Research Proposal - Summer 2006
Justine Tutuska, MPH, Director of Health Care Studies
Alicia Viltrakis, Daemen College Student, Health Care Studies

Predictive Value of Health Belief Model and Social Cognitive Theory Related to HIV Risk Among Youth in Nairobi

Purpose:

The purpose of this research study is to evaluate the psychosocial and behavioral HIV risk factors of youth and young adults, ages 12-24, in and around Nairobi, Kenya. Constructs of two well developed models/theories, often applied to HIV prevention and education, will be incorporated.

The Health Belief Model focuses on the main constructs of personal perceptions of susceptibility, severity, barriers/costs and advantages of behavior change, and self-efficacy. According to this model, the more severe an individual views the HIV virus to be (in terms of illness and long term health complications), and the more they see themselves as personally vulnerable to the virus, the more their behaviors should reflect these perceptions. The model predicts that individuals should then engage in preventive behaviors such as HIV testing and abstinence or the use of condoms with sexual activities. The second, Social Cognitive Theory, assumes another approach, incorporating the constructs of self-efficacy, outcome expectations and reciprocal determinism between individuals and their environment.

This research study hypothesizes that for youth in Nairobi, similar to youth in other impoverished areas of the world, their personal perceptions of susceptibility and severity may be stunted by other factors and may not always guide their HIV risk behaviors. It is expected that certain cultural and environmental factors may more strongly influence their behaviors, leading them toward HIV risk behaviors. Examples of such factors include lack of education and health conducive environments, belief in HIV related misconceptions, cultural beliefs, and multiple social and psychological factors, particularly for young women. While the Health Belief Model is generally predictive of HIV risk behaviors, Social Cognitive Theory, and its focus on the environment, may be a more predictive model. While the youth may be aware of HIV, and their personal risk, it is hypothesized that their lack of confidence in being able to protect themselves, and the lack of environmental opportunity, may be overriding and result in their continued risks for HIV infection.

This study will explore two different groups of youth, those in a secondary school in the city center and those in a secondary school in the rural village area, approximately one hour from the city center. Their personal perceptions, individual risks and environmental factors will be evaluated through a self-report survey.

Research such as this is essential to determine psychological, behavioral and environmental factors of youth at risk for HIV. Upon deciphering their risk factors, additional model constructs can be applied, and age and gender appropriate primary prevention efforts, focused on education, can be better designed and implemented.

Background/ Significance

Sub-Saharan Africa has established the highest rates of HIV infection of any area in the world. Reports indicate that 60% of the world's young people (age 15-24) infected with HIV live in this region. While East African rates are generally less than most South African countries, the country of Kenya contributes to the statistics to a moderate, yet health crippling, degree. For the year 2003, it was estimated that Kenya's HIV infection rate was 6.7%, with 1.2 million people living with AIDS, and an estimated 150,000 deaths due to AIDS (Central Intelligence Agency, 2005). These rates disproportionately affect individuals living in the cities, and in areas of low income and limited education.

In addition, women have higher prevalence rates of infection than men. Based on the 2003 Kenya Demographics and Health Survey, released by the Central Bureau of Statistics (Figure 13.1), infection rates among women increase steadily during their young adult years, and peak during the 25-29 year age range. When you account for the fact that HIV has a slow progression, it makes it likely that many who are diagnosed with the virus may have been infected years earlier, often in their young adult years. These rates are indicative of the multitude of issues that specifically put young women at risk for HIV. Cultural expectations and beliefs, and a lack of opportunity for education and independence often compromises the ability of young women to make healthy decisions, placing them in vulnerable positions.

