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Masques: men and Marburg

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MASQUES: MEN AND MARBURG

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A research report submitted to the Faculty of Health Sciences, University of the Witwatersrand, Johannesburg, in partial fulfilment of the requirements for the degree of Master of Science in Medicine in the field of Bioethics and Health Law

Johannesburg, 2009

DECLARATION:

I hereby declare that:

this research report titled ‘Masques: Men And Marburg’ is my own unaided work except to the extent indicated in the acknowledgements (where my Supervisor’s, Professor Donna van Bogaert, guidance and contribution has been indispensable), and bibliographical references;

no part has been submitted in the past, or is being, or is being submitted for a degree in any other University;

no information used in this research report has been obtained whilst employed by, or working under the aegis, of any person or organisation other than the University of the Witwatersrand.

Signed



Adriano Gianmaria Duse

DEDICATION:

I dedicate this work, with love, to the following:

All the innocent victims (patients and healthcare workers) that lost their lives as a result of the Marburg Hemorrhagic Fever Outbreak, Angola, 2005

Glynis Marion Duse, whose life was a tragic and endless struggle

Dr Maria Orsini-Duse for her never-ending encouragement, influential and critical input, support and inspiration

Advocate Ruth Kuper who, through her wisdom, humility and compassion, showed me the better side of humanity

Frans Hendrik Kalp for always being there

ABSTRACT:

It is essential for outbreak physicians not only to reflect on their clinical work, but to deliberate ethical considerations as well. Moreover, all role-players be they local governments, NGOs, multinationals, HCWs, patients, or communities need a framework in which to arrive at moral decisions. The reflection-less application of ethical principles, superficial application of meta-narratives or reliance on paradigm cases appears too shallow and inadequate when dealing with the multifarious ethical issues faced in outbreak situations-particularly in those countries without viable public health services. It is the larger questions that beg answers: in the Angolan Marburg Haemorrhagic Fever outbreak of 2005, the WHO objectives were achieved, but, in the face of the possibly high cost of lives, is it correct to assume that the process was ethically / morally defensible? In outbreak situations, how might one ethically balance diverse cultural practices and societal value systems? What are the conflicting ethical frameworks that warrant consideration when the imposition of public health measures infringes on widely accepted basic rights and systems? What type of risk should healthcare workers assume in such outbreak situations? To conclude, what are the moral dilemmas that face the whistle-blower in the context of infectious disease outbreak responses? Such hard questions call for reflection in a contingent, complex and changing world (McGee G *ed.* 1999). Through an analysis of the Angolan Marburg Haemorrhagic Fever outbreak in 2005, I will attempt to grapple with some of these issues.

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To my Supervisor, Professor Donna Knapp van Bogaert, who has and continues to provide valuable and deeply insightful mentorship in my studies of Bioethics, I give heartfelt thanks. Professor van Bogaert has revealed to me the fascinatingly complex, myriad, moral issues faced by healthcare workers and has revolutionized my thinking about life and work. I feel honoured to know Professor van Bogaert, whose guidance and considerable input in many aspects of this report has been enormous.

ETHICS WAIVER:

The relevant document is incorporated overleaf.

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NOMENCLATURE / ACRONYMS:

CDC	Centers for Disease Control and Prevention (United States of America)
CFR	Crude Fatality Rate
HCW(s)	Healthcare Worker(s)
IPC	Infection Prevention and Control
IPCP(s)	Infection Prevention and Control Practitioner(s)
MVHF	Marburg Haemorrhagic Fever
MVHF	Marburg Virus Hemorrhagic Fever
MSF	Mèdecins Sans Frontiéres
NGOs	Non-Governmental Organizations
NHLS	National Health Laboratory Service
NML PHA	National Microbiology Laboratory Public Health Agency (Canada)
ORS	Oral Rehydration Solution
SARS	Severe Acute Respiratory Syndrome
UN	United Nations
UPH	Uige Provincial Hospital (Angola)
WHO	World Health Organization

CHAPTER 1

INTRODUCTION

Background narrative:

During 2005, Angola experienced the largest outbreak ever recorded of Marburg viral hemorrhagic fever (MVHF) involving 374 cases of which 158 were laboratory-confirmed, and resulting in 329 deaths that fitted the case definition. Marburg virus is a formidable infectious agent and is easily transmissible following contact with blood and other body fluids from infected patients, both alive and recently deceased. There are no commercially-available vaccines for the prevention of MVHF, nor is there a cure for this disease.

In the Angolan outbreak, the crude fatality rate (CFR), as determined from recorded cases, was 88%. The World Health Organization (WHO), worked together with Angolan authorities, and coordinated an outbreak response team involving several role-players including, among several others, Médecins San Frontières (MSF, or 'Doctors Without Borders'), the Red Cross, Centers for Diseases Control and Prevention (CDC), the National Microbiology Laboratory of the Public Health Agency (NML PHA) in Canada, and the National Heath Laboratory Service (NHLS) in South Africa. All these organizations will be referred to henceforth as the 'International Team'.

In March 2005, I was deployed as an Expert Consultant to the WHO to the epicentre

of the outbreak, the Province of Uige, charged with the responsibilities of:

(i) Establishing whether the Uige Provincial Hospital (UPH) was safe for both patients and Staff,

(ii) Educating healthcare workers in the field of infection control and prevention,

(iii) Persuading healthcare workers who stayed away from the hospital for fear of getting infected to return to work (by March 2005, 16 healthcare workers were infected in the workplace and died of MVHF) after being empowered with knowledge of the precautions that needed to be heeded to avoid contracting the disease, and

(iv) Case-management of all patients with suspected or confirmed infection.

On my arrival to Uige, I was briefed by the WHO representative on the main objectives of the outbreak response. To avoid risk of acquiring this potentially rapidly lethal infection, the following approach and decisions had been taken:

1) To allay fears of healthcare workers, persuading them to return to work, and avoid the risk of occupational needle-stick injuries and exposures to blood and body-fluids of potentially infectious patients, all patients presenting to UPH with fever would be treated with orally-administered antibiotics and anti-malarial agents and be rehydrated, if necessary, with oral rehydration solution (ORS). If the patient responded to oral antimicrobial therapy, then the aetiological agent was not viral, and he was unlikely to have MVHF. If the patient's condition deteriorated (even to the point of death) despite the administration of antimicrobial agents it would

mean that he/she was either treated with inappropriate drugs delivered via an inappropriate route or, in view of the background epidemic, a highly suspect case of MVHF. In the latter situation, the patient would have been tested for this illness and sent to the MSF isolation ward where the majority of patients, in view of the severity of the disease, would die.

2) To avoid accidental infection in laboratory technicians no diagnostic laboratory tests would be performed. Hence, among others, essential microbiological tests such as malaria smears, blood cultures and cerebrospinal fluid investigations would not be performed on any patient. This precluded the infectious disease physician from getting a laboratory-confirmed diagnosis of infection other than MVHF. The only test performed on suspected cases was a molecular-based diagnostic technique (reverse transcriptase PCR) to detect the presence of Marburg virus from blood samples collected exclusively by the infectious disease physician. These samples were then processed in a 'field' laboratory set up by the Canadian NML PHA Team.

