ZIKA Virus: Ethical Challenges
Welcome to the second issue of the BSK-News. The aim of this newsletter is to provide readers with the latest information regarding current bioethical issues.

Since our last newsletter, much has transpired. We are particularly happy to report that the BSK was able to hold a very successful inaugural conference from 16 -17 December 2015, at Kenyatta University. The theme of the conference was “Fostering the Development of Bioethics in Kenya”. This was quite a historical conference as it was, to our knowledge, the first time that members of various ethics committees, scholars and researchers from different parts of the country had the opportunity to get together to deliberate on bioethical issues. We have received very positive feedback from the participants and we would like to thank all those who made the conference such a resounding success. The official report of the proceedings is available on the BSK website (http://www.bioethicskenya.org/).

In this issue, we focus on the Zika virus disease and the ethical challenges that it raises. The World Health Organization (WHO) has already declared Zika a public health emergency of international concern. According to WHO, the virus will have infected four million people by the end of 2016. Although Zika is a mild disease, in pregnant women it can cause microcephaly and other severe brain defects in an unborn baby.

The current Zika outbreak raises a host of issues such as the ethics of testing vaccines on pregnant women; abortion of seriously deformed microcephalic fetuses, quarantine of travelers exposed to Zika virus, and the ethical and social implications of preventing pregnancies in an entire geographic population. These and other ethical challenges will need to be addressed if the Zika outbreak is to be successfully combated.
Zika Virus: How to avoid Infection

Zika virus was first identified in monkeys in Uganda in 1947. The first human case was detected in Nigeria in 1954 and there have been further outbreaks in Africa, South East Asia and the Pacific Islands. The virus is spread to people primarily through the bite of an infected Aedes mosquito. It causes an infection known as Zika Fever or Zika Virus disease. Aedes mosquitoes usually bite during the day, peaking during early morning and late afternoon. This disease causes mild symptoms and for this reason people are not likely to realize when they are infected. The symptoms include fever, rash, red and sore eyes and mild headaches.

In order to take up measures to avoid infection, knowledge on the facts about the Zika virus, including how its mode of transmission is required. The virus may be spread through the following ways: through mosquito bite, sexual contact, from an infected man to his sex partners, from an infected mother to her fetus during pregnancy or at delivery and through blood transfusion, if the donor is infected. Infection with the Zika virus may be suspected based on symptoms and recent history of travel, which is, residence in or travel to an area with active Zika virus transmission. A diagnosis of Zika virus can only be confirmed through laboratory tests on blood and semen, or other body fluids such as urine and saliva although it is unknown whether the virus can spread through these routes.

Currently, there is no prevention for this disease-causing virus. There are no anti-viral medications available although the body’s immune system could be a good fighter for this virus. An easy way of strengthening the immune system is to increase the vitamin D levels in the body, which can be done by taking vitamin D supplements. The strength of the immune system depends on the amount of supplements taken, but this should still be done with caution.

Knowing the primary cause, reducing the risk of being bitten by mosquitoes is important. Health officials advise adoption of various practices that would lower the risk of Zika virus infection. One of them is to sleep under a mosquito net. This offers protection against mosquitoes, and thus against the diseases that they may carry, Zika virus included. Owing to the fact that the mosquitoes which spread the virus are active mostly during daytime, it is advisable that people stay in places with air conditioning and window and door screens to keep mosquitoes outside.

Taking steps to control mosquitoes outside residential areas is also advised. The best way to reduce mosquitoes is to eliminate the places where the mosquitos lay their eggs. Stagnant water can become a breeding ground for mosquitoes, resulting in presence of more mosquitoes and in turn a higher risk of infection of the Zika virus. In urban areas, Aedes mosquitos breed on water collections in artificial containers such as used tires, broken bottles and flower pots. Periodic draining or removal of artificial containers is the most effective way to control the vector larvae. In addition, larvicide may be used and it should preferably be long lasting to increase its effectiveness. For this reason, standing water should be cleared by facilitating proper drainage to ensure water flow. Mosquitoes can also be controlled by use of appropriate insecticides within a household.

