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# EVALUATION OF KNOWLEDGE, ATTITUDES, AND PRACTICES OF HEALTH CARE PROVIDERS TOWARD HIV-POSITIVE PATIENTS IN TANZANIA

QUALITY  
ASSURANCE  
PROJECT

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OPERATIONS  
RESEARCH  
RESULTS

OCTOBER 2007

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QAP Tanzania HIV Stigma Study Team

**DISCLAIMER**

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## TABLE OF CONTENTS

EXECUTIVE SUMMARY .....	iii
I. INTRODUCTION.....	1
A. HIV/AIDS and Stigma .....	1
B. Study Purpose .....	2
II. METHODS.....	2
A. Study Design and Participants.....	2
B. Data Collection .....	2
C. Measurement .....	3
D. Quality Assurance .....	4
E. Statistical Analysis.....	4
III. RESULTS .....	4
A. Characteristics of Providers.....	4
B. Provider Knowledge of HIV/AIDS .....	5
C. Attitudes toward HIV/AIDS Patients and Care .....	8
D. Perceived Risk of Infection .....	11
E. Discriminatory Practices toward HIV/AIDS Patients.....	14
F. Factors Associated with Provider Attitudes and Practice .....	16
IV. DISCUSSION.....	17
A. Findings.....	17
B. Study Strengths and Limitations.....	19
V. RECOMMENDATIONS AND CONCLUSION.....	20
REFERENCES .....	20
APPENDIX: PROVIDER QUESTIONNAIRE (ENGLISH).....	22

## LIST OF TABLES

Table 1: Stigma Points, by Response and Type of Statement.....	3
Table 2: Provider Characteristics, by Hospital .....	5
Table 3: Percentage of Correct Responses to Knowledge Items, by HIV Training Status .....	6
Table 4: Percentage of Correct Responses to Labor and Delivery Items, by HIV Training Status (Labor and Delivery Staff Only).....	7
Table 5: Comparison of Mean Composite Knowledge Scores .....	8
Table 6: Provider Attitudes toward PLWHAs .....	9
Table 7: Provider Beliefs Regarding Easiest and Most Difficult Aspects of Caring for PLWHAs.....	10
Table 8: Stigma Score Results, by Demographic Characteristics.....	11
Table 9: Perceived Degree of Risk Associated with Casual Contact.....	12
Table 10: Perceived Degree of Risk Associated with Selected Medical Procedures.....	13
Table 11: Availability of Protective Wear and Comfort Caring for PLWHAs.....	13
Table 12: Percentage Distribution of Perceived Discriminatory Behaviors by Peers.....	15
Table 13: Provider Responses on Patient Confidentiality, by Hospital .....	16
Table 14: Factors Associated with Provider Attitudes and Self- and Peer-reported Practices .....	17

## ABBREVIATIONS

AIDS	Acquired immunodeficiency syndrome
ARV	Antiretroviral therapy
BT	Blood transfusion
CDC	Centers for Disease Control and Prevention
CI	Confidence interval
HDN	Health and Development Networks
HIV	Human immunodeficiency virus
NA	Not applicable
OPD	Outpatient department
OR	Odds ratio
PLWHA	Person living with HIV/AIDS
PMTCT	Prevention of mother-to-child transmission
QAP	Quality Assurance Project
SD	Standard deviation
SP	Sexual promiscuity
UNAIDS	Joint United Nations Programme on HIV/AIDS
URC	University Research Co., LLC
USAID	United States Agency for International Development
VCT	Voluntary counseling and testing
WHO	World Health Organization

## EXECUTIVE SUMMARY

HIV/AIDS-related stigma has been recognized as one of the largest challenges to improving HIV/AIDS care around the world. Studies suggest that provider stigma may be affecting the quality of care and patient decisions to seek health care services. This study conducted structured interviews with 204 health care providers in three public hospitals in Dar es Salaam, Tanzania, to evaluate the prevalence of stigma and discrimination among providers toward people living with HIV/AIDS (PLWHAs) and the factors associated with stigmatizing attitudes. Information on HIV/AIDS-related knowledge, perceived risk of infection, willingness to care, and availability of protective gear was also obtained.

Findings from the study show that providers were familiar with various modes of HIV transmission and presenting symptoms, but had knowledge gaps relating to virology and infection prevention. Over two-thirds perceived some risk of infection during casual contact with PLWHAs, and perceived risks of infection for specific medical procedures varied substantially. Some providers rated procedures as having “high” or “moderate” risk for HIV/AIDS infection, while others rated those procedures as having “low” or “no” associated risk. Most providers expressed at least one negative attitude towards PLWHAs, such as blame for infection, particularly if it was considered a result of sexual promiscuity.

There were few specific reports of discriminatory practices toward HIV/AIDS patients. However, when aggregated by type of discriminatory practices, the reported prevalence of discrimination increased, with the most common practices being selective use of universal precautions, denial of services, and substandard treatment. Forty-seven percent (47%) of the respondents said that peers or hospitals sometimes, frequently, or always engaged in at least one discriminatory practice against PLWHAs.

In summary analyses, multivariate regression models revealed that knowledge of HIV was inversely associated with negative attitudes toward PLWHAs (i.e., stigma), and providers who perceived high risk of HIV infection through casual contact had significantly more negative attitudes. Stigma was associated with providers’ selective use of universal precautions, which was associated with reports of peers’ discriminatory practices. Availability of protective wear, with the exception of gloves, was low in many wards, as were guidelines for management of care for people with HIV/AIDS.

While health personnel are willing to provide care to HIV/AIDS patients, this study shows that discriminatory behavior and stigma toward them do exist and may be attributable to poor HIV/AIDS-related knowledge and high perceived risk of infection. Communicative forums to address provider concerns and training in infection prevention and HIV may reduce health sector stigma and discrimination.



## I. INTRODUCTION

### A. HIV/AIDS and Stigma

The HIV/AIDS epidemic has been accompanied by stigma since its inception, and the reality of HIV/AIDS-related stigma has compounded the effects of the epidemic over the past 20 years (de Bruyn 1999; UNAIDS Intercountry Teams for East and Southern Africa, Health and Development Networks, and Swedish International Development Agency 2001). The life-threatening nature of the disease, its association with already-stigmatized behaviors, and the belief that people with HIV/AIDS are being justifiably punished for having done something wrong all contribute to HIV/AIDS-related stigma (Foreman, Lyra, and Breinbauer 2003).

Stigma has been defined as "... a real or perceived negative response to a person or persons by individuals, community or society...[that] is characterized by rejection, denial, discrediting, disregarding, underrating and social distance" (HDN and Global Network of People Living with HIV/AIDS 2004). This definition builds on definitions by others who suggest that stigmatized individuals are believed to possess an attribute that conveys an inferior social identity, which, once obtained, immediately diminishes the individual's worth (Stafford and Scott 1986). Stigma is often associated with diseases that have severe and incurable outcomes, frequently in cases where acquisition of the disease is perceived to have been a consequence of the behavior of the infected individual (Gilmore and Somerville 1994). Once enacted, stigma against PLWHAs results in discrimination, which, as defined by the UNAIDS Protocol for Identification of Discrimination against People Living with HIV, refers to "any measure entailing any arbitrary distinction among persons depending on their confirmed or suspected HIV serostatus or state of health" (UNAIDS 2000).

Despite global efforts to reduce and eliminate HIV/AIDS-related stigma and discrimination, several published studies document their continued presence and manifestation across settings, affecting the quality of an individual's life and his/her access to and utilization of health care services (de Bruyn 1999; Paxton et al. 2005). In fact, Panos (2001) characterized the health care sector as the context where the most extreme forms and frequency of stigma occur. Internationally, studies evaluating attitudes of health care providers toward HIV/AIDS patients have suggested that current negative attitudes of health care workers toward people with HIV—compounded by fear of infection in the workplace, perceptions of risk, and lack of understanding of HIV—perpetuate the prevalence and manifestation of stigma toward this population (Duyan, Agalar, and Sayak 2001; Hentgen et al. 2002; Foreman, Lyra, and Breinbauer 2003; Chen, Han, and Holzemer 2004; Juan et al. 2004; Quach et al. 2005; Reis et al. 2005). For example, a study examining discriminatory attitudes and practices by health care workers in Nigeria found that providers inadequately trained in HIV/AIDS care and ethics were more likely to agree that it was acceptable to refuse treatment to infected patients and were more likely to have done so (Reis et al. 2005). In China, knowledge of HIV and negative attitudes among nurses were inversely correlated; 50% of nurses reported anxiety about becoming infected with HIV in the workplace, and 49% said they avoided contact with HIV-positive patients altogether (Chen, Han, and Holzemer 2004).

Discrimination also manifests itself as denial of services (such as claiming "there are not enough beds" or "the doctor is not here" or refusing admission outright). Other discriminatory practices include breaches in confidentiality, isolation of HIV/AIDS patients, or substandard and degrading treatment. Still further, providers may selectively use precautions only toward patients suspected or known to be infected with HIV rather than for all patients, increasing experiences of stigma among HIV patients (Masini and Mwampeta 1993; Panos 2001; Aggleton 2001). Particularly in Africa, AIDS-related stigma and discrimination have been shown to compromise the effectiveness of prevention and treatment efforts by discouraging individuals from being tested or seeking information on how to protect themselves and others (Fortenberry et al. 2002; Valdiserri 2002). However, despite findings, few studies have characterized the extent of and factors contributing to provider HIV/AIDS-related stigma as well as discrimination in African health care settings.

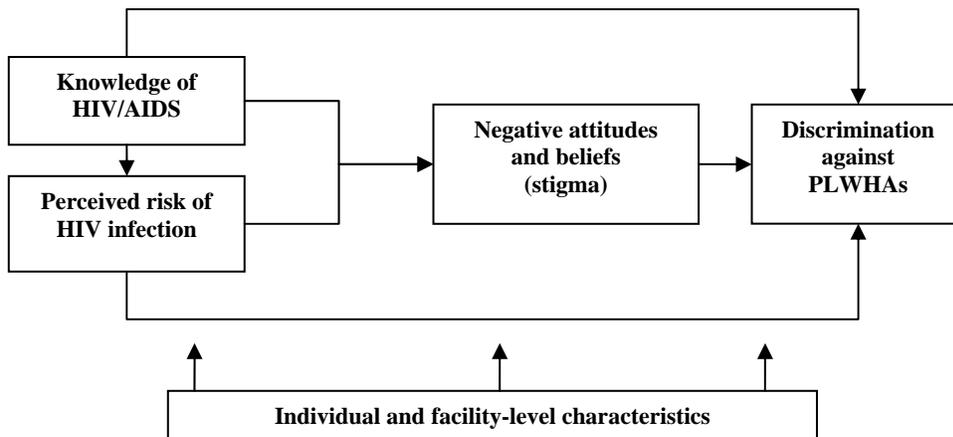
## B. Study Purpose

The purpose of this study was to evaluate provider stigma and discrimination toward HIV/AIDS patients in three district hospitals in Dar es Salaam, Tanzania. The specific aims were to:

- (1) Assess providers' knowledge of HIV/AIDS in the areas of virology, presenting symptoms, modes of transmission, prevention, and treatment;
- (2) Determine the prevalence and associated factors of provider HIV/AIDS-related stigma, such as HIV knowledge, perceived risk of infection, and other individual characteristics; and
- (3) Determine the prevalence and associated factors of provider HIV/AIDS-related discrimination, such as denial of services or substandard treatment.

Figure 1 lays out a conceptual framework of how these factors might relate.

**Figure 1: Conceptual Framework of Relationship between Health Provider Stigma and Discrimination**



## II. METHODS

### A. Study Design and Participants

Data were obtained in January 2004 by cross-sectional design during semi-structured interviews with 204 health care providers working in one of three district hospitals—Temeke, Amana, and Mwananyamala—in Dar es Salaam, where QAP/URC was preparing to implement an injection safety program.