3) As the WHO is part of the United Nations (UN), it had a responsibility to try to prevent the outbreak from spilling over into other UN member states. Uige Province, in Angola, borders on the Democratic Republic of Congo and the possibility of transnational spread of the disease was a real possibility (see maps Appendix A, p 55). Hence, the primary mandate of the WHO, was to contain, control and terminate the outbreak in Angola as rapidly as possible.

4) To prevent the outbreak from continuing to smoulder in the community and encourage people who had contact with individuals who were either suspected to have MVHF or had died with fever and bleeding manifestations, it was necessary to create the impression that the Uige Provincial Hospital (UPH) was a ‘safe’ place for people to seek medical advice and voluntarily undergo testing. As UPH healthcare workers and patients had died from MVHF there was a perception among community members, prior to the arrival of the International Teams, that the hospital was extremely unsafe, and indeed the ‘origin’ of this dreaded disease. Community members were extremely uncomfortable with questions asked for contact tracing, subjecting themselves to MVHF testing (that could possibly result in their being sent to isolation facilities), and having international teams interfere with burial processes for the infected dead.

Ethical basis of the research report:

In order to achieve an effective response to an infectious diseases outbreak it is mandatory that, as per the WHO guiding document for international outbreak responses (WHO, 2007) , ethical standards, human rights, cultural sensitivities and traditions are fully respected. Clearly, all multinational response teams must operate within the national and local legal framework. At the peak of an epidemic / pandemic there is little time to reflect on all the associated ethical issues. It is therefore important to engage in this discourse during inter-epidemic periods.

Objectives of the research report:

The overall objective of this report is to dissect, reflect upon and ethically analyze myriad issues – medical, microbiological, social/anthropological, environmental / political - that arise during infectious disease outbreaks.

In order to provide different role-players in an outbreak response team the opportunity to consider a framework for arriving at moral decisions, the following aspects, contextualized in the 2005 Marburg haemorrhagic fever outbreak in Angola, will be discussed :

- Conflicting ethical frameworks that result when the imposition of public health measures infringes on widely accepted basic rights and liberties
- The importance of considering social and cultural values of an affected population in an outbreak response
- The duty-to-care of healthcare professionals in infectious diseases outbreaks
- The role of the whistleblower in infectious disease outbreaks

Bioethics and infectious disease outbreak responses:

A body of philosophical literature framed under the broad heading of “bioethics” has traditionally included discussions on topics such as justice (Sen A, 1999; Farmer P, 1999, Benatar SR, 1998), global health (Buchanan A *et al.,* 2006; Calman KC *et al.*, 2004), political will (Merson M, 2001; Cox NJ *Et al.*, 2000), and human rights (Easley CE *et al.,* 2001). Following the SARS epidemic, the bioethics literature increased

significantly to include ethical concerns of a different nature, namely bioethical issues rising in the face of emerging infectious diseases. What is particular to the majority of articles and books published on this subject is that their perspectives focus mainly on outbreaks of the West (e.g. those managed by the West or in the case of SARS, jointly managed East-West). A commonality is that in all, albeit in greater or lesser degrees, public health infrastructures exist. Publications related to outbreak situation often focused on strategies aimed at improving or further developing their public health system capacities, the toll of outbreak situations on healthcare workers (HCW), professional duties and obligations of healthcare workers in outbreak situations, the importance of risk communication, the role of the media and so forth. Deliberations on all of these topics are long overdue and of crucial importance to the field of bioethics.

As is the case in clinical practice, included within the diagnostic and therapeutic aspects of infectious disease outbreaks are complex moral issues that must be unpacked. Here it is important to note that whilst on one level the Angolan Marburg Virus Haemorrhagic Fever (MVHF) outbreak was contained, and therefore the exercise was deemed “successful”, deeper moral / ethical reflection on the experience is required as similar outbreaks will be encountered again. In other words, the ways in which particular individuals and authorities perform their duties and obligations in future outbreaks should reflect that which was learned before. Lessons learned, from social and political considerations to technological interventions will establish whether future actions are ethically grounded. It is within this framework that the general is entwined with the particular reflecting on some of the ethical aspects of the Angolan MVHF outbreak. More questions are posed than

answers but in the process the intent is to raise some ethical values and concepts that will be further refined and articulated. This narrative differs from those presented from only a Western public health perspective. Events will be described as experienced "on the ground" in the face of a disease outbreak situation in a previously war-torn country with areas with minimal public health infrastructure. For this reason, narrative in the first person, will appear in several chapters. In so doing, the aim is to identify some common ethical issues facing all persons in severe outbreak situations, and reflect on some compromises because of differences. The organisational role of the WHO, with its strong tendency to achieve things from the top-down (whilst those at the roots are actually making things happen) is briefly, but critically, discussed. In the context of whistle-blowing its nature, politics and relations of power as sub-texts in this outbreak is discussed. Finally, in the context of emerging infectious diseases, it is important to question not the ethics, but the needed implementation of World Health Organization's (WHO's) mandate to "…national and regional capacity building as a follow up to international outbreak responses to improve preparedness and reduce future vulnerability to epidemic-prone diseases" (WHO, 2007).

What is health?

Perhaps in an attempt to sidestep a definition of disease, the WHO instead chose to define 'health'. "Health", we are informed, "is a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity" (WHO, 1946). This definition of 'health' Hudson (1993) considers a 'semantic and logical quagmire' and indeed it has been the subject of much philosophical debate. For

example, Boorse's (1997) claim (based on biostatistics) takes health to equal the absence of disease and argues as such it is value-free. On the other hand, others such as Canguilhem (1991) argue health represents a more fluid concept e.g. the human condition of being faced by pathological conditions and, while experiencing them, new yet still value-laden norms of health are lived - through. To unpack the definition further, if health's antonym is applied, then the majority of the world's human population are 'diseased'. Moreover, the qualification of 'complete' makes the definition of health both elusive and subjective. However, for the purposes of this report, all these perspectives will be set aside, except to point out that the expanded WHO definition is significant in that it serves to broaden the concept of health to include social well-being in the context of societal factors.

CHAPTER 2

INFECTIOUS DISEASE OUTBREAKS AND SOCIETAL FACTORS

Admittedly, the inclusion of societal factors is vitally important particularly in the management of infectious disease outbreaks. For one reason, a necessary ethical component to navigate within the concept of a human society is the inclusion of emotions (in recent years the historical stance of Kant – that ethics objective so emotions should be banned from moral deliberation – has shifted to an acceptance that, to have moral knowledge, emotions are a requisite). Similar to all infectious disease outbreak situations, albeit in varying intensity and duration, a myriad of physical and psychological responses such as fatigue (Bernstein M *et al.,*2003), grief Coughlin SS, 1996) , distrust (Greenough P, 1995), frustration (Chua SE *et al.*,2004), fear (Ndayimimirije N, *et al.* 2005; Gray GM, *et al.,* 2002; Shiao JC-C *et al.,* 2007) and depression (McAlonan *et al.,* 2007) permeated Uige hospital healthcare workers, the local residents, as well as the multi-national outbreak control team members. If emotional components are disregarded, and policies are based only on the expert 'science' of outbreak management, then there is a misconception, we suggest, of the real cost that such psychological responses impose on people (Loewenstein GF, *et al.,* 2001), in their ways of life including traditional practices and importantly on the future management of infectious disease outbreaks in the same or similar circumstances.

