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Approval Sheet

**Gender Differentials in Knowledge of HIV/AIDS and Attitudes Toward People Living with HIV/AIDS in Egypt**

By

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Global Health

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*Abstract Cover Page*

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An abstract of

A thesis submitted to the Faculty of the
Rollins School of Public Health of Emory University

in partial fulfillment of the requirements for the degree of
Master of Public Health
in Global Health

2011

# Abstract

**Gender Differentials in Knowledge of HIV/AIDS and Attitudes Toward People Living with HIV/AIDS in Egypt**

By Leeza M. Kondos

Thesis Committee: Dr. Kathryn Yount (Chair), Dr. Sherine Shawky, Dr. Nafisa Halim

**Background & Problem Statement**: Recent literature suggests a concentrated epidemic of HIV in Egypt, after decades of reported minimal prevalence (<0.01%). Sociocultural norms and gender constructs create differential access to information, education, and prevention of HIV as well as potential gaps in attitudes toward people living with HIV/AIDS (PLWHA). In Egypt, gender gaps in knowledge reinforce sociocognitive constructs of inequity and combined with current high risk behaviours among most at risk populations (MARP) compromise effective awareness, prevention and care seeking among the general population.

**Significance**: Findings will be used to enhance current HIV/AIDS awareness and education campaigns via the Egyptian National AIDS Programme (NAP). Understanding differential knowledge and attitudes is critical for effective prevention public health campaigns.

**Aims:** The 2008 Egyptian Demographic Health Survey Data (EDHS) was used in a secondary analysis to quantify relative contribution of gender differences in knowledge of HIV transmission, AIDS perceptions and attitudes toward PLWHA.

**Methods:** The stratified multi-stage cluster sample included 5,430 men and 6,578 women between ages of 15-59 who met inclusion criteria in 2008. Response rates were high (98% women and 89% men) and only individuals with complete sociodemographic information were included in analysis (final sample: 4,649 men and 4,668 women). Fourteen questions were used to assess knowledge (n=10) and tolerant attitudes (n=4), then analyzed separately, as two summative scores and as dichotomized high versus low scores. Gender gaps in knowledge, attitudes, and sociodemographic variables were assessed. Unadjusted and adjusted gender gaps in extent of knowledge and tolerant attitudes were assessed using linear and logistic regression. Analyses were conducted in STATA®.

**Results:** Overall, men had significantly greater knowledge about HIV transmission. Women had significantly higher levels of tolerance and lower knowledge in all aspects of transmission with the exception of mother to child transmission (delivery and breastfeeding). Unadjusted and adjusted regressions demonstrate robust gaps in knowledge, with women consistently having less accurate knowledge.

**Conclusion**: There are significant gaps in knowledge about HIV/AIDS in Egypt that are partially explained by demographic characteristics, in particular, by gender. In order to effectively address the HIV/AIDS epidemic in Egypt, gaps in knowledge by gender need to be understood and appropriately addressed.

# Gender Differentials in Knowledge of HIV/AIDS and Attitudes Toward People Living with HIV/AIDS in Egypt

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# CHAPTER 1: INTRODUCTION

## Introductions and Rationale

Human Immunodeficiency Virus (HIV) and its manifestation in Acquired Immune Deficiency Syndrome (AIDS) is one of the most significant medical, social and public health issues of the century. Since the identification of the virus and characterization of the epidemic in 1981, an estimated 60 million people have been infected and 25 million have died of HIV-related causes. Current HIV/AIDS surveillance in Egypt maintains a low prevalence by international standards (<0.1%), however recent reports by Egypt's National AIDS Program (NAP) indicate a concentrated epidemic (NAP 2008-2009). It has been speculated that prohibitive cultural and social norms rooted in conservative Islamic values have slowed the HIV epidemic from growing in Egypt, although accurate knowledge about HIV/AIDS and relevant modes of transmission remain poor (Shawky, Soliman et al. 2009). Thus, the same cultural norms and societal pressures speculated to hinder the epidemic might actually be contributing to lower overall knowledge and differential information among certain groups. Furthermore, these cultural norms and societal pressures, which reduce accurate knowledge, have perpetuated negative attitudes toward people living with HIV/AIDS (PLWHA). HIV/AIDS-related stigma has been associated with familial, social and economic consequences and may serve as a significant barrier in accessing prevention, care and treatment services (Mahajan, Sayles et al. 2008). As a result of low knowledge of transmission routes and prevention measures, high stigma associated with HIV/AIDS and risk practices, the true burden of HIV/AIDS on the Egyptian population remains unclear. Specifically, social constraints such as knowledge-restrictive cultural norms and

HIV/AIDS-related laws inherently restrict the ability of surveillance systems to reach the true prevalence of disease (Shawky, Soliman et al. 2009).

## Problem Statement

In countries with high HIV/AIDS burdens, successfully reducing transmission and mortality rates, as well as increasing quality of life, has entailed extensive biomedical, behavioural and educational interventions. These approaches have not been warranted due to the reported low burden of HIV/AIDS prevalence in Egypt relative to other countries. However, increasing evidence suggests that lack of adequate knowledge on HIV prevention and transmission, combined with the intense social stigma associated with infected individuals, has resulted in inaccurate estimates of HIV/AIDS true impact on the Egyptian people.

Egypt is an Arab nation with a strong religious influence on all facets of daily life. Sexual education is not culturally accepted, and the stigma associated with conversations regarding sexual practices outside of marriage or drug use can lead to social isolation, ostracization and even violence (Shawky, Soliman et al. 2009). It has long been assumed that the cultural norms and behavioral restrictions endorsed by traditional Egyptian values have prevented the behavioural risk factors that often lead to greater HIV/AIDS transmission. However, it may be this paradox of low knowledge and cultural hierarchies and negative attitudes toward people living with HIV/AIDS that may lead to increased risk of transmission. Not only may many Egyptians engage in certain high-risk behaviors because they are not aware that these behaviors increase HIV/AIDS transmission, but also socioeconomic and cultural barriers prevent those at high risk and those who have

already contracted the virus to seek treatment and engage in interventions aimed to increase quality of life. Evidence suggests a steadily growing increase in HIV/AIDS incidence in Egypt (NAP 2008-2009). Poor understanding of prevention measures and transmission routes, coupled with stigma toward PLHA, may create significant public health concern in Egypt's future (Boutros and Skordis 2010). In particular, research has shown that poor HIV/AIDS education and inadequate prevention and intervention programs may lead to even higher incidence rates and a substantial lack of care for those infected, which may lead to a significant decrease in longevity rates and quality of life (Nada and Suliman el 2010).

## Purpose Statement & Hypotheses

In 2008, the Demographic Health Survey (DHS) was administered to over 12,000 Egyptians. The DHS is an internationally funded survey implemented in developing countries to help expand knowledge of health indicators and trend data in eligible countries. A subsample of the total DHS sample was asked questions regarding HIV/AIDS knowledge and attitudes. Biological and behavioural surveys conducted in Egypt as well as previous literature on the issue show a profound link between HIV/AIDS knowledge and socioeconomic indicators, where lower HIV/AIDS awareness is reported for groups with lower social capital, low educational attainment, lower wealth index and older age. However, no nationally representative sample has yet been thoroughly examined, and gender differences underlying these trends in knowledge and attitudes remain unclear. Previous studies have found a positive correlation between high knowledge of HIV/AIDS and greater tolerance toward PLWHA and we hypothesize that

when wealth, education, access to media and age are equivalent, gender accounts for significant differences in knowledge and attitudes. Findings from this research will be used to target future prevention and education efforts.

## Significance Statement

In order to adequately address the burden of HIV/AIDS morbidity and mortality in Egypt, it is important to understand the level of knowledge, misconception and perception of HIV/AIDS among the Egyptian people. Analysis of knowledge and attitudes regarding HIV/AIDS is critical for targeted surveillance, education and intervention programs that may decrease transmission and prevalence of HIV/AIDS among the Egyptian populace and increase quality of life among those Egyptians already infected with HIV or AIDS.

## Definition of Terms

AIDS: Acquired Immune Deficiency Syndrome, BIO-BSS: Biological and Behavioral Surveillance Survey, DHS: Demographic and Health Survey, FHI: Family Health International, FSW: Female Sex Worker, HIV: Human Immunodeficiency Virus, IDU: Injecting Drug Users KAP: Knowledge, Attitudes and Practices, MARPs: Most at Risk Populations, MSM: Men who have sex with Men, NAP: National AIDS Programme, NSP: National Strategic Plan, UNGASS: United Nations General Assembly Special Session in HIV/AIDS, PLHA: People living with HIV/AIDS, PHT: premarital HIV testing, PMTCT: Prenatal Mother to Child Transmission, STD: Sexually Transmitted Disease, STI: Sexually Transmitted Infection, UNAIDS: Joint United Nations Programme in HIV/AIDS, VCT: Voluntary Counseling and Testing, WHO: World Health Organization.

## ETHICS IN RESEARCH

The Rollins School of Public Health requires that all material submitted by a student fulfilling his or her academic course of study must be the original work of the student. Violations of academic honor include any action by a student indicating dishonesty or a lack of integrity in academic ethics. Violations in this category include, but are not limited to, cheating, plagiarism, or falsifying research data. I hereby swear that all analyses produced are original and completed by myself, Leeza M. Kondos.

## CHAPTER 2: COMPREHENSIVE REVIEW OF THE LITERATURE

The current study examines the current knowledge and attitudes regarding HIV/AIDS among a representative sample of Egyptian citizens, with an emphasis on the differences in this knowledge and attitudes by gender. Key words such as "HIV", "AIDS", "MSM", "Egypt", "MENA", "Arab", "Sexually transmitted disease" or STD and "KAP" were entered in electronic search engines and databases. National AIDS program (NAP) and the most recent HIV/AIDS Biological and behavioral Surveillance Survey report were also used. Peer-reviewed journal articles were consulted. Literature about HIV/AIDS prevalence, surveillance, stigma, attitudes, knowledge and circumstances affecting accurate surveillance were summarized. From these sources of information, two reoccurring themes emerged: 1) A growing epidemic of HIV/AIDS is spreading among universally accepted most at risk populations (MARPs), 2) Stigma associated with HIV/AIDS leads to decreased knowledge about the epidemic which, in turn, leads to increased prevalence rates, gender inequities in HIV infections and the lack of HIV/AIDS lack of knowledge with multiplicity of misconceptions. Studies that demonstrated methodological rigor and epidemiologically sound experimental design

were given top priority. Reports using key informants and estimates were also used, particularly given the precarious circumstance of collecting HIV/AIDS data in Arab countries. Based on these sources, an integrated summary of the current literature was compiled.

## SILENT EPIDEMIC

The first HIV case in Egypt was reported in 1986, after which further cases were detected by passive surveillance systems (Bio-BBS 2010). Egypt is included within 17 of 20 Middle Eastern and North African (MENA) nations where confirmed HIV cases have been reported. While previous literature suggested Egypt had a low endemic rate of HIV/AIDS (< 0.1%), incidence and prevalence rates among most at-risk populations (MARPs) are much higher (Shawky, Soliman et al. 2009; Bio-BBS 2010). Estimates from 2009 identified 3,919 HIV cases, 2920 of which were Egyptian and of those 1078 (27.5%) had developed AIDS (El-Sayyed, Kabbash et al. 2008; 2008-2009; Shawky, Soliman et al. 2009). The UNGASS reports estimates that over the past 2 decades, the number of detected HIV cases has exponentially increased by 268%, although it is difficult to discern whether these are artifacts of more reliable testing and surveillance or as a direct result of increased transmission. While Nada and Suliman posit that over the past 20 years, HIV infections have spread rapidly in high-risk populations such as men who have sex with men (MSM) and injecting drug users (IDUs), reliable information about these populations is difficult to validate and accurately quantify, mainly because current surveillance efforts are hindered by cultural and social norms. Furthermore, UNGASS estimates indicate that cumulatively until 2009, the majority of transmission (71%) was sexual activities, more heterosexual than homosexual modes were identified

(49.5% vs. 22.9%). Transmissions through other mechanisms were relatively low with IDU representing 4.6%, mother to child transmission of 4.6% and through blood or renal products constituting a combined 13.9%(2008-2009).

## VULNERABLE GROUPS

Nada and Suliman also documented certain risk factors for transmission of HIV/AIDS among a sample of 857 street children in Cairo and Alexandria. They found that lack of accurate characterization of the sociodemographic circumstances and locations of street children coupled with the poor socioeconomic characteristics, exposure to violence, drugs, and crime puts children at higher risk of infection. Nada and Suliman observed alarming rates of forced sexual abuse and other sexual acts among street children. They reported 54% of the children surveyed reported having multiple sex partners in the preceding 12 months of interview, as well as high rates of boys reporting engaging in MSM activity. Street children also reported having sold sex for money and drugs among other street children as well as to members of the general population.

These results are consistent with data from two rounds of biological and behavioural surveys (Bio-BBS) conducted by Family Health International in 2006 and 2010. Bio-BBS data indicate that MARP such as street children engage in unprotected sex, both commercial and non-commercial sex exchanges and being victims of sexual abuse. Moreover, the report found that among sexually active boys, 44.2% reported MSM activity and 15.0% reported being forced into having sex with a male partner (Egypt 2010). Differences in HIV knowledge were also observed among these populations: only 16.0% of girls had ever heard of STIs and 71.5% of girls had never heard of HIV. Boys had higher knowledge of both, 47.5% had heard of STIs and 69.5% had heard of HIV.

However the majority of both boys (41.7%) and girls (21.1%) did not know that HIV testing results would be kept confidential (Egypt 2010). In terms of information dissemination, television appeared to be the most prevalent popular as 69.0% of street boys and 63.0% of street girls reported watching television every day in the 4 weeks preceding the survey.

Although IDU in Egypt is relatively low compared to other countries, such as USA, Russia and China, it is a growing population and an increase in HIV prevalence has been noted among male IDUs in Cairo (El Awady, Azzazy et al. 2009). Soliman et al. used respondent driven techniques of IDUs in Cairo to estimate an HIV prevalence of 0.6%. While that estimate is relatively low it was still many times higher than the proportion of infected individuals estimated in the general population and seroprevalence samples collected in 2010 during the Bio-BBS found a prevalence of 6.7%-7.7% in Alexandria and Cairo, respectively (Egypt 2010). Moreover, Soliman et al. found high prevalence rates of needle sharing (58%) among IDUs as well as high-risk sexual behaviours, including MSM activity (12.5%) and sex with female sex workers (16.7%) with very low prevalence of condom use (6.0%). Compounding this risk, Soliman et al. found that more than one in three male IDUs were highly mobile (spending one or more months away from their home governorate within 12 months of being interviewed), while less than 1 in 10 men had reported ever being tested for HIV.

The 2010 Bio-BBS also reached 200 female sex workers (FSW) during their second round of surveys. The median age of these participants was 27.0 (range 18-62), of which nearly one in four reported never having a chance to attend school. Nearly one in three (31.0%) identified other means of work and the majority (89.0%) reported ever

being married or were currently married (45.5%). High risk behaviours were observed among FSW interviewed: 17.5% consumed alcohol at least once a week, 36.5% had non-commercial sex partners. Condom use was very low, 25% reported using a condom during last commercial sex act and only 11.0% reported using during most recent non-commercial sex act. Although a large proportion of FSW interviewed (89.0%) had ever heard of HIV, many misconceptions were prevalent as 36.5% believed HIV could be transmitted by sharing a meal with an infected person and 20.8% believed HIV could be transmitted by mosquito bite. Again, television appeared to be the most prevalent means of media regularly viewed by FSW with 77.0% reported watching TV every day (in the 4 weeks prior to the survey). Seroprevalence was low and thus population estimates for this group were not generated.

El-Sayyed surveyed 73 MSM in Cairo and found that among this sample, frequent risk behaviours included heterosexual relationships and low condom use (19.2% of the sample). In terms of surveillance, MSM do not self-identify as nonheterosexual and do not wish to be identified as such to others, which make addressing issues or designing interventions geared toward these special groups difficult. El-Sayyed found that while the majority of the sample surveyed had at least primary or secondary education (79.5%), MSM were less likely to be married (84.9%) and reported a sexual debut (age at first sexual act) of < 15 years of age (65.8%). This population also reported high incidence of penetrative and receptive anal sex (65.8%) and multiple partners (76.7%) for both commercial and pleasure purposes, putting them at even higher risk of infection. Boutros and Skordis also estimate that 73% of MSM are married (to women) in Egypt.