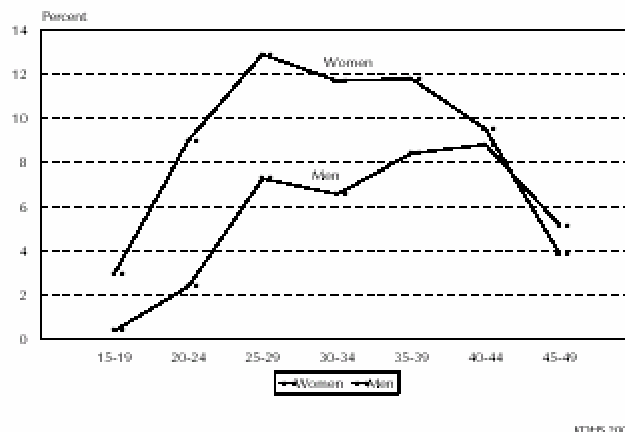


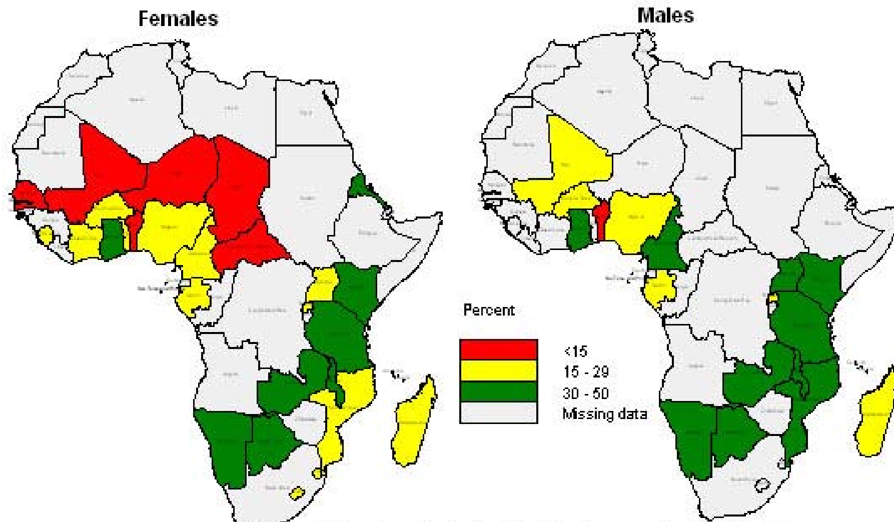
Figure 13.1 **HIV Prevalence by Age Group and Sex**

Many areas of Kenya have access to basic information regarding HIV/AIDS. Basic knowledge can be acquired through the media (if one has access), schools, parents, or community based programs. Based on the 2003 Kenya Demographics and Health Survey, almost all (99 percent) of Kenyan women and men have heard of AIDS, and the majority (81 percent of women and 89 percent of men) are aware that the virus can be avoided by limiting sex to one faithful partner. In addition, a large number (61 percent of women and 72 percent of men) realize that condoms are an effective method of reducing risk during sexual acts. These mentioned statistics, regarding knowledge of HIV, are reflective of the total survey population, and are not specific to youth. It is assumed that many young adults may not have full comprehensive knowledge of the virus. According to the Kenya Demographics and Health Survey, it is estimated that only 30-50% of young men and women in Kenya are fully knowledgeable of the virus, with young women being less knowledgeable than young men (see figure below). Comprehensive knowledge is defined by UNICEF

as being able to correctly identify the two major ways of preventing HIV transmission (condom use and one faithful, uninfected partner), being able to reject the two most common local misperceptions about transmission (such as transmission from a toilet seat or mosquito bite), and knowing that a healthy looking person can be infected.

A minority of young people have correct knowledge about HIV/AIDS

Percent of young people (15-24 yrs) who have comprehensive knowledge* of HIV



* Comprehensive knowledge is defined as correctly identifying the two major ways of preventing the sexual transmission of HIV (using condoms and limiting sex to one faithful, uninfected partner), rejecting the two most common local misconceptions about HIV transmission, knowing that a healthy looking person can transmit HIV.

Source: MEASURE DHS Surveys, 2001-2005
These maps do not reflect a position by UNICEF on the legal status of any country or territory or the delineation of any frontiers.

In addition to a lack of basic education regarding HIV, there are a multitude of other factors that affect behavior, especially for youth and young adults.

Secrecy of HIV
In Sub Saharan Africa, there is still a great deal of shame and discomfort related to HIV infection. According to the 2003 Kenya Demographics and Health Survey, the majority of participants admitted to being willing to care for an infected individual (over 80 percent of men and women), but fewer admitted to being willing to purchase vegetables from an HIV infected vendor, and even less believed that an infected teacher should be able to teach in the schools. In addition, while most admitted to not wanting to keep a family member's HIV positive status a secret, this was not the case for 30-40% of participants. Care must be taken as many youth and young adults learn by example or modeling, a construct of Social Cognitive Theory, and may carry on these misperceptions.

