HIV/AIDS RELATED KNOWLEDGE, ATTITUDE AND PRACTICE OF HEALTH WORKERS TOWARDS PREGNANT WOMEN IN THE LABOUR WARDS IN MAGU DISTRICT.

BY

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A DISSERTATION SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF PUBLIC HEALTH IN THE UNIVERSITY OF DAR ES SALAAM.

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CERTIFICATION

The undersigned certify that he has read and hereby recommend for acceptance by the University of Dar es Salaam a dissertation entitled: The HIV/AIDS Related Knowledge, Attitude and Practice of Health Workers Towards Pregnant Women in the Labour Wards in Magu District, in partial fulfillment of the requirements for the degree of Master of Public Health.

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Date: 10th October 2000

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DEDICATION

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ABSTRACT

HIV/AIDS continues to be one of the prominent killer disease despite the fact that attempts are still going on to find a definitive cure for the condition. Sub Saharan Africa has the highest numbers of patients, including Tanzania (UNAIDS, 1998). Care of these patients, lies on the health workers, as well as family members, when providing symptomatic treatment and support. Health workers also take care of people infected with the disease, but who may not have attained the full-blown disease, such patients are only detected by blood tests. The lack of cure, combined with the fact that the disease can be transmitted in workplace situations, is a major fact that results in changing the way of handling patients in this era of AIDS pandemic, directly affecting patient care. HIV/AIDS related knowledge, attitude and practice of health workers towards pregnant women in the labour wards in Magu district was done in the context of such situation. The studied population was health workers in the labour wards, delivering patients, chosen because in the labour wards, these workers encounter more blood and body fluids, which are a potential source of the virus if, infected. In-depth interviews to the in-charges were administered as well as observations and patients' interviews. The results show that health workers are knowledgeable (92.3%) on the modes of HIV transmission, but this is not associated to the resultant attitude. However most workers (60.2%) had positive attitude to the pregnant women in the labour wards. The workers had high risk-perception (91.2%) as well as fear (73.6%) especially when they did not have protective equipment. Availability and use of protective gear was also found to be inadequate in the labour wards, when delivering pregnant women. It can be seen that training of health workers on the workplace precautions still needs increased efforts.

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ABBREVIATIONS

AIDS	Acquired Immunity Deficiency Syndrome.
AMO	Assistant Medical Officer
CDC	Centers for Disease Control.
DMO	District Medical Officer
HIV	Human Immune-deficiency Virus.
CO	Clinical Officers
MCHA	Maternal and Child Health Aide.
MMWR	Morbidity and Mortality Weekly Reports of [Centers for Disease Control]-United States of America.
MSD	Medical Stores Department
NACP	National AIDS Control Programme.
ACO	Assistant Clinical Officer
TANESA	Tanzania-Netherlands Study Project on AIDS
UMATI	Family Planning Association of Tanzania
UNAIDS	Joint United Nations Programme on AIDS.
UNICEF	United Nations Children Education Fund.
WHO	World Health Organization.

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INTRODUCTION

Global Overview of the AIDS Pandemic

AIDS is still a major cause of morbidity and mortality in the world. According to UNAIDS (1998), 33.4 million people are infected with HIV worldwide, and of these 43% are women. Among the infected, 21 million are cases of AIDS (NACP, 1998).

Sub-Saharan Africa has the highest number of infected people, where 22.5 million people are infected with HIV, with an adult prevalence rate of about 8% (NACP, 1998). In some countries such as Zimbabwe, Botswana, Namibia and Swaziland, between 20% and 26% of people aged 15 - 49 are living with HIV/AIDS. Seventy percent of people who became infected with HIV virus in 1998 and 10% of AIDS deaths occurred in Sub-Saharan Africa (NACP, 1998). The effect of AIDS in Africa has significantly changed previous patterns of medical care and mortality statistics. AIDS patients occupy half the medical beds in many cities (Lamont, *et al.*, 1996).

Tanzania is one of the Sub-Saharan Africa countries, which is highly affected by the HIV/AIDS epidemic. The prevalence of HIV/AIDS in Tanzania is approximately 8.2% and is one of the countries in Africa with high number of HIV/AIDS cases (NACP, 1998). The number of new cases of AIDS reported to NACP in 1998 was 8,675. The ratio of women to men is approximately 1:1. The hardest hit age group is 27-32 years age group for women and 33-38 years age group for men. This could be accounted for

by early sexual maturity in females as well as tendency for older men to seek relations with young "uninfected" girls (NACP, 1998).