Use of insect repellents is also recommended but not for infants under two months. Proper caution should be taken in order to ensure its effectiveness. When used as directed, insect repellents are proven safe and effective, even for pregnant and breast-feeding women but they should not be used on a long-term basis because they often cause health problems. Preventing mosquito bites can also be done by wearing clothes that cover as much of the body as possible that is, long sleeved clothing for both adults and young ones.

Zika virus infection can also be avoided by use of condoms, in cases where a man has confirmed Zika fever or symptoms. Another option is abstinence for at least six months after the symptoms begin. This would ensure that the man’s partner is invulnerable to being infected.

Mother-to-child transmission during pregnancy can be avoided. Expectant women should avoid travelling to areas of ongoing Zika virus outbreaks. In addition, expectant women whose sexual partners live in or travel to areas with Zika virus outbreaks should ensure safe sexual practices or abstain from sex for the duration of their pregnancy. To add to that, women who reside in areas where there are Zika outbreaks are advised to postpone getting pregnant. This in turn protects both mother and child form the risk of infection. This is an
important measure that should be taken because Zika virus infection during pregnancy can cause a serious birth defect called microcephaly. This is a condition whereby a baby’s head is much smaller than expected. It can result because a baby’s brain has not developed properly during pregnancy or if the brain started to develop and then was damaged at some point during pregnancy. It may result in problems such as seizures, developmental delay, and intellectual disability as well as vision problems.

Transmission of the virus through blood transfusion is avoided by carrying out tests on the donor’s blood to determine whether Zika antibodies are present before transfusion is initiated. In this way, the potential recipient is protected against the risk of infection. Blood screening is important, because it is possible to test positive during the asymptomatic stage of the virus.

Moreover, travelling to areas with Zika virus outbreak should be avoided. This is because people are more vulnerable to becoming infected in these areas. Travelers should visit a trusted health website to see if the country they plan to visit has any travel health notices. Even if they do not feel sick, travelers returning home from an area with Zika should take steps to prevent mosquito bites so they do not spread Zika to mosquitoes that could spread the virus to other people.

Taking the above health precautions can greatly reduce the chances of becoming infected with the Zika virus.

Participants pose for a group photo during the inaugural conference of the BSK which was held at Kenyatta University from 16-17 December 2015. Over 90 local and international delegates attended the conference.
Why you should worry about Zika?

By Elizabeth Bukusi

Zika virus is a member of the Flaviviridae family and is transmitted to humans by mosquitoes. It is related to other pathogenic vector borne flaviviruses including dengue, West-Nile and Japanese encephalitis viruses but produces a comparatively mild disease in humans. Since 2007, Zika virus has caused several outbreaks in the Pacific, and since 2015, it further spread into America. These were the first documented transmissions outside of its traditional endemic areas in Africa and Asia. Zika virus is considered an emerging infectious disease with the potential to spread to new areas where the Aedes mosquito vector is present.

Zika virus was first discovered in 1947 and is named after the Zika Forest in Uganda. In 1952, the first human cases of Zika were detected and since then, outbreaks of Zika have been reported in tropical Africa, Southeast Asia, and the Pacific Islands. In May 2015, the Pan American Health Organization (PAHO) issued an alert regarding the first confirmed Zika virus infection in Brazil. On February 1, 2016, the World Health Organization (WHO) declared Zika virus a Public Health Emergency of International Concern (PHEIC).

Local transmission has been reported in many other countries and territories. Governments continue to be on high alert due to suspicions that the virus was actually engineered by scientists in a viral research laboratory as an experimental bio-weapon and as a means of population control. Before 2007, at least 14 cases of Zika had been documented, although other cases were likely to have occurred and were not reported. The symptoms of Zika are similar to those of many other diseases, and hence many cases may not have been correctly diagnosed.

The most common symptoms of Zika are fever, rash, joint pain, and conjunctivitis (red eyes). The illness is usually mild with symptoms lasting for several days to a week after being bitten by an infected mosquito. People usually don’t get sick enough to go to the hospital, and they very rarely die of Zika. For this reason, many people might not realize they have been infected.

Pregnant women are deemed to be the most vulnerable when it comes to the ZIKA virus. The officials in the Centre for Disease Control and Prevention have warned pregnant women against travelling especially to certain areas of the world where the infection is at its peak. Such areas where the spread of the ZIKA virus is growing include the Caribbean and Latin America.