Emotional responses to infectious disease outbreaks are of course, not new and always have been a major challenge for all public health personnel. Historically, from

plagues to SARS to MVHF regardless of time and place, when infectious disease controls are imposed on populations, be they large or small, they have been met with "muted or hostile responses from the populace" (Watts S, 1997). Understanding then the need for some type of social engagement with the local residents is a priority (Guttman N *et al.,* 2004; Gray GM *et al.,* 2002). In the context of the Angolan MVHF outbreak, we initially approached the problem from our particular Western ideological perspectives of public health. By that we refer mainly to a goal-orientated direction, admittedly one admixed with political trade-offs and the often fine-line of navigating between individual interests and the collective good (Gostin LO *ed.,* 2002)..

Because of the particular circumstances, we knew little about the social values of the affected population. For example, we did not initially know that the very colour of our protective clothing (white) represented 'death' to the local population. When this became known, the team changed to green garb. Nor were we sensitive to the rituals of passing practiced by the local residents. These included a ceremonial washing of the deceased body (performed, in turn, by different mourners) and then - although based on hearsay - drinking of the wash-water by all those close to the deceased as a form of kinship bond. Should the deceased have succumbed due to MVHF, obviously such types of practices would only serve to expand the outbreak.

It is pertinent to note the crucial importance of the role of a medical anthropologist in assisting the outbreak team to prevent burial rite-related amplification of MVHF in the community. The anthropologist was able to dissuade mourners from proceeding with the practice of washing the body of the deceased by persuading them that a similar ritual would be observed if they accepted the offer to instead have their hands and

feet washed with the same kind of ‘water’ (containing a weak solution of bleach) that the burial teams used to decontaminate bodies prior to burial.

The point is that societal factors are paramount in understanding the context of any outbreak. Without knowledge of a target society’s social system and the values it contains, while the outbreak containment may be deemed successful as it met scientific and political objectives, we suggest that without sharing social knowledge that the overall result is exclusion rather than inclusion for all concerned. In other words, the ideological separation between “them” and “us” remains. This raises some important considerations for had we known more about this society e.g. its customs, values and hierarchy, such knowledge might well have shaped our initial response and resulted in earlier containment and the saving of lives. On the other hand, it could be argued that such considerations were not included in our directive. Yet, returning the WHO definition of health, it does include societal factors. Moreover, an explicit WHO guiding principle for international outbreak alert and response states: “All Network responses will proceed with full respect for ethical standards, human rights, national and local laws, cultural sensitivities and traditions” (WHO 2007). In view of these considerations, we suggest that this aspect of infection control management is deserving of more attention than previously afforded. “Well and good”, the reader may say, but in practice, how might one navigate such values with the very uncertainty that is intrinsic in all outbreak situations?

Societal Values and the Problem of Uncertainty:

There are uncertainties that surround outbreak containment actions as well as

complex events that impel decisions to be taken based on a delicate balance between societal values (theirs as the community in crisis, and ours as the scientific experts). This is a hurdle in itself. But to add to the muddle in outbreak situations this balancing is admittedly influenced by practical and expedient considerations. In that regard one problem lies not only dealing with these types of choices but also the uncertainty in technological decisions, for science is not "value-free". And whereas we know a great amount about viruses, there is much we do not know (Bauch DG *et al.,* 2006). Moreover, while the problem directive (e.g. contain, control, eliminate) may represent a none-the-less vital objective, other problems may arise concerning uncertainty. This manifests itself because actions we take are concerned not only with those which are technologically feasible but ones in which the possible objectives represent the "greatest good".

In the Angola Marburg outbreak, one may reflect on certain decisions we made largely based on the utilitarian calculus. We may ponder the decision to suspend routine laboratory tests that would conceivably have separated those with e.g. bacterial meningitis or cerebral malaria who could have been successfully treated from those with MVHF. Another decision that calls for deliberation was the choice to use only oral therapy for all patients when intravenous therapy could have saved the lives of the non-MVHF-infected. Did these two examples, we wonder, actually serve the best outcome for the greatest number?

MVHFV is a formidable infective agent and is easily transmissible following contact with blood and other body fluids from infected patients, both living and recently deceased. There are no vaccines commercially available for the prevention of

MVHF, nor is there a cure for this disease.

CHAPTER 3

ETHICAL FRAMEWORKS FOR, AND DILEMMAS IN, INFECTION PREVENTION AND CONTROL

Ethical problems arise when there is controversy, from a moral viewpoint, about how to deal with certain problems that confront us in our daily decision-making. The relatively young discipline of infection prevention and control, like clinical medicine, is fraught with myriad bioethical dilemmas that not only challenge human rights of the patients we care for, but also the morality of the decisions taken by all involved in infection prevention and control activities. Beauchamp and Childress (2001) identified four commonly-cited principles for decision-making in clinical bioethics *viz.* beneficence, non-maleficence, justice and autonomy. Although Infection Prevention and Control Practitioners (IPCPs) are trained in clinical medicine they are required to, like public health practitioners, take decisions that frequently infringe on people's rights and liberties (e.g., strict isolation of an infectious patient), yet balance this utilitarian goal of promoting public health against the libertarian goal of protecting individual rights (e.g., freedom of movement) (Bryan CS, *et al* 2007). Herwaldt (1996) incisively sums up this distinction: infection prevention and control ethics is strongly underpinned by justice whereas clinical ethics emphasizes patient autonomy.

In the daily practice of infection prevention and control a wide variety of moral platforms can be invoked on the ethical soundness of decisions made on a daily basis by the IPCP. These broadly include: 1) deontology, liberalism and

libertarianism, 2) beneficence, non-maleficence, autonomy, and an emphasis on justice, 3) consequentialism and utilitarianism, 4) the doctrine of double effect and the precautionary principle and, more recently strongly proposed by Bryan *et al.* (2007), 5) virtue ethics and communitarianism. In the ensuing discussion, we will be focusing predominantly on the two most common frameworks encountered in IPC ethics, namely deontological (rights- or duty-based) ethics and results-based (consequentialist) ethics whilst briefly drawing, as appropriate, on the other moral platforms listed previously.