Similarly, the 2010 Bio-BBS sampled MSM groups from three major Egyptian cities (Cairo, Alexandria and Luxor). Although there were behavioural differences between the three groups, there were trends that prevailed throughout all groups: alcohol use, drug abuse, and low condom use. Demographic characteristics differed among the three groups with the Luxor group having two times the prevalence of no education when compared to the Cairo group (15.6% vs. 7. 4%). Similarly more MSM reported being currently married in Luxor 14.0%, than Alexandria (4.9%) than Cairo (3.5%). Regional differences in HIV knowledge were also observed as despite having multiple risk behaviours, only one in three MSM in Luxor had ever heard of HIV compared to 99.5% of Alexandria MSM and 92.2% of Cairo MSM. Furthermore, while 22.1% of Cairo MSM had ever been tested for HIV, only 14.5% of Alexandria MSM and 2.2% of Luxor MSM reported ever being tested. Seroprevalence for each group were high except for Luxor with an estimates seroprevalence estimate of 6.9% among MSM in Alexandria and 5.4% among Cairo MSM. Television was again the most effective method of information dissemination as the majority reported watching TV regularly in the 4 weeks preceding the survey.

The 2010 Bio-BBS results used blood samples collected from MARP to estimate population prevalence of HIV. These results estimate low HIV seroprevalence among street boys and girls as well as FSW but alarming levels of infection among Cairo MSM and IDU (5.4% and 7.7%, respectively) and Alexandria MSM and IDU (6.9% and 6.7% respectively). This report confirms concentrated epidemics in MARP (MSM and IDU). Furthermore, despite NAP interventions, programmes and counseling or testing campaigns, low proportions of MARP are screened, adequately informed about HIV

transmission routes and use preventative measures to avoid transmission. Shawky et al. characterize the unknown danger of ignoring low prevalence as an indication of active deterrence when a common feature of the global HIV epidemic has been a result of dramatic increases in cases in the absence of adequate prevention. These characteristics alone do not directly increase the risk of transmission and infection, but combined with poor knowledge of HIV/AIDS and low tolerance attitudes toward those infected, and the fact that MARPs have strong connections with the general population through marriage and sex partners (regular, irregular and commercial) creates a bridge between vulnerable groups and the mass population of Egypt.

## STIGMA

Early work by Erving Goffman characterizes social stigma as a complex sociocognitive construct rooted in perceptions of difference or deviance from social norms which can result in a sense of 'spoiled identity' among individuals participating in these aberrations. The sociocognitive construct of stigma not only leaves the individual feeling socially undesirable, but also directly affects risk and care-seeking behaviour (Mahajan, Sayles et al. 2008). Social determinants such as gender constructs, biological vulnerability, poverty, lack of adequate education and prevalent misconceptions reinforce the stigma associated with HIV/AIDS and can lead to discrimination of individuals in need; a study in South Africa found that individuals who were not tested for HIV had higher stigmatized attitudes toward PLWHA (Mahajan, Sayles et al. 2008). Studies in South Africa, France and China have shown that highly stigmatized social atmospheres and attitudes can encourage higher risk behaviour and individuals who are infected to be less likely to disclose their status to partners and increases in unsafe sexual practices

(Mahajan, Sayles et al. 2008). Other studies have shown a correlation between high stigma and increased depression, HIV-related symptoms, lower adherence to antiretroviral therapy and lower access to health services (Sayles, Hays et al. 2008) The dynamic of discrimination associated with PLWHA, vulnerable groups and risk behaviours directly impact an individual's economic potential, support system, social capital and access to information, prevention and treatment (Mahajan, Sayles et al. 2008).

There is a strong stigma associated with HIV/AIDS in Arab countries, including Egypt, deeply entrenched in cultural norms. In general, HIV/AIDS is associated with such social undesirability that it may permeate all aspects of life of individuals living with the infection as well as their caregivers, relatives or friends. Stigma associated with HIV/AIDS is linked to socially undesirable practices such as nonmarital sex and implicit homosexuality, both of which are legally punishable since Egyptian legislature is based on *Sharia* law. The General Penalties Law in Egypt prohibits commercial sex work (both homosexual and heterosexual) and drug abuse, deeming them inappropriate and labeling them as disobedience to Islam." (Boutros and Skordis 2010) The perception among Egyptian people that HIV/AIDS is a consequence of adultery or "habitual debauchery" has led to the labeling of HIV-infected individuals as immoral and/or promiscuous. This increases shame and silence about the infection, making it more difficult to access vulnerable groups through surveillance efforts or to discuss or research sexuality and high-risk behaviours. Intense stigma and shame about even talking about the disease has also led to a decrease in successful educational and targeted intervention campaigns (Boutros and Skordis 2010).

Arab values strongly emphasize abstinence outside of marriage and highly discourages nonmarital sex and drug use. Although these values have been credited for the low burden of HIV/AIDS in the Arab world, they are the same values that discourage people from seeking information, being tested for HIV, using appropriate prevention strategies, and seeking treatment when infected. Soliman et al. found that among male IDUs in Cairo, marginalization of this high-risk group has resulted in decrease use of services and low testing for HIV. Badahdah and Foote surveyed 277 female college students in Kuwait, Bahrain and Jordan and found strong correlations between decreased knowledge about HIV/AIDS and increased negative attitudes toward people with HIV/AIDS. Although there was an inverse relationship among Bahraini students of increased knowledge and negative attitudes, students from all three countries demonstrated that HIV/AIDS-related ignorance is highly predictive of HIV/AIDS stigma. The shame that is associated with HIV/AIDS in all Arab countries leads those who need the most help to forego it. Badahdah and Foote identify shame as an important emotion which can lead individuals to hide their health status from caregivers and withdraw from social interactions. Shame can be experienced not only by the individual with HIV, but also "courtesy stigma" (stigma by association) can be perceived by friends or relatives of the person with HIV. Badahdah and Foote found that there were no significant differences in AIDS-stigma among women from each country.

Current social and cultural norms prevent individual rights to HIV/AIDS privacy and also hinder proper education and prevention of HIV/AIDs in Egypt. The view that sex is inappropriate to discuss with strangers and children prevents integration of sexual education within the regular school curricula. Compounding this lack of education is the

economic crisis Egypt has been suffering for the past decade. Austere economic circumstances have led to a delay in the average age of marriage, which in turn has increased nonmarital relations and incidence of *orfi* marriages (where young people obtain a clandestine, temporary marriage certificate allowing them to engage in sexual relations). Another example of cultural practices, which affect an individual's incentive to seek HIV information and testing, is premarital HIV testing (PHT) in the Arab Peninsula (countries such as Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, the United Arab Emirates, and Yemen). Premarital screening has long been implemented for the prevention of genetic disorder transmission, but HIV testing has now been supplemented into premarital screenings. Policies for PHT reinforce the high stigma associated with HIV/AIDS; because premarital screening is mandatory, refusing screening may mean having to forgo marriage, a protective factor against HIV/AIDS. Moreover, because civil and religious authorities (or both) spearhead testing, positive HIV cases are reported to the police, involuntary disclosure of status become possible and partners of the HIV positive individual are traced.

In the UAE, couples or individuals who test positive for HIV can still marry but *Sharia* law and family involvement can complicate and postpone the process. In accordance with other studies of Arab regions, attitudes among youth in the UAE were neither positive nor tolerant toward individuals infected with HIV/AIDS, as 53% of observed samples felt that infected individuals should be forced to live apart and 73% felt that children with HIV should not be allowed to attend school (Badahdah and Foote 2010). Furthermore, the majority of UAE students (67%) reported they would insist on their partner taking PHT and 8% reported refusing to marry their partner upon refusal to

take PHT (Ganczak 2010). Social stigma associated with HIV/AIDS prevents people living with HIV/AIDS from being included in regular medical checkups and applying for employment or university. In Saudi Arabia, where PHT is mandatory, it is estimated that 97% of heterosexually infected women acquire HIV from their husbands.

Current surveillance and screening efforts face formidable obstacles. Although, all donated blood must be screened for HIV, prior to 2004 24% of known HIV cases in Egypt are attributed to the use of infected blood (or blood products) and 5 outbreaks were reported to occur because of the reuse of syringes and dialysis equipment in renal dialysis units (Egypt 2010). While international attention helped the Ministry of Health and Population (MOHP) to act swiftly, the continuing bureaucratic and under-resourced nature of the Egyptian health care system and National Aids Program (NAP) restricted sustained efforts to reduce transmission. Furthermore, surveillance and case reporting is not systematic in Egypt: while HIV/AIDS reporting is obligatory, positive cases identified by government laboratories are reported directly to the government's NAP, but while all laboratories are obligated to report confirmed cases to the Egyptian Ministry of Health, it remains unclear how this process affects willingness to test. These findings reinforce the cultural and social role shame plays in Arab society by highlighting that Arab values use shame to restrict open dialogue about sexuality, education and prevention of sexually transmitted diseases and the association between HIV/AIDS and socially undesirable activities (e.g., nonmarital sex and drug use). The same values that were once thought to protect the Egyptian community from the HIV epidemic may now represent a facilitation, rather than protection from, HIV/AIDS transmission. These

obstacles inhibit comprehensive and representative behavioural surveillance of HIV/AIDS in the Egyptian community.

## GENDER DIFFERENTIAL

Globally, gender norms have often subordinated women and as a consequence, men and women have differential access to resources, education and social capital(Shawky, Soliman et al. 2009). Women and men do not share the same social equity, status or educational opportunities in the Arab world. Social constructs of gender roles place care giving responsibilities on women, strongly encourage fidelity to one sexual partner, and place women at a disadvantage with respect to accessing information regarding HIV, resources and negotiating safe sex practices. In contrast, similar to many parts of the world, interpretations of masculinity allow for multiple sexual partners, imply higher sexual knowledge, and discourage men from seeking information about safer sex or risk reducing practices that are often associated with undesirable social status (Shawky, Soliman et al. 2009). The burden of HIV infection and AIDS cases also is differentially distributed by sociodemographics: the 2008 Millennium Development Goal Midterm Assessment conducted in Egypt estimates that 89.1% of HIV cases in Egypt are among individuals ages 15-49.

In Egypt, both men and women have access to school, although significantly fewer women attain similar education levels to their male counterparts and underlying gender norms further inhibit education about HIV/AIDS prevention measures and education. Literature suggests that women's risk of infection is magnified biologically and as a result of this inequity; women have less access to information, lower rates of literacy, are more often the victims of unwanted sexual advances, and have less social

capital when it comes to negotiation of safe sexual practices (Boutros and Skordis 2010). Furthermore, previous studies in the United Arab Emirates (UAE) found that male students had greater knowledge than female students about HIV/AIDS transmission, prevention, and treatment. Gender dynamics also put girls at higher risk for infection. Nada and Suliman found that among street children in Alexandria and Cairo, girls were many times more likely to have been sexually abused (54% of all girls surveyed), and forced to have sex than their male counterparts (often by other street boys). Furthermore, boys were more likely to have knowledge of HIV but also many more times likely to have had sex with a person of the same sex than street girls.

Finally, although passive surveillance systems have been the primary method of collecting surveillance data in Arab regions, sentinel surveillance sites are often implemented among antenatal clinics targeting pregnant women(Shawky, Soliman et al. 2009). However, while voluntary counseling and treatment centres exist in Egypt, it remains unclear how effective these services are (for both mother and couple) since they receive higher numbers of women (than men) but social norms limit the incentive for women to ask for information and inquire about testing. Moreover, in many of the MENA countries, such as Sudan, the number of women infected far surpasses the number of men, dispelling the myth that HIV is spread solely through blood transfusions or MSM.

## INADEQUATE KNOWLEDGE & MISCONCEPTIONS

Badahdah and Foote used a 13-item knowledge scale adapted from the *Attitudes Toward AIDS Scale*, added questions related to AIDS stigma and administered the survey to three convenient samples of University women in Bahrain, Kuwait and Jordan. While

most students could correctly identify the main behaviours or situations that could increase a person's risk of infection, there was reduced understanding about the fluids that carry HIV, specifically semen and breast milk. Substantial misconceptions about the transmission of HIV/AIDS remain widespread among Arab individuals. Badahdah and Foote found significant differences in knowledge of HIV/AIDS between women from each country; one third of women in each country believed there was a cure for AIDS, 63%-73% believed one could contract HIV from a mosquito bite, and the majority of women (78%-83%) were unaware that condoms could reduce the chance of HIV transmission. Nada and Soliman observed alarming rates of misconceptions among sexually active urban street children. For example, 16% believed casual physical contact could spread the disease, and 14% did not know how HIV is transmitted. This coincides with results by El-Sayyed, which showed an increase in condom use among MSM with higher levels of education and lower reported instances of STI symptoms (37.5% versus 64.3% among illiterate MSM). In fact, 21.9% of MSM surveyed reported never using a condom because they had never heard of them. It may be that because in certain countries the use of condoms was low prior to the HIV/AIDS epidemic that uptake of condom use and education has been relatively slow. Boutros and Skordis hypothesize that another potential barrier in condom use is the popular belief that condom buyers are assumed to be homosexual and therefore further stigmatized.

Low levels of accurate knowledge about HIV and STIs have a direct relationship with negative attitudes toward people living with HIV/AIDS. Mohsin et al. in Lahore, Pakistan, found that the level of knowledge and degree of tolerance toward HIV/AIDS can affect the quality of care patients receive and the quality of follow up and syndromic

management (Khan, Unemo et al. 2009). Cultural beliefs, specific to each individual nation can affect these effects. For example, in Vietnam, Quach et al. found that while younger physicians were more informed, older physicians were more likely to have a positive attitude toward HIV/AIDS patients as Vietnamese society expects older people to be more tolerant and sympathetic (Khan, Unemo et al. 2009). It is important to understand what correlates of socioeconomic demographic indicators predict accurate HIV/AIDS knowledge and high tolerance toward people with HIV/AIDS.

## SUMMARY& FUTURE IMPLICATIONS

The HIV epidemic has been one of the most detrimental causes of morbidity and mortality of the 21st century. Risk of HIV infection is inherently affected by accurate knowledge of transmission and indirectly depended upon behaviour and social acceptability(Shawky, Soliman et al. 2009). Literature suggests that Egypt's population may have a concentrated epidemic status that has not been accurately reported before, and vulnerable groups may bear a disproportionate burden of infection and infection-related social stigma. Badahdah and Foote suggest that a reduction in shame associated with HIV/AIDS is imperative to improving the perception of people with HIV/AIDS in the Arab world. Nada and Suliman indicate how street children have been observed engaging in practices characteristic of high-risk populations around the world. Boutros et al. warn that because of the culmination of cultural constraints and social stigma, adequate surveillance is difficult to attain and thus, HIV-related policy, interventions and resource allocation are scant and urgently needed to avert a growth in the current epidemic. In the 2006 and 2008 HIV/AIDS Biological and Behavioural Surveillance

Surveys, all target groups (MSM, street children and IDUs) shared common high-risk behaviours that put them at higher risk of infection: unprotected sex, numerous sexual partners and intravenous drug use.

Throughout the review of current literature, gaps in accurate surveillance were identified, as were the gaps in comprehensive sexually transmitted disease data and insight into the HIV/AIDS epidemic in Egypt. Challenges to accurate surveillance and prevention/intervention efforts include overconfidence that conservative cultural and social norms may be prohibiting infection, lack of knowledge about transmission among high-risk populations and the general population, high levels of stigma discouraging individuals from seeking screening and treatment for HIV/AIDS, and limited resource allocation and acceptance of HIV/AIDS as a legitimate problem. These challenges will continue to hinder appropriate surveillance and outreach efforts.

Since Egypt is the first Arab nation to participate in a national-level survey about HIV/AIDS knowledge and attitudes, this provides an opportunity to evaluate current knowledge and attitude practices in one of the largest and most populated Arab nations in the world. As evidence mounts concerning the HIV epidemic in Egypt, it is important to understand mechanisms of understanding, education, prevention and perception in Egypt as a model for the Arab world. Overall, accurate knowledge and high tolerance beget an opportunity to impede further morbidity and mortality associated with HIV/AIDS. However, gender dynamics and a further understanding of specific inequities in knowledge and attitudes will help current campaigns and efforts to understand, prevent and further address the HIV/AIDS situation in Egypt.

# CHAPTER 3: MANUSCRIPT

## Student Contribution

Under the direction of Dr. Kathryn Yount, Leeza M. Kondos collaborated to form a secondary analysis in theory. Leeza Kondos was responsible conceptual development of the research question and data analyses, for acquiring the data from Measure DHS, establishing the analysis and execution. Dr. Nafisa Halim consulted on numerous technical aspects of data analysis, participated in discussion and interpretation of results, and provided general feedback regarding accuracy and statistical rigor. Dr. Yount provided guidance with respect to hypotheses, analysis and interpretation as well as editing of all documentation. Dr. Sherine Shawky provided subject matter expertise, background material and feedback on validity of results, accuracy of interpretation and context of findings.

