Investigating the Impact of Climate Change on HIV Management

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Climate change is a reality and its effects are felt differently in different regions and times. There is evidence of marked increase in mean global temperature in the 21st century and resultant increase in intensity, severity, distributions and occurrence of climate sensitive diseases in areas they never used to be. Consequently there is more change in ecosystems, productivity and lifestyles and as such impact on the human health as well as ecosystem on which human kind relies for sustenance. Infection with Human Immuno-deficiency Virus (HIV), an immune compromising virus, on the other hand has great implications on the health of individual's and that of the community. Globally more than 33 million people are living with HIV with more than two-thirds of the infected living in Sub-Saharan Africa. In Kenya, significant progress has been made in HIV interventions, with 2013 data indicating that the national HIV prevalence stands at 5.6%, 1.6 million people are living with HIV, about 98,000 new infections occur amongst adults, and 11,000 amongst children annually and the AIDS related deaths stand at about 58,465. Information on climate change and variability is inevitable in managing the overall burden of climate sensitive diseases in Kenya and dealing with challenges in opportunistic infections associated with HIV which introduce a new dynamic. This desktop research sought to investigate the implications of climate change on HIV management in Kenya. The research established that the impact of climate change on HIV management in Kenya are real, people are predisposed to infections and vulnerable to disease progression due to climate change impacts posing a risk of increased mortality rate. This research informs policy makers and implementers at all levels and recommends an HIV and AIDS response in the Country, both National and County levels, that is cognizant and responsive to climate change implications.

Keywords: climate variability, climate change, Human Immuno-deficiency Virus

Introduction

Human Immuno-deficiency Virus (HIV) has become an important health challenge in most countries with the pandemic having profound socioeconomic ramifications at the household, community, national, regional and global levels with outstretched needs for management and care.

The epidemic is now a major cause of mortality and morbidity among the populations. It has raised the disease burden in developing countries considering the resurgence of diseases that were previously under control. It has taken advantage of populations with compromised immune systems with notable increase of tuberculosis and other respiratory diseases. The management and care of HIV and AIDS patients has relied on improved nutrition which is being threatened by constant food insecurity. Disasters linked to climatic changes like floods

and droughts have ravaged populations causing great humanitarian suffering without discriminating People Living with HIV (PLHIV). Although great gains have been made scientifically in the management of HIV and AIDS with the advent of antiretroviral therapy, the same is likely to be lost due to complexities arising from climate change.

HIV is the single most important health challenge in most countries with the pandemic having profound socioeconomic ramifications at both the household and national levels which need to be mitigated. It's estimated that in less than 10 years, by 2015, nearly 62 million people worldwide will have become infected¹. These numbers will out space the available resources. The epidemic is now a major cause of morbidity and has raised the disease burden in countries considering the resurgence of diseases that will take advantage of populations with compromised immune systems. Two-thirds of the infected globally live in sub-Saharan Africa and notably East Africa recorded more than half a million new infections in the year 2007. HIV is still taking a significant toll on Kenya (KHDS, 2009). An increased focus on the preventing new infections is critical to fighting the epidemic. The overall prevalence rate for the country is steadily declining, and is estimated at 5.6% for adults aged 15-49 years with approximately 1.6 million PLHIV in Kenya and 89,000 new infections occurring annually (KAIS, 2012). Kenya is experiencing a generalized epidemic, with geographic variability of HIV burden across the country ranging from a low of 2.0% to a high of 27.1% (KSF, 2014).

Climate change may have no direct link with HIV modes of transmission, but could have a direct link in the management and care of PLHIV. Good nutrition is a major component of HIV and AIDS management and care, a factor of food security which has a direct relationship with climate. Adherence needs of people living with HIV and AIDS to treatment is usually affected during droughts and floods which are manifestations of climatic changes. Climate change impacts in any sector may therefore ultimately have a direct or indirect bearing to the health of affected communities. This makes it even more important for the stakeholders in HIV interventions to be at the forefront in understanding the climate change and variability impacts in order to better deal with real and potential challenges in HIV management and care.