Briefly, deontological ethics (of which Immanuel Kant remains the main exponent) bases the morality of actions on their accordance with duty and respect for persons. Libertarianism and liberalism frequently stem from duty-based ethics and focus on the extent of respect accorded to the rights of an individual, even if such rights may adversely affect the general wellbeing of a society. For example, disease-reporting and isolation (detention) of infected patients infringe on the rights of an individual's privacy and freedom respectively. By contrast, utilitarian ethics (proposed by Jeremy Bentham) judges an action by the extent to which it promotes the overall good ('utility') to society and, in infection prevention and control ethics, is a frequently used example of a results-based (consequentialist) theory. Thus, a utilitarian will argue that by not openly profiling and reporting public health threats, such as the viral haemorrhagic fevers relevant to this case report, and failure to isolate highly infectious patients, compromises the greater good of a society. In attempting to address the fact that both theories of deontology and consequentialism tend to overlook virtue, character, and emotions, the philosopher Elizabeth Anscombe (2003) as early as 1954, argued that virtue ethics (focusing on persons or 'agents'

who act or have the power to act must be virtuous, i.e. excellent in functions that promote good) was complementary to deontological and consequentialist ethical frameworks. Through the development of IPC Committee, a shared vision based on a participatory collective is possible, and individual members can strive to find mutually satisfactory solutions to common ethical challenges. This is the fundamental principle of communitarianism, a relatively new moral philosophy grounded in virtue ethics where stakeholders formulate policies based on their common vision of the 'optimal' society.

In the compilation of this research report, it has been particularly disturbing to see that whereas topics, among others, such as euthanasia, abortion, cloning, and animal experimentation have dominated the writings of medical bioethicists relatively little attention, until recently, has been given to the ethical minefield provided by infectious diseases that raise a multiplicity of ethical dilemmas.

Whereas diverse philosophical approaches to public health ethics exist, in emergency situations such as natural disasters and formidable haemorrhagic fever outbreaks, utilitarianism – at the cost of the merits of all other ethical frameworks - is the commonest approach to which health professionals revert. This was, in fact, the approach taken by the WHO International Team in the management of the MVHF outbreak.

Isolation, quarantine measures, issues around diagnosis disclosure, allocation of resources, contact tracing, etc., result in the infringement of a number of widely accepted human rights and liberties. Furthermore, they impact on principles of

beneficence (doing no harm to patients) as well as justice where insufficient resource allocation to combat infectious diseases is characteristic, particularly in resource-constrained developing countries that characteristically bear the highest burden of these diseases. As stated by Selgelid (2005): “An important ethical question asks how to strike the balance between the utilitarian aim of promoting public health, on the one hand, and libertarian aims of protecting privacy and freedom of movement, on the other, in the context involving infectious diseases that are –to varying degrees—contagious, deadly, or otherwise dangerous”.

I will briefly highlight some thoughts on the arguments that favoured the adoption of the International Team’s approach and then counter-argue these with my personal objections.

Arguments in favour of the approach taken by the International Team include:

- In the setting of an outbreak of a formidable haemorrhagic fever, one might well consider that ethical (moral) dilemmas arising from this situation can be justified by deferring to the principles of utilitarianism. Central to this philosophy is the notion that actions are justified if they produce the best overall outcomes for the greatest number of people. (Clearly this is an entirely consequentialist approach leaving no room for deontological considerations).

- The main objective of the International Team’s intervention was to 1) control the outbreak at all costs by rapidly identifying and isolating MVHF victims, 2) prevent transnational spread to neighbouring countries (particularly the

adjacent Democratic Republic of Congo), and thus 3) fulfil the political (perhaps more so than the public health) agenda of the WHO. In order to rapidly identify and isolate possible cases of MVHF it was necessary to encourage the sick to present to the UPH by creating the impression that it was a safe haven, where adequate medical care was available.

- The protection of healthcare workers' health had to take precedence over all other things during an epidemic, as the death/disability of HCWs would seriously hamper the outbreak response effort.
- The decision to stop all intravenous therapy (to avoid HCWs from getting exposed to infectious blood and body fluids) and limiting laboratory testing to the diagnosis of MVHF, had serious (even deadly) repercussions on patient management and survival. However, these actions were justified by the fact that although some individuals would be negatively affected/prejudiced by the decisions taken by the International Team, the return of healthcare workers to the workplace was crucial. With HCWs now reassured that the potentially lethal effect of accidental exposures to Marburg virus was greatly reduced, their medical skills would benefit those patients without MVHF or a serious disease such as bacterial meningitis who nonetheless required hospitalization and medical care and could be treated with oral antimicrobials.
- Furthermore, the lack of appropriate healthcare worker's specialist training in infection prevention and control was an important consideration when judging the pros and cons of administration of therapy. After all, what distinguishes a reasonable therapeutic approach under epidemic conditions and actions that are beyond the call of duty – is the boundary between these two really so clear-cut? Hence, are there not limits to the duty to care?

However, the single adoption of a utilitarian approach opens itself to harsh criticism. Let us consider the following counterarguments to some of the premises made above.

- If we accept the validity of the adoption of the utilitarian approach, how can you quantify the greatest good when, by not performing laboratory tests to profile potentially treatable diseases, you have no quantification of the bad? The assumption that simple microbiological laboratory tests could not be performed safely and would therefore not be done at all, severely undermined the ability of the infectious disease physician to profile the illness that the patient presented with and to treat his/her infection appropriately. How many non-MVHF patients, that could have been saved by an appropriate diagnosis and treatment, died unnecessarily as a consequence of what was considered, under the circumstances, a ‘pragmatic’ approach to this disease threat? Can it really be concluded that the decisions of the WHO International Team would, overall, result in the greatest benefit for the majority of people? After all, of 374 suspected cases of MVHF, only 158 were laboratory-confirmed. How sure can we be sure that the remaining 216 were truly MVHF cases, and would therefore have not responded to treatment by any other means? Therefore, what surety was there that International Team’s actions benefited the greatest number?
- Whilst I acknowledge the important priority of regional infection containment, the WHO, in all their manifestos, commits itself to the promotion of health. But, the WHO is a UN-mandated body and must inevitably have both (perhaps

primarily?) a political as well as a public health agenda. Although in the Angolan MVHF outbreak of 2005, the WHO objectives (containment and termination of the outbreak) were achieved, this was clearly at the cost of local lives - not a morally defensible strategy. Furthermore, the characteristic top-down approach that characterizes many international organizations, including the WHO, is somewhat paternalistic and most definitely not conducive to a communitarian approach that would possibly been more all-inclusive and palatable to Angolan Authorities.

- Was it ethical to create the impression that the UPH was a safe haven for people who sought medical help? With inadequate staffing (with only 10% of HCWs reporting to work), inadequate microbiology laboratory support, and provision of sub-optimal treatment (oral versus intravenous antimicrobials) did patients have access to adequate treatment? The answer is clearly no.
- If we appeal to a deontological judgment, the second principle in Kant's categorical imperative is that people should always be treated as ends in themselves, and never as means (Thompson M, 2006). I would argue that, as the primary objective (end) was to contain the outbreak, the pragmatic decisions regarding the management of patients resulted in the latter becoming a means to the end.