## Introduction

The HIV epidemic is a global priority that has not been considered critical in the Middle East and North African (MENA) region. This is mainly due to underreporting of the epidemic, as many officials believe that the conservative Egyptian Islamic values have curbed the HIV epidemic in Egypt relative to other countries. However, recent reports show steady increases in HIV cases and a six-fold increase in AIDS deaths in Egypt within the past 20 years (Shawky, Soliman et al. 2009). Many have speculated that cultural and social norms in Egyptian culture have inhibited the epidemic from becoming a significant public health concern, however, among most at risk populations (MARP), behaviors and sociocultural norms have been identified that hinder education of accurate

transmission routes and prevention of infection. As revealed in behavior and attitudinal surveys conducted in several Arab nations, low knowledge of accurate transmission and refusal of misconceptions concerning HIV/AIDS is widespread, as are negative attitudes toward PLWHA. The interaction of MARP in Egypt in an atmosphere of social disobedience, generally low knowledge and high stigma associated with PLWHA, on the efficiency of HIV/AIDS campaigns in Egypt remains unclear.

In Egypt, similar to MENA countries and those outside the Arab world, gender norms have often subordinated women and as a consequence, men and women have differential access to resources, education and social capital. Adherence to traditional gender roles creates a society in which women are pressured to maintain domestic responsibilities and submissive behavior for women while masculinity norms tolerate infidelity and a projection of knowledge and sexual experience that may or may not be accurately representative of actual knowledge of HIV/AIDS. These constructs are compounded by the differential burden of disease, which is largely transmitted by heterosexual sexual transmission. Women are generally at higher risk of transmission, since they have lower social capital, which results in decreased sexual negotiation ability (e.g., condom use) and overall, less access to prevention and treatment mechanisms. This is particularly important as bridges between MARP and the general populations have been established, as MSM, IDU and commercial sex workers are often married (or have been married) to members of the general population. Of particular interest are the majority of MSM who have been surveyed in Cairo and reported being concurrently married, putting married women at increased risk of infection. Similarly, increasing proportions of street children and squatter area inhabitants are using transactional sex

among MARP and others, increasing the likelihood of infection. These behaviours augment the risk associated with a silent epidemic as connections between MARP and the general population increase while knowledge, particularly among Egyptian women, remains low and stigma toward PLWHA remains high. Recent studies suggest that a concentrated epidemic is growing in Egypt. In order to reduce morbidity and mortality associated with HIV/AIDS, effective surveillance and educational campaigns must address sociocultural norms that have thus far hindered prevention measures and access to information or treatment for those living with or at risk for contracting HIV/AIDS.

The purpose of this study was to conduct a secondary data analysis on the 2008 Egypt DHS (EDHS), in order to examine the general levels of accurate knowledge of HIV/AIDS and attitudes toward PLWHA among a representative Egyptian population. Particularly, differentials gaps in knowledge and attitudes were examined. Data for this analysis was collected and validated in 2008 by ICF Macro, an ICF International Company for MEASURE DHS, a project funded by the U.S. Agency for International Development (USAID), particularly USAID/Cairo as well as the United Nations Children's Fund (UNICEF) and other donors. The EDHS was executed by El-Zanaty & Associates. Permission to use the EDHS data was requested and granted via MEASURE DHS.

## Methods

### Research Design and Population

A cross-sectional study was conducted in 2008, and was executed in four stages: 1) preparation of sampling design and frame, development of surveys, pretesting and finalization, 2) training of field staff and interviewing eligible individuals and

households, 3) verification, validation, cleaning and production of the final data file and then 4) data analysis and reporting of data as well as the findings. Overall, stage one was initiated in August 2007 and the final stage ended in October 2008. Data collection (Stage 1) was designed as a three tier sampling design, surveying a total of 23,104 Egyptian participants throughout the six administrative regions in Egypt. Primary sampling units (PSUs) were identified as towns in urban areas and villages in rural areas. PSUs were then stratified by geographic location from Egypt's northwest corner to the southeast corner. From there, 610 PSUs (275 shiakhas or towns and 335 villages) were identified and divided into 998 parts based on population size using the 2006 census. Approximately 200 households comprised each of the 998 parts. Of all 998 parts, 1,267 segments were randomly assigned and one fourth of households in each segment were interviewed. Within each house, all men and women age 15-59 were asked questions regarding health, HIV knowledge and attitudes, among other demographic and health-related questions by 15 teams (45 workers) on behalf of ICF Macro. Inclusion of men and women of reproductive age was imperative to understand HIV/AIDS knowledge and attitudes among groups within the general population who are susceptible to infection and/or high-risk behaviour. Women and men were eligible for the health issues interview assuming age eligibility (15-59), regardless of marital status, and were present in the household the night before the interview.

To form a representative sample, 19,739 households were selected for the 2008 EDHS. From these, 19,147 households were located, and 18,968 households were successfully interviewed indicating a response rate of 99.1%. Eligible respondents had consistent criteria, of which 4,953 households (total) were selected for the health issues

subsample. Of these, 4,757 were found and 4,662 interviewed, indicating a 98% response rate. However, of all eligible participants (6,702 men and 6,078 women) who met the criteria for being interviewed, women had a slightly higher response rate than men (98% vs. 89%). This was mainly due to conflicting work schedules for men, which made it harder to contact them for interviewing purposes. EDHS data were weighted for population representativeness prior to all analyses.

Previous literature has indicated that sociocultural norms maintain differential gender access to resources, education and social capital. Therefore, in the current study, the data were stratified by sex in order to assess gaps in knowledge and attitudes between men and women. A total of 12,780 individuals were selected and of those, 94% (12,008) were successfully interviewed of which 5883 were men and 6125 were women (response rates of 96% and 98%, respectively).

## Instruments

EDHS used three questionnaires to collect data: household questionnaire, an ever-married woman questionnaire and a health issues questionnaire. Household and ever-married questionnaires were based on those previously used EDHS surveys. The majority of the content in the health issues questionnaire was developed especially for the 2008 EDHS, incorporating previous EDHS surveys and similar MEASURE DHS surveys, and then translated into Arabic, validated, verified and implemented. The complete health issues questionnaire (which contains all questions about HIV knowledge and attitudes), contained novel questions about HIV/AIDS knowledge, pervasive misconceptions and attitudes toward PLWHA, see Appendix A. All data collected were weighted for population representation.

## Final sample

A subset of participants who responded to the health issues survey were included in the analysis: only those who had an affirmative answer (yes) to ever hearing about AIDS were given the further questionnaire (Appendix A). Of the total participants, 9460 (78.8%) responded they had ever heard of AIDS and 2546 (21.2%) responded that they had not (2 were missing). Among those who had heard of AIDS, 4718 were men (49.9%) and 4742 (50.1%) were women. From there individuals who were missing a response from any of the 10 knowledge questions or 4 attitude questions were removed from analysis (n=2585), resulting in a sample of 9,423. Finally, 106 individuals were excluded from analysis because they were missing sociodemographic information (educational attainment, wealth index, age, and/or marital status). The final sample used for analysis included men and women from all ages, religions, wealth indices, residence (urban/rural), region of residence (governorate) and educational attainment (Table 1).

## Variables

To isolate a continuous sample for statistical purposes, participants whose responses were missing from any of the variables of interest were excluded from the sample. This resulted in a final sample size of 9,317 individuals. Descriptive statistical analyses were conducted in order to assess the proportions and frequencies of responses to all demographic, knowledge and attitude questions. Knowledge questions were categorized as affirmative and negative and summated to create a scale of knowledge that ranged between 1 and 10. After assessing frequency of all responses, each question (10 knowledge, 4 attitude) was assigned a value of 1 if the respondent conveyed correct knowledge or low stigma (high tolerance) and zero if the response was incorrect, or if the

participant did not know (with respect to knowledge questions), which conveyed inadequate knowledge or high stigma (low tolerance). For two variables about television and radio, 22 and 23 participant responses (respectively) were missing. Since the majority of participants report these two media forms as sources of information, the missing 22 and 23 values were imputed with the mode (the overall change was 0.3%).

Knowledge of HIV/AIDS was assessed in six ways: 1) mechanisms of reducing transmission, 2) mother to child transmission routes, 3) knowing of a place to be tested for HIV, 4) common misconceptions of transmission routes, 5) misconceptions of non-clinical manifestations of HIV/AIDS, and 6) an overall score of knowledge on a summative scale (0 indicating inaccurate knowledge on all questions and 10 indicating accurate knowledge on all questions), see Table 2A. Attitude questions were also assessed: these questions included whether participants would be willing to buy fresh vegetables from PLWHA, their attitude toward a family member who, hypothetically, would need care and disclosure of that relative's status, as well as attitude toward a school teacher being able to remain teaching if she were infected. Once the final sample was established and each knowledge and attitude item was assigned a score, the sum of scores for each individual (for both knowledge and attitudes) were transformed into linear outcomes where lower values indicated either lower knowledge or low tolerance and higher values represented higher knowledge or higher tolerance.

An individual was considered to have "high knowledge" if their summative score of knowledge was six or above (mean knowledge was 5.4). Similarly, a summative scale was constructed using attitude questions to assess the range of stigma associated with HIV/AIDS. All variables were assessed for multicollinearity, bivariate analysis adjusted

for sex, measures of association with linear knowledge and attitudes scales as well as dichotomized high and knowledge and attitudes levels.

## Data analysis

Simple descriptive statistics were used to assess frequency and proportions of variables of interest including age, sex, residence (urban/rural), administrative region of residence, level of education, literacy, wealth index, socioeconomic indicators, marital status and access to television and radio. The EDHS Household and Health Survey questionnaires were merged to include wealth index since it was not collected independently in the Health questionnaire. Answers to knowledge and attitude questions were also examined. After descriptive statistics describing socioeconomic and demographic indicators of participants were examined, we then analyzed proportions of knowledge and attitudes with respect to HIV /AIDS. These analyses were conducted for the entire and then were stratified by sex. Differences between groups (i.e., males vs. females) were assessed using Student's t-tests for continuous variables and chi-squared analyses for categorical and ordinal variables, both using the conventional significance level of $\alpha = 0.05$. Demographic indicators (e.g., education, marital status, residence, sex, wealth index and religious identification) were then correlated with knowledge questions as well as with attitudinal questions.

Finally, univariate analysis and distribution of knowledge and attitudinal responses was evaluated and used as a linear outcome and dichotomized outcomes of high knowledge and high tolerance (low stigma). Bivariate analyses indicated significant contribution with respect to individual covariate linearity and outcome distribution by each of the variables of interest. Variables such as where a person had heard about

HIV/AIDS were not included in the final regressions because their significance did not meet the alpha level indicated. Although religion was not significant in the bivariate analysis, due to the relationship of Islam and Arab national policy, it was important to control for this variable. Similarly, wealth index showed a linear response with respect to outcome, although at differing significance levels. Education, age and governorate were found to covary with knowledge and attitudes. Media exposure (radio and television) had variable relationships with both outcomes.

Multivariate linear regression was used to assess predictors of high knowledge and more positive attitudes toward PLWHA as described using the corresponding knowledge and attitude summative scales. Responses to the knowledge and attitudes questions (which composed the 2 separate summative scales) were determined to have an underlying normal distribution, and used as outcomes in multivariate linear regression. Once mean knowledge and attitude scores were computed, individuals who scored higher than average on both scales were examined to see which demographic and socioeconomic indicators predicted their high knowledge and attitudes. High scores for both knowledge (score of seven or more) and attitudes (2 or more) were treated as outcomes for multivariate logistic regression analysis. Significance of all results was considered at $\alpha = 0.05$ level.

All statistical analyses were conducted using STATA® 11.0. Analyses were first conducted assuming uniform weighting of data to assess variability. Analyses were repeated using survey commands assigning households weights (as collected by ICF Macro) to each household, and accounting for each PSU as well as stratifying on

residence (urban/rural). The hypotheses and analysis focused on stratified differences; therefore all descriptive statistics were stratified by sex and residence.

### Limitations

The social stigma associated with HIV/AIDS may have affected the accuracy and willingness of disclosure among participants with respect to knowledge and attitude questions. However, due to the large sample size and representativeness of sex and residence, the findings of this study can be used as a national estimate and even a regional proxy among other similar, yet non-participating, Arab nations with similar cultural and social circumstances to Egypt.

## RESULTS

### Characteristics of Sample Population

Overall, there were equivalent proportions of females and males who responded to ever hearing about AIDS (50.5% female and 49.9% male), and this difference was significant due to the large sample size. There were no significant differences by sex with respect to religion as the majority of men (95.2%) and women (95.3%) identified as Muslim. Men composed more of the lower wealth quintiles (poorest, poorer and middle) while there were higher proportions of women in higher quintiles (richer, richest). Although these differences were significant, the distributions were relatively equivalent (see Table 1). More rural men than rural women were included in the analysis (55.9% vs. 50.8%), however residence was nearly equivalent across genders, with 53.4% of the population from rural areas. More than half of the men and women were married (58.4% and 67.4%, respectively), although 40.6% of men were never married compared to 26.1% of women.

There were significant differences in educational attainment by gender: only 9.7% of men reported having no education compared to 19.3% of women. Also, men had consistently higher education in all other levels (primary-post-secondary), and these differences were statistically significant. Proportionately more women than men watched television nearly every day (95.4% versus 92.4%), as well as listened to the radio more regularly (40.1% versus 34.4%, respectively). Overall, the majority of participants (72.7%) reported not hearing, seeing or receiving any information about HIV/AIDS in the 6 months before interview (Table 1).

## Gender Gaps in Knowledge about HIV/AIDS

Overall, about 1 in 4 participants knew abstaining from sexual intercourse could prevent transmission of HIV (AIDS), and the majority (80.6%) knew that having one sexual partner who was not infected (and had no other partners) could reduce the chance of transmission. However, two-thirds of all participants did not know that using a condom with every sexual act could reduce transmission. Men had significantly greater knowledge on all questions pertaining to measures of reducing transmission (Table 2A).

Nearly 80% of all participants knew that HIV could be transmitted from mother to child during pregnancy, although women had less knowledge than men (77.5% vs. 81.1%, respectively). While these differences were significant, women had significantly higher knowledge about transmission from mother to child through pregnancy and breastfeeding, although in total less than half of respondents (42.7%) knew that HIV can be transmitted through breast feeding. Overall, less than one fifth (19.5%) of participants knew where to get tested for HIV, while an alarming 97.8% of men did not know. Male participants had higher refusal responses of misconceptions regarding AIDS than women

with respect to responding that mosquito bites were not a route of transmission (71.0% vs. 65.1%) and that neither wash sharing food with a person who has AIDS (71.1% and 65.4% respectively). A high proportion of men and women, 65.2%, knew that it would be possible for a healthy person to have AIDS, although such knowledge was less common among women than men (61.1% vs. 69.4%, respectively). The mean knowledge score was 5.4 (SD = 0.04), with men having a high-point higher average knowledge score than women (5.7 versus 5.2). Aside from transmission from mother to child and knowing of a place where a person could be tested for HIV, men had significantly higher levels of knowledge on all indicators (questions and scale).

## Gender Gaps in Stigma Toward PLWHA

Overall negative attitudes toward PLWHA were consistently high: only 16.2% of all respondents would be willing to buy fresh vegetables from an HIV-infected vendor, and only 10.7% of respondents believed an HIV infected teacher should be allowed to continue teaching in school (Table 2B). However, gender differences were mixed: more men were willing to buy vegetables from an HIV-infected vendor (18.6% vs. 13.9% of women), while more women believed an HIV-infected (female) teacher should be allowed to continue teaching (12.5% vs. 8.8%, respectively). There were slight increases in tolerance when participants were asked about potential situations of a relative being infected with HIV: while 36.1% of respondents reported wanting the status of a relative to be kept a secret, more than one-fifth of respondents reported that they would be willing to take care of an HIV-infected family member. Again, gender differentials were mixed: while more women than men were willing to take care of an HIV-infected family

member (23.1% vs. 20.0%), more women also reported wanting to keep the status of a family member a secret (38.4% vs. 33.8%), see Table 2B.