Climate and Climate Change

Climate is usually defined as the “average weather” in a place. It includes patterns of temperature, precipitation (rain or snow), humidity, wind, and seasons. Climate patterns play a fundamental role in shaping natural ecosystems, and the human economies and cultures that depend on them. But the climate has been going through a continuous transformation leading to disruptive impacts, and that change is progressing faster than any seen in the last 2,000 years (IPCC, 2007).

In the last 100 years, the world has warmed by approximately 0.75°C. Over the last 50 years, human activities—particularly the burning of fossil fuels—have released sufficient quantities of carbon dioxide and other greenhouse gases to trap additional heat in the lower atmosphere and affect the global climate. Over the last 25 years, the rate of global warming has accelerated, at over 0.18°C per decade. Sea levels are rising, glaciers are melting and precipitation patterns are changing. Extreme weather events are becoming more intense and frequent.

The rising levels of carbon dioxide and other heat-trapping gases in the atmosphere have warmed the Earth and are causing wide-ranging impacts, including rising sea levels, melting snow and ice, more extreme heat events, fires and drought and more extreme storms, rainfall and floods. Scientists project that these trends will

¹ UNICEF annual world report, 2007.

continue and in some cases accelerate, posing significant risks to human health, forests, agriculture, freshwater supplies, coastlines, and other natural resources that are vital to the economy, environment, and quality of life for humans. This is also causing other spill over in health such as affecting the management of HIV and AIDS in an intricate web of relationships.

Effects of Climate Change

As IPCC highlight the warming of the climate systems since the 1950s is unequivocal with many “observed changes unprecedented over decades to millennia” (2013). There is evidence that the atmosphere and oceans have warmed, diminishing amounts in snow and ice, rise in sea level and increased concentrations of greenhouse gases. This change is attributed to human activities that has continually changed the Earth’s surface and atmospheric composition.

There are wide impacts of climate change in the society. Climate change affects many related aspects of where and how people, plants, and animals live. These include food production, availability and use of water, and health risks. For example, a change in the usual timing of rains or temperatures affects when plants bloom and set fruit, when insects hatch or when streams are their fullest. This affects historically synchronized pollination of crops, food for migrating birds, spawning of fish, water supplies for drinking and irrigation, forest health, and more (IPCC, 2007).

Some of the direct impacts of climate change include consequences to human health and likely increase in the number of people exposed to illness and injuries due to declining air quality and more frequent and severe heat, drought, wildfires, and flooding. Communities and transportation, energy, and other infrastructure face increased damage costs and disruptions from more frequent and severe flooding, wildfires, changes in energy supply and demand, and other climate impacts.

Reports of IPCC over the years have documented evidences that cannot be gainsayed. Coastal communities and ecosystems have experienced increased risks from sea level rise and storm surges. Increasing ocean acidity has posed risks to fishing industry altering the marine food web. The quantity and quality of water available for communities, irrigation, fish, hydropower generation, recreation, and other uses is affected by declining rains, changes in seasonal stream flow, and increases in demand for water. Fish, wildlife, and natural systems face increased stress. Climate change has damage and destroy certain types of habitats, increase threats to certain species such as cold water fish, altered natural patterns such as animal migrations or flower blooms, and altered the presence of pests and invasive species.

The reports show that farms and forests are threatened by increased disease, pests, weeds, and fire, along with reduced water supplies. Climate change impacts have affected crop yields and benefited or damaged different crops leading to massive loses of livelihood in agri-based economy. Due to climate change, pasture has declined resulting to death of livestock upon which families depend. This leads often times to massive livestock loss and migration of communities in search of pasture, resultant conflicts hence humanitarian populations that are predisposed further to advance weather elements.