Conclusions:

At first, from a utilitarian perspective, the decisions taken against the background of a dangerous, indeed deadly epidemic, seem appropriate. To have refused to take this stance could, arguably, have resulted in the death of many more individuals,

including healthcare workers who were a scarce resource in Uige and their diminishing numbers would have had a substantial impact on the health of the broader population. But, given the presented counterarguments, did a utilitarian justification truly lighten the burden of one's moral conscience? In my opinion, it did not. Furthermore, on a more philosophical level, Thompson (2006) argues that utilitarianism focuses on outcomes that are 'external' to the person making a moral choice. Therefore, the motivation for the choice taken – that is surely crucial in determining whether an agent is behaving morally or not – is inadequately accounted for.

Finally, what makes utilitarianism popular is that it appears to offer clear-cut criteria of assessing what is right. There is no doubt that, under certain circumstances, this approach is valuable in assessing the actions (decisions) that a reasonable person might take. However, life is seldom straightforward. Human nature and existence is complex. No single ethical theory can possibly support and justify the myriad dilemmas facing physicians on a daily basis. The convergence of different lines of enquiry into an 'all-encompassing' ethical theory would be most welcome.

The problem that faces the physician in a situation such as the Marburg virus outbreak in Angola in 2005, is that due to its overwhelming complexity (it involves the interplay of personal, social, political, circumstantial and ethical factors) he/she may either feel abandoned by ethical theory and left to grapple with his/her own conscience or, more conveniently, get solace from a single ethical theory where the 'means justifies the end'. In my opinion, utilitarianism results in the latter.

CHAPTER 4

THE DUTY-TO-CARE OF HEALTHCARE PROFESSIONALS IN INFECTIOUS DISEASES OUTBREAKS

Despite the fact that in 2003 the world was confronted with the emergence of a novel SARS Corona virus (SARS CoV) associated with high lethality among infected patients (and the HCWs that cared for them) the global paucity of clear guidelines from the self-regulating medical profession regarding the professional rights, duties and responsibilities of HCWs in formidable infectious disease outbreaks is astounding. Particularly so, because humankind is, and will continuously be, challenged by emerging deadly microbes such as Marburg virus, avian influenza virus, arenaviruses (e.g. Lujo virus in RSA in 2008) and other, hitherto unknown, infectious agents.

It seems therefore urgent and mandatory that we use inter-epidemic periods, when there is greater time to reflect rationally, to critically review and consolidate approaches to moral, diagnostic and therapeutic dilemmas that will be most likely be re-encountered. The ‘duty-to-care’ dilemma is one such example and it is important to provide guidance (perhaps in professional healthcare codes of ethics) and open discourse and encourage debate on this thorny issue. It is, however, a common human frailty that, after a traumatic infectious epidemic experience, people prefer to revert to the comfort of their routine practices dismissing further important considerations of their traumatic experience. A HCW’s ‘duty-to-care’ is often invoked by theorists and the general public who think that by virtue of their profession, HCWs have more ‘stringent obligations of beneficence ... to a specified group of persons

(their patients) that nonmedical personnel have no obligation to help' (Sokol DK, 2006). The concept of beneficence is deeply rooted in several historical ethical principles and it is acknowledged that it constitutes a key principle in the patient-doctor relationship. Indeed, Clark (2005) provides three cogent reasons why HCWs, during infectious disease outbreaks, have special obligations in regard to duty-to-care. These reasons can be briefly summarized as follows: 1) HCWs have a greater obligation to provide care than other members of the public simply because they have the ability (training) to do so - there is no-one else that can be reasonably expected to fulfil this duty with its attendant high level of risk. 2) By virtue of the fact that a HCW has chosen a profession that is dedicated to the care of the sick, they have by default assumed risk. 3), HCWs have engaged in a social contract that requires their professional members to be available in times of emergency. Furthermore, the tension between the personal autonomy rights (i.e. freedom of each person to control his/her own life) of a healthcare worker and the duty to treat patients in medical emergencies has been opined by Clark (2006). Clark argues that in these situations the duty to treat overrides healthcare worker autonomy, even when such emergencies may expose the healthcare worker to significant personal risks (e.g. HIV infection, SARS and, in the context of this essay, the viral haemorrhagic fevers). Some thinkers such as Loewy are much more emphatic about the physician's social contractual obligation that allows society to function, by virtue of his/her profession. Loewy (1986) states, in my opinion rather strongly and categorically, that "risk taking by physicians in the case of a fatal condition forces a confrontation with mortality, but medicine must honour the social contract or be deserving of infamy". Equally dogmatic is the unqualified argument presented by Huber and Wynia (2004) where, after stating that physicians have a professional

obligation to treat contagious patients (and therefore, by implication, should accept – on the basis of virtue ethics- the higher personal risks associated with their voluntarily chosen profession which has inherent 'moral obligations') they state that: "A renewed embrace of the physician's duty to treat patients during epidemics, despite conditions of personal risk, might strengthen medicine's relationship with society, improve society's capacity to prepare for threats such as bioterrorism and new epidemics, and contribute to the development of a more robust and meaningful medical professionalism".

The views on the HCWs duty-to-care are however predictably wide-ranging. Sokol (2006) states that 'the phrase "duty-of (to)-care is at best, too vague and, at worst, ethically dangerous'. He argues that the duty-of-care is neither fixed nor absolute and cannot be defined without contextualization. Sokol's view is that factors such as 1) 'normal' acceptable risk level in the work environment, 2) the HCW's level of expertise, all possible harms and benefits of treatment, and 3) the HCW's competing obligations arising from his/her multiple roles (not only healthcare provider, but also spouse, parent, friend, member of the broader society with the same rights and privileges) must be considered when defining the limits of the duty-of-care. Another philosophical standpoint that can be presented is as follows. If people are moral equals then surely no one's welfare is more important than anyone else's. If this is an important additional consideration that can be used in the bioethicist's toolkit, then why should a patient's life be more important than that of a healthcare worker, or *vice versa*?

However, the reality on the ground of the Uige MVHF was as follows. By March

2005, sixteen HCWs had contracted MVHF while working in Uige hospital and all had died. Thus, HCWs were prior to the outbreak team's arrival and at least broadly speaking, faced with two stark options: 1) contract the virus in the workplace while performing their professional duties or 2) avoid the workplace situation where disease acquisition was at least less likely. Similar to other reported cases of clashes between one's personal and one's professional duties in the face of high work-related risk, it is understandable that HCW are more prone to greater fear about the likelihood of fatal disease acquisition than are ordinary citizens (Verma S, *et al.,* 2004). It may be of interest to note that failure to report for duty in catastrophic events which are not infectious disease-related have also been reported (Chafee MW, 2006). Moreover, in the social context of the outbreak, a factor that added to community terror were rumours that the hospital itself was the source of the disease (Arguin *et al.,* 2004). As reported by Ndayimirije and Kindhauser (2005), "Since no one has survived this disease, communities associate the admission of patients to the isolation ward with certain death and have preferred to provide care at home, often hiding affected persons and then their dead bodies".