*Table 1: Sociodemographic Indicators of Population Sample Stratified by Sex, Weighted*

| Variable | Female | Male | p-value | Total% |
|---|---|---|---|---|
| *(n)* | % | % | | |
| **Overall** | 50.5 | 49.5 | | |
| **Mean Age ( SD)** | 31.3 (0.2) | 32.5 (0.2) | <0.0001 | |
| 15-19 | 17.1 | 18.2 | <0.0001 | 17.6 |
| 20-29 | 34.8 | 29.5 | | 32.2 |
| 30-39 | 22.8 | 21.3 | | 22.0 |
| 40-49 | 16.1 | 18.5 | | 17.3 |
| 50-59 | 9.3 | 12.4 | | 10.9 |
| **RELIGION** | | | 0.8 | |
| Muslim | 95.3 | 95.2 | | 95.3 |
| Christian | 4.7 | 4.8 | | 4.7 |
| **Wealth Quintile** | | | <0.0001 | |
| Poorest | 11.6 | 14.4 | | 13.0 |
| Poorer | 17.4 | 20.1 | | 18.8 |
| Middle | 19.2 | 20.9 | | 20.0 |
| Richer | 24.0 | 21.2 | | 22.6 |
| Richest | 27.8 | 23.4 | | 25.6 |
| **Residence** | | | <0.0001 | |
| Rural | 50.8 | 55.9 | | 53.4 |
| Urban | 49.2 | 44.1 | | 46.6 |
| **Region of Residence** | | | <0.0001 | |
| Urban governorates | 22.8 | 18.4 | | 20.6 |
| Lower Egypt urban | 13.0 | 12.1 | | 12.6 |
| Lower Egypt rural | 32.5 | 34.5 | | 33.5 |
| Upper Egypt urban | 12.4 | 12.4 | | 12.4 |
| Upper Egypt rural | 18.0 | 21.0 | | 19.5 |
| Frontier governorates | 1.3 | 1.6 | | 1.4 |
| **Marital Status** | | | <0.0001 | |
| Never married | 26.1 | 40.6 | | 33.3 |
| Married | 67.4 | 58.4 | | 62.9 |
| Formerly Married | 6.5 | 1.0 | | 3.8 |
| **Highest Education Attended** | | | <0.0001 | |
| No Education | 19.3 | 9.7 | | 14.6 |
| Primary | 11.6 | 14.0 | | 12.8 |
| Preparatory | 10.4 | 11.7 | | 11.0 |
| Secondary | 36.5 | 39.0 | | 37.7 |
| Post-Secondary | 22.2 | 25.6 | | 23.9 |
| **How often Listen to Radio** | | | <0.0001 | |
| Almost every day | 40.1 | 34.4 | | 37.3 |
| At least 1x per week | 13.1 | 23.1 | | 18.1 |
| Less than 1x per week | 11.5 | 15.2 | | 13.3 |
| Don't listen at all | 35.3 | 27.3 | | 31.3 |
| **How often Watch TV** | | | <0.0001 | |
| Almost every day | 95.4 | 92.4 | | 93.9 |
| Less than everyday | 4.6 | 7.6 | | 6.1 |
| **In the last 6 months, have you heard, seen or received any information about HIV/AIDS?** | | | <0.0001 | |
| YES | 30.7 | 23.9 | | 27.3 |
| NO | 69.3 | 76.1 | | 72.7 |

**Table 2A: Comparison of Accurate HIV knowledge by Gender, Weighted**

| | Females (n=4668) | | Males (n=4649) | | P-value | Total |
|---|---|---|---|---|---|---|
| | (n) | % | (n) | % | | % |
| **People can reduce their chance of getting AIDS by:** | | | | | | |
| Abstaining from sexual intercourse | 1084 | 21.2 | 1286 | 26.4 | <0.0001 | 23.8 |
| Having just one sex partner who is not infected and has no other partners | 3583 | 78.4 | 3840 | 82.9 | <0.0001 | 80.6 |
| Using condom every time they have sex | 1130 | 23.2 | 1965 | 41.2 | <0.0001 | 32.2 |
| **HIV can be transmitted from mother to child during:** | | | | | | |
| Pregnancy | 3570 | 77.5 | 3756 | 81.1 | 0.0006 | 79.3 |
| Delivery | 3065 | 66.1 | 2812 | 61.9 | 0.0008 | 64.0 |
| Breast feeding | 2099 | 45.2 | 1697 | 40.2 | 0.0003 | 42.7 |
| **Place of HIV testing** | | | | | | |
| Know a place for HIV testing | 731 | 16.6 | 1045 | 2.2 | <0.0001 | 19.5 |
| **People cannot get AIDS through** | | | | | | |
| Mosquito bites | 2987 | 65.1 | 3307 | 71.0 | <0.0001 | 68.0 |
| Sharing food with a person who has AIDS | 3023 | 65.4 | 3267 | 71.1 | <0.0001 | 68.3 |
| **Status of a healthy looking person** | | | | | | |
| Possible to have AIDS | 2891 | 61.1 | 3178 | 69.4 | <0.0001 | 65.2 |
| **OVERALL MEAN of Knowledge Scale (0-10)** | | | | | | |
| Total Knowledge 0(low) – 10(high) | | | | | <0.0001 | |
| Mean (SD) | | 5.2 (0.05) | | 5.7 (0.04) | | 5.4 (0.04) |
| Min, Max | | (0, 10) | | (0, 10) | | (0, 10) |

**Table 2B: Comparison of HIV Tolerance by Gender**

| | Females (n=4668) | | Males (n=4649) | | P-value | Total |
|---|---|---|---|---|---|---|
| | (n) | % | (n) | % | | % |
| Willing to buy fresh vegetables from an HIV infected vendor | 640 | 13.9 | 865 | 18.6 | <0.001 | 16.2 |
| If a family member became sick would want to remain a secret | 3583 | 38.4 | 3840 | 33.8 | 0.0013 | 36.1 |
| Will to take care of an HIV infected family member | 1130 | 23.1 | 1965 | 20.0 | 0.005 | 21.6 |
| Believe an HIV infected teacher can be allowed to continue teaching in school | 3023 | 12.5 | 3267 | 8.8 | <0.001 | 10.7 |
| **OVERALL MEAN of Tolerance Scale (0-4)** | | | | | | |
| Tolerance: 0(low) – 4(high) | | | | | 0.007 | |
| Mean (SD) | 0.9 (0.02) | | 0.8 (0.02) | | 0.85 (0.01) | |
| Min, Max | (0, 4) | | (0, 4) | | | |

**Table 3A: Linear Regression of Knowledge and Attitude Scales, Weighted**

| Model | Knowledge Scale & Gender, Unadjusted β (SE) | Knowledge Scale & Gender, Adjusted β (SE) | Attitude Scale & Gender, Unadjusted β (SE) | Attitude Scale & Gender, Adjusted β (SE) |
|---|---|---|---|---|
| **Gender *(ref=men)*** | -0.48 (0.06)*** | -0.45 (0.06)*** | 0.07 (0.02)** | 0.06 (0.03)** |
| **Religion *(ref=Muslim)*** | | -0.02 (0.12) | | -0.03 (0.06) |
| **Age *(ref=15-19)*** | | | | |
| **20-29** | | 0.69 (0.07)*** | | 0.04 (0.03) |
| **30-39** | | 0.81 (0.1)*** | | 0.08 (0.04)* |
| **40-49** | | 0.76 (0.10)*** | | 0.09 (0.05)* |
| **50-59** | | 0.69 (0.12)*** | | 0.07 (0.05) |
| **Marital Status *(ref=Never)*** | | | | |
| **Married** | | 0.16 (0.07)* | | -0.04 (0.03) |
| **Ever Married** | | 0.17 (0.14) | | 0.0 (0.07) |
| **Education *(ref=no education)*** | | | | |
| **Primary** | | 0.30 (0.1)** | | 0.05 (0.04) |
| **Preparatory** | | 0.62 (0.11)*** | | 0.10 (0.04)** |
| **Secondary** | | 0.98 (0.89)*** | | 0.15 (0.03)*** |
| **Post Secondary** | | 1.49 (0.09)*** | | 0.32 (0.04)*** |
| **Wealth*(ref=poorest)*** | | | | |
| **Poorer** | | 0.02 (0.10) | | 0.01 (0.04) |
| **Middle** | | 0.13 (0.11) | | 0.03 (0.04) |
| **Richer** | | 0.22 (0.11)* | | -0.03 (0.04) |
| **Richest** | | 0.43 (0.12)*** | | 0.24 (0.05) |
| **Radio *(ref=never)*** | | | | |
| **< 1x/wk** | | 0.11 (0.08) | | -0.10 (0.04)** |
| **>1x/wk** | | 0.38 (0.07)*** | | -0.12 (0.03)*** |
| **Almost every** | | 0.40 (0.06)*** | | 0.002 (0.03) |
| **TV *(ref=<everyday)*** | | | | |
| **Almost everyday** | | 0.30 (0.10)** | | -0.05 (0.04) |
| **Governorate/Region** | | | | |
| Lower urban | | -0.14 (0.12) | | -0.31 (0.05)*** |
| Lower rural | | -0.29 (0.11)** | | -0.30 (0.05)*** |
| Upper urban | | -0.31 (0.11)** | | -0.14 (0.05)** |
| Upper rural | | -0.34 (0.11)** | | -0.08 (0.05) |
| Frontier | | -0.15 (0.13) | | -0.12 (0.07)† |
| **R-sq** | **0.013** | **0.14** | **0.0014** | **0.04** |

**† p ≤ 0.10, * p ≤ 0.05, ** p ≤ 0.01, *** p ≤ .001**

**Table 3B: Linear Regression of High Knowledge and Low Stigma, Weighted**

| Model | High Knowledge & Gender, Unadjusted | High Knowledge & Gender, Adjusted | High Tolerance& Gender, Unadjusted | High Tolerance & Gender, Adjusted |
|---|---|---|---|---|
| | β (SE) | β (SE) | β (SE) | β (SE) |
| **Gender *(ref=men)*** | -0.11 (0.01)*** | -0.11 (0.01)*** | -0.02 (0.009) | -0.009 (0.01) |
| **Religion *(ref=Muslim)*** | | -0.007 (0.03) | | -0.02 (0.02) |
| **Age *(ref=15-19)*** | | | | |
| **20-29** | | 0.09 (0.02)*** | | 0.02 (0.01) |
| **30-39** | | 0.13 (0.02)*** | | 0.05 (0.02)** |
| **40-49** | | 0.14 (0.02)*** | | 0.05 (0.02)* |
| **50-59** | | 0.11 (0.03)*** | | 0.04 (0.02)† |
| **Marital Status *(ref=Never)*** | | | | |
| **Married** | | 0.02 (0.02) | | -0.03 (0.01)* |
| **Ever Married** | | 0.02 (0.03) | | -0.006 (0.03) |
| **Education *(ref=no education)*** | | | | |
| **Primary** | | 0.04 (0.02)* | | 0.03 (0.01)* |
| **Preparatory** | | 0.13 (0.02)*** | | 0.03 (0.02))* |
| **Secondary** | | 0.16 (0.02)*** | | 0.07 (0.01)*** |
| **Post Secondary** | | 0.25 (0.02)*** | | 0.12 (0.02)*** |
| **Wealth*(ref=poorest)*** | | | | |
| **Poorer** | | 0.01 (0.02) | | 0.01 (0.01) |
| **Middle** | | 0.01 (0.02) | | 0.01 (0.02) |
| **Richer** | | -0.00 (0.02) | | -0.01 (0.02) |
| **Richest** | | 0.07 (0.02)** | | 0.02 (0.02) |
| **Radio *(ref=never)*** | | | | |
| **< 1x/wk** | | 0.04 (0.02)* | | -0.03 (0.01)† |
| **>1x/wk** | | 0.06 (0.02)*** | | -0.05 (0.01)* |
| **Almost every** | | 0.09 (0.01)*** | | 0.002 (0.01) |
| **TV *(ref=<everyday)*** | | | | |
| **Almost everyday** | | 0.07 (0.02)* | | -0.02 (0.02) |
| **Governorate/Region** | | | | |
| Lower urban | | -0.06 (0.02)* | | -0.05 (0.02)** |
| Lower rural | | -0.10 (0.02)*** | | -0.05 (0.02)** |
| Upper urban | | -0.11 (0.02)*** | | -0.02 (0.02) |
| Upper rural | | -0.11 (0.02)** | | 0.03 (0.02) |
| Frontier | | -0.09 (0.03)** | | -0.04 (0.02)† |
| **† p ≤ 0.10, * p ≤ 0.05, ** p ≤ 0.01, *** p ≤ .001** | | | | |

## Multivariate Linear Regression of Covariates with Respect to Knowledge & Attitudes Toward PLWHA

Gender was considered the primary variable of interest, and the findings consistently showed less knowledge among women than men ($\beta$ = -0.46, $p < 0.0001$) when using the summative scale of knowledge as an outcome. When modeling knowledge solely as affected by gender, bivariate analysis demonstrated a robustly significant association, which persisted even when controlling for religion, education, age, wealth, marital status, media exposure and region of residence. Gender remained a highly significant predictor of knowledge and attitudes in all bivariate analysis ($p < 0.001$), in both reduced and full models (i.e., models that included all variables). Religion was not a significant predictor at any level, while education was a significant predictor at every level (Table 3A). Linear responses were observed in both education and wealth quintiles; using no education and poorest quintile as reference groups, there were larger differences in knowledge when compared to highest education and richest quintile than when compared to poorer quintiles and primary education as the highest educational level attended. Specifically, those with secondary education had 4.4 times the odds of higher knowledge than those with no education ($\beta = 1.49, p < 0.0001$). Marital status had mixed results falling from significance in the presence of other covariates while media exposure (mostly) continued to maintain significance in bivariate, reduced and full models (Table 3A). However, it should be noted that the full model explained only 14% of the variance seen in the data, implying that there are indicators that are not being explained by the covariates included in the present dataset (Table 3).

Conversely, women showed higher levels of tolerance toward PLWHA than their male counterparts. Women were consistently more tolerant of PLWHA throughout all bivariate analyses, reduced and full models ($p$ = 0.05). Religion again was not a significant predictor and did not affect tolerance with respect to gender. Age and marital status significance changed with addition of different covariates in the model. Surprisingly, covariates of wealth and access to television were not significant predictors in bivariate, reduced or full models (Table 3B). Region of residence and education followed similar patterns as those observed in the scale of knowledge; an increase in education was positively associated with an increase in tolerance. Again, the covariates used were limited and the model was limited in accounting for a majority of the variance observed in the data ($R^2$ = 0.04). These results indicate that further research is needed to account for the differences of knowledge and attitudes seen among the Egyptian population.

**DISCUSSION**

Accurate knowledge and pervasive prevention programs are the most effective interventions in stemming the global HIV epidemic. Experience from other countries has shown that appropriate awareness, targeted prevention and adequate access to care have been pivotal in overall success against the manifestation of infection. Inadequate knowledge of prevention and transmission routes proves to be substantial challenges in addressing the HIV epidemic in Egypt. Overall, male participants had higher levels of education, although there were more women in the two highest wealth quintiles. Large proportions of all participants reported having access to and regularly engaging in

television watching and radio listening. Even with greater and more regular media exposure, women still have lower knowledge about HIV/AIDS.

Consistent with previous findings, men showed significantly higher levels of knowledge about HIV/AIDS than their female counterparts, except for routes of transmission from mother to child and knowing of places to be tested. This difference most likely reflects efficacy of NAP programs targeted at antenatal and family planning clinics. Overall knowledge of HIV transmission routes is low and nearly one third of respondents thought people can become infected with HIV (AIDS) by mosquito bites and sharing food with a person who has AIDS. Most strikingly, the majority of respondents who had heard of HIV/AIDS did not know that reducing chance of infection could be achieved through abstaining from sexual intercourse and by using a condom. This is reflective of the lack of sexual education in schools and the discouragement of social conversations about sexual practices. Other than behavioural risk factors, education is paramount to reducing HIV infection rates. It is unclear how knowledge is relatively low, while MARP and confirmed cases of HIV have been identified in Egypt.

As expected, high stigma is associated with PLWHA. Nearly all participants (89.3%) believed a teacher infected with HIV should no longer be allowed to teach, although the reason why was neither asked nor recorded, which may also be indicative of social stigma infiltrating basic research methods. High proportions of participants also refused a willingness to buy fresh vegetables (84.8%) from an HIV-infected vendor, and 79.4% of participants were not willing to take care of a family member infected with HIV. This latter finding is particularly surprising, given that Egypt is a relatively collectivistic nation. It may be that fewer women are willing to buy fresh vegetables from

HIV-infected vendors because women are socially responsible for domestic responsibilities (including preparation of food), and therefore are relatively wearier of changes in vendors and in food buying practices. It is interesting that the majority of respondents did not want a family member's status to remain secret (63.9%). This is particularly surprising given that HIV/AIDS is highly stigmatized, and stigma by association has been reported in other Arab countries. Although, this question does not illustrate what other alternatives the respondents would have reported; this remains open for future investigation. Finally, the large majority (82.2%) of participants had low tolerance (summative score 0-1) while only 1.0% of the sample had high tolerance (score of 4).