Link Between HIV and AIDS and Climate Change

HIV and AIDS and climate change are two of the most important “long wave” global issues of the recent past, the present and the future. They share similarities, interactions, and present possibilities for a more united response. Yet, these links have received little analysis. The maximum impact of climate change is in the future,

likely to occur decades after the peak incidence of HIV. The severity of HACC (the HIV and climate change complex) will largely be determined by the temporal overlap of these ranges. The HACC will also have an uneven spatial distribution, modified by the regional impact of climate change and the regional epidemiology of HIV, each of which varies by physical and social elements. Populations with currently high rates of HIV are the most vulnerable to a worsening or prolongation of the epidemic due to climate change. Food insecurity, loss of livelihoods for communities that depend on agri-based enterprises (especially in Kenya) as well as resulting conflicts render management complicate. This places the people of Sub-Saharan Africa (SSA) at the greatest risk of the HACC, though outside Africa populations, in north east India and New Guinea may also be significantly impacted (UNAIDS, 2013).

For example, there is agreement that the most important pathway in HACC will be further deterioration of regional and global food security. At the individual level, nutrition is vital for good immune function, to reduce the risk of acquiring HIV if viral exposure does occur, and to slow the progression of HIV to AIDS, and of AIDS to death. At larger scales, population nutrition is important for good governance, by helping to nurture and stimulate the “effective” demand populations need to reduce corruption and to more evenly distribute available resources. Any substantial decline in the availability and intake of calories or micronutrients brought about by climate change increases poverty, impair learning and expand the number of migrants. The current decline in global food security, partly attributable to climate change, is already causing disproportionate nutritional harm to migrants and otherwise impoverished populations, some of whom are dealing with the challenge of HIV and AIDS daily individually or as families (UNAIDS, 2013).

There is agreement that the second major pathway of the HACC is the climate change related alteration in the distribution of infectious diseases, which interact with HIV. Of these, malaria is the most important, due to its high burden of disease. Climate change is projected to reduce malaria transmission in some regions, which experience a comparatively low rate of HIV, both now and in the future. This will reduce the beneficial impact to the burden of disease of HIV for these populations. On the other hand, a large population with a high rate of HIV lives on the plateaus, an area as yet little affected by malaria. If the climatic, eco-systemic and other factors for malaria transmission alter sufficiently in these plateau cities, then the HIV burden of this population is likely to be substantially higher, and will also be worsened by increased poverty and greater food insecurity and therefore exacerbate the impacts of HIV (UNAIDS, 2013).

Climate change will harm infrastructure and governance on a scale sufficient to aggravate and prolong the burden of disease of HIV as access to needed facilities decline. This mechanism is plausible by interlinked pathways including more extreme weather events and “natural” disasters, increased mobility and additional migrants and refugees. Increase in displacement and migrations occasioned by effects of climate change is evident. These factors are also likely to aggravate gender inequalities, increasing the frequency of transactional and coercive sex- pathways likely to increase the burden of disease of HIV among women and girls, via increased viral transmission and reduced access to treatment and prevention. At the global level, climate change may exert an immense opportunity cost, diverting resources of the international community away from public health, including from HIV, poverty alleviation, and the other MDGs (Millennium Development Goals) (UNAIDS, 2013).

Methodology

Reviewing background documents, report, literature and documents and analysis of the pattern of

opportunistic disease burden at the national, regional, and international levels informed this study. It formed the basis for highlighting the implications of climate change on HIV management and shortcomings/gaps of the current practice.

Conclusion and Recommendations

Early warning systems need to be developed to reduce the impacts of such disasters to PLHIV that will guide interventions for posterity in the light of the sustainable development. This research recommends that policy initiatives that are geared towards addressing social, developmental, governance and humanitarian spheres nationally and regionally on climate change need to intergrate HIV and AIDS management and care. Further, it recommends research on the effect of climate change on human behaviour, including behaviour related directly to HIV risks.

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