The primary way that pregnant women get Zika virus is through the bite of an infected mosquito. Zika virus can also be spread by a man to his sex partner. Zika virus can be passed from a pregnant woman to her fetus during pregnancy or at delivery. Through the years scientists have gathered quite a lot of information on this virus but there are a few questions left unanswered. Scientists are now putting more focus on studying the full range of other potential health problems that Zika virus infection may cause during pregnancy.

Scientists in Brazil have discovered an increase in the level of newborn babies having Microcephaly which is a condition whereby a baby’s head is much smaller than expected. In extreme cases, microcephaly causes severe seizure, blindness and deafness and at times depression due to under developed brain. Since these initial reports of a link between Zika and microcephaly, researchers across the world have began working to study the link between Zika during pregnancy and microcephaly.

With the increase in quantity of the cases of women with ZIKA, there have been reports that women who catch the virus while they are pregnant, have complained of appearance of spots around their tummy area, experiencing severe headaches and fever which at times resulted in problems with walking. In a recent article, CDC scientists have announced that there is now enough evidence to conclude that Zika virus infection during pregnancy is one of the causes of microcephaly and other severe fetal brain defects and has been linked to problems in infants, including eye defects, hearing loss, and impaired growth. Scientists believe that infected pregnant women pass the virus to their unborn babies through the placenta, and that the virus then damages their brain development. However, they maintain that more studies are needed in order to understand the precise link. In addition, from what scientists know now is that Zika virus infection in a woman who is not pregnant would not pose a risk for birth defects in future pregnancies after the virus has cleared from her blood. From similar cases that have been dealt with in the past, once a person has been infected with Zika virus, he or she is likely to be protected from a future Zika virus infection.
Another reason why people need to pay more attention to the ZIKA virus is because, there have been reports from several countries affected by Zika of increased incidences of Guillain- Barré syndrome (GBS), an autoimmune disorder that attacks the nervous system, causing muscle weakness and eventually paralysis.

The Zika virus is spreading rapidly in several parts of the world. People who know little about the virus may be fueling the outbreak without their knowledge. Evidence shows that the virus is reaching places that were never exposed to it before and haven’t developed immunity to it. The virus is expected to spread across the United States of America, but mostly around the Southern states. Based on previous outbreaks, experts have estimated that the virus will spread across Puerto-Rico, North-East Brazil and other places.

In conclusion, there is no evidence to suggest that the ZIKA virus can kill a person despite the worrying symptoms. However, viruses can mutate and the virus might look different in the near future. The only fatalities of the ZIKA virus reported are cases of people with previous diseases or infections, which the ZIKA virus made worse. In the midst of all this negativity, there appears to be a glimmer of hope for people who live in the affected areas. As of now, there is no treatment for Zika, but scientists in India claim to have come up with two potential vaccines, which they believe, may be able to protect those in affected areas. Though an official announcement about this finding has not been made none of the vaccines has reached the pre-clinical testing stage in animals.
The prevention and control of the Zika outbreak presents many ethical dilemmas and challenges. The virus has sent shock waves globally at the backdrop of the recent deadly Ebola outbreak in West Africa due to its rapid spread and perilousness. The affected countries (majority in South America) are gripped with uncertainty due to the causal link between the Zika infection and the many reported cases of congenital abnormalities like microcephaly. This article highlights some of the ethical challenges brought about by Zika outbreak.

Zika the disease is a viral infection caused by Zika virus. The virus was first discovered in 1947 and named after the Zika forest in Uganda. Since its discovery, there have been incidences of the disease in tropical Africa, south East Asia and the Pacific islands with the first human case registered in 1952. Zika is mainly transmitted through the bite of an infected mosquito of Aedes species(1). The virus is also transmitted through sexual intercourse with an infected person and from a pregnant woman to her fetus. Zika virus infection is rarely a threat to human life and is mostly accompanied by mild symptoms of fever, rash, joint pain, and conjunctivitis. Currently, Zika virus has no treatment or vaccine, the best way of prevention is control of the vectors and avoidance of exposure to mosquito bites by sleeping under mosquito nets and or wearing protective clothing in mosquito prone areas. Partners of infected persons are also advised to practice safe sex (1).