National AIDS Control Programme is responsible for monitoring and controlling the spread of HIV infection in the country through the use of surveillance data. In Tanzania, the number of reported cases of AIDS underestimate the true number of cases because of problem of diagnosis and health service utilization by AIDS patients (Killewo, *et al.*, 1994).

AIDS is a major contributor to rising rates of infants, children, and maternal mortality. There is concern that many pregnant women who may be dying after a chronic illness, tuberculosis or chronic chest infection may infact have AIDS. In view of the rising numbers of HIV positive antenatal women it is to be expected that more maternal deaths will be attributable to HIV/AIDS (Ahmed, 1999).

HIV affects women largely in the reproductive years, prevalence studies have shown that in the age group 15-22, women are four times affected compared to men. (NACP, 1998). Antenatal clinics surveillance for HIV have shown that, in the regions of Mbeya and Kilimanjaro, HIV seroprevalence ranges between 15% to 24% for Mbeya, and between 19.5% to 20.5% for Kilimanjaro (NACP, 1998). The Implication is that for every five pregnant women attending antenatal clinics, one is affected with HIV.

Situation in Mwanza Region

Mwanza region ranks at number 11 among cumulative AIDS cases reported to the NACP with a total of 7384 new cases reported since 1992-1998 (NACP, 1998). Prevalence rate among blood donors was 6.9% for males and 9.5% for females (NACP, 1998). From 1992, HIV/AIDS cases have been increasing. Basing on hospital admissions at Bugando Medical Centre in 1991, 23.9% of admissions (15-44 years) were HIV positive. In 1994, 45% of the admissions (15-44 years) were HIV positive and in 1996, 47% of the admissions (15-44 years) were HIV positive (Kaluvya, *et al.*, 1996).

The prevalence of HIV in Mwanza town was found to be 11.8%, in rural areas was 2.5% and 7.3% in roadside settlements (Barongo, *et al.*, 1992). In this study HIV-1 infection was 1.5 times more common in women than in men. This infection was more prevalent in women in the age group 15–34 years, and men in the age group 25-44 years. Magu district, which is among the 7 districts of Mwanza region, is mainly composed of rural areas as well as roadside settlements on main road from Mwanza town to Musoma.

Health Care Settings

Health care services in the developing countries of Africa depend on resources either stretched beyond the limit or not available (Lamont, *et al.*, 1996). The same state applies to Magu district as reported by (Gumodoka, *et al.*, 1994).

In Tanzania HIV infection is mostly acquired through heterosexual contact as it is in most of Sub-Saharan Africa (NACP, 1998). Nevertheless in health care setting, blood and other products as well as body fluids can also cause transmission of HIV, especially when there is skin or mucous membranes ulceration of the health worker. Transmission of HIV via contaminated needles and syringes or re-used equipments in health care setting has been reported from several countries (Marcus, *et al.*, 1989). This emphasizes a need for proper sterilization and disinfection of reusable equipment and increased use of disposable equipment when available, which will be properly disposed after use (Marcus, *et al.*, 1989). Rigorous reporting of possible workplace transmission by health workers is not actively done in Tanzania.

Health workers through their daily activities face an occupational risk of HIV infection through handling of blood and other body fluids especially when there is improper or inadequate equipment to perform their daily work. These workers have been found to have similar risk as other members of the community outside the workplace (Mann, 1986).

In studies done in North America and Europe, the issue of availability of protective gear is seldom mentioned except as Guidelines by the Centers for Disease Control. The assumption is that, all the necessary equipment is present in the labour ward. In an African setting, availability of protective gear may be a problem and it is important to

determine if at all it may influence the attitude of health workers towards their practice and hence the quality of care.

In a brief situational analysis of Magu district by Gumodoka, (1994), availability of equipment in most health facilities was inadequate. In all government dispensaries, health centres and hospitals there was a serious shortage of needles and syringes whereby disposable needles and syringes were being re-sterilized for use, antiseptics and gloves were typically unavailable. Water was not available in all government dispensaries, in half of the health centres and in Magu hospital. A vaginal speculum was lacking in most government dispensaries; in two health centres and in Magu hospital and most facilities had a sterilizer, which used charcoal. It is important to assess HIV/AIDS related knowledge, attitude, and practice of health workers in the labour wards and therefore the type of services offered to patients.