Prior to implementation, the study aimed to examine existing knowledge, beliefs, and practices. Providers were eligible to participate if they worked in one of the three hospitals at the time of the study. Of 249 eligible providers, 82% (n = 204) were interviewed after consenting to participate. Providers who were not interviewed either refused to participate (4%) or were unavailable when the interviews were conducted (14%).

### B. Data Collection

Each interview obtained information on provider demographic characteristics such as age, gender, specialty, years working in health care, and receipt of training in HIV/AIDS care. Knowledge about HIV/AIDS (including prevention of mother-to-child transmission for labor and delivery staff only), attitudes, and practices toward PLWHAs were also assessed, as were perceived risks of infection and availability of protective wear. Respondents were also asked about HIV/AIDS-related information sources, patient confidentiality, medical record keeping, and perceptions of the easiest and most difficult tasks in providing care to HIV/AIDS patients.

Interviews were conducted privately and in Swahili at a nursing station or in a quiet corner in the surgical theater, lab, or doctor's office by one of two trained Tanzanian personnel who had experience conducting

health surveys. Interviews averaged 60–75 minutes and were conducted only after informed consent was obtained. Data were collected in Swahili and entered in English into a Microsoft Access database.

### C. Measurement

**Knowledge of HIV/AIDS** was assessed using five multiple-choice and eight true/false questions assessing provider knowledge on: 1) HIV virology, 2) presenting symptoms, 3) modes of HIV transmission, 4) prevention strategies, and 5) risk assessment. Multiple-choice and true/false questions were worth one point for each correct answer, with the exception of two questions that were worth seven points. A participant’s total knowledge score was the total number of points earned out of 25 points. For any incorrect responses on the two seven-point multiple-choice questions, a half-point was deducted from the total number of points. For providers who did not answer all knowledge questions, knowledge scores were determined on the basis of the number of questions answered. Total knowledge scores were classified as “good” (i.e., >80%), “fair” (70–79%), or “poor” (<69%) based on cutoff points with the strongest measure of association.

Scoring was heavily weighted toward modes of transmission (eight points) and prevention strategies (ten points), compared to presenting symptoms (two points), HIV virology (three points), and risk assessment (two points).

**Provider stigma** was assessed using a 27-item attitude and beliefs scale, referred to as the “stigma scale.” Providers were given a range of statements regarding PLWHAs and asked to rate the degree to which they agreed with each statement. The agreement scale had four options: “strongly agree,” “agree,” “disagree,” or “strongly disagree.” The stigma score for a particular statement depended on the degree of agreement or disagreement with the statement and whether it was negatively or positively worded. That is, no points were given for providers who strongly agreed with positive statements toward PLWHAs or strongly disagreed with negative statements toward PLWHAs. Alternatively, a maximum of three points was given to providers who strongly agreed with a negatively worded statement or strongly disagreed with a positively worded statement.

Table 1 shows the distribution of points for each response based on the type of statement provided.

**Table 1: Stigma Points, by Response and Type of Statement**

Type of Statement	Strongly Agree	Agree	Disagree	Strongly Disagree
Positive statement toward PLWHAs	0	1	2	3
Negative statement toward PLWHAs	3	2	1	0

Total stigma scores equaled the sum of the scores on all 27 statements with a maximum of 81 points. These scores were classified as “high” or “low” stigma relative to the study population’s mean score.

**Provider perceived risk of infection** was assessed for two kinds of patient-contact scenarios: casual contact and contact through clinical examination. The former examined perceived risks when: 1) working everyday with an HIV-infected colleague, 2) shaking hands with an AIDS patient with a generalized rash, 3) being sneezed on by an AIDS patient, 4) touching a patient when assessing him or her, or 5) sharing a glass with someone with HIV/AIDS. For analysis, providers were categorized as those who did or did not assign risk to any of these scenarios.

Perceived risk of infection through clinical contact examined providers’ risk rating for procedures such as: cleaning and dressing a wound, inserting or removing an intravenous cannula, administering an injection, delivering babies, or performing surgery as well as risk ratings in scenarios where providers accidentally pricked themselves with a needle that had been used on a patient with AIDS or who recap needles after drawing blood. Risk ratings for medial procedures were not converted into summary measures.

**Provider discrimination toward PLWHAs** was assessed using provider reports of discrimination by peers and hospitals in general and using data on self-reported selective use of universal precautions. Providers were asked to report their perception on the frequency of 20 discriminatory practices pertaining to denial of services, financial discrimination, substandard treatment, selective use of universal precautions, and other

forms of discrimination. Possible responses were “always,” “frequently,” “sometimes,” “rarely,” or “never.” To summarize these data, an answer of always, frequently, or sometimes was used to distinguish providers who reported at least one discriminatory practice (i.e., always, frequently, or sometimes) from those who did not.

Information was also obtained regarding providers’ own practices in selective use of universal precautions (i.e., self-reported discrimination). Measurement of such discrimination was ascertained from provider reports of the availability of protective wear and its use for all patients, high risk patients, and/or patients suspected or known to be infected with HIV/AIDS. Protective wear used on select groups of patients rather than all patients was classified as “selective use of universal precautions.”

**Questionnaire design:** This study’s questionnaire was developed based on a literature review, consultations with field staff, and the authors’ knowledge of provider-related beliefs and practices. Given the limited time and resources for the study, no pilot testing or preliminary validation was performed.

#### **D. Quality Assurance**

To ensure data quality, a trained quality assurance supervisor observed interviewers and routinely gave feedback on best practices for administering the questionnaire. A random sample of 25 interviewees was also selected for a second interview to assess the accuracy and completeness of the previously attained responses. The repeated responses were consistent with the original ones with regard to items measuring HIV knowledge and discriminatory practices and less so with regard to attitudinal items relating to stigma. To correct this difference, interviewers were further trained and advised to encourage providers to share freely their opinions toward PLWHAs. In cases where there was a discrepancy, the initial response was used in the analysis.

#### **E. Statistical Analysis**

Data were analyzed using STATA Version 9.0 statistical package. Two-sample t-tests, analysis of variance, and linear as well as logistic regressions were used to assess factors associated with provider stigma and discrimination. Pearson’s chi-squared analyses were used to examine the distribution of factors by individual characteristics among providers. For all analyses, p-values of less than 0.05 were considered statistically significant. To assess internal consistency reliability among attitudinal items, Cronbach’s alpha was applied (alpha = 0.84), indicating that the questionnaire had good statistical reliability and that providers were largely consistent in reporting of attitudes. We also conducted exploratory analyses to assess construct validity. Provider stigma, as measured by the scale, correlated with other constructs as expected.

### **III. RESULTS**

#### **A. Characteristics of Providers**

Table 2 shows the distribution of demographic factors among the providers: 31% were men and 69% women. The mean age was 39.7 years, ranging from 25 to 58. Doctors and medical officers were the largest provider type (39%), followed by nurses and midwives (37%) and laboratory and medical assistants (22%). Three providers were classified as “other”: a public health specialist (male), an assistant lab technician (female), and a nurse administrator (female).

Nearly a third of providers (30%) worked in labor and delivery, followed by surgery (major and minor theater) (21%), outpatient services (22%), laboratories (12%), and other specialties (15%). Other specialties included pediatrics, dental, obstetrics/gynecology, internal medicine, and health information systems. Almost all providers (89%) were involved in direct patient care, with no significant differences by hospital.

The average number of years working in health care was 16.4. Most providers (96%) had received their medical training in Tanzania, and 51% had received some form of HIV/AIDS training.

**Table 2: Provider Characteristics, by Hospital**

Characteristics [n (%)]	Amana (n = 54)	Mwanan- yamala (n = 61)	Temeke (n = 89)	Total (N = 204)	p-value	Missing Data
Gender						
Male	13 (24%)	19 (31%)	32 (36%)	64 (31%)	0.33	n = 0
Female	41 (76%)	42 (69%)	57 (64%)	140 (69%)		
Age						
<40 years	28 (52%)	29 (48%)	42 (47%)	99 (49%)	0.99	n = 7
40–49 years	19 (35%)	22 (36%)	32 (36%)	73 (36%)		
50+ years	5 (9%)	8 (13%)	12 (14%)	25 (12%)		
Age in years (mean ± SD)	39.3 ± 7.2	39.8 ± 8.1	40.0 ± 8.2	39.7 ± 7.9		
Provider type						
Doctor/medical officer	17 (32%)	26 (43%)	37 (42%)	80 (39%)	0.02	n = 0
Nurse/midwife	29 (54%)	16 (26%)	31 (35%)	76 (37%)		
Lab or medical assistant	6 (11%)	18 (30%)	21 (24%)	45 (22%)		
Other	2 (4%)	1 (2%)	0 (0%)	3 (1.5%)		
Specialty						
Labor and delivery	24 (44%)	16 (26%)	21 (24%)	61 (30%)	0.01	n = 0
Main theater	9 (17%)	8 (13%)	8 (9%)	25 (12%)		
Minor theater	2 (4%)	2 (3%)	12 (13%)	16 (8%)		
Laboratories	7 (13%)	9 (15%)	8 (9%)	24 (12%)		
Outpatient services	4 (7%)	13 (21%)	28 (32%)	45 (22%)		
Other specialties	8 (15%)	13 (21%)	12 (13%)	33 (16%)		
Providers involved in direct patient care	49 (91%)	54 (89%)	79 (89%)	182 (89%)		
Mean years working in health care ± SD	15.4 ± 9.1	16.4 ± 9.3	17.0 ± 9.5	16.4 ± 9.3	0.96	n = 4
Trained in Tanzania	54 (100%)	57 (93%)	84 (94%)	195 (96%)	0.17	n = 0
Received HIV training	38 (70%)	25 (41%)	40 (45%)	103 (51%)	0.00	n = 0

Note: SD is standard deviation.

## B. Provider Knowledge of HIV/AIDS

### *HIV virology and presenting symptoms*

Knowledge of HIV virology and presenting symptoms was generally high. Almost all providers knew that HIV is the virus that causes AIDS (97%) and that the indication for HIV is a positive test for HIV-infection (Table 3). When asked “How do you know if a patient is HIV-positive,” 99% responded “if s/he has tested positive for HIV,” although 3.4% included additional responses (not shown), such as “s/he is known to be sexually promiscuous” (0.5%), “s/he has recently lost a lot of weight” (2.0%), or “s/he has many open sores” (1.5%).

Some aspects of HIV virology were less well known. For example, only 71% responded correctly (i.e., false) to the statement “Even outside the body, the HIV virus is hard to kill,” and even fewer (40%) responded correctly (i.e., true) that “Persons infected with HIV will likely develop antibodies within six months.”

### *Modes of transmission*

Providers were familiar with some modes of HIV transmission such as vaginal sex (98% selected this as a transmission mode), anal sex (88%), receiving blood (95%), accidental needle stick (88%), or from mother to child (93%), but the percentage of correct responses decreased for oral sex (57%) and exposure to blood when taking care of patients (78%) (Table 3). Only 41% of providers correctly indicated that blood and semen were not the only bodily fluids to transmit HIV (e.g., breast milk).

Sometimes incorrect modes of transmission were selected, such as “sharing cups and spoons” (1%) or “donating blood” (16%). No providers selected “mosquito bites” or “greeting someone with a kiss on the

cheek” as a means of transmitting HIV. In sum, 34 providers (17%) reported at least one incorrect mode of transmission. There were no significant differences in knowledge of transmission modes by hospital.

### Prevention strategies

**Universal precautions:** While proper sterilization and disinfection are necessary for HIV/AIDS care, they should be provided routinely for all care and not limited to care of HIV/AIDS patients. In our sample, some providers distinguished sterilization needs between HIV-positive and HIV-negative patients. Table 3 shows that 66% correctly denied the statement that “instruments used on HIV-positive patients must be sterilized separately,” and 33% correctly denied the statement that “equipment used for PLWHA must be disinfected and sterilized more rigorously.”