In a country with little health care infrastructure and personnel, it was vital to set into place certain procedures which would first convince HCWs that the hospital was a safe place in which to return to work. This then would in principle, provide assurance to the community that the hospital was a safe place to bring ill persons. It is an accepted fact that in outbreak situations the protection of healthcare workers is a necessity as without their expertise outbreak response efforts would be seriously impaired. To meet this end, it was crucial to first contact them and then encourage their return.

While all HCWs were trained or re-trained in infection prevention and control procedures including the safe donning, removal and disposal of PPE, fear remained a major hurdle to overcome. This factor initially trumped the normal problems associated with the communication of risk e.g. the truthful relay of scientific certainty, the level, and the effect of the risk on the individual or population (Calman HC, 2001; Alaszekwski A, 2005). It did so because of contextual factors: HCW experienced the certainty of the evidence, encountered the level of the disaster and understood the effect of the outbreak. Thus, negotiating with this type of uncertainty as is present in many outbreak situations was not the problem (Maunder R, 2004; Calman KC, 2002). Rather, in our effort to alleviate the HCW concerns of contagion risk thus creating a "safe" working environment, procedures were set in motion that abandoned certain fundamental diagnostic procedures, which, under normal infectious disease control situations, would be in place.

For example, to avoid the risk of occupational needle-stick injuries and exposure of blood and body fluids of potentially infectious patients, all patients presenting to UPH with fever received only orally administered antibiotics, anti-malarial agents and, if necessary, oral rehydration solution (ORS). Moreover, to avoid any accidental infection amongst laboratory technicians, they were excluded from performing any routine diagnostic laboratory tests (e.g. malaria smears, blood cultures, and cerebrospinal fluid investigations) on any patients. This precluded the infectious disease physician from receiving a laboratory-confirmed diagnosis of any infectious disease other than MVHF. Here it is important to note that diseases such as bacterial meningitis, septicaemia, and cerebral malaria are endemic in this region and confounders in the differential diagnosis of MVHF. In suspected MVHF cases, blood

was drawn by the infectious disease physician for the molecular-based diagnostic technique to confirm (or not) presence of the Marburg virus.

I believe that the responsibility undertaken by a healthcare worker to deliver the best possible (in the case of MVHF cases, supportive) care to his/her patients cannot be overlooked. Healthcare workers are continuously exposed to dangerous pathogens and should be competent to deal with any infectious disease by rigorously applying relatively simple infection prevention and control precautions and performing phlebotomy techniques in a safe and controlled manner. To allay the fears and concerns of occupational exposures to Marburg virus, several members of the WHO International Team were specifically deployed to assist and empower healthcare workers to react to crises that they would no doubt encounter again, in one form of another, in their professional careers. An infectious diseases physician is only too aware that the oral, rather than intravenous administration route, of antimicrobials would be a death sentence for any fever patient presenting with bacterial meningitis, septicaemia or cerebral malaria (all of which occurred very commonly during the MVHF outbreak and were significant confounders in the differential diagnosis of this disease). Furthermore, even a delay in instituting intravenous therapy (e.g. commencing treatment as soon as the MVHF result came back as negative) for these life-threatening infections would have resulted in a deleterious outcome for the patient. If people are moral equals, it surely cannot be justified that the safety and well-being of the healthcare worker should supersede that of the patient. In my opinion, an acceptable qualification of the sentiments expressed by Huber and Wynia and Loewy's statements would be as follows. If appropriately trained and equipped, all healthcare workers should be in the position to deal with formidable, re-emerging

and novel pathogens. This position is reinforced by Godkin and Marxwell (2003) in a document submitted to the SARS Expert Panel Secretariat: they suggest that healthcare employers have a set of reciprocal responsibilities to their Staff, which include duties to inform, protect, and support healthcare personnel. Within the context of the MVHF outbreak, Infection Prevention and Control Specialists were specifically deployed to assist healthcare workers to reach a level of proficiency whereby they could have delivered a reasonably good quality of healthcare, whilst remaining protected. Whereas I do not agree that healthcare workers must unconditionally expose themselves to unacceptable risks of contagion on the grounds of professional virtues, I find it difficult to justify that once these risks have been substantially mitigated by training in, and application of, infection prevention and control measures patient care should be compromised in the interest of what is perceived to be (selectively) for the greater good of all.

CHAPTER 5

THE MORAL DUTIES, AND ACKNOWLEDGMENT, OF CONSEQUENCES BY THE WHISTLE-BLOWER

Background narrative:

In the third week of my deployment to Uige several events occurred that seriously threatened the efforts of the international outbreak response team. Firstly, a (regrettably inexperienced) delegation from the National Department of Health in Lusaka arrived in Uige (for the first time since the start of the outbreak several months earlier) who, together with the assistance of the military, decided to take the entire outbreak response into their own hands. The hospital triage system that had been put in place by the international team was deemed, by the 'authorities' to be unnecessary and was subsequently dismantled resulting in patients with MVHF being hospitalized in wards with, as yet, other uninfected patients. The exposures to MVHF, following this action, increased dramatically putting patients and HCWs at risk of acquiring this deadly disease. Furthermore, personal protective equipment (PPE), donated by UNICEF and reserved for outbreak-response personnel and other HCWs was sequestered and stockpiled by the military. Members of the general public of the Uige community that walked around the town with unnecessary and incorrectly donned PPE, disclosed to us that it was sold to them, at high prices, by certain members of the military with the assurance that if they bought and wore this PPE they would be 'safe' from contagion. Thus a new PPE industry – using donated material for personal profit - was thriving at a time when people who needed it most (HCWs at high risk of acquiring MVHF) had limited access to ever-diminishing

supplies. Furthermore, to entice HCWs (mainly nurses) at UPH to work for MSF personnel during the outbreak, MSF offered (without any thought about the possible consequences) a daily U$D 10 incentive over and above their normal pay. Whereas the MSF facility was fully staffed, only 10% of HCWs employed by UPH reported to work at any given day. The Ministry of Health in Luanda had, on learning this, matched the monetary incentive that MSF was paying. Although government funds had been deployed to Uige Province for this purpose, on interviewing personnel and analyzing their payslips, it was clear that this additional money was not being paid to HCWs. Suspicion was rife that the money was diverted into the pockets of three key people, one of which was a high-ranking military official. As the outbreak response team efforts were being increasingly undermined and the UPH was becoming a morgue for both MVHF-infected and severely ill patients suffering from other diseases that were not being properly cared for, it became a moral imperative to blow the whistle on all these events. The consequences of my actions resulted in the receipt of three anonymous death-threats delivered at the Football Club where I was staying, refusal to allow me to board my return-flight to South Africa, and retention against my will in Uige for a further eight days.