Cultural Practices
Based on the same 2003 survey, women and men who are widowed have significantly higher rates of infection than those who are married. This may be in part attributed to traditional practices, which to an extent, still exist. Tradition has placed an expectation on women, that if she is widowed by her husband, who may have likely died from the virus, it is expected that she will observe funeral rites and engage in sexual practices with a brother or family member of the husband. Traditionally, this practice played a vital role in favor of the wife and children by offering them food, shelter and protection, but it has unfortunately led to the spread of HIV by the woman who was most likely infected by her deceased husband (Luginaah, Elkins, Maticka-Tyndale, Landry & Mathui, 2005). This ritual has slowed over the years, but is still of importance to the youth who may be holding to this expectation.

Much of Africa continues to engage in polygamous relationships. It is estimated that as many as 30-50% of marriages involve several wives (Opping & Kalipeni, 2004). Not only does this arrangement result in the infection of multiple women by one man, but it is viewed early on by young women as an expectation of their behavior, and their role with men in a relationship.

In addition, according to the 2003 Kenya Demographics and Health Survey, it was reported that 32 percent of Kenyan women are involved in female genital cutting or circumcision. While there has been a decline, the incidence still puts one at risk for HIV infection, amongst other potentially damaging physical and psychological consequences.

Behaviors
Condom use is crucial as a protective behavior, as the majority of AIDS cases in Kenya (74%) are due to heterosexual transmission (Ministry of Health, 2001). Based on the 2003 survey, among the 15-19 year old age group, only 52.6 percent of females, and 60.4 percent of males reported condom use. Among 20-24 year olds, only 65.1 percent of females and 78.1 percent of males reported condom use.

A special focus needs to be placed on adolescents as they are often the most sexually active age group, and tend to take higher risks across the board when it comes to sexual activity, and drug and alcohol use. This theme holds true worldwide.

Issues Specific to Young Women
There are multiple concerns specific to young women. One of which is unwanted sexual activity. In Kenya, a total of 636 rapes were reported to the police in the first three months of this year, 225 in January, 195 in February, and 216 March. This averages to seven women and girls raped each day during these three months. According to police records, a total of 19,938 women were raped between 1995 and 2005. Many of these rapes unfortunately take place along young girls' walks to school. For several reasons, including fear, embarrassment, and intimidation by male officers, many women do not report rape cases, which greatly underestimates the statistics (Muiruri, 2006).

Another concern is the acceptance, if not the expectation, of early marriage and childbearing. Young women are rewarded, with security and community respect, for marrying and bearing children at a young age (Mensch et al, 2001).

Additional sexual implications for young women include participation in relationships with older men, or 'sugar daddies'. Relationships with older men generally brings money, gifts, protection (safe transport without fear of rape), and hope for greater opportunity. These older men, or 'sugar daddies' often choose less experienced young girls with the hope that they are less likely to be infected, as a young girl may be less sexually active. Unfortunately, these men tend to have a large number of partners overall, and are more likely to be infected themselves and to spread to the young female populations (Mbugua, 2004). Research conducted by Luke (2005) assessed how common these relationships are in Kisumu, Kenya, and whether they are related to unsafe sexual behavior. Results showed that the average age difference between unmarried sexual partners was 5.5 years, and 47 percent of men's female partners were adolescents. Fourteen percent of partnerships involved an age difference of at least 10 years. Within these relationships, condom use decreased as age and economic differences between partners increased.

While education is often the key to employment, independence and empowerment, opportunities are disproportionately lacking for young women in Kenya. The majority of young girls are disadvantaged on all levels of access, participation, completion, and performance (Mbugua, 2004). Research has shown that young women are often discouraged from long term attendance in school, that they are exposed to sexual harassment and unwanted sexual advances both in school and along their walk to school, and that they are discouraged by the lack of support and opportunity for women in society. Very often it is these factors, as well as the unfortunate inability to pay school fees, that often contributed to female drop out rates, and later relate to high pregnancy rates (Mensch, Clark, Lloyd & Erulkar, 2001). According to UNICEF reports in 2004, girls' primary school completion rates in Kenya were lagging behind boys', at 76 percent compared with 85 percent.

To demonstrate the extent of misunderstanding and lack of opportunity that plagues young women, it is common for young women to miss days of school simply because of normal, healthy menstruation. Young women may be ridiculed and excluded by peers, based on their menstrual cycle and lack of appropriate, sanitary products to contain their periods, that they often choose to withdraw from class and extra curricular activities, sometimes for the entirety of their monthly menstruation. On average, a young girl loses almost a full month of schooling in a given year, due to the difficulties experienced during menstruation. (Kinoti, 2005).