**Table 3: Percentage of Correct Responses to Knowledge Items, by HIV Training Status**

Knowledge Items (25 Items from 13 Questions) (% Correct)	Received HIV Training (n = 103)	Received No HIV Training (n = 101)	p-value	Total (N = 204)
<b>Virology (3 items)</b>				
What is the link between HIV and AIDS?	97.1	97.0	0.98	198 (97%)
Persons infected with HIV will likely develop antibodies within 6 mos.	42.7	36.6	0.54	81 (40%)
Even outside the body, the HIV virus is hard to kill	72.8	64.4	0.16	140 (69%)
<b>Presenting symptoms (2 items)</b>				
A patient is known to have HIV if s/he has tested positive for HIV	98.1	100.0	0.15	202 (99%)
One cannot know by looking if someone is HIV-positive	98.1	99.0	0.57	201 (99%)
<b>Mode of transmission (8 items)</b>				
Blood and semen are the only bodily fluids that transmit HIV	46.6	34.7	0.10	83 (41%)
How can HIV be transmitted? ( <i>Multiple correct responses</i> )				
Vaginal sex	99.0	97.0	0.30	200 (98%)
Oral sex	58.3	55.5	0.69	116 (57%)
Anal sex	89.3	86.1	0.49	179 (88%)
Receiving blood	97.1	92.1	0.11	193 (95%)
Accidental needle stick	89.3	87.1	0.63	180 (88%)
Exposure to blood when taking care of patients	77.7	78.2	0.93	159 (78%)
From mother to child (vertical transmission)	93.2	93.1	0.97	190 (93%)
<b>HIV prevention strategies in clinical setting (10 items)</b>				
Instruments used on HIV-positive patients must be sterilized separately	75.7	56.4	0.01	135 (66%)
Equipment used for PLWHA must be disinfected more rigorously	35.0	31.7	0.54	68 (33%)
A different instrument kit should be set aside for use on PLWHAs	85.4	68.3	0.00	157 (77%)
In what ways can HIV be prevented? ( <i>Multiple correct responses</i> )				
Use of gloves on all patients when doing invasive procedures	96.1	92.1	0.22	192 (94%)
Use of a condom	99.0	92.1	0.02	195 (96%)
Not recapping needles	39.8	37.6	0.75	79 (39%)
Use of gloves when handling patient specimens	97.1	91.9	0.07	192 (94%)
Abstinence	79.6	73.3	0.29	156 (77%)
Use of eye protection when delivering babies	62.1	51.5	0.13	116 (57%)
Properly sterilizing instrument tray and equipment	78.6	84.2	0.31	166 (81%)
<b>Risk association (2 items)</b>				
Highest risk for contracting HIV at work is accidental needle prick	86.4	91.1	0.29	181 (89%)
Older men are at a lower risk for HIV infection than general public	42.7	42.6	0.60	87 (43%)

Providers, however, showed knowledge of universal precaution (regardless of HIV status). When asked, “In what ways can HIV be prevented?” almost all knew of at least one valid (universal) method: 94% said that “use of gloves on all patients when doing invasive procedures” was a way to reduce occupational exposure to HIV, and 94% knew to “use gloves when handling patient specimens.” Indicated less often were “properly sterilizing instrument tray and equipment” (81%) and “use of eye protection when delivering babies” (57%). Non-clinical prevention strategies were also reported, such as condom use (96%) and abstinence (77%).

**Recapping needles:** The national standard in Tanzania provides that needles should not be recapped since doing so is associated with inadvertent needle sticks. However, fewer than half of respondents (39%) selected not recapping needles as a way to prevent HIV transmission, although accidental needle stick was reported by 89% as a mode of transmission. Twenty-four percent (24%) of providers said they recap needles using both hands; 28% reported using the one-handed scoop method.

**Inappropriate prevention strategies:** The multiple-choice question “How can HIV be prevented?” also offered three inappropriate responses. “Not providing care to persons who are HIV-positive” was selected by 0.5%, “Use of gloves when taking care of patients suspected to be HIV-positive” by 83%, and “Use of separate equipment for HIV-positive patients” by 64%. Nearly all providers (91%) selected at least one of these three answers, and over half (56%) chose at least two.

### Labor and delivery

We interviewed 61 providers in the hospitals’ labor and delivery wards to obtain data on knowledge of prevention of mother-to-child transmission (PMTCT). Table 4 shows that 92% knew that all pregnant women should be tested for HIV, and 85% knew that nevirapine was the chosen therapy to prevent vertical transmission of HIV. Providers with HIV training were more likely to report the correct therapy than those without it (97% versus 71%,  $p = 0.01$ ).

**Table 4: Percentage of Correct Responses to Labor and Delivery Items, by HIV Training Status (Labor and Delivery Staff Only)**

	Received HIV Training (n = 33)	Received No HIV Training (n = 28)	p-value	Total (n = 61)
<b>Knowledge of PMTCT (% Correct)</b>				
Recurrent vaginal yeast infections or cervical cancer may indicate HIV infection	75.8	75.0	0.54	46 (75%)
All pregnant women should be tested for HIV	97.0	85.7	0.11	56 (92%)
HIV-positive newborns sometimes revert to HIV-negative status	24.2	25.0	0.07	15 (25%)
Nevirapine is the therapy of choice for PMTCT	97.0	71.4	0.01	52 (85%)
Correct advice given to HIV-positive mother about infant feeding	81.8	25.0	0.00	34 (56%)
Reported having access to guidelines for PMTCT	48.5	39.3	0.70	27 (44%)
<b>Key Recommendations for PMTCT</b>				
VCT for all pregnant women	33.3	32.1	0.92	20 (33%)
Nevirapine taken by mother during labor	69.7	50.0	0.12	37 (61%)
Nevirapine taken by neonate within 72 hours of birth	75.8	46.4	0.02	38 (62%)
Breastfeed exclusively for 6 months then abruptly wean to formula	57.6	17.9	0.00	24 (39%)
If not breastfeeding, exclusively formula feed	24.2	32.1	0.49	17 (28%)
Knowledge of all 5 PMTCT recommendations	9.1	10.7	0.83	6 (10%)

Note: VCT is voluntary counseling and testing.

Fewer providers correctly reported that HIV-positive newborns sometimes revert to HIV-negative status (25%) or provided appropriate advice regarding HIV-positive women and infant feeding (56%). This was significantly associated with HIV training (82% versus 25%,  $p = 0.00$ ). Only 10% selected all key recommendations for PMTCT, although knowledge of specific components of the PMTCT recommendation was higher. Providers with HIV training were more likely to report that nevirapine should be given to the newborn within 72 hours of birth and that PMTCT guidelines encouraged breastfeeding exclusively for six months followed by abrupt weaning to formula.

### Overall knowledge of HIV/AIDS

The sample mean composite knowledge score was 72.5% (Table 5), ranging from 44% to 100%. This corresponds to an average of 18 correct responses out of 25 items. When categorized as “good,” “fair,” and “poor,” 74 providers (36%) were classified as “poor” based on knowledge scores less than 70%; followed by 76 providers (37%) who were classified as “fair” (i.e., knowledge scores between 70 and 79%). Fifty-four ( $n = 54$ , 26%) providers correctly answered more than 80% of the knowledge items correctly. Table 5 shows

the mean score for each of these groups. Statistically significant differences in composite knowledge scores were observed for gender, provider type, specialty, and receipt of HIV training. Providers who were involved in direct patient care had significantly higher knowledge scores than those who were not (73% versus 68%,  $p = 0.02$ ). Differences in composite scores approached significance with respect to age, but were insignificant by hospital or other variables.

**Table 5: Comparison of Mean Composite Knowledge Scores**

Provider Characteristics N = 204		n	Average % Correctly Answered (of 25 Items)	p- value	Provider Characteristics N = 204		n	Average % Correctly Answered (of 25 Items)	p- value
Provider type					Hospital				
Doctor/ med officer	80	75.2	0.01		Amana	54	73.2	0.12	
Nurse / midwife	76	71.3		Mwananyamala	61	74.1			
Medical assistant	45	69.7		Temeke	89	70.9			
Age (yrs)					Specialty				
< 40	99	74.1	0.08		Labor & delivery	61	69.8	0.02	
40–49	73	71.6		Main theater	25	76.0			
50+	25	69.6		Minor theater	16	69.5			
Gender					Laboratories	24	71.3		
Male	64	75.1	0.01		Outpatient services	45	73.4		
Female	140	71.2		Other	33	75.7			
Received HIV training					Direct patient care				
Yes	103	74.4	0.00		Yes	182	73.0	0.02	
No	101	70.4		No	22	67.8			
<b>Knowledge Groups</b>					<b>Summary Measures</b>				
Good ( $\geq 80\%$ )	54	84.4	0.00		Mean score	204	72.5	NA	
Fair (70-79%)	76	74.0		Range	204	44 to 100			
Poor ( $\leq 69\%$ )	74	62.2		Median score	204	72.0			

Notes: Knowledge items for PMTCT were not included in composite scoring. NA is not applicable.

### Sources of HIV/AIDS-related Information

An important aspect of assessing provider knowledge of HIV is to identify sources of information on HIV/AIDS. All providers reported at least one commonly used source for obtaining such information (data not shown). Most commonly reported was a radio/television (90%), followed by newspapers/magazines (61%), seminars/workshops (53%), and books (51%). The least reported sources were patients (17%) and friends (23%). Other sources accounted for 7% of the responses and included the performing arts, family, the Internet, and church.

Differences in sources used to obtain HIV/AIDS-related information were assessed by gender and provider type (i.e., doctors/medical officers versus other types of providers). There were significant differences between males and females for medical journals (52% versus 31%), radio/television (81% versus 94%), friends (13% versus 28%), and co-workers/supervisors (27% versus 51%). Men were more likely to use medical journals and WHO/UNAIDS guidelines, while women were more likely to use radio/TV, friends, and co-workers/supervisors to obtain information on HIV/AIDS. Not surprisingly, patterns were largely identical by provider type. Use of sources between men (doctors) and women (non-doctors) was similar for posters/leaflets, books, patients, and seminars/workshops.

### C. Attitudes toward HIV/AIDS Patients and Care

**Attribution of blame:** Almost all providers (97%) expressed at least one negative attitude toward people with HIV/AIDS, though agreement with any one item varied considerably. Table 6 shows that the most common negative attitude was blame, particularly if the patient was thought to have been infected through sexual promiscuity or prostitution. While only 12% of providers said that most people with AIDS deserve what

they get, 67% believed that people who have many sexual partners deserve AIDS, and 72% were more sympathetic toward people infected by blood transfusions than those infected through prostitution.

**Table 6: Provider Attitudes toward PLWHAs**

Attitudes toward and Beliefs about PLWHAs: N = 204	Number Who Agreed (%)
<b>Blame for infection (10 statements)</b>	
Most people with AIDS have only themselves to blame	93 (45.6%)
Most people with AIDS deserve what they get	25 (12.3%)
Children who get AIDS from their mothers are more deserving of treatment than people who get AIDS by SP	72 (35.3%)
People who get AIDS through a BT are more deserving of treatment than people who get AIDS through SP	50 (24.5%)
You have little sympathy for people who get AIDS through sexual promiscuity	66 (32.4%)
Most likely, men who are HIV-positive are promiscuous and deserve what they get	43 (21.1%)
People who have many sexual partners deserve to get AIDS	137 (67.2%)
HIV-positive women should not have children	159 (77.9%)
You feel more sympathetic of people who get AIDS from a BT than those who get it from prostitution	147 (72.1%)
If a woman becomes HIV-positive, she has only herself to blame	37 (18.1%)
<b>Fear of infection (5 statements)</b>	
If assigned to patients with AIDS, you worry of putting your friends and family at risk of contracting the disease	27 (13.2%)
You worry about getting AIDS from social contact with someone (i.e., sharing food)	6 (2.9%)
You worry about getting AIDS from one of your HIV-positive patients	61 (29.9%)
You would be worried about your child getting AIDS if his/her teacher had AIDS	22 (10.8%)
If people know you take care of HIV/AIDS patients, they will stigmatize you	19 (9.3%)
<b>Desire for separation (6 statements)</b>	
If you found out that a friend had AIDS, you would not maintain the friendship	20 (9.8%)
You would hire someone you knew to be HIV-positive to work at the clinic	161 (78.9%)
You would work with colleagues who you know are HIV-positive	200 (98.0%)
People with HIV should be isolated from the rest of the community	0 (0.0%)
Patients who are HIV infected should not be put in room with other patients	9 (4.4%)
Young children should be removed from the home if one of the parents is HIV-positive	0 (0.0%)
<b>Sympathy and equality of care (6 statements )</b>	
Patients with AIDS have the right to the same quality of care as any other patient	199 (97.6%)
It is especially important to work with patients with AIDS in a caring manner	196 (96.1%)
Patients with AIDS should be treated with the same respect as any other patient	200 (98.0%)
You are sympathetic towards the misery that people with AIDS experience	202 (99.0%)
You would like to do something to make life easier to PLWHAs	200 (98.0%)
You would do everything you could to give the best possible care to PLWHAs	202 (99.0%)
Note: SP is sexual promiscuity; BT is blood transfusion.	