Findings regarding differences in attitudes revealed that females had significantly higher levels of tolerance, controlling for all demographic indicators. However, overall tolerance for both men and women was less than 1 on a scale of 0 to 4. A lower proportion of men may have been less tolerant to a female teacher infected with HIV to continue teaching in school due to increased exposure to knowledge about HIV or as a result of being less responsible for educational responsibilities of children. Similarly, a higher proportion of women may have been more willing to take care of an HIV-infected family member as a reflection of genuine increase in tolerance, lack of knowledge about HIV transmission, or social expectations of women's nurturing roles in Egyptian culture. Differences in knowledge by sex were extremely robust even when controlling for education, wealth quintile and media exposure. These results indicate that these sociodeomographic indicators do not account for the differential gap in knowledge between men and women. This gap could be due to fundamentally different socialization;

specifically, gendered differences shaping social experiences, which may prevent women from accessing as much accurate information about HIV/AIDS as men, except in the realm of mother to child transmission. As a result, we posit that gender inequities in areas other than education, wealth, and religion, such as the kinship relationships among Egyptian women, gender driven social norms with respect to sexuality, safe sex negotiation and autonomy may be responsible for these differences.

These findings are consistent with gender constructs and social norms in the Arab region; women often carry the responsibility of caretaking and domestic duties, such as buying vegetables and caring for sick relatives. The higher tolerance in the attitude indices reflects a duty to care for issues concerning the home and sickness, as well as reinforce the family or communal unit by keeping secret information, which could harm the honour of the family. It could be due to the socialization of women to bear domestic responsibilities and  This is particularly important, as previous studies have found that caretakers of women and minorities living with HIV have experienced stigma in the form of stereotypes and blame directed toward the caretakers as well as feelings of unworthiness or inability to effectively be a parent by one's community (Sayles, Hays et al. 2008).  Furthermore, cultural norms and high stigma may pressure PLWHA to conceal their status, avoid counseling and treatment, and hinder them from seeking help from family members, because caring for persons perceived to be socially deviant may be interpreted as approval and therefore result in negative perceptions of both the infected individual as well as the person caring for them (Institue of National Planning 2008).

## PUBLIC HEALTH IMPLICATIONS

Knowledge and behavioural risk reduction are the most effective tools we have in the battle against the HIV epidemic. Understanding complex social norms and gender roles within conservative Arab countries such as Egypt are inherently critical to identifying, appropriately addressing and further preventing future morbidity and mortality associated with HIV/AIDS (Shawky, Soliman et al. 2009). Although Egypt is considered to have a relatively low prevalence, there is evidence to support a concentrated epidemic that has been growing. Epidemiologic profiles of HIV epidemics in other countries show positive associations with high-risk behaviour, lack of accurate knowledge and fear of stigma associated with social identification of status or high-risk groups. The potential for an increase in HIV incidence in Egypt is mitigated by high-risk behavior (thus far identified among MARPs), lack of accurate knowledge and pervasive stigma against PLWHA, necessitating an increase in surveillance with targeted prevention and treatment interventions to better address the sensitive situation in Egypt (2008-2009; Shawky, Soliman et al. 2009).

Accurately addressing stigma associated with HIV/AIDS is particularly important for Egypt. In order to adequately address the sociocognitive construct of stigma, it is necessary to understand the intersection of social, cultural, religious and familial scaffolds that form the foundation of Egyptian life. Previous studies have found that the stigma-related constructs of shame, stereotypes, disclosure concerns and fear about social relationships are more robust when minorities, women and individuals with low education are well represented. Sayles, Hays and colleagues also found a negative association with perceived stigma and self-acceptance, social support and mental health

(Sayles, Hays et al. 2008). Therefore, development of sensitive and standardized measures of stigma is critical for the appropriate development of effective prevention and treatment techniques. Effectively reducing the HIV epidemic is especially important in the context of Egypt, where clear gender gaps in knowledge and tolerance are compounded by sociodemographic inequity. Also, creative incorporation of HIV/AIDS information in culturally appropriate popular media has shown some success in reducing stigma and increasing knowledge (Mahajan, Sayles et al. 2008).

In their recommendations for effectively addressing the HIV epidemic, Mahajan and colleagues (2008) encourage refinement of the multifaceted definition of HIV/AIDS-related stigma, improved measures of assessing stigma in order to appropriately evaluate interventions and programme impact, creative community-based interventions to address inequities in social order, reforming legislature that exacerbates the pre-existing stigma, stereotypes and consequences associated with MARP, and comprehensive assessments of potential determinants of stigma among individuals, communities, social structures and institutions over time. Mahajan, Sayles and colleagues posit that these recommendations are particularly imperative in settings where less than 15% of the population has been tested for HIV, as HIV testing and education are the levers of prevention and treatment while better understanding of stigma as well as the reduction in stereotyping can mitigate the negative effects of stigma, especially toward MARP.

While accurate knowledge and tolerance of PLWHA remains low, Egypt has improved their surveillance and intervention efforts. Since 1986, the NAP has collaborated with international partners, local NGOs and civil organizations to address the HIV/AIDS situation in Egypt, focusing largely on MARP (2008-2009). While gains

in surveillance techniques and efforts to aggregate case data efficiently have been combined with focus on MARP and decreasing stigma associated with infection, much remains to be done in order to advance public health interventions. Finally, while Egyptian conservative culture has helped hinder the HIV epidemic from further progress, high-risk groups do exist and high-risk behaviours need to be addressed, as there are clear bridges to the general population.

## Acknowledgements

My sincerest gratitude to Professor Patrick Kilgo for his endless and invaluable statistical support, analyses design and feedback throughout the project. Also, I am indebted to Dr. Elena Rykhlevskaia and Dr. Carmel Saad for their efforts throughout the data analyses phases, thesis composition, and editing as well as critical scientific discussion. Thank you.

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(Khan, Unemo et al. 2009)

# Appendices

## Appendix A: EDHS Health Questionnaire

ARAB REPUBLIC OF EGYPT
MINISTRY OF HEALTH AND POPULATION
EL- ZANATY & ASSOCIATES

### EGYPT DEMOGRAPHIC AND HEALTH SURVEY 2008

### HEALTH ISSUES QUESTIONNAIRE

DATA COLLECTED FROM THIS STUDY IS CONFIDENTIAL AND WILL BE USED FOR SCIENTIFIC PURPOSES ONLY.

HEALTH ISSUES QUESTIONNAIRE

**IDENTIFICATION**

GOVERNORATE _____ PSU/SEGMENT NO. _____

KISM/MARKAZ _____ BUILDING NO. _____

SHIAKHA/VILLAGE _____ HOUSING UNIT NO _____

HOUSEHOLD NUMBER INSIDE PSU: _____

URBAN ..... 1 RURAL ..... 2

LARGE CITY ..... 1 SMALL CITY ... 2 TOWN ..... 3 VILLAGE ..... 4

NAME OF HOUSEHOLD HEAD _____

ADDRESS IN DETAIL _____

NAME OF RESPONDENT _____

RESPONDENT LINE NUMBER _____

GOVERNORATE [ ][ ]

PSU/SEGMENT NO. [ ][ ][ ][ ][ ][ ][ ]

HOUSEHOLD NO. [ ][ ][ ] URBAN/RURAL [ ]

LOCALITY [ ]

LINE NUMBER [ ][ ]

**INTERVIEWER VISITS**

| | 1 | 2 | 3 | FINAL VISIT |
|---|---|---|---|---|
| | | | | DAY MONTH YEAR [ ][ ] [0] [ ] [0][8] |
| DATE | | | | |
| TEAM | | | | TEAM ..... [ ][ ] |
| INTERVIEWER | | | | INT. NUMBER ... [ ][ ] |
| SUPERVISOR | | | | SUP. NUMBER .. [ ][ ] |
| RESULT | | | | RESULT ..... [ ] |
| NEXT VISIT: DATE | | | | TOTAL NUMBER OF VISITS [ ] |
| TIME | | | | |

RESULT CODES:

1 COMPLETED 4 REFUSED
2 NOT AT HOME 5 PARTLY COMPLETED 7 OTHER _____ (SPECIFY)
3 POSTPONED 6 INCAPACITATED

| | FIELD EDITOR | OFFICE EDITOR | CODER | KEYER |
|---|---|---|---|---|
| NAME | | | | |
| DATE | / / 2008 | / / 2008 | / / 2008 | / / 2008 |
| SIGNATURE | | | | |
| | [ ][ ] | [ ][ ] | [ ][ ] | [ ][ ] |

| NO. | QUESTIONS AND FILTERS | CODING CATEGORIES | SKIP TO |
|---|---|---|---|
| 107 | Before taking your blood pressure , I would to ask a few questions about things that may affect these measurements.<br>Have you done any of the following within the past 30 minutes: | YES NO | |
| | Eaten anything? | EATEN ..... 1 2 | |
| | Had coffee, tea, cola or other drink that has caffeine? | HAD CAFFEINATED DRINK 1 2 | |
| | Smoked any tobacco product? | SMOKED ..... 1 2 | |
| 108A | May I begin the process of measuring your blood pressure?<br><br>BEFORE TAKING THE FIRST BLOOD PRESSURE READING, MEASURE THE CIRCUMFERENCE OF THE RESPONDENT'S ARM MIDWAY BETWEEN THE ELBOW AND THE SHOULDER.<br>RECORD THE MEASUREMENT IN CENTIMETERS. | ARM CIRCUMFERENCE (IN CENTIMETERS) ..... ☐☐ | |
| 108B | USE THE ARM CIRCUMFERENCE MEASUREMENT TO SELECT THE APPROPRIATE BLOOD PRESSURE MONITOR MODEL AND CUFF SIZE. CIRCLE THE CODE FOR THE MODEL AND CUFF SIZE. | **MODEL 767**<br>SMALL: 16 CM – 23 CM ..... 1<br>MEDIUM: 24 CM – 35 CM ..... 2<br>LARGE: 36 CM – 41 CM ..... 3<br>**MODEL 789**<br>EXTRA LARGE: 42 CM – 60 CM .. 4 | |
| 108C | TAKE THE FIRST BLOOD PRESSURE READING.<br><br>RECORD THE SYSTOLIC AND DIASTOLIC PRESSURE. THEN PROCEED TO Q109.<br><br>IF YOU ARE UNABLE TO MEASURE THE RESPONDENT'S BLOOD PRESSURE, RECORD THE REASON IN Q108D. | **BLOOD PRESSURE MEASURED**<br>SYSTOLIC ..... 1 ☐☐☐<br>DIASTOLIC ..... 2 ☐☐☐ | |
| 108D | RECORD REASON BLOOD PRESSURE NOT MEASURED. | **REASON BLOOD PRESSURE NOT MEASURED**<br>REFUSED ..... 9994<br>TECHNICAL PROBLEMS..... 9995<br>OTHER _____ ..... 9996<br>(SPECIFY) | |
| 109 | CHECK Q012 IN HOUSEHOLD QUESTIONNAIRE<br><br>MAN/WOMAN NOT ELIGIBLE FOR EVER-MARRIED WOMAN INTERVIEW ☐ ↓<br><br>WOMAN ELIGIBLE FOR EVER-MARRIED WOMAN INTERVIEW ☐ → 301 | | |
| 110 | In what month and year were you born? | MONTH ..... ☐☐<br>DON'T KNOW MONTH ..... 98<br>YEAR ..... ☐☐☐☐<br>DON'T KNOW YEAR ..... 9998 | |
| 111 | How old were you at your last birthday?<br><br>COMPARE AND CORRECT 110 AND/OR 111 IF INCONSISTENT. | AGE IN COMPLETED YEARS ☐☐ | |
| 112 | What is your current marital status? | MARRIED ..... 1<br>WIDOWED ..... 2<br>DIVORCED ..... 3<br>SEPARATED ..... 4<br>SIGNED CONTRACT ..... 5<br>NEVER MARRIED ..... 6 | |

| NO. | QUESTIONS AND FILTERS | CODING CATEGORIES | SKIP TO |
|---|---|---|---|
| 113 | Have you ever attended school? | YES ..... 1<br>NO ..... 2 | → 117 |
| 114 | What is the highest level of school you attended? | PRIMARY ..... 1<br>PREPARATORY ..... 2<br>SECONDARY ..... 3<br>UPPER INTERMEDIATE ..... 4<br>UNIVERSITY ..... 5<br>MORE THAN UNIVERSITY ..... 6 | |
| 115 | What is the highest grade you successfully completed at that level? | GRADE ..... ☐ | |
| 116 | CHECK 114:<br>PRIMARY ☐ ↓<br>PREPARATORY OR HIGHER ☐ | | → 118 |
| 117 | Can you read a newspaper or a letter easily, with difficulty or not at all? | EASILY ..... 1<br>WITH DIFFICULTY ..... 2<br>NOT AT ALL ..... 3 | → 119 |
| 118 | Do you read a newspaper or magazine almost every day, at least once a week, less than once a week or not at all? | ALMOST EVERY DAY ..... 1<br>AT LEAST ONCE A WEEK ..... 2<br>LESS THAN ONCE A WEEK ..... 3<br>NOT AT ALL ..... 4 | |
| 119 | Do you listen to the radio almost every day, at least once a week, less than once a week or not at all? | ALMOST EVERY DAY ..... 1<br>AT LEAST ONCE A WEEK ..... 2<br>LESS THAN ONCE A WEEK ..... 3<br>NOT AT ALL ..... 4 | |
| 120 | Do you watch television almost every day, at least once a week, less than once a week or not at all? | ALMOST EVERY DAY ..... 1<br>AT LEAST ONCE A WEEK ..... 2<br>LESS THAN ONCE A WEEK ..... 3<br>NOT AT ALL ..... 4 | |
| 121 | Have you done any work in the last seven days even if it was only for a short period of time? | YES ..... 1<br>NO ..... 2 | → 123 |
| 122 | Although you did not work in the last seven days, do you have any job or business from which you were absent for leave, illness, vacation, or any other such reason? | YES ..... 1<br>NO ..... 2 | → 125 |
| 123 | What is your occupation, that is, what kind of work do you mainly do? | _____ ☐☐<br>_____<br>_____<br>(RECORD ANSWER IN DETAIL) | |
| 124 | Are you paid in cash or kind for this work or are you not paid at all? | CASH ONLY ..... 1<br>CASH AND KIND ..... 2<br>IN KIND ONLY ..... 3<br>NOT PAID ..... 4 | |
| 125 | What is your religion? | MUSLEM ..... 1<br>CHRISTIAN ..... 2<br>OTHER _____ 6<br>(SPECIFY) | |

SECTION 2 FEMALE CIRCUMCISION

| NO. | QUESTIONS AND FILTERS | CODING CATEGORIES | SKIP TO |
|---|---|---|---|
| 201 | RESPONDENT'S GENDER:<br>FEMALE ☐ ↓<br>MALE ☐ → | | 206 |
| 202 | INTERVIEWER:CHECK FOR THE PRESENCE OF OTHERS. BEFORE CONTINUING, MAKE EVERY EFFORT TO ENSURE PRIVACY. DO NOT READ THE FOLLOWING QUESTIONS IF THERE IS NO PRIVACY | | |
| 203 | Now I would like to talk about the practice of female circumcision. Have you yourself been circumcised? | YES . . . . . 1<br>NO . . . . . 2 → | 206 |
| 204 | How old were you when you were circumcised? | AGE IN COMPLETED YEARS ☐☐<br>DON'T KNOW . . . . . 98 | |
| 205 | Who performed the circumcision? | DOCTOR . . . . . 1<br>NURSE/OTHER HLTH PROVIDER . . 2<br>DAYA . . . . . 3<br>BARBER . . . . . 4<br>GHAGARIA . . . . . 5<br>OTHER _____ 6<br>(SPECIFY)<br>DON'T KNOW . . . . . 8 | |
| 206 | Now I would like to ask some (other) questions about female circumcision.<br>During the past year have you discussed female circumcision with your relatives, friends, or neighbors? | YES . . . . . 1<br>NO . . . . . 2 | |
| 207 | During the past year have you heard, seen or received any information about female circumcision? | YES . . . . . 1<br>NO . . . . . 2<br>UNSURE . . . . . 8 → | 209 |
| 208 | Where did you hear or see that information?<br>PROBE:<br>Anywhere else?<br>RECORD ALL MENTIONED | TELEVISION . . . . . A<br>RADIO . . . . . B<br>NEWSPAPER/MAGAZIN . . . . . C<br>PAMPHLET/BROCHURE . . . . . D<br>POSTER . . . . . E<br>COMMUNITY MEETING . . . . . F<br>HOME VISIT BY HEALTH WORKER . . G<br>FACILITY-BASED HEALTH WORKER . . H<br>HUSBAND/WIFE . . . . . I<br>OTHER RELATIVE/FRIENDS/<br>NEIGHBORS . . . . . J<br>OTHER _____ X<br>(SPECIFY) | |
| 209 | Do you believe that female circumcision is required by religious precepts? | YES . . . . . 1<br>NO . . . . . 2<br>DON'T KNOW . . . . . 8 | |
| 210 | Do you think that the practice of female circumcision should be continued or should it be stopped? | CONTINUED . . . . . 1<br>STOPPED . . . . . 2<br>DON'T KNOW . . . . . 8 | |
| 211 | MALE ☐ ↓<br>Do you think that women want this practice to be continued or to be stopped?<br>FEMALE ☐ ↓<br>Do you think that men want this practice to be continued or to be stopped? | CONTINUED . . . . . 1<br>STOPPED . . . . . 2<br>DON'T KNOW . . . . . 8 | |

| NO. | QUESTIONS AND FILTERS | CODING CATEGORIES | | | SKIP TO |
|---|---|---|---|---|---|
| | | | AGREE | DIS-AGREE | DON'T KNOW | |
| 212 | I will read you some statements about female circumcision. Please tell me if you agree or disagree. | | | | | |
| | A husband will prefer his wife to be circumcised. | HUSBAND PREFER. . | 1 | 2 | 8 | |
| | Circumcision prevents adultery. | PREVENTS ADULTERY ..... | 1 | 2 | 8 | |
| | Childbirth is more difficult for a woman who has been circumcised. | CHILDBIRTH IS MORE DIFFICULT ..... | 1 | 2 | 8 | |
| | Circumcision can cause severe consequences that can lead to a girl's death. | MAY LEAD TO GIRL'S DEATH ... | 1 | 2 | 8 | |