Theoretical Frameworks

Health Belief Model
The Health Belief Model was developed in the 1950's by Hochbaum and associates, to explain why individuals did not participate in programs aimed at reducing or preventing disease. It is a value expectancy theory, and relates to an individuals estimate of personal susceptibility to and severity of an illness and of the likelihood that a behavior that they engage in can reduce the threat of that illness. This model predicts that an individual should take action to prevent and screen for an ill-health condition if: they regard themselves as susceptible, it they believe it to have potentially serious consequences, if they believe that a course of action available to them would be beneficial in reducing either their susceptibility to or the severity of the condition, and if they believe that the anticipated barriers to (or costs of) taking the action are outweighed by its benefits (Strecher & Rosenstock, 1997).

The constructs of this model include:
Perceived susceptibility: an individual's perception of their risk for contracting an illness/condition
Perceived severity: an individual's perception of the seriousness of contracting or leaving untreated
Perceived benefits: an individual's beliefs regarding the effectiveness actions/methods that are available to them which would decrease threat or severity
Perceived barriers: an individual's beliefs regarding the potentially negative aspects of partaking in an action to reduce threat or severity
Cues to action: triggers that may influence participation in the behavior
Self-Efficacy: an individual's level of confidence in that they can successfully engage in the behavior to bring about the desired outcomes.

Literature has shown that when applied to HIV prevention, various constructs have strong predictive value. In a study by Catania, Kegeles and Coates (1990), it was shown that for high-risk individuals, perceived susceptibility is required before commitment to changing behaviors can

occur. A study of youth, ages 14-22 in South Africa, which applied the Health Belief Model, investigated what drives risk perception for these youth. The study revealed that connectedness to parents and community for males and females, self-efficacy to use a condom among males, and living in a household with a chronically ill member for females are associated with HIV risk perception (Macintyre, Rotenberg, Brown & Karim, 2004). Another study, which examined youth of the same age, from a different area (Taiwanese immigrants in the US) reported that the Health Belief Model, as a set of constructs, reliably predicted participants' sexual behaviors. Self-efficacy was the strongest predictor within the Health belief Model (Lin, Simoni & Zemon, 2005)

Social Cognitive Theory:
Social Learning Theory was developed in 1941 by Miller and Dollard to explain the imitation of behaviors, by both animals and humans. After years of exploration, and the inclusion of additional constructs, such as expectations of reinforcement, self-efficacy, and reciprocal determinism (combination of environment, person and behavior), Bandura re-termed the theory as Social Cognitive Theory (Baranowski, Perry & Parcel, 1997).

The constructs of this theory include:
Environment: in which the individual lives and functions on a daily basis
Situation: an individual's perception of their environment
Behavioral capability: an individual's skills and knowledge
Expections: an individual's perception of the outcomes
Expectancies: the values that an individual places on the outcomes
Self-control: an individual's ability to regulate their behavior
Observational learning: an individual's modeling after others
Self-efficacy: an individual's level of confidence in that they can successfully engage in the behavior to bring about the desired outcomes.
Emotional coping responses: the strategies and tactics used by an individual, ie: stress management, skills
Reciprocal determinism: the interaction of the environment, person and behavior

Koniak-Griffin and Stein (2006) devised a study incorporating constructs of Social Cognitive Theory which examined adolescent mothers in an HIV prevention program. The results indicated that the young women in the program showed greater perceived self-efficacy and perceived behavioral control to use condoms, and more favorable outcome expectancies and subjective norms regarding condom use than those in a health education control group. Selepe (2000), investigated the cultural and environmental factors associated with Social Cognitive Theory, and found that with Black South African Teens, ages 12-17, there was an effect of traditional South African gender expectations on the youth. These cultural beliefs generally lead to instances of male supremacy and female submission, which then leads to misinformation regarding sexual behavior and sexual-behavior knowledge in both males and female teenagers. For females, the study showed that self-esteem was adversely affected, which may result in a lack in unwillingness to seek medical care and education. For males, it was found that contracting an STD was actually an indication of their male dominance and sexual prowess.