Promiscuous people were considered less deserving of HIV/AIDS treatment than vertically infected children by 35% of providers and less deserving than those infected by blood transfusions by 25% of providers. Among respondents, 18% said that a woman who becomes infected has only herself to blame, and 21% said men who are HIV-positive are promiscuous and deserve what they get. Seventy-eight percent (78%) believed that HIV-positive women should not have children. When asked who they think is responsible for the spread of HIV/AIDS in Tanzania, 84% reported prostitutes, 76% reported truck drivers, 56% popular music, 55% youth, 54% men, 50% women, 35% tourists, and 32% “people who are not religious” (not shown).

**Perceived risk of infection:** Providers’ perceived risk of infection also varied, particularly when a potential mode of infection was specified. For example, very few providers (3%) said they thought they would become infected through social contact, such as sharing the local brew or food, shaking hands, or hugging. However, the perceived risk of infection through providing direct care to HIV-positive patients was more prevalent (30%) as was concern that their work exposure would place their family and friends at increased

risk of HIV (13%). Agreement to either of these statements was not associated with HIV training or knowledge of HIV. In addition, 9% of providers said they might be stigmatized as result of their work. Together, 32% agreed with one of the five statements on perceived risk, representing nearly a third of the sample who were concerned with physical infection or stigmatization as a result of working with HIV-positive patients.

**Desire for separation:** Desire for separation was measured using six statements on patient isolation, placement of children living with HIV-positive adults, hiring or working with HIV colleagues, and maintaining friendships with infected individuals. Most providers said they would work with HIV-positive colleagues (98%), although fewer would hire someone who was HIV-positive (78%). Fewer, 10%, said they would not maintain a friendship with a PLWHA, and 4% believed HIV-positive patients should not be placed in rooms with other patients. None advocated separating PLWHAs from the rest of the community or removing children from a home with HIV-positive individuals.

**Sympathy and equality of care:** Agreement with sympathetic statements toward PLWHAs was prevalent, ranging from 96% to 99%. Only 6% of providers failed to agree with all five sympathy statements.

**Beliefs regarding difficulties and ease of care:** Also assessed were provider beliefs about the difficulties and ease of caring for PLWHAs (Table 7). The three most frequently reported difficulties were medicine and supply shortages (28% of all responses), lacking patient cooperation (22%), and facing hopelessness among patients (12%). Other difficulties are shown in the table.

**Table 7: Provider Beliefs Regarding Easiest and Most Difficult Aspects of Caring for PLWHAs**

Most Difficult Things about Taking Care of PLWHAs	% of All Responses	Easiest Things about Taking Care of PLWHAs	% of All Responses
1. Shortage of medicines and supplies	28%	1. There is nothing easy	34%
2. Management in absence of patient cooperation	22%	2. Patient accepts his condition and cooperates	15%
3. Hopelessness of patients	12%	3. Communicating openly with known status	12%
4. Inadequate knowledge and counseling of patient	9%	4. Patient recognizes his condition	10%
5. No cure for HIV	7%	5. Patient agrees to cooperate with care	9%
6. Inadequate understanding /cooperation from relatives in performing expected duties	7%	6. Caring for a patient once ARVs are available	5%
7. Inadequate cooperation among health workers	5%	7. Feeling sympathetic towards the patient	5%
8. Presenting condition takes a long time to treat	4%	8. Caring for a patient once health personnel have adequate knowledge to provide	4%
9. Inadequate knowledge regarding HIV to perform their responsibilities	4%	9. Caring for a patient once relatives support and cooperate with caregiver	4%
10. Need to comply with infection protection routines in order to protect themselves	3%	10. Caring for a patient once s/he appreciates the care s/he is receiving	2%
Average number of responses per provider	1.44	Average number of responses per provider	1.23

When asked, “What is easiest about taking care of PLWHAs,” providers most frequently responded “There is nothing easy” (34%), that it was easier when the patient accepted his or her condition and cooperated (15%), or when one was able to communicate openly with the patient once his/her status was known (12%). When asked whether, in light of limited resources, more or fewer resources should be focused on HIV-positive people compared to HIV-negative people, 1% of respondents said less, 25% said more, and 72% said the same amount of resources on both (not shown).

**Overall attitudes: HIV/AIDS-related stigma:** The mean composite stigma score among providers was 27.1 (of 81 points), ranging from 8 to 41 points. These included responses to the 27 items in Table 6. On average, males had significantly lower stigma scores (24.9) than females (28.1), as did doctors and medical officers (25.4) compared to other provider types (Table 8). HIV training and direct patient care were associated with lower mean stigma scores; providers with HIV training scored 26.1 on average compared to 28.1 in those without it ( $p = 0.02$ ); and providers in direct patient care scored 26.6 on average compared to 31.9 in those not involved in direct care ( $p = 0.00$ ).

HIV knowledge was also associated with attitudes toward HIV-positive patients. Providers with poor HIV knowledge (i.e., scores < 69%) had significantly higher stigma scores than those with good knowledge (i.e., scores >80%). Provider age, specialty, and hospital were not significantly associated with stigma scores.

**Table 8: Stigma Score Results, by Demographic Characteristics**

Provider Characteristics: N = 193 <sup>a</sup>	n	Mean Stigma		
		Score	95% CI	p-value
Total (out of 81 points)	193	27.1	26.3–28.0	NA
Gender				
Male	59	24.9	23.3–26.6	0.00
Female	134	28.1	27.1–29.1	
Age (years)				
<40	95	26.9	25.6–28.1	
40-49	69	26.9	25.4–28.4	0.60
50+	24	28.3	25.6–30.9	
Provider type				
Doctor/medical officer	76	25.4	23.9–26.8	
Nurse/midwife	71	27.9	26.5–29.3	0.00
Medical assistant	43	29.5	27.8–31.2	
Hospital				
Amana	50	26.9	25.0–28.7	
Mwananyamala	61	27.4	25.8–29.0	0.91
Temeke	82	27.1	25.8–28.4	
Direct patient care				
Yes	182	26.6	25.6–27.5	0.00
No	22	31.9	29.6–34.1	
Receipt of HIV training				
Yes	98	26.1	24.9–27.4	0.02
No	95	28.1	27.0–29.3	
Knowledge scores (% correct)				
Good ( $\geq 80\%$ )	54	25.0	23.2–26.9	
Fair (70–79%)	72	27.4	26.2–28.5	0.01
Poor ( $\leq 69\%$ )	67	28.6	27.0–30.2	

a. Stigma scores were not calculated for 11 providers who failed to complete all items in this section.

Note: CI is confidence interval.

#### D. Perceived Risk of Infection

**Perceived risk during casual contact:** Table 9 shows that 72% of providers assigned risk of HIV infection to at least one of five examples of casual contact with HIV/AIDS patients. Examples of casual contact included working everyday with an HIV-positive co-worker (18% assigned risk), shaking hands with AIDS patients with a generalized body skin rash (54% assigned risk), being sneezed on by an AIDS patient (26%), touching an HIV patient during assessment (8%), or sharing a glass with an HIV-positive person (34%).

Provider stigma, receipt of HIV training, and provider type were all associated with perceived risk of infection during casual contact. Those with above average stigma scores were 5.6 times more likely to incorrectly assign risk to casual contact, even after controlling for age, gender, and hospital. HIV/AIDS-trained providers were 50% less likely to assign risk of HIV infection in casual contact scenarios, and health care workers who did not classify themselves as doctors or medical officers were two to three times more likely to assign risk. There were no significant differences by provider knowledge, direct patient care, or other individual characteristics.

**Table 9: Perceived Degree of Risk Associated with Casual Contact**

<b>Types of Casual Contact</b>	<b>Assigned Risk n (%)</b>	<b>Assigned No Risk n (%)</b>
Working every day with a fellow worker who is HIV-positive	37 (18.1%)	164 (80.4%)
Shaking hands with AIDS patients with generalized body skin rash	110 (54%)	90 (44.1%)
Being sneezed on by an AIDS patient	53 (26%)	148 (72.6%)
Touching a patient when assessing him/her	17 (8.3%)	182 (89.2%)
Sharing a drinking glass with someone with HIV/AIDS	70 (34%)	132 (64.7%)
<b>Summary measure:</b> Assigned risk to at least one form of contact	147 (72%)	57 (28%)
<b>Factors associated with assigned risk to casual contact</b>	<b>Unadjusted Odds Ratio</b>	<b>Adjusted Odds Ratio**</b>
HIV training		
Yes	0.60	0.50*
No (reference group)	1.00	1.00
Provider type		
Doctor / medical officer (reference group)	1.00	1.00
Nurse / midwives	2.20*	2.31*
Medical assistant	2.53*	2.81*
Knowledge of HIV		
Good (reference group)	1.00	1.00
Fair	0.81	0.95
Poor	0.95	1.11
Stigma group		
Above the mean	5.40*	5.79*
Below the mean (reference group)	1.00	1.00
Direct patient care		
Yes	0.37	0.34
No (reference group)	1.00	1.00

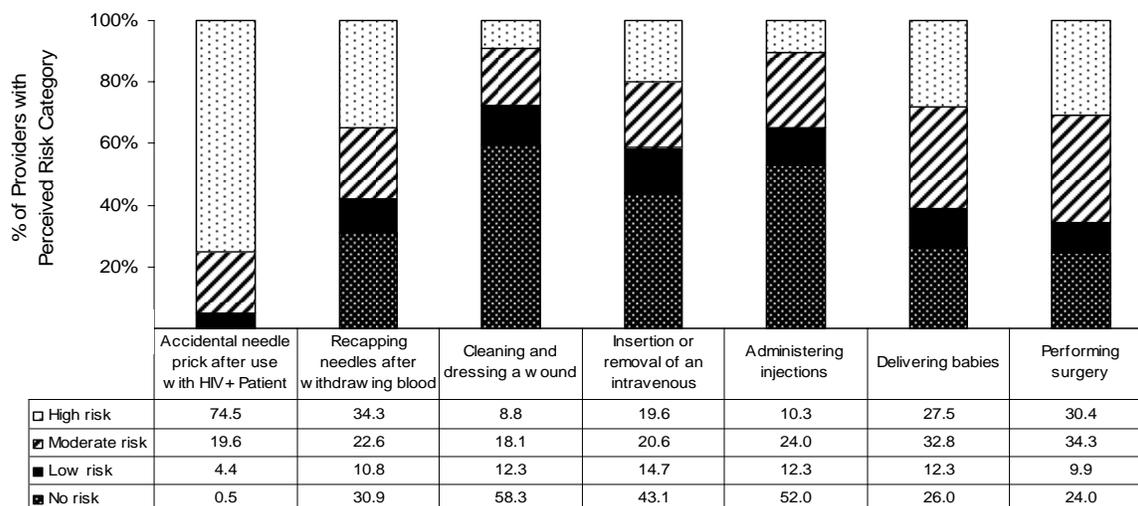
\*  $p < 0.05$ ; \*\* Controlled for age, gender, and hospital.