Zika virus has been a largely anonymous virus until July 2015 when the epicenter of the outbreak in Brazil pointed to an association between Zika infections with Guillain Barre Syndrome –a condition that leads to birth defects of the nervous system. In October 2015, Brazilian doctors uncovered a possible connection between Zika infection and microcephaly among newborn babies. Approximately 1656 cases of congenital syndrome associated with Zika have been confirmed in Brazil to date(2). Other nations with confirmed cases of microcephaly include Columbia, Panama, Puerto Rico and USA with infection expected to spread globally. This prompted the World Health Organization (WHO) to declare Zika virus as a Public Health Emergency of International Concern (PHEIC). WHO is currently supporting affected countries in surveillance, diagnosis and prevention of the virus. The WHO has also convened a team of partners and experts to conduct research on the virus.

Ethical Issues in the Management of Zika Disease

It is the duty of every sovereign nation to ensure her citizens enjoy access to appropriate medical services by taking action to prevent disease, promote health and reduce health inequalities. The recent outbreak of Zika virus prompted nations in South America to propose a raft of measures aimed at curtailing the effects of Zika virus. In addition to the interventions to control mosquito vectors and offering disability support to families with children born with Zika related disabilities, some countries in South America have advised women to avoid getting pregnant. El Salvador has recommended that women should avoid getting pregnant until 2018, while Brazil, Columbia and Ecuador have advised women in their countries to avoid pregnancy for now until a further determination. Such a blanket proposal to defer pregnancy is arguably an affront to the autonomous right to personal decisions or choices. What happens to couples who have no much time left to conceive? What about couples who are living in conditions of minimal exposure to the Zika vectors? Fundamentally, such a proposal can be countered as a violation of constitutional right. The dilemma is when; in what circumstance; and to what extent should a state get involved in matters of procreation as a public health measures against Zika. What is the role of individual consent especially when the interventions are viewed as unduly invasive or in conflict with important personal values?

Not only is the proposal to defer pregnancy impractical, it is also ethically contentious. Access to contraceptives in some parts of Brazil where is very low in some nations and it has been determined that most women in Brazil and other South American nations do have ready access to contraceptives. In fact it is estimated that only 40% of women in this nation have access to contraceptives(3). It is thus unethical to propose an intervention that is not affordable to all. Such an intervention will only succeed in regions with easy and affordable access contraceptive. Most countries in South America have adopted strict laws in reproductive health and it is unlikely that governments will consider providing contraceptive to women in order to prevent pregnancy. Travel advisories and restrictions present another unique challenge to both citizens and tourists. The United States has issued travel advisories to pregnant or women intending to get pregnant to avoid travelling to countries where local mosquito’s transmission of Zika virus has been reported. Such a mea-
sure is a loss to tourists who had already booked for holidays in some of the nations in South America where Zika has been reported. Losses are also expected in the tourism sector in the affected nations due to the travel advisories. This leads to the questions on whether the countries issuing travel advisories should compensate their citizens, moreover, the economic impact resulting from tourist booking cancellation must be considered.

**Ethical Issues in Zika Research**

Little research has been conducted on Zika virus owing to its relatively ‘harmless’ nature. However, recent increase in cases of microcephaly in South America associated with Zika infection caught the medical fraternity off-guard. The recent declaration of Zika as a public health emergency is evidence of a world caught by surprise. There is an extreme paucity of data in the field of Zika that prompted WHO to prioritize research into Zika virus disease by convening experts and partners in its response.

Research on Zika is going to be every researcher’s headache owing to the little available knowledge on the disease. In fact, the causal link between the Zika virus and microcephaly is yet to be established by experimental studies. The research priority areas will certainly focus on vaccine development and attempt to find possible intervention to prevent congenital defects among fetuses of Zika infected pregnant women. Research on Zika will face many ethical problems due to little evidence available and the nature of research participants whom data is expected from pregnant women.

Research on pregnant women is always an ethical sensitive area due to the consideration of pregnancy as increasing vulnerability among women participating in medical research. Inclusion or exclusion of pregnant women in Zika research will therefore be a scientifically and ethically complex venture. Researchers will need to ensure they achieve justifiable balance in regards to the health of the mother and the foetus. Achieving a risk-benefit balance will be further complicated by the physiologic dynamics of women in pregnancy and little knowledge on when the foetus is most at risk of the effects Zika virus.