One study, that investigated constructs of both the Health Belief Model and Social Learning Theory, found that several constructs of both were significantly linked to the sexual behaviors, particularly condom use, among youth in Ghana. Findings indicated that perceived susceptibility to HIV infection, perceived self-efficacy to use condoms, perceived barriers to condom use, and

perceived social support were significant predictors of condom use. Also, perceived barriers significantly interacted with perceived susceptibility and self-efficacy, where subjects who perceived a high level of susceptibility to HIV infection and a low level of barriers to condom use were almost six times as likely to have used condoms at last intercourse, compared to others. Similarly, young men who perceived a high level of self-efficacy to use condoms and a low level of barriers to condom use were nearly three times more likely to have used condoms at last intercourse when compared to others (Adih & Alexander, 1999).

Proposed Methods

Any youth, between the ages of 12-24 will be invited to participate in the study. Invitations and activities will be coordinated by the Head Master, who will arrange for the physical location and day/time of activity. Participants will be informed that their participation is voluntary and confidential, and each will give formal written consent. Names of participants will not be documented at any other point of the study. Participants will be informed that at any point, they may choose to not participate. All data collection has been approved (via e-mail confirmation) by the Head Master of the school in Nairobi, and the school in the village.

A self-report, paper and pencil survey will be administered to participants. Due to the sensitive nature of several of the questions, this survey will not include identifying information. Questions have been adapted from the Kenya Demographics and Health Survey, and several literature sources for questions pertaining to the models being applied. This survey will be piloted by a small group in Nairobi to evaluate for content, linguistics and cultural sensitivity. The survey will be approved by the Head Masters of the schools. A translator will be available for survey administration to assist in language barriers, if necessary.

Questions will explore the following: demographics, personal behaviors regarding sex, condom use and relationships, cultural and environmental factors, knowledge of HIV transmission and prevention, myths/misperceptions, perceptions of susceptibility/severity of HIV, perceptions of benefits and barriers of changing behavior, and perceptions of self-efficacy.

All youth who participate, regardless of completion, will receive an incentive, a school supply kit, for their participation. In addition, all youth between the ages of 12-24, regardless of participation, will be involved in educational sessions focused on basic HIV and sexual health education, resolving myths and misconceptions, and skill building activities.

To further identify environmental factors, youth from the Volunteer Counsellors of Kenya youth group will offer their portrayal of the HIV epidemic through youth street theater. We will engage in a group share, as we have filmed youth theater related to HIV prevention in Buffalo prior to our departure, and will then film performances of youth in Nairobi, to share with each, their efforts.

Sharing What We Have Learned

This research project will be submitted to the Think Tank Project at Daemen College, and if accepted, results will be documented in a formal paper as well as at the Spring 2007 Academic Festival. If possible, research will be proposed for presentation at a national health conference.

Aggregate data from the study will be shared with the head of the Kenya Counsellor's of Kenya, Head Master of the school, and Chief of the village, to assist them with the direction of future educational sessions for the youth.

The project will be shared with the Daemen College student organization, Aiding Youth for Life, to assist them in strategies for HIV prevention on campus as well as in our local community. The research will also be integrated into current coursework at Daemen, including HCS 101 – Introduction to Health Care Models, which addresses international health concerns. Communications have taken place with AIDS Network, a Buffalo organization that focuses on the coordination of HIV services and education in the WNY community. One subgroup in particular, the Women, Children and Infant group will be awaiting a formal presentation.

In addition, collaboration between Daemen College and Planned Parenthood of Buffalo and Erie County has led to a creative share of information. Youth from Teen Reality Theater of PPBEC have performed skits related to HIV prevention and relationship issues, to a small group of college students at Daemen College. We have recorded their performance, and will bring to Kenya to share with the local street theater groups. In exchange, their performances will be videotaped, and presented to Teen Reality Theater to encourage a creative learning experience.

References:

Adih, W.K. & Alexander, C.S. (1999). Determinants of condom use to prevent HIV infection among youth in Ghana. Journal of Adolescent Health, 24(1), 63-72.

Baranowski, T, Perry, C. & Parcel, G. (1997). How individuals, environments, and health behavior interact. In Glanz, K., Lewis, F. & Rimer, B. (Eds), Health Behavior and Health Education: Theory, Research and Practice (pp 153-178). San Francisco, CA: Jossey-Bass Publishers.

Central Bureau of Statistics (CBS) [Kenya], Ministry of Health (MOH) [Kenya], and ORC Macro. 2004. Kenya Demographic and Health Survey 2003. Calverton, Maryland: CBS, MOH, and ORC Macro.

Central Intelligence Agency (CIA). 2005. The World Fact Book: Kenya. Washington, DC.