**Perceived risk during medical procedures:** The perceived risk of HIV infection when conducting routine medical procedures varied greatly among providers for all proposed procedures (Table 10). Only for accidental needle stick after use with an HIV/AIDS patient did the majority of providers (94%) assign high risk. Risk ratings for other procedures were much lower: 31% said recapping needles used on HIV/AIDS patients bore no risk, while 34% said it bore high risk. Similarly, 26% said delivering babies was low risk and 28% said high risk.

We used Pearson's chi-squared analyses to assess differences in risk ratings by provider characteristics. No significant differences were observed by specialty, HIV training, or HIV knowledge, although for several items there were substantial differences by stigma score groups and provider type and between providers who feared casual contact and those who did not. For example, providers with above-average stigma scores were significantly more likely to perceive that such procedures as accidental needle prick, recapping needles, inserting a cannula, and administering injections as high risks than providers with below-average stigma scores. Perceived risk of HIV infection during casual contact was also significantly associated with higher

risk ratings for all medical procedures except recapping needles, and doctor and medical officers consistently under-rated infection risks for medical procedures compared to other providers (data not shown).

**Table 10: Perceived Degree of Risk Associated with Selected Medical Procedures**



**Availability of infection prevention materials:** Table 11 shows reported availability of infection prevention wear by specialty. All four items (i.e., gloves, plastic aprons, protective goggles, and masks) are considered essential for health care personnel in labor and delivery as well as major and minor theaters. While the availability of gloves was widely reported among staff in these specialties, minor theater staff and labor and delivery staff reported considerable shortages for plastic aprons (33–50% reported unavailability), protective goggles (95–100% reported unavailability), and masks (94–95% reported unavailability). These items were also lacking among other specialties. Providers in the major theaters appeared to be most often equipped with these materials, followed by those in labor and delivery.

When asked how comfortable they were with taking care of patients with HIV/AIDS, 66% of providers said they were very comfortable; 30% said somewhat comfortable; 2% somewhat uncomfortable; and 1% very uncomfortable (Table 11). Despite differences in reported availability of protective wear, the level of comfort was comparable across specialties, with no significant differences observed ( $p > 0.05$ ). Given a choice, 85% of providers said they would be willing to care for patients with HIV/AIDS; those who were not willing represented all specialties.

**Table 11: Availability of Protective Wear and Comfort Caring for PLWHAs**

Provider Specialty	Labor & Delivery	Major Theater	Minor Theater	Labs	OPD	Other Specialties	All Providers
<b>Number of providers</b>	61	25	16	24	45	33	204
<b>Infection prevention materials</b>							
Gloves	59 (97%)	25 (100%)	15 (94%)	24 (100%)	42 (93%)	32 (97%)	197 (97%)
Plastic aprons	47 (77%)	24 (96%)	8 (50%)	4 (17%)	10 (22%)	18 (55%)	11 (54%)
Protective goggles	3 (5%)	15 (60%)	0 (0%)	0 (0%)	0 (0%)	8 (24%)	26 (13%)
Masks	3 (5%)	24 (96%)	1 (6%)	3 (13%)	4 (9%)	14 (42%)	49 (24%)
<b>Comfort with care to PLWHAs</b>							
Very comfortable	64%	52%	88%	71%	73%	55%	66%
Somewhat comfortable	33%	44%	13%	25%	20%	42%	30%
Somewhat uncomfortable	2%	0%	0%	4%	4%	3%	2%
Very uncomfortable	2%	0%	0%	0%	2%	0%	1%
<b>Willingness to provide care</b>	88%	88%	81%	79%	89%	74%	85%

Note: OPD is outpatient department.

## E. Discriminatory Practices toward HIV/AIDS Patients

### ***Practices by hospitals and peers***

***Active denial of services:*** Few providers reported active denial of services to HIV-positive patients (Table 12). Only 5% reported that any one of five behaviors representing active denial of services happened “always,” “frequently,” or “sometimes.” In fact, 90–100% reported that five of the six indicators of active denial “never” happened. The exception was not selectively performing surgery or invasive procedures on HIV-positive patients: only 15% said that this never happened. There were no significant differences by hospital in the reported frequency of active denial of services.

***Passive denial of services:*** Passive denial of services was also rarely reported. Of the two indicators of passive denial, postponement of treatment/surgery was reported more frequently, while denial of admission was less frequent. Differences in these reported behaviors between hospitals were statistically insignificant.

***Financial discrimination:*** The vast majority of providers said that hospitals never charged HIV patients more for the same services or give care only if the patient could pay: 2% said either of these acts occurred “sometimes,” “frequently,” or “always.” The percentage increases to 3% when “rarely” is included. This level of reporting was consistent across hospitals.

***Substandard treatment:*** Almost all providers said that treatment was never discontinued once HIV status was known (99%) and that treatment was never delayed for HIV patients (98%). However, there were a few reports (2.0–2.5%) that HIV patients were sometimes sent home to die or observed without a treatment plan for a few days. This percentage increases when “rarely” is included. Overall, 7.8% reported at least one substandard treatment item by peers “always,” “frequently,” or “sometimes” and 13% when “rarely” is included. By hospital, 17% of Amana staff reported substandard treatment to patients compared to 7% of Mwananyamala staff and 4% of Temeke staff. These differences were statistically significant ( $p < 0.05$ ).

To examine reasons why patients might be given substandard care, providers were asked, for example, why patients were sent home to die. On average, each provider gave 2.5 reasons for this substandard care. The most common responses (not shown) were that patients were *not* sent home to die (24%), followed by being sent home to receive better terminal, home-based care (23%), due to limited space on the ward (14%), and to reduce hospital expenses and visiting time for relatives (9%). Other reasons for being sent home were: only once their condition improved (9%), at the request of relatives (7%), or because no cure was available (7%). Four percent (4%) said that patients were sent home due to shortages in health workers or resources or to let the patient return home and settle his/her affairs (2%).

***Selective use of universal precautions:*** Use of universal precautions with only HIV patients was the most commonly reported discriminatory practice, although most providers (81%) reported it never happens. Nineteen percent (19%) said providers use protective wear to perform non-invasive procedures on HIV patients “always,” “frequently,” or “sometimes,” and 55% reported double gloving when preparing HIV cadavers. We found no variation in the overall reporting of selective use by hospital.

***Isolation, confidentiality, and patient consent:*** Three statements addressed isolating patients, breaches in confidentiality, and disregard for the right to informed consent before HIV testing. Thirteen percent (13%) of providers stated that at least one of these happens at least sometimes; 24% when “rarely” is included. Most commonly mentioned was hospital failure to obtain informed consent prior to HIV testing, followed by failure to maintain patient confidentiality. For each behavior, 19% and 4%, respectively, indicated they happen “always,” “frequently,” or “sometimes.” There were no differences by hospital.

***Summary measure of discrimination:*** Nearly half (47%) of providers said that at least one discriminatory behavior occurred among their peers “always,” “frequently,” or “sometimes.” The remainder (53%) reported that discriminatory behaviors never or rarely happened. The outcome measure of discrimination uses this summary variable to indicate providers who endorsed at least one discriminatory practice versus those who did not.

**Table 12: Percentage Distribution of Perceived Discriminatory Behaviors by Peers**

<b>Common Provider Practices toward HIV-positive Patients (N = 204)</b>	<b>% w/ at Least 1 Response<sup>a</sup> (Excludes “Rarely”)</b>	<b>% w/ at Least 1 Response<sup>b</sup> (Includes “Rarely”)</b>	<b>% Report Never<sup>c</sup></b>
<b>Active denial of services</b>			
Hospitals do not offer treatment to a patient if s/he is HIV-positive because s/he is going to die anyway			98.5
HIV/AIDS patients are not admitted to the hospital	4.9	15.2	99.0
Hospitals do not admit HIV-positive patients if their health is already poor	(n = 10)	(n = 31)	99.0
Providers only give treatment to HIV-positive patients if the mode of their infection was not sexual			99.5
Providers refuse to lift or touch the dead body of an HIV-positive individual			100.0
Hospitals don't perform surgeries or invasive procedures if the patient is HIV-pos.			84.8
<b>Passive denial of services</b>			
Providers try to cleverly deny admission of HIV-positive patients, but admission is not denied outright	9.8	20.1	95.6
Providers postpone treatment/surgery for HIV/AIDS patients as long as possible	(n = 20)	(n = 41)	80.9
<b>Financial discrimination</b>			
For same services, hospitals charge HIV-pos. patients more than HIV-neg. patients	1.5 (n = 3)	2.9 (n = 6)	98.5
Hospital care is provided to HIV-positive patients only if they can pay			98.5
<b>Substandard treatment</b>			
Providers administer medications but don't touch or examine patients with AIDS			95.1
Providers delay treatment or provide slower service for HIV-positive patients			98.0
Providers keep HIV patients under observation without treatment plan a few days	7.8	12.7	91.2
Hospitals send HIV/AIDS patients home to die	(n = 16)	(n = 26)	94.1
On-going treatment for a hospitalized patient is discontinued if it is discovered that s/he is HIV-positive			99.0
<b>Selective use of universal precautions</b>			
Providers use protective wear to do non-invasive physical exams on non-bleeding HIV-positive patients even if the patient does not have open sores	34.8	55.4	80.9
Providers use double gloves when preparing the body of a deceased HIV+ patient	(n = 71)	(n = 113)	44.6
<b>Other</b>			
HIV-positive patients are isolated in special sections of the hospital	12.7	23.5	98.5
Hospitals test patients for HIV without their consent			81.4
Health providers do not maintain the confidentiality of HIV-positive individuals	(n = 26)	(n = 48)	94.1
<b>Summary measure of provider discrimination</b>			
Providers who reported discriminatory practice (always, frequently, or sometimes) by peers or the hospital for one or more of the 20 discriminatory practices	46.6%	(n = 95)	
Providers who responded “rarely” or “never” to all discriminatory practices	53.4%	(n = 109)	
<b>Notes:</b> a. Percentage of providers who reported that peers engaged in at least one of the practices of that type based on response “always,” “frequently,” or “sometimes” (excludes “rarely”). b. Percentage of providers who reported that peers engaged in at least one of the practices of that type based on response “always,” “frequently,” “sometimes,” or “rarely.” c. Percentage of providers who reported that peers “never” engaged in the corresponding discriminatory practice.			

**Practices by providers themselves**

In addition to reporting peer behavior, providers were asked about their own practices in using protective wear such as goggles, plastic aprons, gloves, double gloving, and masks on specific groups of patients. We considered use of such wear for “high risk,” “suspected HIV-positive,” “known HIV-positive,” or “AIDS patients” rather than for “all patients” as selective use of universal precautions: 16% of providers reported that they selectively used protective wear for these patients.

In bivariate analyses, selective use of universal precautions was significantly associated with HIV/AIDS-related knowledge (mean score 69% versus 73%,  $p = 0.05$ ) and stigma ( $OR = 2.22$ ,  $p = 0.05$ ), as well as provider age (44 versus 39 years,  $p = 0.00$ ) and hospital (2%, 17%, and 26%,  $p = 0.05\%$ ) in Amana, Temeke, and Mwananyamala hospital, respectively. Selective use was not significantly associated with fear of infection during casual contact, gender, HIV training, provider type, exposure to direct patient care, or specialty. Other discriminatory practices by the respondent were not measured.

### **Patient confidentiality and medical record keeping**

Most providers indicated that their hospital had no written policy for maintaining patient confidentiality. Availability of written policies ranged from 20% of staff at Mwananyamala to 24% at Temeke and 35% at Amana hospital (Table 13). Despite this, most said that patient consultations were routinely conducted in private (77%), confidentiality was always maintained (71%), and HIV test results were not shared with individuals not directly involved in the patient's care (76%).