Health Workers performing Midwifery

Midwives are health workers who focus on the normal process of pregnancy, labour, and birth, with emotional support during labour (Dutta, 1993). Labour at one stage greatly expose the midwife to blood, and other body fluids, which are potential route of transmission of HIV, if the mother is HIV positive. Midwives as many other health workers were not taught about AIDS in their midwifery course, general nursing or during their undergraduate education, so there is a need for initial and continued training

of health workers on AIDS (Dutta, 1993). Currently HIV/AIDS is being taught to students especially during their clinical rotations.

Cross-sectional studies in Africa have shown that the prevalence of HIV infection in health workers was not related to the degree of patient, blood or needle contact and was considered to reflect background rate of infection in the community (Mann, 1986, N'Galy, 1988). Still, HIV/AIDS being a new pandemic, and of today still having no cure leads to a big degree of fear among health workers handling blood or body fluids (Ngomuo, 1994). The fear of contracting HIV goes together with the 'stigma' associated with acquiring HIV infection. In our African societies, especially Tanzania, HIV is thought to be a reflection of one's degree of promiscuity, therefore acquiring a social label.

Women and HIV

Midwives are health workers who mainly attend women during their midwifery practice. Women and children have suffered most as a result of the HIV epidemic due to their increased vulnerability and infringement of their basic rights by use of practices and laws that oppress them. The spread of HIV in Tanzania is still on the increase with women being more at risk of acquiring the infection, than men (Barongo, *et al.*, 1992).

High prevalence rates have been reported among women of childbearing age (NACP, 1998). Prevalence rates among expectant mothers attending antenatal clinics range

between 5-45% in some sentinel sites in Tanzania. This warrants a need to sensitize and raise awareness of women on HIV/AIDS transmission and prevention (National Multisectoral AIDS Conference Report, 1998). It is important to empower women to negotiate for safer sex with their partners as a means to combat HIV/AIDS infection.

Previous Studies

During this century and particularly in the last 40 years, health workers have become accustomed to providing the therapy or technology that can arrest or at least control many diseases manifestation. HIV/AIDS returns health workers to the position prior to the modern era of drug therapy and technology (Stewart, *et al.,* 1995).

Several studies have shown that caring of patients is now affected by the presence of HIV/AIDS, due to negative attitudes of health workers towards patients in this era of AIDS pandemic (Dubbert, *et al*., 1994, Shermann, 1996, Kemppanien, *et al*., 1992). However few studies have been done in Tanzania to find out attitude of health workers towards AIDS patients. For instance, Kohi studied attitudes and knowledge and perceived social support of nurses toward AIDS patients, (1992). It was found out that nurses appeared to have satisfactory knowledge about AIDS, however they were overly cautious and had negative attitudes towards patients with HIV/AIDS. They indicated fear of contagion that is AIDS-phobia.

As previously mentioned, health workers in the labour wards are greatly exposed to blood and other body fluids. so there is a need to study their attitude towards patients in relation to HIV/AIDS transmission, in Tanzanian health setting in the district hospitals, health centres and dispensaries.

PROBLEM STATEMENT AND RATIONALE OF THE STUDY

Attitude of health workers has been studied in North America as well as Europe, but less in Africa and the rest of the World. In most of our health care setting, routine HIV testing to pregnant mothers is not done. so a health worker will not know the actual state of the patient unless she has full blown AIDS. Although this holds true for other patients other than pregnant women, it is important to assess the risk in the labour wards due to the increased exposure to blood and other body fluids during deliveries.

There is a need to study attitude of health workers towards patients irrespective of whether they know that the patient is HIV positive or not. It is important to see whether due to the knowledge of presence of HIV, and its modes of transmission at the back of the worker's mind, midwifery practice will be affected due to any attitudinal change towards patients.

In Mwanza region, as in other regions (with the exception of the sentinel sites) pregnant women are not routinely tested for HIV. Health workers while attending these women face an unknown occupational risk of acquiring HIV infection. It is important to know whether these health workers know this risk, and what are they practicing in view of such risk. What is their attitude to patients considering presence of this risk? How are they handling pregnant women in the context of HIV/AIDS? This is important despite the fact that most of the transmission of HIV in health workers, results primarily from risk behaviours outside the workplace (Mann, 1986).