The whistle-blower:

The purpose of the ensuing discussion is to critically analyze, from a moral perspective, the merits and demerits of exposing events perceived by the author to have been deleterious to the health and lives of healthcare workers and community members in Uige during the MVHF outbreak. Within the context of this discussion, whistle-blowing refers to action/s taken by a member of an organization / task force

(e.g. an outbreak response team in the field) intended to disclose, for moral reasons, wrongdoing by certain individuals that are either directly or indirectly involved with the outbreak response effort. Whistle-blowing will frequently result in retaliatory actions taken by aggrieved parties, that resent such disclosures, against the whistle-blower. It is interesting to note that when reviewing the available literature on whistle-blowing, most of it has centred on ethical considerations in predominantly corporate or governmental settings (rather than looking at the collective ethics of multiple organizations working together), and very little on issues pertaining to health and welfare of communities. Accordingly, the constructs of currently available arguments have been deficient, in one way or another, for them to be simply applied to the scenario of an outbreak response.

I will start by briefly presenting a range of different positions on whistle-blowing and end by providing my personal conclusions on this.

Richard De George (1993) has attempted, within the context of the workplace, to describe the criteria that are required for whistle-blowing to be (i) morally permissible, and (ii) morally obligatory. In essence, I have de-contextualized these criteria from their application to commercial firms, and paraphrased them below. By meeting the first three criteria, the actions of the whistle-blower are considered morally permissible:

(i) Current practices in a system will cause serious and considerable harm (as in serious physical harm or death) to persons or the general public.

(ii) Once the threat/s has/have been identified, it/they need/s to be reported to

an immediate superior to make the concern known. (De George is of the opinion that failure to do this renders the act of whistle-blowing morally unjustifiable).

(iii) If no effective action is taken by the immediate superior then notification of the threat should be escalated internally by the whistle-blower, ensuring that all internal procedures and possibilities have been exhausted.

Two additional criteria are required to consider whistle-blowing to be morally obligatory:

(iv) The whistle-blower must have, or have access to, reliable, documented evidence that will convince an impartial and reasonable observer that the information that he/she has is correct and, if no action is taken, substantial harm will be done to other individuals and the general public.

(v) The whistle-blower must have good reason to believe that going public will ultimately result in necessary actions and changes.

De George's criteria, though heavily criticized by some thinkers, particularly James (1993), still offer, in my opinion, an interesting framework for determining the moral justification of whistle-blowing.

Prevailing views on whistle-blowing differ substantially among thinkers that have attempted to engage with this difficult moral dilemma. Some argue that whistle-blowing is not morally justifiable because it is disloyal towards the group or organization to which each member has an absolute obligation of both loyalty and

confidentiality (Dandekar N, 1993). James (1993), on the other hand, defends whistle-blowing as virtuous but criticizes the De George criteria on the basis that they are too restrictive and inadequately defined. James (1993) also disagrees with some of the arguments presented by De George, in particular that 1) anonymous whistle-blowing is not justified (i.e. whistle-blowers, if they are convinced of a moral wrong, must show their sincerity by overtly taking responsibility for their actions), and 2) 'one does not have an obligation to put oneself at serious risk without some compensating advantage to be gained'. Regarding the latter, James states that 'Sometimes doing one's duty requires one to undertake certain risks'. Duska (1993) challenges the concept of loyalty and argues that no-one, including the whistle-blower, has an obligation not to disclose wrongdoings simply because he/she must be loyal for the greater good of an organization. Although all of these diverse views make for excellent philosophical reading, no –one other than de George, has provided a 'checklist' – an unrealistic expectation in philosophy, yet ever so desired by fledgling ethics theorists – against which one's moral obligations can be measured. For this reason, I will attempt to analyze the applicability (if any) of the De George criteria to my actions as whistle-blower in the Uige MVHF outbreak.

De George's first criterion is clearly met when consideration is given to the serious implications ('harm') of 1) politically-driven destabilization, by State officials, of the International Teams' efforts (that had been previously successful) to create a safe hospital to which patients could be triaged, admitted, and managed, 2) unethical and fraudulent repossession of donated PPE that led to personal financial gain of a few individuals, at the cost of persons (HCWs) who were directly exposed to harm and, 3) corrupt deviation of funds dedicated to the outbreak effort into the pockets of the

same few individuals. All of these events created an unsafe environment in which (principally) patients, but also HCWs, were severely compromised. The ultimate price of the harm described thus far was infection with MVHF virus and death.

On closer consideration of De George's first criterion, one cannot help wondering why harm (a concept that in philosophy would be usually broad-ranging and difficult to quantify), particularly if it can result in the death of an individual or seriously compromises the health of a community, is relegated to one of three criteria that make whistle-blowing *permissible*. Surely, when death is the ultimate price of 'considerable' harm, whistle-blowing is morally *obligatory*?

The second criterion proposed by De George is also questionable in the light of the facts presented in this case. The first person who was informed about harm done in this outbreak was a Senior Official from the World Health Organization, the United Nations-mandated body to deal with global health problems. This individual followed politically correct higher reporting lines, disclosing my information (indeed that was naively my intention) to both a Senior Provincial Government Official and a high-ranking officer in the Military. Although speculation is inevitably subjective, questionable and perhaps personal, it is interesting to note that retaliation (a clearly predictable event) towards me, the whistle-blower, began after my disclosures and were made and concerns expressed to Senior Angolan Officials. When one's direct superior is involved in an organization with political agendas that often are in conflict with public health outcomes, how valid is De George's condemnation of whistle-blowers that, perhaps more shrewdly, bypass their immediate supervisor?

Regarding Di George's fourth and fifth criteria, James (1993) - and I concur with James - states that they are formulated in such a way that if they are satisfied, "people will only rarely have the moral obligation to blow the whistle". With particular regard to the fourth criterion, physical evidence is not always easy to obtain as persons providing such evidence will not testify to Officials for fear of subsequent persecution. However, regarding the fifth criterion, it is fully satisfied by the author's whistle-blowing because, to avoid further embarrassment (national and international) of high-ranking Angolan Officials, matters were immediately rectified and, a few months later, the last case of MVHF was recorded.

In conclusion, the role of the whistle-blower remains controversial and existing models, to justify the moral correctness of whistle-blowing, remain dismally flawed. In line with post-modernist thinking, I would argue that most moral considerations are framed in a complex mosaic of differing philosophical perspectives and that none, singly, provide an adequate solution to ethical dilemmas. Perhaps, quite simply, one takes the decision of whistle-blowing just because his/her individual conscience dictates it.

CHAPTER 6

Conclusions

The limitations of using a case-study approach to analyze the ethical principles and dilemmas that underscore an infectious disease outbreak are obvious. Particularly if one has been personally involved in such a response there will probably be a degree of subjectivity that may bias the selection of moral platforms used to reach certain conclusions.

James Rachels (1998) in the Chapter “Ethical Theory and Bioethics” critically discusses the pros and cons of the ‘case-study’ approach. Rachel cautions that the main danger of the case-study approach is that it may result in nothing more than a description of what a person happens to believe. According to Rachels, the case-study approach involves ‘the detailed investigations of specific cases that make use of whatever analytical ideas and principles that seem promising in the circumstances at hand’.