SECTION 3. HEALTH INSURANCE AND HEALTH CARE COSTS

| NO. | QUESTIONS AND FILTERS | CODING CATEGORIES | SKIP TO |
|---|---|---|---|
| 301 | Have you been ill at any time during the last four weeks? | YES ..... 1<br>NO ..... 2 | |
| 302 | Do you have health insurance? | YES ..... 1<br>NO ..... 2 | → 310 |
| 303 | What type of health insurance do you have?<br><br>Any other insurance?<br><br>RECORD ALL MENTIONED. | HEALTH INSURANCE THROUGH EMPLOYER ..... A<br>HEALTH INSURANCE THROUGH EMPLOYER OF ANOTHER FAMILY MEMBER ..... B<br>HEALTH INSURANCE THROUGH THE GENERAL AGENCY OF HEALTH INSURANCE ..... C<br>HEALTH INSURANCE THROUGH ANY OF THE SYNDICATES ..... D<br>HEALTH INSURANCE THROUGH ANY UNIVERSITY ..... E<br>OTHER _____ X<br>(SPECIFY) | |
| 304 | CHECK 303:<br>MORE THAN ONE TYPE OF INSURANCE ☐<br>ONLY ONE TYPE OF INSURANCE ☐ | | → 306 |
| 305 | Among the insurance plans you mentioned, which one do you consider to be your primary insurance?<br><br>PROBE: Which of the insurances you mentioned do you use most often? | HEALTH INSURANCE THROUGH EMPLOYER ..... 1<br>HEALTH INSURANCE THROUGH EMPLOYER OF ANOTHER FAMILY MEMBER ..... 2<br>HEALTH INSURANCE THROUGH THE GENERAL AGENCY OF HEALTH INSURANCE ..... 3<br>HEALTH INSURANCE THROUGH ANY OF THE SYNDICATES ..... 4<br>HEALTH INSURANCE THROUGH ANY UNIVERSITY ..... 5<br>OTHER _____ 6<br>(SPECIFY) | |
| 306 | Do you pay for this insurance on a monthly or yearly basis? | MONTHLY ..... 1<br>YEARLY ..... 2<br>OTHER INTERVAL _____ 3<br>(SPECIFY)<br>FREE/DOES NOT PAY ..... 4<br>DON'T KNOW ..... 8 | → 309 |
| 307 | In total, how much is spent monthly (ANNUALLY/OTHER INTERVAL SPECIFIED IN Q306) for this insurance? | COST IN POUNDS ..... ☐☐☐☐<br>DON'T KNOW ..... 9998 | |
| 308 | Does the amount you pay for insurance cover only the costs for insuring yourself or does it also cover the costs of insuring other persons? | COVERS ONLY RESPONDENT ... 1<br>COVERS RESPONDENT AND OTHER PERSONS ..... 2<br>DON'T KNOW ..... 8 | → 310 |
| 309 | In total, including yourself how many persons are covered by this insurance? | NUMBER OF PERSONS ... ☐☐<br>DON'T KNOW ..... 98 | |

| NO. | QUESTIONS AND FILTERS | CODING CATEGORIES | SKIP TO |
|---|---|---|---|
| 310 | In the past 4 weeks, have you visited a health provider for a medical consultation, either because you were ill or for preventative care?<br>IF YES: How many times did you visit any health provider for a medical consultation in the past four weeks? | NUMBER OF VISITS ..... ☐☐<br>NO VISITS ..... 00<br>DON'T KNOW ..... 98 | → 317 |
| 311 | Where did your last medical consultation with a health provider take place?<br>IF SOURCE IS HOSPITAL, HEALTH UNIT, OR CLINIC, WRITE THE NAME AND THE ADDRESS OF THE PLACE. **PROBE** TO IDENTIFY THE TYPE OF SOURCE AND CIRCLE THE APPROPRIATE CODE.<br>_____<br>(NAME AND ADDRESS OF PLACE) | **MINISTRY OF HEALTH AND POPULATION**<br>URBAN HOSP'L (GENERAL/DISTRICT) 1<br>URBAN HEALTH UNIT ..... 2<br>HEALTH OFFICE ..... 3<br>RURAL HOSP'L (COMPLEMENTARY .. 4<br>RURAL HEALTH UNIT ..... 5<br>MCH CENTER ..... 6<br>MOBILE UNIT ..... 7<br>**OTHER GOVERNMENTAL**<br>UNIVERSITY HOSPITAL ..... 8<br>TEACHING HOSPITAL ..... 9<br>HEALTH INSURANCE ORG. ..... A<br>CURATIVE CARE ORGANIZATION ... B<br>OTHER GOVERNMENTAL ..... C<br>**NON-GOVERNMENTAL ORGANIZATION**<br>EGYPT FAMILY PLANNING ASSOC. .. D<br>CSI PROJECT ..... E<br>OTHER NON-GOVERNMENTAL . F<br>**PRIVATE MEDICAL**<br>PRIVATE HOSPITAL/ CLINIC ..... G<br>PRIVATE DOCTOR ..... H<br>PHARMACY ..... I<br>**OTHER PRIVATE**<br>MOSQUE HEALTH UNIT ..... J<br>CHURCH HEALTH UNIT ..... K<br>**OTHER NON-MEDICAL**<br>OTHER VENDOR (SHOP, KIOSK, ETC.,) ..... L<br>FRIEND/RELATIVE ..... M<br>OTHER _____ X<br>(SPECIFY)<br>**DON'T KNOW** ..... Z | |
| 312 | How much did you pay in total for your last consultation at (FACILITY IN Q311) including, for example, drugs, x-rays, or laboratory services? | COST IN POUNDS ..... ☐☐☐☐<br>FREE ..... 9995<br>DON'T KNOW ..... 9998 | |
| 313 | Did you incur additional expense for drugs at a separate pharmacy/clinic/drug shop (outside the facility) as a result of this medical consultation? | YES ..... 1<br>NO ..... 2 | → 315 |
| 314 | How much in total did you pay for the additional drugs? | COST IN POUNDS ..... ☐☐☐☐<br>DON'T KNOW ..... 9998 | |
| 315 | Did you incur additional expense for lab tests conducted at a laboratory other than one at the provider you visited? | YES ..... 1<br>NO ..... 2 | → 317 |
| 316 | How much in total did you pay for the additional lab tests? | COST IN POUNDS ..... ☐☐☐☐<br>DON'T KNOW ..... 9998 | |

| NO. | QUESTIONS AND FILTERS | CODING CATEGORIES | SKIP TO |
|---|---|---|---|
| 317 | In the past 12 months, were you ever admitted to a hospital or health facility for at least one night? | YES ..... 1<br>NO ..... 2 | → 401 |
| 318 | In total, how many nights did you stay in a hospital or health facility in the past 12 months? | NUMBER OF NIGHTS ..... [ ][ ]<br>DON'T KNOW ..... 98 | |
| 319 | Did you spend any of these nights in the hospital or health facility during the last four weeks? | YES ..... 1<br>NO ..... 2 | → 321 |
| 320 | In total, how many nights did you stay in a hospital or health facility in the past four weeks? | NUMBER OF NIGHTS ..... [ ][ ]<br>DON'T KNOW ..... 98 | |
| 321 | Now I would like to ask a few questions about the last time you stayed in a hospital or health facility during the past 12 months.<br>The last time you were admitted to a hospital/health facility for at least one night, where were you admitted?<br>IF SOURCE IS HOSPITAL, HEALTH UNIT, OR CLINIC, WRITE THE NAME AND THE ADDRESS OF THE PLACE.<br>**PROBE** TO IDENTIFY THE TYPE OF SOURCE AND CIRCLE THE APPROPRIATE CODE.<br>_____<br>(NAME AND ADDRESS OF PLACE) | **MINISTRY OF HEALTH AND POPULATION**<br>URBAN HOSP'L (GENERAL/DISTRICT) 1<br>URBAN HEALTH UNIT ..... 2<br>HEALTH OFFICE ..... 3<br>RURAL HOSP'L (COMPLEMENTARY .. 4<br>RURAL HEALTH UNIT ..... 5<br>MCH CENTER ..... 6<br>**OTHER GOVERNMENTAL**<br>UNIVERSITY HOSPITAL ..... 8<br>TEACHING HOSPITAL ..... 9<br>HEALTH INSURANCE ORG. ..... A<br>CURATIVE CARE ORGANIZATION ... B<br>OTHER GOVERNMENTAL ..... C<br>**PRIVATE MEDICAL**<br>PRIVATE HOSPITAL/ CLINIC ..... G<br>**OTHER PRIVATE**<br>MOSQUE HEALTH UNIT ..... J<br>CHURCH HEALTH UNIT ..... K<br>OTHER _____ X<br>(SPECIFY)<br>**DON'T KNOW** ..... Z | |
| 322 | In total, how many nights did you stay in (FACILITY IN 321) facility the last time? | NUMBER OF NIGHTS ..... [ ][ ]<br>DON'T KNOW ..... 98 | |
| 323 | How much did you pay for your last stay at (FACILITY IN 321) including all charges for consultations, room and board, drugs, and supplies? | COST IN POUNDS . [ ][ ][ ][ ][ ]<br>FREE ..... 99995<br>DON'T KNOW ..... 99998 | |

SECTION 4. KNOWLEDGE OF HIV/AIDS

| NO. | QUESTIONS AND FILTERS | CODING CATEGORIES | SKIP TO |
|---|---|---|---|
| | INTERVIEWER:CHECK FOR THE PRESENCE OF OTHERS. BEFORE CONTINUING, MAKE EVERY EFFORT TO ENSURE PRIVACY. DO NOT READ THE FOLLOWING QUESTIONS IF THERE IS NO PRIVACY | | |
| 401 | Now I would like to talk about something else.<br>Have you ever heard of an illness called AIDS? | YES . . . . . 1<br>NO . . . . . 2 | → 501 |
| 402 | Can people reduce their chances of getting the AIDS virus by having just one sex partner who is not infected and who has no other partners? | YES . . . . . 1<br>NO . . . . . 2<br>DON'T KNOW . . . . . 8 | |
| 403 | Can people get the AIDS virus from mosquito bites? | YES . . . . . 1<br>NO . . . . . 2<br>DON'T KNOW . . . . . 8 | |
| 404 | Can people reduce their chances of getting the AIDS virus by using a condom every time they have sex? | YES . . . . . 1<br>NO . . . . . 2<br>DON'T KNOW . . . . . 8 | |
| 405 | Can people get the AIDS virus by sharing food with a person who has AIDS? | YES . . . . . 1<br>NO . . . . . 2<br>DON'T KNOW . . . . . 8 | |
| 406 | Can people reduce their chance of getting the AIDS virus by abstaining from sexual intercourse? | YES . . . . . 1<br>NO . . . . . 2<br>DON'T KNOW . . . . . 8 | |
| 407 | Can the HIV virus be transmitted from a mother to her baby: | YES NO DK | |
| | During pregnancy? | PREGNANCY . . . . . 1 2 8 | |
| | During delivery? | DELIVERY . . . . . 1 2 8 | |
| | By breastfeeding? | BREASTFEEDING . . . 1 2 8 | |
| 408 | Is there anything else a person can do to avoid or reduce the chances of getting the AIDS virus? | YES . . . . . 1<br>NO . . . . . 2<br>DON'T KNOW . . . . . 8 | → 410 |
| 409 | What can a person do?<br><br>PROBE:<br>Anything else?<br><br>RECORD ALL WAYS MENTIONED. | ABSTAINING FROM SEXUAL INTERCOURSE . . . . . A<br>USE CONDOMS . . . . . B<br>LIMIT SEX TO ONE PARTNER/STAY FAITHFUL TO ONE PARTNER . . . C<br>LIMIT NUMBER OF SEXUAL PARTNERS . . . . . D<br>AVOID SEX WITH PROSTITUTES . . . E<br>AVOID SEX WITH PERSONS WHO HAVE MANY PARTNERS . . . . . F<br>AVOID SEX WITH HOMOSEXUALS . G<br>AVOID SEX WITH PERSONS WHO INJECT DRUGS . . . . . H<br>AVOID BLOOD TRANSFUSIONS. . . . . I<br>AVOID INJECTIONS . . . . . J<br>AVOID SHARING RAZORS/BLADES . K<br>AVOID KISSING . . . . . L<br>AVOID MOSQUITO BITES . . . . . M<br>SEEK PROTECTION FROM TRADITIONAL PRACTITIONER . . . N<br><br>OTHER _____ X<br>(SPECIFY)<br>DON'T KNOW . . . . . Z | |

| NO. | QUESTIONS AND FILTERS | CODING CATEGORIES | SKIP TO |
|---|---|---|---|
| 410 | Is it possible for a healthy-looking person to have the AIDS virus? | YES . . . . . 1<br>NO . . . . . 2<br>DON'T KNOW . . . . . 8 | |
| 411 | Do you know of a place where people can go to get tested for the virus that causes AIDS? | YES . . . . . 1<br>NO . . . . . 2 | → 413 |
| 412 | Where is that?<br><br>IF SOURCE IS HOSPITAL, HEALTH UNIT, OR CLINIC, WRITE THE NAME AND ADDRESS OF THE PLACE. PROBE TO IDENTIFY THE TYPE OF SOURCE AND CIRCLE THE APPROPRIATE CODE.<br><br>PROBE:<br>Any other place?<br><br>RECORD ALL SOURCES MENTIONED.<br><br>_____<br>_____<br>(NAME AND ADDRESS OF PLACE) | **GOVERNMENT**<br>GOVERNMENT HOSPITAL . . . . . A<br>GOVT. HEALTH UNIT . . . . . B<br>VCT CENTER . . . . . C<br>FAMILY PLANNING CLINIC . . . . . D<br>MOBILE CLINIC . . . . . E<br>OTHER GOVT. _____ F<br>(SPECIFY)<br>**NON GOVERNMENTAL**<br>_____ G<br>(SPECIFY)<br>**PRIVATE MEDICAL**<br>PRIVATE HOSPITAL/CLINIC/ PRIVATE DOCTOR . . . . . H<br>PHARMACY . . . . . I<br>OTHER PRIVATE MEDICAL _____ J<br>(SPECIFY)<br>**OTHER NON-MEDICAL**<br>_____ X<br>(SPECIFY) | |
| 413 | Would you buy fresh vegetables from a shopkeeper or vendor if you knew that this person had the AIDS virus? | YES . . . . . 1<br>NO . . . . . 2<br>DON'T KNOW . . . . . 8 | |
| 414 | If a member of your family became sick with the virus, that causes AIDS would you want it to remain a secret or not? | YES, REMAIN A SECRET . . . . . 1<br>NO . . . . . 2<br>DK/NOT SURE/DEPENDS . . . . . 8 | |
| 415 | If a relative of yours became sick with the virus that causes AIDS, would you be willing to care for her or him in your own household? | YES . . . . . 1<br>NO . . . . . 2<br>DK/NOT SURE/DEPENDS . . . . . 8 | |
| 416 | In your opinion, if a female teacher has the AIDS virus but is not sick, should she be allowed to continue teaching in the school? | SHOULD BE ALLOWED . . . . . 1<br>SHOULD NOT BE ALLOWED . . . . . 2<br>DK/NOT SURE/DEPENDS . . . . . 8 | |
| 417 | In the last 6 months have you heard, seen, or received any information about HIV/AIDS? | YES . . . . . 1<br>NO . . . . . 2<br>DON'T KNOW . . . . . 8 | → 501 |
| 418 | Where did you hear or see that information?<br><br>PROBE:<br>Anywhere else?<br><br>RECORD ALL MENTIONED. | TELEVISION . . . . . A<br>RADIO . . . . . B<br>NEWSPAPER/MAGAZINE . . . . . C<br>PAMPHLET/BROCHURE . . . . . D<br>POSTER . . . . . E<br>COMMUNITY MEETING . . . . . F<br>HOME VISIT BY HEALTH WORKER G<br>FACILITY-BASED HEALTH WORKER H<br>HUSBAND . . . . . I<br>OTHER RELATIVE/FRIENDS/ NEIGHBORS . . . . . J<br>OTHER _____ X<br>(SPECIFY) | |