Are the health workers knowledgeable on the modes of transmission of HIV/AIDS? Knowledge of the modes of transmission of AIDS seems to be a major factor in some studies in determining the attitude of health workers on patients in this AIDS epidemic. Knowledge on the modes of HIV transmission seems to be associated with more tolerance or positive attitude towards patients, irrespective of HIV/AIDS presence or absence.

While prevalence rates of HIV are certainly higher in urban areas, in Mwanza region (as in many African countries) the majority of people live in rural areas, so there as many people with HIV infection in rural villages as in Mwanza Municipality. Although AIDS control efforts in towns may be more cost effective, rural areas should not be neglected (Borgdorff, 1994).

The basic equipment in health facilities of Magu district was found to be inadequate (Gumodoka, *et al.*, 1994). Is the protective gear now available? If available is it adequate in the labour wards, and if adequate do the health workers use it appropriately? Does HIV result in any fear in these health workers attending pregnant women in the labour wards especially if there is lack of adequate protective gear?

Attitude knowledge and practice of health workers is the initial factor towards proper provision of appropriate health services to patients. Studying health workers' attitude and practice in the labour wards will determine the type of health services and the

quality of health care offered to patients in Magu district. The study will help in filling the knowledge gap present on what really goes on in workplace setting, specifically in the labour wards, therefore the results if utilized will help in better planning of services.

STUDY OBJECTIVES

Broad Objective

1. To find out the HIV/AIDS related knowledge of labour wards' health workers as compared to their attitude and practice towards pregnant women.

Specific Objectives

1. To determine the knowledge of labour wards' health workers, on the perceived modes of HIV transmission.
2. To determine the HIV/AIDS related attitude and practice of health workers towards pregnant women in the labour wards.
3. To determine the health workers' risk perception of HIV transmission in the workplace when delivering pregnant women in the labour wards.
4. To determine the availability of protective gears in the labour wards in relation to the number of health workers and deliveries taking place.
5. To determine the proportion of health workers who declare constant use of appropriate protective gears when conducting deliveries in the labour wards.
6. To determine presence of any fear of health workers, of attending pregnant women in the labour wards, if there is lack of protective gear in the wards, in the context of HIV/AIDS.

LITERATURE REVIEW

It is still not uncommon for health workers to feel uncomfortable and unprotected when treating HIV/AIDS patients. Much of this is due to inadequate training and lack of information specific to the virus and the disease (Kaus, 1997).

Several major factors have been observed to contribute to change in attitude towards patients in previous studies; they include, lack of knowledge on AIDS transmission, which could also be caused indirectly by limited exposure to AIDS patients (Brett, 1998). Other factors are fear of AIDS, intolerance of drug addicts and homosexuals (Brett, 1998). It is thought that lack of adequate protective gear could also cause a change in attitude of health workers.

HIV/AIDS Related Knowledge and Attitude of Health Workers

In this study health workers were assessed on how knowledgeable they were regarding HIV transmission in the workplace and what they were really practicing regarding presence of HIV.

It is known that for the millions of people suffering from AIDS, health workers can be the difference between agony and comfort, between acceptance and rejection and between health and infection. Health workers help the community to take action to ensure that pregnant women are treated at the appropriate levels of care. There is a need

to prepare each health worker to be capable of providing the appropriate care through basic and continuing education (WHO, 1987).

A study done in an urban referral hospital in North America indicated that the educational level of nurses was significantly related to attitude (Laschinger, *et al.*, 1993). Nurses with highest levels of education had more positive attitude towards AIDS patients. Due to the fact that nurses studied were from one hospital, the results cannot be generalized for all nurses.

Another study among nurses with considerable education about AIDS, in North America, found positive attitude towards AIDS patients, even more than a comparable group of HIV negative patients, a fact accounted for by nurses being conscious of the issues concerning bias when caring for AIDS patients (Siminoff, *et al.*, 1998).

Health workers have a social responsibility to inform the public about AIDS transmission: they also have moral obligation to promote tolerant attitudes towards people with the disease. Ideally, a health worker should help a patient understand his or her illness, the risk factors for transmission and medical assistance and treatment, including self-care options that are available to the patient (Kaus, 1997). A health worker is able to do this if he or she is also well informed on all aspects of disease transmission.