**Table 13: Provider Responses on Patient Confidentiality, by Hospital**

Provider Response: N = 204 (%)	Amana (n = 54)	Mwanan- yamala (n = 61)	Temeke (n = 89)	p- value	Total (N = 204)
<b>Patient confidentiality</b>					
Written policy for maintaining patient confidentiality	19 (35%)	12 (20%)	21 (24%)	0.11	52 (25%)
Patient consultations done in private	39 (72%)	50 (82%)	69 (78%)	0.03	158 (77%)
Patient confidentiality maintained:					
Always	43 (80%)	45 (74%)	57 (64%)		145 (71%)
Most of the time	10 (19%)	14 (23%)	22 (25%)	0.07	46 (23%)
Some of the time	1 (2%)	1 (2%)	10 (11%)		12 (6%)
Never	0 (0%)	0 (0%)	0 (0%)		0 (0%)
<b>HIV test results are shared with individuals not directly involved in the patient's care:</b>					
Always	0 (0%)	0 (0%)	0 (0%)	0.40	0 (%)
Most of the time	0 (0%)	0 (0%)	1 (1%)		1 (0.1%)
Some of the time	6 (11%)	4 (7%)	9 (10%)		19 (9.3%)
Never	42 (78%)	50 (82%)	62 (70%)		154 (76%)

Relating to medical record keeping, most providers reported that medical records were kept within the hospital (98%), documented well the care provided to patients (91%), and were easy to find if a patient returned to the hospital (81%) (not shown). Providers also said that when different providers are taking care of a patient, they reported to the incoming shift the diagnosis, plan, and pending orders/labs (96%).

### **F. Factors Associated with Provider Attitudes and Practice**

**Attitudes toward PLWHAs:** Multivariate regression models were used to assess the independent effects of knowledge of HIV and perceived risk of infection on negative attitudes toward PLWHAs (Table 14). Negative attitudes were measured using the stigma scale discussed above. After controlling for age, gender, provider type, specialty, and training in HIV, perceived risk of infection (through casual contact) and poor HIV knowledge were significantly associated with increased negative attitudes. For a one-point increase in knowledge score, there was an associated half point decrease in stigma score ( $\beta = -0.54$ ,  $p < 0.05$ ). Likewise, providers with higher perceived risk of infection through casual contact had an estimated three-point higher average stigma score than providers with lower perceived risk, after controlling for potential confounders ( $\beta = 3.02$ ,  $p < 0.05$ ).

In that both factors were significant in our model, these findings suggest that both lack of knowledge and higher perceived risk of infection are independently associated with increased stigma toward HIV patients.

The strength of this relationship is only marginally confounded by demographic characteristics when comparing adjusted and unadjusted coefficients.

**Table 14: Factors Associated with Provider Attitudes and Self- and Peer-reported Practices**

Estimated Parameters from Regression Models (Linear/Logistic)	Attitudes (Stigma)	Self-practice (Selective Use)	Peer Practice (All Forms)
Multivariate regression coefficient	$\beta$	<i>Odds Ratio</i>	<i>Odds Ratio</i>
Knowledge of HIV	-0.54*	1.28	0.78
Perceived risk of infection (casual contact)	3.02*	1.36	1.55
Attitudes (stigma)		2.66*	1.62
Self-practice (selective use)			2.43*

\*Note:  $p < 0.05$ .

**Self-reported selective use of universal precautions:** In multivariate regression models to examine factors related to selective use of universal precautions (i.e., a measure of self-practices toward PLWHAs), HIV/AIDS-related attitudes were significantly associated with selective use. Providers with above-average stigma scores (i.e., more negative attitudes) were 2.66 times more likely to report selective use of protective wear on patients with known or suspected HIV infection and/or with “high risk” patients (OR = 2.66,  $p < 0.05$ ). Other factors such as perceived risk of infection through casual contact (OR = 1.36,  $p > 0.05$ ) and knowledge of HIV (OR = 1.28 for “fair” knowledge, OR = 1.99 for “poor” knowledge,  $p > 0.05$ ) had increased likelihood for selective use, although not significant.

**Peer-reported discrimination:** Multivariate regression models examining provider stigma found that provider stigma, perceived risk of infection, and HIV/AIDS-related knowledge were not significantly associated with increased reports of peer or hospital discriminatory practices. The single predictor of peer-reported discrimination was a provider’s own report of selective use (OR = 2.43,  $p < 0.05$ ). Health personnel who themselves said they selectively use universal precautions on HIV/AIDS patients were 2.43 times more likely to describe other occurrences of discrimination (albeit by peers and hospitals). This includes denial of services, substandard treatment, or other forms of discrimination.

## IV. DISCUSSION

### A. Findings

**HIV/AIDS-related knowledge:** The level of knowledge was fair among providers in the study hospitals. Overall, providers were familiar with various modes of HIV transmission, but had gaps in knowledge relating to HIV virology and infection prevention. For example, more than half were unaware of the six-month period necessary to diagnose HIV, and while most selected accidentally pricking oneself as a potential pathway for transmission, fewer knew strategies to decrease the risk of accidental pricks, such as not recapping needles or using the one-handed scoop method. Most providers were knowledgeable of transmission from mother to child, but selected only blood and semen as bodily fluids that can transmit HIV, omitting breast milk. Labor and delivery staff had considerable knowledge gaps regarding infant-feeding options for HIV-positive women and to whom and when the therapy of choice was administered.

On average, providers with HIV training had significantly higher knowledge scores than those who lacked it, a result consistent with the possibility that HIV training can significantly improve such knowledge regarding HIV transmission and prevention. However, training alone may not have provided adequate information in these areas, since knowledge scores for some items were low for all workers. These results suggest that all providers may benefit from increased HIV/AIDS education that recognizes existing gaps and misconceptions and covers how to reduce occupational risk and prevent infection.

**Attitudes and beliefs toward PLWHAs:** Although an underlying aim of this study was to examine negative attitudes (i.e., stigma), findings reveal a considerable prevalence of positive as well as negative attitudes toward PLWHAs. Seven of the eight positive statements in the “stigma scale”—such as making life easier

for PLWHAs or being sympathetic to their experiences—were endorsed by almost all providers (96–100%), yet most also agreed to at least one negative statement. The dominant belief was blame for infection, particularly if it was thought to result from sexual promiscuity, with much less endorsement of statements regarding separation or isolation of PLWHAs and explicit worry of infection. Factors associated with increased negative attitudes, including failure to endorse positive statements toward PLWHAs, were lower knowledge scores and higher perceived risk of infection through casual contact.

Our findings that stigma is associated with HIV knowledge has been shown in other studies, where receipt of training was often used as a proxy for overall knowledge (Knussen and Niven 1999; Chen, Han, and Holzemer 2004; Quach et al. 2005; Hamra et al. 2006; Kermode et al. 2005; Ijadunola et al. 2007). This association highlights the importance of HIV/AIDS education in improving knowledge and attitudes. Intensive education in AIDS care among nurses in Canada was shown to significantly improve attitudes toward patients (Armstrong-Esther and Hewitt 1990).

***Influences of direct patient care:*** Given the study's cross-sectional design, the causal relationship between factors and provider stigma could not be examined; however, many studies have suggested that stigmatizing attitudes (and discrimination) decrease with clinical exposure to HIV. For example, health care worker willingness to provide care to PLWHAs in rural India was strongly associated with having previously cared for HIV/AIDS patients (Kermode et al. 2005), and in Nigeria, providers attending five or more HIV/AIDS patients per month, including those with five or more years in direct HIV/AIDS care, had significantly more positive attitudes toward PLWHAs than those who did not (Ijadunola et al. 2007).

Our findings mirror these results. Providers involved in direct patient care had significantly lower stigma scores than providers who were not. One possible explanation is that exposure to HIV/AIDS patients mitigates previous negative attitudes and dispels misconceptions regarding transmission and infection. Interestingly, we did not observe differences in the perceived risk of infection or selective use of universal precautions between workers providing direct care and those who did not. This may be due to the development or persistence of some beliefs or practices as a result of working with HIV/AIDS patients. Knussen and Niven (1999) found that while social contact with patients with HIV/AIDS was associated with predominately more positive attitudes, there was indication that providers with increased physical contact with HIV/AIDS also had more negative attitudes. These findings raise important questions concerning the impact of patient care on provider perceptions and the necessity of developing programming strategies that address these relationships.

***Perceived risk of infection:*** Fear of occupational transmission of HIV during medical procedures has been examined in several studies showing that while providers are willing to care for HIV/AIDS patients, many are concerned that they place themselves at risk of infection when providing care. In Zambia, 79% of health workers in two district hospitals reported being afraid of being infected while at work (Dieleman et al. 2007); and in a Taiwanese hospital, 57% of nurses said they were concerned about acquiring HIV in the workplace (Juan et al. 2004).

In this study, while providers dismissed the possibility of transmission from some forms of social contact, a substantial proportion assigned risk to one of five examples of casual, otherwise innocuous interaction. Many displayed fear of contagion from, in their view, poor management of equipment and instruments, and more than two-thirds felt that instruments used on HIV/AIDS patients should be sterilized separately, washed more rigorously, or strictly set aside for use only on HIV/AIDS patients. Nearly a third perceived infection risk from an HIV-positive patient, and 13% indicated that their family and friends would be at risk of infection if they (providers) were assigned to a patient with HIV/AIDS.

These findings reveal a consistent presence of provider HIV/AIDS-related fear as a result of their work. Perceived infection risk during casual contact was associated with lack of HIV training and provider stigma, suggesting that education and stigma-reduction strategies may play an important role in alleviating provider concerns. On the other hand, general perceived risk of infection from HIV/AIDS patients or concern that family and friends would be placed at risk of contracting the disease was not associated with HIV training or knowledge of HIV. Thus, while some fears are mitigated by training, training alone is unlikely to allay all

anxieties. Even those who had received HIV training and who were knowledgeable of HIV thought they might place themselves or family and friends at risk of infection.

Furthermore, this study found that there were widely varied responses in the perceived degree of risk of infection for medical procedures—both under- and over-rating of risks in many cases. This points to an additional need to understand provider rationale in risk rating in fear-reduction strategies.

**Availability of universal precautions:** The need for additional mechanisms other than training to overcome provider fears raises the issue of infection prevention measures, particularly regarding availability and use of universal precautions. In this study, plastic aprons, protective goggles, and masks—essential in such wards as labor and delivery and major and minor theaters—were reported available by as few as 5% of workers in some wards. Even gloves, the most commonly available protective wear, were not universally available. Other studies have found such shortages in the face of provider concerns of infection (Reis et al. 2005; Chelenyane and Endacott 2006). For example, 65% of health workers in a public tertiary care facility in Nigeria cited lack of materials as the main reason for non-practice of universal precautions; among them, 81% reported concerns of becoming infected through their work with HIV/AIDS patients (Reis et al. 2005). Though use of materials, such as gloves, does not prevent needle stick injuries, it does guard against exposure of cuts or skin abrasions to potentially HIV-infected materials. Universal precautions are recommended to protect against transmission not only of HIV, but other infections as well.

Limited supplies may exacerbate infection fears, particularly in cases where risks are over-estimated. Among providers in our sample, a shortage of medicines and supplies was the most commonly reported factor that made caring for HIV-positive patients difficult.

**Discriminatory practices toward PLWHAs:** Lastly, few respondents reported peer-enacted discriminatory practices, suggesting that discrimination toward PLWHAs is infrequent and to some extent virtually in-existent in these hospitals. In fact, by item many of the discriminatory practices were reported as almost never occurring. For most behaviors, 80% or more health care workers said the practice never occurred, and in up to three-fourths of behaviors, 90% said the practice never occurred.

In contrast, when aggregated by forms of discrimination such as denial of services or substandard treatment, results reveal that while discrimination against PLWHAs is not pervasive, some providers *are* engaging in discriminatory practices. Individual level factors such as provider stigma, knowledge, or fear were not associated with peer-reported discrimination; however, providers who discriminate in one form (in this case, selective use) were more than twice as likely to perceive that their peers were discriminating across forms and more than twice as likely to have increased negative attitudes. This raises the possibility (although it does not prove) that a pathway for PLWHA discrimination by providers includes negative attitudes toward those who are infected. Quach et al. (2005) found that physicians with positive attitudes regarding their interaction with PLWHAs were less likely to exclude them from their practices. However, it remains unclear what factors are most influential in peer- and self-reported discrimination.

