to the first US federal isolation order since 1963.

Among other questions, the following should be further considered: (1) the extent to which coercive social distancing measures are justified in light of the available evidence (or lack thereof) regarding their efficacy and (2) arguments calling for compensation provision to those whose liberties are coercively restricted.

It is true that untreatable TB was the norm prior to development of cures in the middle of the 20th century, and we should examine historical debates regarding the social acceptability of confinement and so on that took place in public health circles in the pre-antibiotic era. No developed discipline of bioethics existed at that time, however, and so it remains to be seen how policy decisions made then will be viewed under the lens of rigorous ethical analysis. More importantly, given population growth and globalization, the contemporary world is different from that when untreatable TB previously existed. Because population dynamics have changed, there is no reason to assume that public health solutions to untreatable TB in the past (even if it is determined that such policies were ethically and epidemiologically sound at the time) will be appropriate to the contemporary world.

Mandatory Treatment and Ethical Issues Associated with DOTS

As indicated above, it is commonly the case that (treatable) patients are required to either undergo therapy or be held in confinement. Insofar as the threat or actual use of force is involved, TB treatment involves coercion and thus conflicts with individual autonomy (despite the fact that patients are usually given at least some choice in the matter). The worldwide standard of care for TB treatment is known as Directly Observed Therapy, Short Course (DOTS). Among other things, DOTS involves health or social workers' observation of patients' medication-taking; and patient cooperation is (often) part of what is required to avoid detention. Though DOTS has (arguably rightly) been hailed as a great success in global TB control (partly because it promotes patient "compliance" and thus helps prevent drug resistance) ethical issues are raised by the coercion involved. It is generally thought that informed consent to medical treatment is important—and that it must be voluntary. Autonomy, however, may be outweighed by societal benefits if the stakes are sufficiently high. Additional issues involve threats to privacy and dangers of stigmatization in contexts where DOTS practices are visible to the community; and the costs/inconvenience of DOTS in comparison with unmonitored treatment (especially when we are talking about reliable patients). Though issues associated with mandatory treatment and DOTS have perhaps received more bioethics attention than others considered in this chapter, much of the debate to date has focused on the limited context of New York City in the 1980s and 1990s (see Bayer and Dupuis 1995 and reference therein).

Coercive in the Prevention of Zoonosis

Coercion is also involved in attempts to remove *Mycobacterium bovis* (“bovine TB”) from the food supply in rich countries by culling infected herds and pasteurizing milk. In part this is done to increase the safety and value of bovine (or ovine and other herbivore) products, especially milk and cheese. In poor areas of the world with ongoing high rates of TB among cattle or buffalo and use of raw milk products, bovine TB still causes much disease among humans, usually as an extra-pulmonary infection of the throat (scrofula), stomach, abdomen or bones. Although control of animal TB may seem to be of obvious benefit to a community, the affected farmers may object to testing and culling of their infected animals, even when paid compensation, if herds cannot easily be replaced with disease-free equivalents. Also, farmers may be emotionally attached to the animals, especially dairy cattle, the main target for control of bovine TB. Another issue arises with compulsory pasteurization of milk. Some people even break the law to exercise their “right to consume natural products”. How important are these liberties—and are they outweighed by public health benefits requiring coercion? Again these are, but only partly, empirical issues.

Justice and the Distribution of Health Resources

As a disease of poverty, TB raises issues of international distributive justice. Though sufficient resources for health improvement are lacking in poor countries, there are numerous powerful moral (egalitarian, utilitarian, and libertarian) and self-interested reasons for wealthy nations to do more to help improve health care in poor countries (Selgelid OnlineEarly 2007). These issues are complex and intertwined with the above questions regarding liberty violating public health measures. If health care provision and thus global health were better to begin with, for example, then the occasions upon which liberty infringing public health measures are called for would arise less often.

In addition to improving access to existing medications, increased R&D for drugs and diagnostics is sorely needed in the fight against TB. At present, “[w]orldwide only \$20 million is spent annually for clinical trials for TB drug[s] compared to around \$300 million for HIV drugs in the US alone” (MSF 2007). Bioethicists should debate recent proposals (Pogge 2005; Kremer and Glennerster 2004) and current activities (Moran et al. 2005) aimed at stimulating R&D on neglected diseases—and the extent to which they are apt for TB in particular. They should also examine the extent to which *targeted* funding for TB control is warranted in comparison with other infectious diseases. Because it has been argued that donor aid should aim to improve developing countries’ general health care infrastructures—and improvement of general health indicators—rather than targeting particular diseases such as AIDS and TB (Garrett 2007), the propriety of targeted TB funding should be evaluated. Because infectious diseases, including drug-resistant

infectious diseases such as XDR-TB, fail to respect international borders, bad health in poor countries threatens global public health in general. The strength of associated self-interested reasons for wealthy nations to help reduce TB in poor countries (through targeted or untargeted funding) should therefore, finally, be a major focus of analysis.

A “Moderate Pluralist” Ethical Approach to TB Control

Our recommended approach to ethics and infectious disease may be characterized as “moderate pluralism”. This approach aims to identify the plurality of (intrinsic) values at stake in the context under study and strike a balance between potentially conflicting values without giving absolute priority to any one value in particular. In the context of XDR-TB, for example, the utilitarian aim to promote public health *might* best be promoted through coercive confinement of infected patients. Such a policy, however, would conflict with apparent rights and liberties of infected individuals; and it is not generally believed that individual rights and liberties should be sacrificed whenever this would promote the greater good of society. Resolving a conflict like this requires assessment of the overall threat to society, assessment of the centrality/importance of the rights under threat, and consideration of features that might make one value (i.e., utility) or the other (i.e., liberty) especially important in the context in question. Most ethicists, policymakers, and ordinary citizens would, upon reflection anyway, deny that either of these two social values should always be given absolute priority over the other. The ideal solution to conflict between values is to bypass the conflict to begin with. We should thus, whenever possible, aim for a policy that promotes both utility and liberty—and also equality, another legitimate social value—at the same time. TB reduction via increased health care provision would reduce the frequency of occasions where we are faced with the conflict between utility and liberty under consideration; and it would likely also promote equality (given that TB reduction would generally involve improving the situation of those who are worst off).

This is not to say that the initially considered conflict would never eventuate if TB reduction occurs. Difficult decisions will need to be made in cases where conflict is unavoidable; and a principled rationale for favoring one value over another is needed in cases of conflict. One idea is that the aim to promote utility should be weighted more heavily as a function of the extent to which utility is threatened. Another idea is that the weight of a right/liberty should be weighted as a function of its centrality. More basic rights/liberties deserve more protection than others. When catastrophe would result from protection of the most basic rights, however, then even these must be compromised. We sometimes think it is appropriate to violate the most basic right of all—i.e., the right to life in time of war.

When rights violations are found to be necessary in the context of TB, amends can be made by compensating individuals whose rights are compromised (Ly et al. 2007). The living conditions of those confined should be made as comfortable as

possible—and those who succumb to liberty restrictions should perhaps receive additional (e.g., financial) rewards. It would be unfair to expect coerced individuals to shoulder the entire cost of societal benefit. If a net social dividend results from liberty infringement, then part of this should be returned to the victims of coercive social policy. This is a matter for reciprocity (University of Toronto Joint Centre for Bioethics 2005).

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