SECTION 5. HEALTH CARE PROCEDURES AND SAFE INJECTIONS

| NO. | QUESTIONS AND FILTERS | CODING CATEGORIES | SKIP |
|---|---|---|---|
| 501 | Now I would like to ask about some health care procedures which you may have had. At any time in your life, have you ever had: | YES NO DK | |
| | Surgery? | SURGERY ..... 1 2 8 | |
| | A blood transfusion? | BLOOD TRANSFUSION ... 1 2 8 | |
| | Dental treatment of any type (e.g., extraction, treatment for gum disease, filling)? | DENTAL TREATMENT..... 1 2 8 | |
| 502 | At anytime in your life, have you received an injection: | YES NO DK | |
| | To treat for schistosomiasis (bilharziasis)? | SCHISTOSOMIASIS ..... 1 2 8 | |
| | For any other purpose? | OTHER PURPOSE ..... 1 2 8 | |
| 503 | CHECK 502: EVER HAD INJECTION / NEVER HAD INJECTION | | 509 |
| 504 | On any of the occasions in which you received an injection, was the same needle and syringe used to give an injection to someone else? | YES ..... 1<br>NO ..... 2<br>DON'T KNOW ..... 8 | |
| 505 | Now I would like to ask you some questions about any injections you have had in the last six months. Have you had an injection for any reason in the last six months (including family planning or tetanus injections)?<br>IF YES: How many injections have you had?<br>IF NUMBER OF INJECTIONS IS GREATER THAN 95, OR DAILY FOR 3 MONTHS OR MORE, RECORD '95'.<br>IF NON-NUMERIC ANSWER, PROBE TO GET AN ESTIMATE. | NUMBER OF INJECTIONS ...<br>NONE ..... 00 | → 509 |
| 506 | Among these injections, how many were administered by a doctor, a nurse, a pharmacist or a dentist, or any other health worker?<br>IF NUMBER OF INJECTIONS IS GREATER THAN 95, OR DAILY FOR 3 MONTHS OR MORE, RECORD '95'.<br>IF NON-NUMERIC ANSWER, PROBE TO GET AN ESTIMATE. | NUMBER OF INJECTIONS ...<br>NONE ..... 00 | → 509 |
| 507 | The last time you had an injection given to you by a health worker, where did you get the injection?<br>IF SOURCE IS HOSPITAL, HEALTH UNIT, OR CLINIC, WRITE THE NAME AND THE ADDRESS OF THE PLACE. PROBE TO IDENTIFY THE TYPE OF SOURCE AND CIRCLE THE APPROPRIATE CODE.<br>_____<br>(NAME AND ADDRESS OF PLACE) | **HOME**<br>YOUR HOME ..... 1<br>OTHER HOME ..... 2<br>**MINISTRY OF HEALTH AND POPULATION**<br>URBAN HOSP'L (GEN'L/DISTRICT) 3<br>URBAN HEALTH UNIT ..... 4<br>HEALTH OFFICE ..... 5<br>RURAL HOSPITAL (COMPL'TARY) 6<br>RURAL HEALTH UNIT ..... 7<br>MCH CENTER ..... 8<br>MOBILE UNIT ..... 9<br>**OTHER GOVERNMENTAL**<br>UNIVERSITY HOSPITAL ..... A<br>TEACHING HOSPITAL ..... B<br>HEALTH INSURANCE ORG. ..... C<br>CURATIVE CARE ORGANIZATION. D<br>OTHER GOVERNMENTAL ..... E<br>**NON-GOVERNMENNTAL ORGANIZATIONS**<br>EGYPTIAN FP ASSOC ..... F<br>CSI PROJIECT ..... G<br>OTHER NON-GOVERNMENTAL ... H<br>**PRIVATE MEDICAL**<br>PRIVATE HOSPITAL/ CLINIC ..... I<br>PRIVATE DOCTOR ..... J<br>DENTIST ..... K<br>PHARMACY ..... L<br>MOSQUE HEALTH UNIT ..... M<br>CHURCH HEALTH UNIT ..... N<br>**OTHER NON-/MEDICAL**<br>_____ X<br>(SPECIFY) | |

| NO. | QUESTIONS AND FILTERS | CODING CATEGORIES | SKIP |
|---|---|---|---|
| 508 | The last time you had an injection from a health worker did the person who gave you that injection take the syringe and needle from a new, unopened package? | YES . . . . . 1<br>NO . . . . . 2<br>DON'T KNOW . . . . . 8 | |
| 509 | In the last 6 months have you heard, seen, or received any information about what people should do to be sure that injections are given safely? | YES . . . . . 1<br>NO . . . . . 2<br>DON'T KNOW . . . . . 8 | → 511 |
| 510 | Where did you hear or see that information?<br><br>PROBE:<br>Anywhere else?<br><br>RECORD ALL MENTIONED. | TELEVISION . . . . . A<br>RADIO . . . . . B<br>NEWSPAPER/MAGAZIN . . . . . C<br>PAMPHLET/BROCHURE . . . . . D<br>POSTER . . . . . E<br>COMMUNITY MEETING . . . . . F<br>HOME VISIT BY HEALTH WORKER G<br>FACILITY-BASED HEALTH WORKER H<br>HUSBAND/WIFE . . . . . I<br>OTHER RELATIVE/FRIENDS/<br>NEIGHBORS . . . . . J<br>OTHER _____ X<br>(SPECIFY) | |
| 511 | RECORD THE TIME. | HOUR . . . . . ☐☐<br>MINUTES . . . . . ☐☐ | |
| 512 | CHECK 106:<br>AGREED TO MEASUREMENT ↓ DID NOT AGREE TO MEASUREMENT → 601 | | |
| 513 | May I measure your blood pressure at this time?<br><br>INTERVIEWER SIGNATURE _____ DATE _____<br><br>RESPONDENT AGREES ↓<br>RECORD OUTCOME OF BLOOD PRESSURE MEASUREMENT.<br><br>RESPONDENT DOES NOT AGREES ↓<br>RECORD 9994. | **BLOOD PRESSURE MEASURED**<br>SYSTOLIC . . . . . 1 ☐☐☐<br>DIASTOLIC . . . . . 2 ☐☐☐<br><br>**REASON BLOOD PRESSURE NOT MEASURED**<br>REFUSED . . . . . 9994<br>TECHNICAL PROBLEMS . . . . . 9995<br>OTHER _____ . . . . . 9996<br>(SPECIFY) | |

SECTION 6. HEPATITIS C

| NO. | QUESTIONS AND FILTERS | CODING CATEGORIES | SKIP |
|---|---|---|---|
| 601 | Now I would like to talk about something else.<br>Have you ever heard the illness hepatitis C? | YES ..... 1<br>NO ..... 2 | → 610 |
| 602 | In the last 6 months have you heard, seen, or received any information about hepatitis C? | YES ..... 1<br>NO ..... 2<br>DON'T KNOW ..... 8 | → 604 |
| 603 | Where did you hear or see that information?<br><br>PROBE:<br>Any other source?<br><br>RECORD ALL MENTIONED. | TELEVISION ..... A<br>RADIO ..... B<br>NEWSPAPER/MAGAZINE ..... C<br>PAMPHLET/BROCHURE ..... D<br>POSTER ..... E<br>COMMUNITY MEETING ..... F<br>HOME VISIT BY HEALTH WORKER G<br>FACILITY-BASED HEALTH WORKER H<br>HUSBAND/WIFE ..... I<br>OTHER RELATIVE/FRIENDS/<br>NEIGHBORS ..... J<br>OTHER _____ X<br>(SPECIFY) | |
| 604 | How is hepatitis C spread from one person to another?<br><br>Please mention at least four ways that you know.<br><br>RECORD ALL MENTIONED. | HETEROSEXUAL SEX ..... A<br>HOMOSEXUAL SEX ..... B<br>**CONTACT WITH INFECTED PERSON'S BLOOD THROUGH:**<br>TRANSFUSION ..... C<br>UNCLEAN NEEDLES ..... D<br>OTHER (E.G., RAZORS) ..... E<br>CASUAL PHYSICAL CONTACT(S)<br>(E.G., SHAKING HANDS, SHARING<br>FOOD OR DRINK, ETC.) ..... F<br>MOTHER-TO-CHILD TRANSMISSION. G<br>MOSQUITO/OTHER INSECT BITE ... H<br>OTHER _____ X<br>(SPECIFY)<br>DON'T KNOW ..... Z | |
| 605 | Were you ever told by a doctor or other health professional that you had a positive hepatitis C test? | YES ..... 1<br>NO ..... 2 | → 607 |
| 606 | Have you ever been tested to see if you had the hepatitis C virus? | YES ..... 1<br>NO ..... 2 | → 610 |
| 607 | How old were you when you were first told that you had a positive hepatitis C test? | AGE IN COMPLETED YEARS ☐☐ | |
| 608 | Were you ever given or did you ever take anything to treat the hepatitis C? | YES ..... 1<br>NO ..... 2 | → 610 |
| 609 | What treatment were you given?<br><br>RECORD ALL MENTIONED. | INTERFERON ..... A<br>RIBAVIRIN ..... B<br>LEGALON (SILYMARIN) ..... C<br>(OTHER) HERBAL MEDICINE ..... D<br>OTHER _____ X<br>(SPECIFY)<br>DON'T KNOW ..... Z | |
| 610 | Have you ever had either of the following: | YES NO DK | |
| | Jaundice, that is, a yellowing of the skin or eyes? | JAUNDICE ..... 1 2 8 | |
| | Change in urine color, that is, dark urine? | DARK URINE ..... 1 2 8 | |
| 610A | CHECK 610:<br>YES RECORDED IN Q610 FOR JAUNDICEAND/OR DARK URINE<br>NO OR DON'T KNOW RECORDED FOR BOTH JAUNDICE AND DARK URINE | | → 612 |

| NO. | QUESTIONS AND FILTERS | CODING CATEGORIES | SKIP |
|---|---|---|---|
| 611 | Do you know the cause of the jaundice and/or the change in urine color?<br>IF MENTIONS HEPATITIS WITHOUT SPECIFYING TYPE ASK: Do you know the type of hepatitis?<br>RECORD ALL MENTIONED. | HEPATITIS A ..... A<br>HEPATITIS B ..... B<br>HEPATITIS C ..... C<br>HEPATITIS, UNKNOWN TYPE ..... D<br>OTHER _____ X<br>(SPECIFY)<br>DON'T KNOW ..... Z | |
| 612 | Have you ever told by a doctor or health professional that you had any (other) kind of liver disease? | YES ..... 1<br>NO ..... 2 | → 616 |
| 613 | Have you been told by a doctor or health professional that you currently have (any other) liver disease? | YES ..... 1<br>NO ..... 2 | |
| 614 | How old were you when you were first told you had liver disease? | AGE IN COMPLETED YEARS ☐☐ | |
| 615 | Do you know the cause of the liver disease?<br><br>IF MENTIONS HEPATITIS WITHOUT SPECIFYING TYPE ASK: Do you know the type of hepatitis?<br>RECORD ALL MENTIONED. | HEPATITIS A ..... A<br>HEPATITIS B ..... B<br>HEPATITIS C ..... C<br>HEPATITIS, UNKNOWN TYPE ..... D<br>BILHARZIASIS ..... E<br>OTHER _____ X<br>(SPECIFY)<br>DON'T KNOW ..... Z | |
| 616 | Does anyone (else) who is living in this household have the liver disease?<br><br>IF YES: How many other people? | NUMBER OF OTHER HH MEMBERS WITH LIVER DISEASE ☐☐<br>NO ONE ELSE ..... 00 | → 701 |
| 617 | Do you know the cause(s) of the liver disease that this (these) other household member(s) has (have)?<br><br>IF MENTIONS HEPATITIS WITHOUT SPECIFYING TYPE ASK: Do you know the type of hepatitis?<br>RECORD ALL MENTIONED. | HEPATITIS A ..... A<br>HEPATITIS B ..... B<br>HEPATITIS C ..... C<br>HEPATITIS, UNKNOWN TYPE ..... D<br>BILHARZIASIS ..... E<br>OTHER _____ X<br>(SPECIFY)<br>DON'T KNOW ..... Z | |

SECTION 7. BLOOD PRESSURE, HEART DISEASE AND DIABETES

| NO. | QUESTIONS AND FILTERS | CODING CATEGORIES | SKIP |
|---|---|---|---|
| 701 | Have you ever been told by a doctor or other health professional that you had hypertension or high blood pressure? | YES . . . 1<br>NO . . . 2<br>DON'T KNOW . . . 8 | → 704 |
| 702 | Were you told on two or more different occasions by a doctor or other health professional that you had hypertension or high blood pressure? | YES . . . 1<br>NO . . . 2<br>DON'T KNOW . . . 8 | |
| 703 | To lower your hypertension or high blood pressure, are you now:<br>a. Taking prescribed medicine?<br>b. Controlling your weight or losing weight?<br>c. Cutting down on salt in your diet?<br>d. Exercising?<br>e. Stopping smoking? | YES NO N/A<br>TAKE MEDICINE . . . 1 2 3<br>CONTROL WEIGHT . . . 1 2 3<br>CUT DOWN SALT . . . 1 2 3<br>EXERCISE . . . 1 2 3<br>STOP SMOKING . . . 1 2 3 | |
| 704 | Have you ever heard of an illness called diabetes or high sugar? | YES . . . 1<br>NO . . . 2 | → 709 |
| 705 | (Other than during pregnancy), has a doctor or other health professional ever told you that you had diabetes? | YES . . . 1<br>NO . . . 2<br>DON'T KNOW/NOT SURE . . . 8 | → 709 |
| 706 | How old were you when you were first told by a doctor or health professional that you had diabetes? | AGE IN COMPLETED YRS ☐☐ | |
| 707 | Are you taking insulin at this time? | YES . . . 1<br>NO . . . 2 | → 709 |
| 708 | Are you taking pills to lower your blood sugar? | YES . . . 1<br>NO . . . 2 | |
| 709 | Have you ever been told by a doctor or other health professional that you had had a heart attack or myocardial infarction? | YES . . . 1<br>NO . . . 2 | |
| 710 | Have you ever been told by a doctor or other health professional that you had had a stroke? | YES . . . 1<br>NO . . . 2 | |