## **B. Study Strengths and Limitations**

The results presented here should be interpreted with the study's strengths and limitations in mind. Study strengths include exploration of multiple facets relating to stigma and discrimination and the use of open- and close-ended questions to capture a range of information relating to knowledge, beliefs, and practices. A wide range of provider types and specialties participated, and a variety in other individual characteristics was included.

Additionally, data were obtained using an anonymous survey that we believe encouraged open reporting on stigma-related issues. Framing the questions as practices by "providers" or "hospitals," in general, was used to discourage reluctance in reporting practices that may have been socially unacceptable. Several attitudinal questions were also designed to measure similar aspects of stigma in order to capture dominant provider beliefs.

The study was limited in that data were obtained using a cross-sectional survey, limiting our ability to determine any causal relationships between stigma-related factors. In addition, some of the study's constructs may have been influenced by reporting biases, in which case observation data or patient interviews may have better elucidated the findings. Also, participants were selected only from district hospitals in Dar es Salaam's urban center. Thus, findings have limited generalizability to other areas of Tanzania, which may have substantially higher or lower reported levels of stigma and discrimination.

## V. RECOMMENDATIONS AND CONCLUSION

Despite limitations, the data are consistent with other studies evaluating attitudes and practices of providers toward HIV/AIDS patients. While health workers are willing to provide care to people with HIV/AIDS, discriminatory behaviors and stigma against them do exist and may be attributable to poor knowledge, HIV training, and fear of infection.

Recommendations to improve care to PLWHAs include training providers in infection prevention strategies, ensuring availability of protective wear, and effectively implementing non-discrimination policies for all patients. Communicative forums to address provider concerns relating to fear and risks of infection may also improve the quality of HIV/AIDS-related care.

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## APPENDIX: PROVIDER QUESTIONNAIRE (ENGLISH)

*This form was compressed for inclusion in this report.*

### A. QUESTIONNAIRE SERIAL No. [ ][ ][ ][ ]

**Knowledge, Attitudes and Practices of Healthcare Providers of Services to People with HIV/AIDS at Labor and Delivery and Theatre District Hospital Sites, Dar es Salaam Region, TANZANIA**

### B. Facility and Provider Identification

Q001 Place Name/code \_\_\_\_\_ [ ][ ]

Q001 Place Name/code \_\_\_\_\_ [ ][ ]

Q002 Facility Type:       Labor and delivery       Laboratory       Medicine       Other  
     Main theatre      Gynecology       Pediatrics  
     Minor theatre      Surgery      OPD

Q003 Provider Type: \_\_\_\_\_

Medical Officer      Nurse Officer      Medical Attendant      Other  
 Assistant Medical Officer       Nurse Midwife      Laboratory Technician      Specify \_\_\_\_\_  
 Clinical Officer      Trained Nurse      Pharmacist  
 Senior Nurse Officer      Public Health Nurse      Pharmacy Assistant

### C. INTERVIEWER VISIT LOG

Date	Visit 1	Visit 2	Visit 3
Result	_____/_____/_____ [ ][ ]	_____/_____/_____ [ ][ ]	_____/_____/_____ [ ][ ]

### D. RESULT CODES

Completed	1	Postponed/Rescheduled	4
This person not at facility currently	2	This person no longer works at facility	5
Refused participation	3	Other	6

**E. Supervisor** \_\_\_\_\_ **Time Interview started:** \_\_\_\_\_ **Ended** \_\_\_\_\_ **Date reviewed:** \_\_\_\_\_

[BE SURE TO READ ALOUD THE INFORMED CONSENT FORM]

### F. Section 1: Demographic Information

No.	Questions and filters	Coding categories	Skip to
Q101	CIRCLE SEX OF THE RESPONDENT	Male..... = 1      Female..... = 2	
Q102	How old are you?	Age [ ][ ]	
Q103	Mark all levels of training that you have received:	<input type="checkbox"/> Primary School <input type="checkbox"/> Secondary School <input type="checkbox"/> High School (Form 5-6) <input type="checkbox"/> Diploma/Certificate <input type="checkbox"/> University <input type="checkbox"/> Other Specify: _____	
Q104	In what school were you trained for your first diploma/certificate?	<input type="checkbox"/> Nursing School <input type="checkbox"/> Medical School <input type="checkbox"/> Paramedical school <input type="checkbox"/> Other Specify: _____	
Q105	In what country(s) were you trained?	<input type="checkbox"/> Tanzania <input type="checkbox"/> Other country      Specify: _____	
Q106	How long have you worked in health care?	[ ] Years     [ ] Months	
Q107	How long have you been working in your current job?	Years <input type="checkbox"/> 0-1 <input type="checkbox"/> 2-4 <input type="checkbox"/> 5-10 <input type="checkbox"/> 11-15 <input type="checkbox"/> 15+	
Q108	Which one of the following is your primary job duty?	<input type="checkbox"/> Direct patient care (include laboratory) <input type="checkbox"/> Administration <input type="checkbox"/> Research <input type="checkbox"/> Academic (training of staff) <input type="checkbox"/> Support services (e.g. pharmacy) <input type="checkbox"/> Other Specify: _____	

**Section 2: Knowledge**

**General HIV/ AIDS**

No.	Questions and filters	Coding categories	Skip to
Q201	Have you received any training specific to HIV/AIDS	<input type="checkbox"/> Yes <input type="checkbox"/> No	<b>If NO, skip to Q204</b>
Q202	What type of training was it?	<input type="checkbox"/> On the job training <input type="checkbox"/> Seminar/workshop <input type="checkbox"/> University class <input type="checkbox"/> Internship	
Q203	Where did you receive this training?	<input type="checkbox"/> Nursing School <input type="checkbox"/> Medical School <input type="checkbox"/> Paramedical school <input type="checkbox"/> Hospital <input type="checkbox"/> Other Specify other: _____	
Q204	What is the link between HIV and AIDS?	<input type="checkbox"/> HIV is a different disease than AIDS <input type="checkbox"/> HIV is the virus that causes AIDS <input type="checkbox"/> The later stages of HIV are seen as AIDS <input type="checkbox"/> All of the above are true	
Q205	How do you know if a patient is HIV positive?	<input type="checkbox"/> He/she is known to be sexually promiscuous <input type="checkbox"/> He/she has tested positive for HIV <input type="checkbox"/> He/she has recently lost a lot of weight <input type="checkbox"/> He/she has many open sores on the body <input type="checkbox"/> Other Specify other: _____	
Q206	In what ways can HIV be transmitted?	<input type="checkbox"/> Greeting someone with a kiss on the cheek <input type="checkbox"/> Vaginal sex <input type="checkbox"/> Oral sex <input type="checkbox"/> Anal sex <input type="checkbox"/> Sharing cups and spoons <input type="checkbox"/> Donating blood <input type="checkbox"/> Receiving blood <input type="checkbox"/> Mosquito bites <input type="checkbox"/> Accidental needle stick <input type="checkbox"/> From mother to child <input type="checkbox"/> Exposure to blood when taking care of patients	
Q207	In what ways can HIV be prevented?	<input type="checkbox"/> Use of gloves on all patients when doing invasive procedures <input type="checkbox"/> Use of a condom <input type="checkbox"/> Properly sterilizing instrument tray and equipment <input type="checkbox"/> Not providing care to persons who are HIV+ <input type="checkbox"/> Not re-capping needles <input type="checkbox"/> Use of gloves when handling patient specimens <input type="checkbox"/> Use of gloves when taking care of patients suspected to be HIV+ <input type="checkbox"/> Abstinence <input type="checkbox"/> Use of eye protection when delivering babies <input type="checkbox"/> Use of separate equipment for HIV+ patients	
Q208	What do HIV+ people look like?	<input type="checkbox"/> Very thin <input type="checkbox"/> Multiple skin infections <input type="checkbox"/> Sick looking <input type="checkbox"/> Healthy looking <input type="checkbox"/> You can't know by looking <input type="checkbox"/> Affected with TB	
Q209	For which patients do you recommend voluntary testing and counseling?	<input type="checkbox"/> Patient with sexually transmitted illness <input type="checkbox"/> Patient with Tuberculosis <input type="checkbox"/> Patient with Malaria <input type="checkbox"/> Patient with Pneumonia <input type="checkbox"/> Pregnant patients <input type="checkbox"/> Patients donating blood <input type="checkbox"/> As part of premarital counseling	

	<b>Which of THE FOLLOWING QUESTIONS ARE TRUE OR FALSE</b>	
Q210	The highest risk for health care workers of contracting HIV at work is by pricking themselves inadvertently	<input type="checkbox"/> True <input type="checkbox"/> False
Q211	Older men are at a lower risk for HIV infection than the general public	<input type="checkbox"/> True <input type="checkbox"/> False
Q212	Blood and semen are the only bodily fluids to transmit HIV	<input type="checkbox"/> True <input type="checkbox"/> False
Q213	Even outside the body, the HIV virus is hard to kill	<input type="checkbox"/> True <input type="checkbox"/> False
Q214	Instruments used on HIV+ patients must be sterilized separately	<input type="checkbox"/> True <input type="checkbox"/> False
Q215	To ensure the safety of HIV negative patients, equipment used for HIV+ patients must be disinfected and sterilized in a more rigorous manner	<input type="checkbox"/> True <input type="checkbox"/> False
Q216	A different instrument kit should be set aside for use on HIV+ patients	<input type="checkbox"/> True <input type="checkbox"/> False
Q217	Persons infected with HIV will likely develop antibodies within six months	<input type="checkbox"/> True <input type="checkbox"/> False

**G. For Labor and Delivery Staff Only**

No.	Questions and filters	Coding categories
Q218	Recurrent vaginal yeast infections or cervical cancer may indicate HIV infection in women	<input type="checkbox"/> True <input type="checkbox"/> False
Q219	All pregnant women should be tested for HIV	<input type="checkbox"/> True <input type="checkbox"/> False

Q220	HIV+ newborns sometimes revert to HIV-negative status	<input type="checkbox"/> True <input type="checkbox"/> False
Q221	Describe the therapy of choice for the prevention of mother-to-child transmission of HIV	<input type="checkbox"/> Ciprofloxacin <input type="checkbox"/> Nevirapine <input type="checkbox"/> Multivitamins <input type="checkbox"/> Proper nutrition <input type="checkbox"/> Transmission is not preventable <input type="checkbox"/> Other _____
Q222	What kind of advice do you give to HIV+ mothers about infant feeding?	<input type="checkbox"/> Breast feed exclusively <input type="checkbox"/> Formula feeds <input type="checkbox"/> Breast feed exclusively for the first six months and abrupt wean <input type="checkbox"/> Mixed formula and breast feeding
Q223	Do you have access to guidelines for PMTCT?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Q224	What are the key recommendations for the PMTCT?	<input type="checkbox"/> VCT for all pregnant women <input type="checkbox"/> Nevirapine taken by the mother during labor <input type="checkbox"/> Nevirapine taken by the neonate within 72 hours of birth <input type="checkbox"/> Breast feed exclusively for six months then abrupt wean to formula <input type="checkbox"/> If not breast feeding, exclusively formula feed

#### H. Patient Confidentiality and Medical Record Keeping

No.	Questions and filters	Coding categories	Skip to
Q225	Do you keep medical records within the hospital?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Q226	In your opinion, is the medical care in your facility well-documented in the medical record?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Q227	Is it easy to find the medical record of a patient who returns to your hospital?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Q228	When different providers are taking care of the same patient, do they report to the incoming shift the diagnosis, plan, and pending orders/ labs	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Q229	In your department, is there a written policy for maintaining patient confidentiality? (IF YES, ASK TO HAVE A COPY)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Q230	Are patient consultations done in a private setting?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Q231	How often would you say that patient confidentiality is maintained?	<input type="checkbox"/> Always <input type="checkbox"/> Most of the time <input type="checkbox"/> Some of the time <input type="checkbox"/> Never	
Q232	Patient HIV test results are shared with individuals not directly involved in the patient's care	<input type="checkbox"/> Always <input type="checkbox"/> Most of the time <input type="checkbox"/> Some of the time <input type="checkbox"/> Never	

NOW WE ARE GOING TO DISCUSS WAYS YOU OBTAIN INFORMATION ABOUT HIV/AIDS. AS I READ THE DIFFERENT SOURCES, PLEASE TELL ME 'YES' IF YOU USE THAT SOURCE FOR OBTAINING INFORMATION, OR 'NO' IF YOU DO NOT. AFTER WE HAVE REVIEWED ALL OF THE SOURCES, PLEASE TELL ME WHICH SOURCE OF OBTAINING INFORMATION DO YOU FIND TO BE THE MOST IMPORTANT SOURCE OF INFORMATION ON HIV/AIDS FOR YOU.