Apparent, with the dire and urgent need for evidence on Zika virus and all the ethical and scientific challenges notwithstanding, pregnant women will eventually have to be involved in clinical trials testing Zika interventions. One of the major hurdles that face research on Zika will be foetal safety. There is a concern and apprehension of exposure of pregnant women to new drugs and any future research on involving pregnant women will have to be backed up by safety knowledge from animal models foetus to new drugs due to the potential harm especially on the foetus. Although Zika virus in pregnancy is a risk for microcephaly, the potential risk posed by studies must to be sufficiently justifiable. Exclusion of pregnant women is itself unethical as it denies them the potential benefits of research and resulting interventions. But inclusion of women in trials of more than minimal risk is also unethical due to the potential harm unless the risk of Zika virus will outweigh the risks of investigational product. Ultimately, pregnant women will need to be involved in research if more evidence and possible treatment of Zika is to be achieved. Institutional Review Boards (IRBs) will carry this ethical obligation of confronting and dealing with challenges of allowing or disallowing inclusion of pregnant women in any Zika related research that aims to address maternal health and foetal safety in the midst of Zika outbreak.

The issue of informed consent is paramount in any research study. Informed consent in studies involving pregnant women is complex as it involves three interested parties—the mother, foetus and farther. Zika virus effects are most detrimental to the health of the foetus compared to the mother. Most Zika virus research will therefore be more focused on the fetus. Fetus centered trials will be objectively designed to prevent congenital abnormalities caused by Zika virus infection. Any intervention on the fetus however will have implications on the health mother. Such intervention will therefore need explicit informed consent from the mother. Before enrollment, pregnant women must be given full disclosure of the benefits and risk involved in the trial on the foetus and the risk involved in her health. The decision to participate must solely rest on the woman and her decision not to participate will have to be respected.

Pregnant women can consent to participate in research without further requirement of third parties, however in cases where research carries a potential harm or benefit on the foetus, consent of the farther may be necessary(6). The difficulty is determining whether Zika research is destined to benefit the foetus or the mother or both. The need to obtain consent in some environments and cultures may be hard to implement. Failure to involve the husbands may be troublesome to women, exposing them to violence especially in a male dominated society like South America. Researchers focusing on Zika will therefore need to ensure the need to recognize and respect the rights of fathers in protecting the foetus does not act as a barrier of women participation in research. The men must be fully informed to ensure they understand well the importance of research and the impact of the decisions they make on the health of the mother and foetus.

**Religion and Culture Headache in Tackling Zika virus**
There is an estimated 483 million catholic population in the entire South America representing 41% of the entire world population(4). Brazil has the highest population of Catholics in South America estimated at 150 million in 2010(4). The catholic religion is known for its absolutist stance on reproductive health matters; the Catholic church discourages the use of modern or artificial contraceptives by its members. Despite the risk of STDs, complications of child births and the current congenital effects of Zika virus, the catholic religion is not expected to soften its stand on the use of contraceptives. Therefore, the proposals by the Brazilian and other governments in South America for women to defer pregnancy amid the prevailing conditions will unlikely bear any fruit. However, given the negative impacts of Zika on the health of the population, it is the duty of governments to ensure the rights people to enjoy good health is not hampered by hardline religious stands; morality and ethics need to be invoked in order to avoid suffering and loss of human life.

The extent to which religion affects decision making in matters of health is debatable. A recent study conducted by the U.S. Spanish-language network Univision, Catholics defies Church teaching on the issue of contraception. Seventy eight percent of Catholics across all countries surveyed said they support the use of modern birth control. That number rises even further among residents of European and Latin American countries, where Catholics tend to be more liberal than their counterparts in African countries(5). Over 90 percent of Catholics in France, Brazil, Spain, Argentina, and Colombia have no problem with birth control. Sixty five percent of Catholics indicated that abortion should be legal is some cases(5).