Kinoti,K. (2005, June 17). Menstruation and gender disparities in education. Association for Women's Rights in Development (AWID) [On-line]. Available: http://www.awid.org/go.php?stid=1493

Koniak-Griffin, D. & Stein, J. (2006). Predictors of sexual risk behaviors among adolescent mothers in a human immunodeficiency virus prevention program. Journal of Adolescent Health, (38) 3, 1-11.

Lin, P., Simoni, J. & Zemon, V. (2005). The Health Belief Model, sexual behaviors, and HIV risk among Taiwanese immigrants. AIDS Education and Prevention, (17) 5, 469-483.

Luginaah, I. Elkins, D., Maticka-Tyndale, E, Landry, T. & Mathui, M. (2005). Challenges of a pandemic: HIV/AIDS-related problems affecting Kenyan widows. Social Science and Medicine, 60, 1219-1228.

Luke, N. (2005). Confronting the 'Sugar Daddy' stereotype: Age and economic asymmetrics and risky sexual behavior in urban Kenya. International Family Planning Perspectives, (31) 1, 6-14.

Macintyre, K., Rutenberg, N., Brown, L. & Karim, A. (2004). Understanding perceptions of HIV risk among adolescents in KwaZulu-Natal. AIDS and Behavior, (8) 3, 237-250.

Mbugua, N. (2004). Strategies for prevention of sexual transmission of HIV/AIDS among adolescents: The case of high school students in Kenya. In Kalipeni, E., Craddock, S., Oppong, J., & Ghosh, J. (Eds.), HIV and AIDS in Africa Beyond Epidemiology (pp.47-57). MA: Blackwell Publishing.

Mensch, B., Clark, W., Lloyd, C. & Erulkar, A. (2001). Premarital sex, schoolgirl pregnancy, and school quality in rural Kenya. Studies in Family Planning, (32) 4, 285-301.

Ministry of Health (MOH) [Kenya]. 2001. *AIDS in Kenya*. Nairobi: MOH.

Muiruri, S. (2006, May 16). Kenya: Cases of robbery and rape go up steadily. The Daily Nation [Nairobi], Nation Media Group Limited.

Opping, J. & Kalipeni, E. (2004). Perceptions and misperceptions of AIDS in Africa. In Kalipeni, E., Craddock, S., Oppong, J., & Ghosh, J. (Eds.), HIV and AIDS in Africa Beyond Epidemiology (pp.47-57). MA: Blackwell Publishing.

Selepe, L. (2000). A descriptive study of the determinants of sexual behavior knowledge in black South-African teenagers aged 12 to 17 years. Doctoral dissertation, Case Western Reserve University, Cleveland, Ohio.

Strecher, V & Rosenstock, I. (1997). The Health Belief Model. In Glanz, K., Lewis, F. & Rimer, B. (Eds), Health Behavior and Health Education: Theory, Research and Practice (pp 49-57). San Francisco, CA: Jossey-Bass Publishers.

Budget

Item	Amount	Details
Travel:		
Flights:	$1661.20	(Justine)- Already Paid For
	$1726.22	(Alicia)- Already Paid For
Visas:	$100	($50 x 2)
Insurance	$94.66	(Justine)- Already Paid For
	$307.63	(Alicia)- Already Paid For
Prescriptions	$70	(Justine)- Already Paid For
Accommodations:	$280	($140 per month x 2 months)- Paid by Both Your Hands
	$100	Refrigerator – to be donated to Volunteer Counsellors upon departure for storing of medications- Already Paid For
Food:	$76	(Justine- $4 per day x 19 days)
	$200	(Alicia- $4 per day x 50 days)
Travel in Nairobi:		
To/From Airport	$40	($30 return x 2)
Around Nairobi	$90	($15 per trip x 5 trips + $15 public transport)
To/From Village	$156	($30 per trip x 4 trips)
Incentives:	$105.50	Oriental Trading Company (School Supplies)- Already Paid For
	$40.50	Dollar Tree (Incentives/Packaging)- Already Paid For
	$95.00	Gifts for VCK/Family
Communications:		
	$43.99	World Cell Phone- Already Paid For
	$20	SIM card (purchase in Nairobi)
	$30	PrePaid Minutes (purchase in Nairobi)
Total Budget:	$5,236.70	(Of which, $4,429.70 has been paid for/reimbursed)
Budget Remaining	$807.00	