SECTION 8. AVIAN INFLUENZA

| NO. | QUESTIONS AND FILTERS | CODING CATEGORIES | SKIP |
|---|---|---|---|
| 801 | Now I would like to talk about something else.<br>Have you ever heard the illness avian influenza? | YES . . . . . 1<br>NO . . . . . 2 | → 901 |
| 802 | In the last 6 months have you heard, seen, or received any information about avian influenza? | YES . . . . . 1<br>NO . . . . . 2<br>DON'T KNOW . . . . . 8 | → 804 |
| 803 | Where did you hear or see that information?<br><br>Anywhere else?<br><br>RECORD ALL MENTIONED. | TELEVISION . . . . . A<br>RADIO . . . . . B<br>NEWSPAPER/MAGAZINE . . . . . C<br>PAMPHLET/BROCHURE . . . . . D<br>POSTER . . . . . E<br>COMMUNITY MEETING . . . . . F<br>HOME VISIT BY HEALTH WORKER G<br>FACILITY-BASED HEALTH WORKER H<br>HUSBAND/WIFE . . . . . I<br>OTHER RELATIVE/FRIENDS/ NEIGHBORS . . . . . J<br>OTHER _____ X<br>(SPECIFY) | |
| 804 | Do you know the symptoms of avian flu virus among poultry/ birds? | YES . . . . . 1<br>NO . . . . . 2 | → 806 |
| 805 | What are these symptoms?<br><br>RECORD ALL MENTIONED. | WEAKNESS . . . . . A<br>FEVER . . . . . B<br>DIARRHEA . . . . . C<br>LOSS OF APPETITE . . . . . D<br>BLOWZY IN THE FEATHERS . . . . . E<br>NO EGG PRODUCTION . . . . . F<br>CREST/WATTLE AND SKIN BLUE . . . G<br>DISCHARGE FROM NOSE . . . . . H<br>SUDDEN DEATH . . . . . I<br>OTHER _____ X<br>(SPECIFY) | |
| 806 | Do you know that ducks may have avian influenza but not look ill? | YES . . . . . 1<br>NO . . . . . 2<br>DON'T KNOW . . . . . 8 | |
| 807 | Do you know what to do when birds have these signs of disease or die suddenly? | YES . . . . . 1<br>NO . . . . . 2 | → 809 |
| 808 | There are several ways to deal with birds that appear to be sick or have died.<br>Can you tell me about any ways that you know about?<br><br>RECORD ALL MENTIONED. | PUT IN SEALED PLASTIC BAG A<br>SUBMERGE IN DISINFECTANT . . B<br>BURN . . . . . C<br>BURY . . . . . D<br>CONTACT VETERINARY AUTHORITIES . . . . . E<br>NOTIFY OTHER AUTHORITIES . . . F<br>WARN OTHER PEOPLE . . . . . G<br>OTHER _____ X<br>(SPECIFY) | |
| 809 | Do you think that it is possible for humans to get avian influenza? | YES . . . . . 1<br>NO . . . . . 2 | → 811 |

| NO. | QUESTIONS AND FILTERS | CODING CATEGORIES | SKIP |
|---|---|---|---|
| 810 | Can you tell me about four or more ways that a person can get avian influenza?<br><br>RECORD ALL MENTIONED. | CONTACT WITH SICK POULTRY/ BIRDS ..... A<br>CONTACT WITH FECES FROM SICK POULTRY/BIRDS ..... B<br>CONTACT WITH POULTRY/BIRDS THAT DIED FROM AVIAN FLU ... C<br>EATING UNDERCOOKED EGGS<br>EATING UNDERCOOKED POULTRY/BIRDS ..... D<br>CONTACT WITH CONTAMINATED WATER ..... E<br>CONTACT WITH PERSON WHO HAS AVIAN INFLUENZA ..... F<br>OTHER _____ X<br>(SPECIFY)<br>DON'T KNOW/NOT SURE Z | |
| 811 | There are several ways to reduce the likelihood of the spread of avian influenza.<br>Can you tell me about four or more ways you know?<br><br>RECORD ALL MENTIONED. | WASH HANDS AFTER CONTACT WITH POULTRY/BIRDS ..... A<br>CHANGE AND WASH CLOTHES AFTER CONTACT WITH POULTRY B<br>WEAR FACE MASK WHEN IN CONTACT WITH POULTRY C<br>WEAR GLOVES/PLASTIC BAGS WHEN HANDLING POULTRY D<br>DO NOT LET CHILDREN HANDLE POULTRY/BIRDS ..... E<br>DO NOT LET CHILDREN HANDLE POULTRY/BIRDS' EGGS ..... F<br>DO NOT LET CHILDREN TOUCH/ PLAY WITH FECES/FEATHERS FROM POULTRY/BIRDS . G<br>DO NOT EAT UNDERCOOKED POULTRY/BIRDS ..... H<br>DO NOT EAT UNDERCOOKED EGGS ..... I<br>DO NOT EAT BIRDS THAT FALL DEAD ..... J<br>OTHER _____ X<br>(SPECIFY) | |
| 812 | Do you know the symptoms of avian flu virus among humans? | YES ..... 1<br>NO ..... 2 | → 815 |
| 813 | What are these symptoms?<br><br>RECORD ALL MENTIONED. | FEVER ..... A<br>GENERAL MAILAISE ..... B<br>SORE THROAT ..... C<br>RED EYES/EYE INFECTION (CONJUNCTIVITIS) ..... D<br>COUGHING ..... E<br>CHEST PAIN ..... F<br>DIFFICULTY BREATHING ..... G<br>DEATH ..... H<br>OTHER _____ X<br>(SPECIFY) | |
| 814 | How soon would you seek medical care if a child had any of these symptoms? | NUMBER OF DAYS ..... ☐☐<br><br>IMMEDIATELY ..... 95<br>DON'T KNOW/NOT SURE ..... 98 | |

| NO. | QUESTIONS AND FILTERS | CODING CATEGORIES | SKIP |
|---|---|---|---|
| 815 | How soon would you seek medical care if an adult had any of these symptoms? | NUMBER OF DAYS ..... [ ][ ]<br>IMMEDIATELY ..... 95<br>DON'T KNOW/NOT SURE ..... 98 | |
| 816 | Do you think it is possible for humans to die from avian influenza? | YES ..... 1<br>NO ..... 2 | |
| 817 | Have you been involved in any of the following types of activities in the last month:<br>a. Breeding or handling poultry/birds?<br>b. Slaughtering poultry/other types of birds? | YES NO<br>BREEDING ..... 1 2<br>SALUGHTERING ..... 1 2 | |
| 818 | How do you know that poultry is fully cooked?<br>PROBE:<br>What else?<br>RECORD ALL MENTIONED. | JUICE RUNS CLEAR ..... A<br>NO VISIBLE PINK MEAT ..... B<br>INTERNAL TEMPERATURE<br>85° ..... C<br>OTHER _____ X<br>(SPECIFY) | |
| 819 | How do you know that eggs are fully cooked?<br>RECORD ALL MENTIONED. | COOK UNTIL YOLK NO LONGER RUNNY ..... A<br>OTHER _____ X<br>(SPECIFY) | |
| | From what you have seen or heard about avian influenza, I would like you to give your opinions about the following | | |
| 820 | For a person who becomes infected, would it be extremely dangerous, somewhat dangerous, not very dangerous or not dangerous at all? | EXTREMELY DANGEROUS ..... 1<br>SOMEWHAT DANGEROUS ..... 2<br>NOT VERY DANGEROUS . 3<br>NOT DANGEROUS AT ALL ..... 4<br>DON'T KNOW ..... 8 | |
| 821 | Is it very likely, somewhat likely or not very likely or not likely at all that you or a member of your family might become infected with avian influenza? | EXTREMELY DANGEROUS ..... 1<br>SOMEWHAT DANGEROUS ..... 2<br>NOT VERY DANGEROUS ..... 3<br>NOT DANGEROUS AT ALL ..... 4<br>DON'T KNOW ..... 8 | |
| 822 | Are you extremely confident, somewhat confident, not very confident or not at all confident that the spread of avain influenza can be prevented? | EXTREMELY CONFIDENT ..... 1<br>SOMEWHAT CONFIDENT ..... 2<br>NOT VERY CONFIDENT . 3<br>NOT CONFIDENT AT ALL ..... 4<br>DON'T KNOW ..... 8 | |
| 823 | Are you extremely confident, somewhat confident, not very confident or not at all confident that you can protect yourself and your family from becoming infected? | EXTREMELY CONFIDENT ..... 1<br>SOMEWHAT CONFIDENT ..... 2<br>NOT VERY CONFIDENT . 3<br>NOT CONFIDENT AT ALL ..... 4<br>DON'T KNOW ..... 8 | |

SECTION 9. SMOKING

| NO. | QUESTIONS AND FILTERS | CODING CATEGORIES | SKIP |
|---|---|---|---|
| 901 | Do you currently smoke cigarettes? | YES ..... 1<br>NO ..... 2 | → 903 |
| 902 | In the last 24 hours, how many cigarettes did you smoke?<br><br>IF DIDN'T SMOKE DURING THE LAST 24 HOURS RECORD '00' | CIGARETTES ..... ☐☐ | |
| 903 | Do you currently smoke or use any other type of tobacco? | YES ..... 1<br>NO ..... 2 | → 905 |
| 904 | What (other) type of tobacco do you currently smoke or use?<br><br>RECORD ALL MENTIONED. | PIPE ..... A<br>CHEWING TOBACCO ..... B<br>SNUFF ..... C<br>ROLLED CIGARETTES ..... D<br>WATER PIPE ..... E<br>OTHER _____ X<br>(SPECIFY) | |
| 905 | Does anyone else in your household currently smoke cigarettes or use any other type of tobacco? | YES,CIGARETTES ..... 1<br>YES, OTHER TOBACCO ..... 2<br>YES, BOTH ..... 3<br>NO ..... 4 | |
| 906 | In the last 6 months have you heard, seen, or received any information about the health effects of second-hand smoke (that is, exposure to direct smoke from smokers)? | YES ..... 1<br>NO ..... 2<br>DON'T KNOW ..... 8 | → 908 |
| 907 | Where did you hear or see that information?<br><br>Anywhere else?<br><br>RECORD ALL MENTIONED. | TELEVISION ..... A<br>RADIO ..... B<br>NEWSPAPER/MAGAZINE ..... C<br>PAMPHLET/BROCHURE ..... D<br>POSTER ..... E<br>COMMUNITY MEETING ..... F<br>HOME VISIT BY HEALTH WORKER . G<br>FACILITY-BASED HEALTH WORKER H<br>HUSBAND/WIFE ..... I<br>OTHER RELATIVE/FRIENDS/<br>NEIGHBORS ..... J<br>OTHER _____ X<br>(SPECIFY) | |
| 908 | RECORD THE TIME. | HOUR ..... ☐☐<br>MINUTES ..... ☐☐ | |
| 909 | CHECK 106 AND 512:<br><br>AGREED TO BOTH MEASUREMENTS ⚑ | OTHER ☐ | → 1008 |
| 910 | May I measure your blood pressure at this time?<br><br>INTERVIEWER SIGNATURE _____ DATE _____<br><br>RESPONDENT AGREES ⚑<br>RECORD OUTCOME OF BLOOD PRESSURE MEASUREMENT.<br><br>RESPONDENT DOES NOT AGREES ⚑<br>RECORD 9994. | BLOOD PRESSURE<br>SYSTOLIC ..... 1 ☐☐☐<br>DIASTOLIC ..... 2 ☐☐☐<br><br>**REASON BLOOD PRESSURE NOT MEASURED**<br>REFUSED ..... 9994<br>TECHNICAL PROBLEMS ... 9995<br>OTHER _____ ..... 9996<br>(SPECIFY) | |

SECTION 10. AVERAGING BLOOD PRESSURE MEASURES

| NO. | QUESTIONS AND FILTERS | CODING CATEGORIES | SKIP |
|---|---|---|---|
| 1001 | CHECK Q512 AND Q908.<br>SYSTOLIC AND DIASTOLIC BLOOD PRESSURE RECORDED IN BOTH Q513 AND Q910 ☐<br>SYSTOLIC AND DIASTOLIC BLOOD PRESSURE MEASURES NOT RECORDED IN BOTH IN BOTH Q513 AND Q910 ☐ | | → 1007 |
| 1002 | RECORD AND CALCULATE THE AVERAGE OF THE SYSTOLIC AND DIASTOLIC BLOOD PRESSURE FROM Q513 AND Q910. | | |
| 1003 | BLOOD PRESSURE MEASUREMENTS FROM Q513 | SYSTOLIC ☐☐☐ DIASTOLIC ☐☐☐ | |
| 1004 | BLOOD PRESSURE MEASUREMENTS FROM Q910 | SYSTOLIC ☐☐☐ DIASTOLIC ☐☐☐ | |
| 1005 | RECORD THE SUM OF THE SYSTOLIC AND DIASTOLIC MEASURES. | SUM SYSTOLIC ☐☐☐ SUM DIASTOLIC ☐☐☐ | |
| 1006 | CALCULATE THE AVERAGE SYSTOLIC AND DIASTOLIC PRESSURES BY THE SUM IN Q1005 BY 2. | AVERAGE SYSTOLIC ☐☐☐ AVERAGE DIASTOLIC ☐☐☐ | → 1011 |
| 1007 | CHECK Q910:<br>SYSTOLIC AND DIASTOLIC BLOOD PRESSURE NOT RECORDED IN Q910 ☐<br>BOTH SYSTOLIC AND DIASTOLIC BLOOD PRESSURE RECORDED IN Q910 ☐ | | → 1010 |
| 1008 | CHECK Q513:<br>SYSTOLIC AND DIASTOLIC BLOOD PRESSURE NOT RECORDED IN Q513 ☐<br>BOTH SYSTOLIC AND DIASTOLIC BLOOD PRESSURE RECORDED IN Q513 ☐ | | → 1010 |
| 1009 | CHECK Q108C:<br>SYSTOLIC AND DIASTOLIC BLOOD PRESSURE RECORDED IN Q108C ☐<br>BOTH SYSTOLIC AND DIASTOLIC BLOOD PRESSURE NOT RECORDED IN Q108C ☐ | | → 1013 |
| 1010 | RECORD THE SYSTOLIC AND DIASTOLIC PRESUSRE. | SYSTOLIC ☐☐☐ DIASTOLIC ☐☐☐ | |

| NO. | QUESTIONS AND FILTERS | CODING CATEGORIES | SKIP |
|---|---|---|---|
| 1011 | USE THE TABLE BELOW TO DETERMINE THE CORRECT CODE TO RECORD ON THE BLOOD PRESSURE REPORT AND REFERRAL FORM.<br><br>CIRCLE THE **ROW** IN WHICH THE VALUE FOR THE **SYSTOLIC** BLOOD PRESSURE FROM Q1006 OR Q1010 IS FOUND.<br><br>THEN CIRCLE THE **COLUMN** IN WHICH THE VALUE FOR THE **DIASTOLIC** BLOOD FROM Q1006 OR Q1010 IS FOUND.<br><br>THE VALUE WHERE THE ROW AND COLUMN YOU HAVE CIRCLED INTERSECT IN THE TABLE WILL BE USED IN COMPLETING Q1012. | | |

| AVERAGE SYSTOLIC PRESSURE | AVERAGE DIASTOLIC PRESSURE | | | | | |
|---|---|---|---|---|---|---|
| | <84 | 85-89 | 90-99 | 100-109 | 110-119 | ≥ 120 |
| <130 | 1 | 2 | 3 | 4 | 5 | 6 |
| 130-139 | 2 | 2 | 3 | 4 | 5 | 6 |
| 140-159 | 3 | 3 | 3 | 4 | 5 | 6 |
| 160-179 | 4 | 4 | 4 | 4 | 5 | 6 |
| 180-209 | 5 | 5 | 5 | 5 | 5 | 6 |
| ≥ 210 | 6 | 6 | 6 | 6 | 6 | 6 |

| | | |
|---|---|---|
| 1012 | RECORD THE NUMBER YOU CIRCLED IN Q1011 IN THE CHART BELOW. THEN USE THE INSTRUCTIONS TO THE RIGHT OF THAT NUMBER TO COMPLETE A BLOOD PRESSURE REPORT AND REFERRAL FORM FOR THE RESPONDENT. GIVE THE FORM TO THE RESPONDENT AND ANSWER ANY QUESTIONS HE/SHE MAY HAVE. | |

| | RESPONDENT'S BLOOD PRESSURE CATEGORY | CONSULT HEALTH PROVIDER TO CHECK BLOOD PRESSURE WITHIN: |
|---|---|---|
| 1 | NORMAL | **24 MONTHS** |
| 2 | AT THE HIGH END OF THE NORMAL RANGE | **12 MONTHS** |
| 3 | ABOVE NORMAL RANGE | **2 MONTHS** |
| 4 | MODERATELY HIGH | **1 MONTH** |
| 5 | VERY HIGH | **7 DAYS** |
| 6 | EXTREMELY HIGH | **TODAY** |

| | | |
|---|---|---|
| 1013 | CHECK THAT THE HOUSEHOLD HAS RECEIVED A BROCHURE ON BLOOD PRESSURE.<br><br>THANK THE RESPONDENT AND ADVISE THAT THE RESPONDENT OR OTHER MEMBERS OF THE HOUSEHOLD MAY BE ASKED TO PARTICIPATE AGAIN IN INTERVIEWS OR OTHER SURVEY ACTIVITIES IN THE FUTURE.<br><br>Thank you for taking the time to answer these questions.<br>We may return to interview you or other members of your household again or to ask you to participate in other survey activities in the future. We hope that you will agree at that time. | |

OBSERVATIONS

TO BE FILLED IN AFTER COMPLETING INTERVIEW

1101 INTERVIEWER'S OBSERVATIONS

COMMENTS ABOUT RESPONDENT:

COMMENTS ON SPECIFIC QUESTIONS:

ANY OTHER COMMENTS:

1102 SUPERVISOR'S OBSERVATIONS

NAME OF SUPERVISOR: _____ DATE: _____

1103 EDITOR'S OBSERVATIONS

NAME OF EDITOR: _____ DATE: _____

## Appendix B: IRB Approval

EMORY UNIVERSITY | Institutional Review Board

January 27, 2011

**RE: Determination: No IRB Review Required**
**Title: Masters Thesis**
**PI: Leeza Kondos**

Dear Ms. Kondos:

Thank you for requesting a determination from our office about the above-referenced project. Based on our review of the materials you provided, we have determined that it does not require IRB review because it does not meet the definition(s) of "research" involving "human subjects" or the definition of "clinical investigation" as set forth in Emory policies and procedures and federal rules, if applicable. Specifically, in this project, you will be analyzing non identifiable data collected using the Demographic Health Survey.

This determination could be affected by substantive changes in the study design, subject populations, or identifiability of data. If the project changes in any substantive way, please contact our office for clarification.

Thank you for consulting the IRB.

Sincerely,

Andrea Goosen, MPH
Research Protocol Analyst
*This letter has been digitally signed*

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