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Knowledge has been related to exposure or clinical experience, resulting into positive attitude (Glad, 1995). In that study done by Glad, positive attitude towards AIDS patients was related to clinical experience of health workers caring for HIV patients. In a comparable study between medical students of two London Universities, the students who had more exposure to HIV patients and hence more knowledge were found to have more positive attitudes to AIDS patients (Evans, *et al.*, 1993).

Positive attitude was also related to experience in caring for HIV patients in a cross-sectional survey of 138 nurses from different hospitals in North America, though educational level was not related to attitude (Baylor, *et al.*, 1996). Although their study represented considerable views of many nurses, the results may not be applicable to other geographic areas.

Knowledge of the modes of HIV virus transmission in a health care setting means that the health worker is familiar with the fact that transmission will occur if the blood of HIV infected patient is directly inoculated into the health worker through broken mucous membrane or skin. Transmission could also be through needle stick injuries or cuts with sharp objects. In order for the contact to be established as occupationally acquired, the worker has to be tested and be negative (preferably within 30 days). The worker then has to experience an acute retroviral syndrome temporarily associated with the exposure, and subsequently seroconverts. This generally occurs within six months after the exposure (Marcus, *et al.*, 1989).

The major factor appearing to contribute to negative attitude, and the most observed is fear of contagion. Others like intolerance towards homosexuality and drug addiction, is mostly encountered in American and European settings. This might not be very prominent in an African setting as most of transmission is through heterosexual contact (NACP, 1998).

Assessing fear and knowledge, most nurses attained their information about AIDS on the media, or through the press or through reading journals (Steel, *et al.*, 1995). In Tanzania, the mass media including print media; radio and television have not been responsive enough in disseminating effective HIV/AIDS prevention messages. The mass media should institute regular programs and activities to educate the public on all issues concerning HIV/AIDS (National Multisectoral AIDS Conference Report in Tanzania, 1998).

Many studies have been performed to determine people's level of knowledge as well as their attitude and perceptions regarding AIDS and HIV infection and the influence of such knowledge on taking action for prevention. However, few studies have assessed the usefulness of returning and communicating their results to the studied communities and involving them in helping to solve the study problem (Killewo, *et al.*, 1993). The biological characteristics and modes of transmission allow for the possibility of preventive intervention and for individuals to protect themselves (Lwihula *et al.*, 1993).

Lack of knowledge with regard to AIDS was found to inhibit the building of a successful nurse-patient relationship (Benyis, 1990). Within the health sector, there are health workers who have received less training on HIV/AIDS. Such workers may express fear of HIV/AIDS and often they will not be ready to discuss issues related to the disease with patients. These health workers need to be identified and intervention programs be planned for them by the health authorities (Ngomuo, 1994). Such interventions include seminars and workshops to health workers regarding any new development about the disease as well as handling of patients in their workplace in accordance to safety procedures.

Many health workers have negative attitude to AIDS patients (Kemppainen, *et al.*, 1992). In his study on nurses' attitude to AIDS patients, 38% of his sampled nurses thought that nursing on AIDS patients put them at a great risk of HIV infection. In another study using reinforcement of correct knowledge on HIV/AIDS and challenging negative attitudes found that none of the interventions had a significant impact on the nurse's attitude, either post-intervention or during a six month follow-up (Kemppainen, 1996).

Similarly, a survey among public health personnel in Michigan, USA, on knowledge and attitude found that the personnel were generally well informed on the major routes of HIV transmission, but many had misconceptions regarding non-viable routes of transmission such as mosquito bites. Thirty two percent of the respondents had negative

attitude on AIDS patients, and the authors suggested that public health personnel still needed further education about HIV (Randall, *et al.*, 1993).

On assessing perceptions of AIDS and AIDS prevention strategies among health workers in Moshi rural district, Kilimanjaro, Tanzania, the level of knowledge of HIV transmission was relatively high among health workers about 90% (Ngomuo, 1994). They knew the modes of transmission, but some workers were not aware of blood transfusions as a potential route of HIV transmission. Another criteria for assessing knowledge used in the above study was unsterile needles and syringes use, mother to child transmission, mosquito and bed bug bites, sharing utensils as well as sexual contact. Knowledge of preventing spread of HIV was also asked using different parameters such as screening of blood for HIV, isolating AIDS patients, ensuring use of sterile needles and syringes, reducing number of sex partners as well as using condoms. It is deduced that among medical students, physicians, nurses and dentists throughout the world health care providers who do not possess accurate knowledge about HIV infection perceive a great risk in treating HIV infected patients warranting a need to review this in the study area.

