ETHICAL ISSUES ASSOCIATED WITH VECTOR-BORNE DISEASES



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REPORT OF A WHO SCOPING MEETING GENEVA, 23–24 FEBRUARY 2017



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Contents

Annex 2. List of participants

Executive summary			xvi
1.	Intro	oduction	1
2.	Background		3
	2.1	Vectors, burdens and transmission	3
	2.2	Framing the ethical issues	6
3.	Envi	8	
	3.1	8	
	3.2	Pregnancy	9
	3.3	Childhood	12
	3.4 Environment and climate change		12
4.	Field experience		14
	4.1	Burkina Faso	14
	4.2	Cambodia	16
	4.3	Singapore	16
5.	Eng	agement with the community	18
6.	Vector control		20
	6.1	Vector control and elimination	20
	6.2	Vector control measures	20
	6.3	Human landing catches	25
7.	Prevention, treatment and research		26
	7.1	Prevention and treatment of malaria	26
	7.2	Research priorities for Aedes-borne diseases	27
	7.3	WHO research and development observatory	27
	7.4	Human challenge studies	28
	7.5	New technologies for vector control	29
8. Conclusions and next steps			32
References			33
Annexes			35
Annex 1. Agenda			35

37

Executive summary

Vector-borne diseases (VBDs) are associated with heavy burdens, particularly in poor and vulnerable communities. Their transmission by vectors provides opportunities for specific public health interventions and gives rise to unique ethical issues. Despite their growing importance, ethical issues associated with VBDs have not previously been explored comprehensively.

Many VBDs are prototypical examples of "neglected diseases". This is ethically problematic because, when research and control activities are not proportional to disease burden, the consequences include avoidable harm (particularly for the poor) and failure to predict and prepare for epidemics (as was observed during the recent outbreaks of Zika virus infection and yellow fever).

More generally, the burden of VBDs is inequitably distributed among the poor, and pregnant women and children are often at highest risk. Such vulnerability in terms of the social determinants of VBDs is compounded by environmental factors. When the influence of climate change increases VBD burden among the worst-off groups of humankind, existing global injustice is exacerbated.

Appropriate policy-making often requires explicit consideration of not only scientific but also ethical matters. Yet, the ethical issues that arise in VBD control and research have not previously received the analysis necessary to further improve public health programmes, and WHO Member States lack specific guidance in this area.

On 23–24 February 2017, WHO held a scoping meeting to identify the ethical issues associated with VBDs. At the meeting, over 25 international and WHO experts discussed salient ethical issues and the main features of a future guidance document. They mapped the ethical issues associated with VBDs, highlighting in particular: environmental and social determinants of health, the ethics of vector control (including new technologies), relevant aspects of ethics in surveillance and research, and the ethics of mass public health interventions.

These main topics will form the basis of a project to identify and analyse ethical issues associated with VBDs more comprehensively, with the eventual aim of providing relevant WHO guidelines within the next two years.

1. Introduction

Vector-borne diseases (VBDs) are important causes of global morbidity and mortality. More than half the global population is at risk, yet the burden of VBDs falls disproportionately on the poorest and the most vulnerable individuals and populations (1). Thus, poverty is closely linked to the incidence of VBDs, and the cycle of poverty and disease is self-perpetuating (2, 3). As many of the social determinants of poor health are clustered in populations with high burdens of VBDs, improving public health interventions for these neglected diseases can promote global health justice (2). Like other health problems of the poor, many VBDs were neglected for decades, with insufficient funding for surveillance, research and control, as exemplified in the recent outbreaks of Zika virus infection and yellow fever, with significant health consequences. Such emergencies highlight the urgent need to fill these gaps and implement global health policies aimed at more equitable distribution of resources and health benefits.

Vectors are sensitive to environmental factors. Climate change is already increasing the burden of some VBDs, with a greater impact on the most vulnerable, thus exacerbating social injustices (4–7). Recent advances in science have, meanwhile, led to new vector control technologies, including genetically modified mosquitoes. Climate change and novel technologies thus provide additional, new reasons to ethically evaluate current and future VBD policies. Important priorities should include ensuring that inequities in disease burdens are not exacerbated, that risks are mitigated where possible, and that public health decisions (potentially affecting large populations) are based upon good governance and careful risk-benefit assessment.

Of the VBDs, malaria is responsible for the largest global disease burden. At the turn of the twenty-first century, only 2% of infants at risk for malaria in sub-Saharan Africa slept under a long-lasting insecticidal net. (versus 68% in 2015), while the disease caused over 1 million deaths in the WHO African Region annually (8). Increased funding and control of malaria since 2000 have been part of an ethical reframing of global health priorities. Improved, intensified control has averted an estimated 600 million deaths from malaria alone (8). However, many challenges remain for this disease and for other even more neglected VBDs.

The unique defining feature of VBDs is their transmission by vectors. Thus, their epidemiology is influenced by factors that affect the vectors as well as by host factors. This provides opportunities for disease control that

are not available for other infectious diseases, and also raises ethical issues that specifically concern vector control and are therefore unique to VBDs. These unique issues include the ethics of coercive or mandated vector control, the use of insecticides (and growing vector resistance to insecticides), and research on and/ or deployment of new vector control technologies. Other important, under-examined ethical issues that are not unique to VBDs, but loom large in the context, include justice implications of environmental and social determinants of health; screening and vaccination; approaches to asymptomatic infection, mass drug administration and antimicrobial resistance; and research ethics issues such as human challenge studies and the need for research on pregnant women and children. Recent outbreaks have shown that it is time to focus greater ethical attention on all these issues.

Given the wide array of issues and the lack of previous attention to the ethical issues associated with various aspects of VBDs, the VHO Global Health Ethics unit organized a scoping meeting in Geneva on 23–24 February 2017 to map the largely unexplored terrain of relevant ethical issues associated with VBDs, with perspectives from multiple disciplines and contexts. The meeting brought together key WHO stakeholders in VBDs, vector control, maternal and child health, ecology and climate change, research and vaccine development, communication in disease outbreaks, and independent external experts (Annex 2). The external experts were selected for their contributions to technical aspects of vector biology and disease control and/or infectious disease ethics. The final aim of the project is to produce, within two years, a guidance document providing the first comprehensive analysis of the ethical issues raised by VBD prevention and control.

Presentations and discussions on day 1 provided background information on the biology, epidemiology and control of VBDs and the ways in which these aspects give rise to important ethical considerations. Participants focused on the ethical implications of social and environmental determinants of health in the context of VBDs. They discussed the roles of gender, pregnancy and childhood in the epidemiology and control of VBDs, and the impact of climate change. These considerations were supplemented by presentations of field experience in the surveillance and control of VBDs. Initial discussions addressed several cross-cutting issues, including community engagement and risk communication and vulnerability as well as important gaps in research, surveillance and control.

Presentations and discussions on day 2 addressed ethical issues in vector control, surveillance and research priorities, VBD research methods and new vector control technologies. The ethical issues that were raised in standard vector control included equity of access, vector resistance, risks of rebound disease, vector elimination and potential conflicts between the benefits and risks at individual and community levels in certain contexts (e.g. vaccination, mass drug administration and antimicrobial resistance). The issues discussed in surveillance and research ethics included human landing catches, human challenge studies, and responding to important gaps in order to sustain and increase the benefits of disease control. New vector control technologies were reviewed and preliminary discussions held on governance and decision-making for future deployment.



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