No.	Questions and filters	Coding categories
Q233	<b>From the choices below (A – K) which ones do you use to obtain information on HIV/AIDS?</b>	
	A. Newspapers and Magazines	<input type="checkbox"/> Yes <input type="checkbox"/> No
	B. Posters and leaflets	<input type="checkbox"/> Yes <input type="checkbox"/> No
	C. Medical journals	<input type="checkbox"/> Yes <input type="checkbox"/> No
	D. Books	<input type="checkbox"/> Yes <input type="checkbox"/> No
	E. Radio and Television	<input type="checkbox"/> Yes <input type="checkbox"/> No
	F. Friends	<input type="checkbox"/> Yes <input type="checkbox"/> No
	G. Co-workers/ supervisors	<input type="checkbox"/> Yes <input type="checkbox"/> No
	H. Patients	<input type="checkbox"/> Yes <input type="checkbox"/> No
	I. Seminars and workshops	<input type="checkbox"/> Yes <input type="checkbox"/> No

	J. WHO and UNAIDS HIV/AIDS Guidelines	<input type="checkbox"/> Yes <input type="checkbox"/> No
	K. Other	
Q234	Which of these is the source you use the most for information?	<input type="checkbox"/> Newspapers and Magazines <input type="checkbox"/> Posters and leaflets <input type="checkbox"/> Medical journals <input type="checkbox"/> Radio and television <input type="checkbox"/> Books <input type="checkbox"/> Friends <input type="checkbox"/> Co-workers, supervisors <input type="checkbox"/> Patients <input type="checkbox"/> Seminars and workshops <input type="checkbox"/> WHO, UNAIDS HIV/AIDS guidelines <input type="checkbox"/> Other _____

I AM GOING TO READ SEVERAL STATEMENTS REGARDING PATIENTS WITH HIV/AIDS. PLEASE RATE THE DEGREE TO WHICH YOU AGREE WITH EACH STATEMENT.

**Section 3: Attitudes and Beliefs**

**Rate the degree to which you agree with each statement**

Strongly Agree Agree Disagree Strongly disagree

- Q301 Most people with AIDS have only themselves to blame
- Q302 Most people with AIDS deserve what they get
- Q303 Patients who are HIV infected should not be put in rooms with other patients
- Q304 If you were assigned to patients with AIDS, you worry about putting your friends and family at risk of contracting the disease
- Q305 Young children should be removed from the home if one of the parents is HIV infected
- Q306 Patients with AIDS have the right to the same quality of care as any other patient
- Q307 It is especially important to work with patients with AIDS in a caring manner
- Q308 People who have many sexual partners deserve to get AIDS
- Q309 HIV+ women should not have children
- Q310 Prostitution should be legalized
- Q311 You feel more sympathetic toward people who get AIDS from blood transfusions than those who get it from prostitution
- Q312 Patients with AIDS should be treated with the same respect as any other patient
- Q313 If you found out that a friend of yours had AIDS, you would not maintain the friendship
- Q314 You worry about getting AIDS from social contact with someone (e.g., sharing local brew, shaking hands, hugging, sharing food, etc.)
- Q315 You worry about getting AIDS from one of your HIV+ patients
- Q316 You are sympathetic towards the misery that people with AIDS experience
- Q317 You would like to do something to make life easier for people with AIDS
- Q318 You would do everything you could to give the best possible care to patients with AIDS
- Q319 Children who get AIDS from their mothers are more deserving of treatment than people who get AIDS through sexual promiscuity
- Q320 People who get AIDS through a blood transfusion are more deserving of treatment than people who get AIDS through sexual promiscuity
- Q321 You would be worried about your child getting AIDS if you knew that one of the school teachers had AIDS.
- Q322 You have little sympathy for people who get AIDS through sexual promiscuity
- Q323 People with HIV should be isolated from the rest of the community
- Q324 You would hire someone you knew to be HIV positive to work at the clinic
- Q325 You would work with colleagues who you know are HIV+
- Q326 If people know you take care of HIV/AIDS patients they will stigmatize you
- Q327 Most likely, men who are HIV+ are promiscuous and deserve what they get
- Q328 If a woman becomes HIV +, she has only herself to blame

No.	Questions and filters	Coding categories
Q329	Who do you think is responsible for the spread of HIV/AIDS in Tanzania? (you can select more than one category)	<input type="checkbox"/> Prostitutes <input type="checkbox"/> Youth <input type="checkbox"/> Truck drivers <input type="checkbox"/> Tourists <input type="checkbox"/> People who are not religious <input type="checkbox"/> Popular music <input type="checkbox"/> Health care system <input type="checkbox"/> Men <input type="checkbox"/> Women
Q330	In light of limited resources (money, trained staff, etc.), should more or less resources be focused on HIV+ people, compared to HIV- people?	<input type="checkbox"/> More resources on HIV+ patients <input type="checkbox"/> Less resources on HIV+ patients <input type="checkbox"/> Same amount of resources on both

I am going to read several statements regarding transmission of HIV/AIDS. In your opinion how risky is each situation.

**Section 4: Fears and Perceived Risk**

**Rate the degree of risk you believe is associated with each statement**

		No risk	Low risk	Moderate risk	High risk
Q401.	To work every day with a fellow worker who is HIV+				
Q402.	To shake hands with AIDS patients with generalized body skin rash				
Q403.	Being sneezed on by an AIDS patient				
Q404.	Being bitten by a person with AIDS				
Q405.	Accidentally pricking yourself with a needle used on a patient with AIDS				
Q406.	Recapping needles after withdrawing blood from a patient				
Q407.	Sharing a drinking glass with someone with HIV/ AIDS				
Q408.	Having sexual intercourse with a person with HIV/ AIDS using a condom				
Q409.	Touching a patient when assessing them				
Q410.	Cleaning and dressing a wound				
Q411.	Insertion or removal of intravenous cannula				
Q412.	Administering injections				
Q413.	Delivering babies				
Q414.	Performing surgery				

**Section 5. Common practices – yours and your peers.**

No.	Questions and filters	Coding categories	Skip to
Q501	If you suspect one of your patients to be HIV+ based on clinical signs and symptoms, do you advise them to be tested for HIV?	<input type="checkbox"/> Always <input type="checkbox"/> Frequently <input type="checkbox"/> Sometimes <input type="checkbox"/> Rarely <input type="checkbox"/> Never	<b>If NEVER skip to 503</b>
Q502	Where do you tell them to go?	<input type="checkbox"/> Within this hospital <input type="checkbox"/> In nearby VCT center or hospital <input type="checkbox"/> Other _____	
Q503	In your opinion, who is responsible for referring patients to voluntary testing and counseling?	<input type="checkbox"/> Physicians <input type="checkbox"/> Nurses <input type="checkbox"/> The patient refers him/herself <input type="checkbox"/> Family members <input type="checkbox"/> Other _____	
Q504	How do you usually recap needles?	<input type="checkbox"/> One handed scoop method <input type="checkbox"/> Never recap needles <input type="checkbox"/> Using both hands (cap in one, syringe in the other)	
Q505	How comfortable do you feel about taking care of patients with HIV/AIDS?	<input type="checkbox"/> Very comfortable <input type="checkbox"/> Somewhat comfortable <input type="checkbox"/> Somewhat uncomfortable <input type="checkbox"/> Very uncomfortable	
Q506	If you had a choice, would you choose to take care of patients with HIV/AIDS?	<input type="checkbox"/> Yes <input type="checkbox"/> No	

I AM GOING TO ASK YOU THE FOLLOWING QUESTIONS ABOUT MATERIALS OFTEN USED BY HEALTHCARE PROVIDERS FOR INFECTION PREVENTION. FOR EACH PROTECTIVE GEAR MENTIONED, PLEASE LET US KNOW IF IT IS AVAILABLE ON SITE, AND ON WHICH PATIENTS YOU USE IT.

[FOR EACH CATEGORY, ASK WHETHER OR NOT THE ITEM IS AVAILABLE FIRST. IF ITEM IS AVAILABLE, READ EACH CHOICE AND MARK 'X' IN THE BOX CHOSEN FOR EACH CATEGORY. YOU MAY MARK MORE THAN ONE BOX PER CATEGORY IF APPLICABLE]

No.	Material	Availability	Category of patients in which it is used					Not at all
			All patients	High risk patients	Suspected HIV+	Known HIV+	AIDS Patients	
Q507	Protective Goggles							
Q508	Plastic Aprons							
Q509	Gloves							
Q510	Double Gloving							
Q511	Masks							
Q512	No precaution							

Please answer the following questions:

Q513 What is most difficult about taking care of patients with HIV/AIDS? \_\_\_\_\_

Q514 What is easiest about taking care of patients with HIV/AIDS? \_\_\_\_\_

Q515 Why might a hospital send an HIV/AIDS patient home to die? \_\_\_\_\_

I am going to read several statements of things that happen in hospitals. Please tell us, in your experience, often these things occur.

**Section 5. Common practices – Hospitals**

**At your hospital, how frequently does this happen?**

	Never	Rarely	Sometimes	Frequently	Always
Q516. Hospital do not offer treatment (malaria, TB, other) to a patient if he or she is known to be HIV+ because he/she is going to die anyway					
Q517. HIV/AIDS patients are not admitted to the hospital					
Q518. Hospitals do not perform surgeries or invasive procedures if the patient is known to be HIV+					
Q519. For the same services, hospital charge HIV+ patients more than HIV- patients					
Q520. Hospital care is provided to HIV+ patients only if they can pay					
Q521. Hospitals do not admit HIV+ patients if their health is already very poor					
Q522. HIV+ patients are isolated in special sections of the hospital or health facility					
Q523. On-going treatments for a hospitalized patient is discontinued if it is discovered that he/she is HIV+					
Q524. Hospitals send HIV/AIDS patients home to die					
Q525. Hospitals test patients for HIV without their consent					

I am going to read several statements of things that health providers do when taking care of patients with HIV/AIDS. Please tell us how often you have seen providers in this hospital do these things when taking care of HIV patients.

**Section 5. Common practices – yours and your peers**

**At your hospital, how frequently does this happen?**

	Never	Rarely	Sometimes	Frequently	Always
Q526. Health Providers administer medications for symptomatic conditions but do not touch or physically examine patients with HIV/AIDS					
Q527. Health Providers use protective wear (e.g. gloves, gowns, mask, etc) to do unintrusive physical exams on non-bleeding HIV+ patients even if the patient does not have open sores					
Q528. Health Providers only provide treatment to HIV+ patients if the mode of their infection was not sexual					
Q529. Health Providers delay treatment or provide slower service for HIV+ individuals					
Q530. Health Providers refuse to lift or touch the dead body of an HIV+ individual					
Q531. Health Providers use double gloves when preparing the dead body of an HIV+ individual for the mortuary					
Q532. Health Providers do not maintain the confidentiality of HIV+ individuals					
Q533. Health Providers try to cleverly deny admission of HIV+ patients by giving excuses (e.g. “not enough beds”, “the doctor is not here”, etc) but admission is not denied outright					
Q534. Health Providers keep HIV+ patients under observation without a treatment plan for a few days					
Q535. Health Providers postpone treatment or surgery for HIV+ patients as long as possible					

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