Despite the evident liberal attitudes and paradigm shift among Catholics, the existing state of affairs of strict anti-abortion laws and the unavailability of contraceptives remains the biggest hurdle in the fight against Zika disease. The current situation in South America may spur illegal and risky abortions among pregnant women infected with Zika. Many of these women are poor who cannot access legal abortion services or afford contraceptives. The Catholic Church finds itself in predicament similar to the period of HIV pandemic when it opposed the use of condoms to prevent HIV transmission. In opposing the use of contraceptives, the Catholic Church may unwittingly be contributing to the birth of babies with microcephaly.

Zika virus infects both men and women but women bear the biggest burden from the disease. Women are expected to bear responsibility of the health of the children they give birth to. The governments have targeted women with little involvement of their male counterparts. The women of South America are already vulnerable due to the Latin culture where sexual violence is rampant coupled with the need for women to be submissive and give in to all demands of their husbands. The gender prejudice is further confounded by the dominant Catholic religious values leaving the women more vulnerable to the scourge of Zika virus. Under these circumstances, women will continue to get pregnant because they cannot afford or cannot access contraceptives while the men have not been educated to collaborate with their wives in the uncertain times of the Zika outbreak.

**Conclusion**

It is clear that Zika virus has presented many challenges to international health. It has elicited a myriad of ethical questions with no answers as at now. Many issues confound the response to the virus, one is the appalling level of lack of data on the virus which has complicated research on the virus. Scientist will need to content with little data as they strive to provide facts on the Zika virus. Research will also face the challenge of participants due to the perceived vulnerability of pregnant women. Most South American nations lack of funds to combat the diseases, the WHO and other bodies will have to fund research and interventions against the disease for better outcomes. More policy and advocacy for access to contraceptives in South America will need to be done. It is clear region and culture in these nations exposes women to unintended pregnancies as they lack access to contraceptives and other reproductive health rights. However amid all the challenges, there are opportunities for the world to navigate all the challenges and urgently, through a concerted effort work towards mitigating the effect of virus of unborn children as a matter of priority. Control of the virus will only be achieved through research to generate knowledge that will aid the development of a vaccine against Zika.

**REFERENCES**

Does Zika bestow or deny rights?

By Jack Odhiambo,
University of Nairobi

The outbreak of the Zika virus disease provokes certain thoughts to a philosopher who is not directly involved in the actual search for a medical cure. However, every human event that elicits human decision and action always involves some moral or ethical implications, however minor they may be. In the case of this illness, there has been a fear particularly regarding the fate of the unborn children whose mothers are infected with the virus. The virus can cause fetal microcephaly, a condition in which an infant is born with an abnormally small head and underdeveloped brain.

We must remember that many human aversions or decisions arise from our perception of others. This perception is from outside, it is extrinsic to the one observed. Thus, my perception of the other will never transmit to me the self-perception or inner feeling that the other has either of himself or of any situation or thing that he may perceive at the material time.

My contention is that to deny any right to a person just because of how we perceive him or her would constitute an action that is not sufficiently justified by reason. This is why denying blacks the right to vote just because they were black is regarded a social aberration, similarly to deny a woman a professional position that she rightfully and fairly deserves would not meet the criteria of sufficient justification by reason.

Likewise, to deny the perceived microcephalous individual an opportunity to develop and expand his options, however meager they may be, would be a fault similar to the two I have mentioned in the preceding paragraph. False pity may lead one to say in the America of the sixties that “oh, those poor negroes, why burden them with the right to vote or the right to higher education?”

Our notions of false pity should not lead us to justify the abortion of fetuses with microcephaly. A person with a small head is still a person just like a pigmy is still a person and has the right to the respect of the tall as well as that of the giants.

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**BIOETHICS SOCIETY OF KENYA**

Be a member now- Open for all to Join

The Bioethics Society of Kenya is a self-governing organization whose main objective is to foster the development of bioethics in Kenya. The BSK is a not-for-profit, non-political, non-discriminatory, multidisciplinary organization. The society seeks to promote ethics in research, medicine and health care. Membership in the BSK is open to all Kenyans or persons residing in Kenya who shares the objectives of the BSK. Our mission is to support the development of ethics in the life sciences and diffusion of knowledge for equity and progress in health care.

**NB- 20% discount on registration and annual retention fee will be granted for IRBs that register as a group**

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For more inquiries contact BSK on: email address bsk@rctp.or.ke or call mobile number 0718703943