Within this context, Rachel suggests the following. 1) Bioethicists might initially be tempted to rely on mid-level principles (i.e. those that are either derived from, and / or justified by, ‘higher-level’ principles). 2) Mid-level principles are not necessarily derived from ‘higher considerations’. 3) ‘The same mid-level rules may [occasionally] be endorsed by more than one higher-level principle’ – in other words, starting from different philosophical stances, for example, Kantians and Utilitarians may arrive at the same mid-level rules so that the philosophical path to reach the same conclusion

is less relevant than the conclusion itself. 4) Finally, although bioethics cannot be independent of ethical theorization, it may fail the cause if a theory is simply applied to a particular situation. Ethical theory and a case study must therefore be interrelated in a manner that is mutually meaningful and beneficial. It is hoped that in this case study the reader will conclude that this has been successfully achieved.

It is clear that the restriction of the definition of infectious disease causation is dismally flawed if only microbial aetiological factors are considered. Disease instead results from the complex interactions of hosts (the victims), the microbe and the environment. The environment is complex in that it is not just geographical but consists of interrelated societal considerations as well as political interferences. There is no doubt that, during an outbreak deployment, a lack of understanding of , and perhaps insensitivity to, local cultural and societal values can hamper the success of an outbreak response. To this end, ensuring that a preferably local medical anthropologist is included in an outbreak response team is vital to unpack all the ethical deliberations that need to be considered. Furthermore, the impact of politics on an epidemic curve has regrettably claimed too many casualties. One has only to reflect on the socio-political considerations that were largely responsible for the re-emergence of smallpox in South Asia (Greenough P, 1995) and polio in West Africa (Nigeria and surrounding countries) to understand this. But we do not need to look any further than in South Africa to assess the impact of AIDS denialism and politics on an epidemic curve! In South Africa, the death-toll from HIV / AIDS due to dissident views, political mixed messages, and gross mismanagement of the epidemic has been catastrophic and tragic. As in South-Asia with smallpox and Nigeria with polio, political accountability for all those that suffer or have died as a

consequence of HIV/AIDS in South Africa is sadly lacking. It is in attempting to address accountability that, after carefully considered moral reflection, one feels that there may be no other option than to blow the whistle. But we have seen that although it is sometimes a successful strategy it usually comes at a price.

Epidemics and pandemics of infectious diseases are going to continue to plague mankind and it is crucial that careful philosophical and ethical considerations are given to these issues as a matter of priority. In order to avoid potentially catastrophic approaches applied against the background of epidemic / pandemic turmoil the following is / are required: 1) policies that have been carefully reviewed by not only healthcare workers but also ethicists, 2) empowerment of healthcare workers with education in infection prevention control strategies and 3), appraisal, in detail, of the logistics (feasibility) and consequences of treatment (or no treatment). Surely, in public health, an important goal is to empower HCWs with the appropriate training in infection prevention and control at individual, national, and global level. We have seen that epidemics or pandemics such as SARS, novel H1N1 influenza virus, and the looming avian influenza threat are rarely restricted to geographical localities. This implies that, as HCWs, we are morally bound to share a global responsibility to curb the devastating effects of infectious diseases on mankind. This responsibility cannot be undertaken without careful contemplation of myriad ethical considerations that will continuously remind us of the fallibility of our actions.

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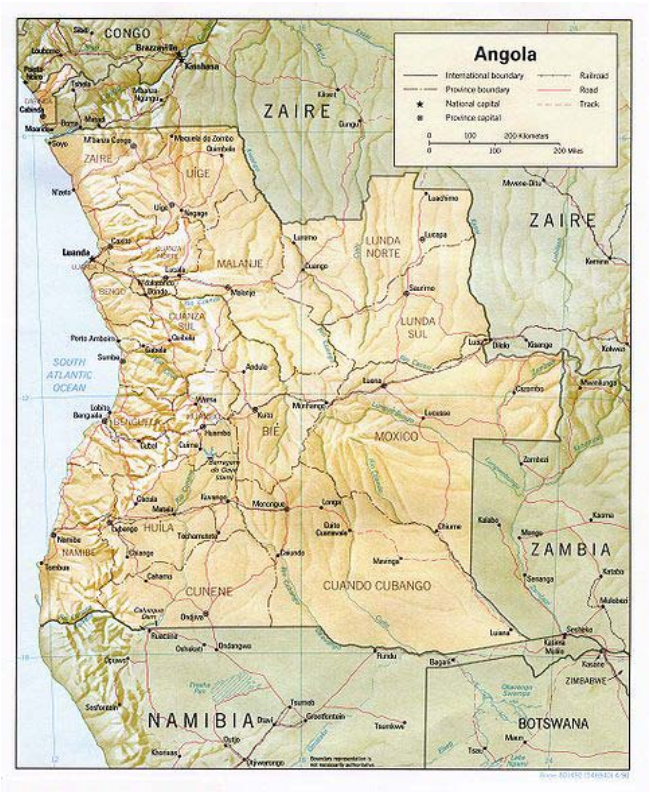
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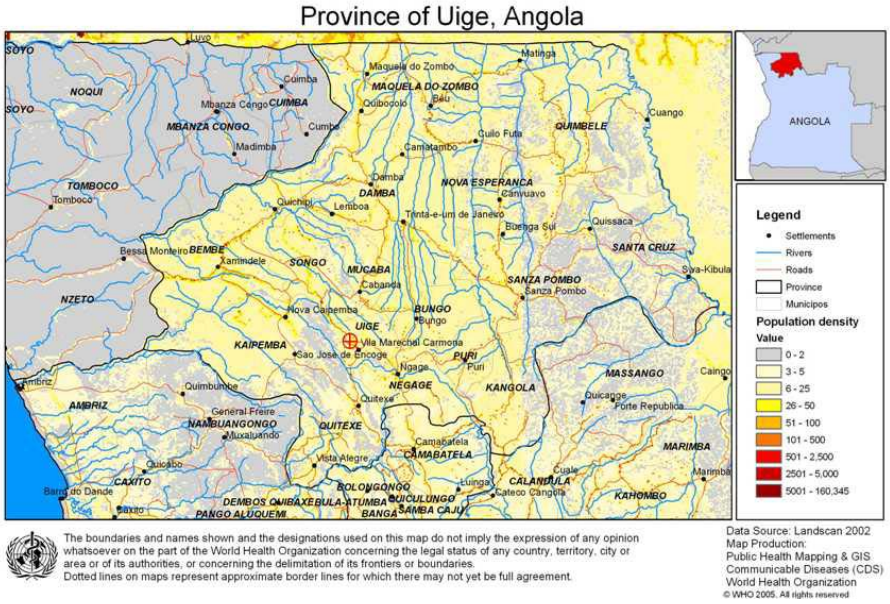
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APPENDIX A



Source: http://en.wikipedia.org/wiki/File:Angola_Map.jpg



Source: http://www.who.int/csr/don/en/Angola2005_03_23large.jpg