Factors Underlying Attitude towards HIV Infected People

There is data indicating that the disease process itself may not be the basis for stigmatization of AIDS patients or any differential treatment received by AIDS patients. Rather, underlying social attitudes may be the culprit (Siminoff, *et al.*, 1998). The mode

of contagion may be an influencing factor on negative attitude on AIDS patients. In places where homosexuality and intravenous drug use is a major route of HIV transmission such as Europe and America, negative attitudes to these behaviours determine the negative attitude seen on AIDS patients and AIDS in general. HIV infected individuals may be seen as representatives of unpopular lifestyle choices.

As shown by several studies in North America, homosexuality was a factor, which influenced care given by nurses and other health workers to HIV patients (Jemmott, *et al.*, 1992, Bennett, *et al.*, 1993, Kemppainen, *et al.*, 1996). It was also revealed that negative attitudes towards AIDS patient existed as a result of negative attitude towards homosexuality and intravenous drug use (Cole, *et al.*, 1993, Wallack, 1991), justifying the above observation.

Protective Gear

The issue of use of protective gear by health workers is part and parcel of the health worker's training, but practical use may vary according to two major categories. The first is non-use of available protective gear mostly as a result of personal attitude or habits and secondly, and which is of bigger effect is non-use secondary to lack of adequate and appropriate protective gear, both will be considered in this study.

CDC has done follow-up of HIV transmission in health care settings, mainly in North America, although the WHO initiated a project to bring together the available data from various countries. It is still difficult to determine whether infection was occupationally acquired, as this would have been reflected in national AIDS cases reporting whereby substantial numbers of health workers would have been infected with HIV. About 188 health workers reported to have confirmed sero-conversions as a result of occupational exposure have been documented in the United States where rigorous follow up of accidental contamination in the workplace is done (West, 1998).

The growing public health problem of providing care to those infected with HIV is increasing the number of health care providers concerned about possible occupational risks of becoming infected themselves (Arnow, *et al.*, 1997). As the number of persons infected by HIV increases, more health workers are being called upon to treat them.

Negative attitude may occur as a result of lack of adequate protective gear. In some groups of health workers such as midwives or surgeons one may put on the appropriate protective gear but due to the nature of the work itself, the risk might still be present. Transmission can be through punctures in gloves or through muco-cutaneous exposure, transmission by the latter route has been documented to be rare, the risk has been found to be 0.1% (Rodts, *et al.*, 1992).

Health workers should be trained on the need for routine use of universal precautions, use of equipment and clothing necessary to minimize the risk of infection, if available. Training provided should be on the epidemiology, symptoms, modes of transmission, and prophylaxis of infectious agents in the workplace (CDC, 1996). However it is important to remember that understanding how the virus is transmitted may not assure a change in behaviour in following universal precautions in the workplace. On the other hand, inadequate protective equipment is an important barrier to the consistent use of the necessary precautions.

Although blood, blood products and injections may have accounted for a substantial amount of HIV transmission in Tanzania, this situation is being brought under control as blood screening facilities for HIV infection become more widely available, reliable and affordable than they have been in the past (Killewo *et al.*, 1994). But like most of Sub-Saharan Africa, most local hospitals performing blood transfusions are situated in rural areas where there is no constant source of electricity. Furthermore, in Tanzania, the lack of expensive blood bank equipment and a pool of voluntary donors for storing a sufficient blood supply have generally prevented the establishment of conventional blood banks (Mnyika, *et al.*, 1995). There are, however, still a number of problems facing the blood donor-screening programme. They include a steady supply of HIV test kits, as well as ethical issues whether to inform HIV positive donors of their serostatus (Mnyika, *et al.*, 1995).

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In a survey to assess need for HIV education among public health personnel in Michigan, USA, found that the precautions that the personnel were taking to prevent HIV infection were adequate, although they still needed further education (Randall, *et al.*, 1992). A study in Taiwan found that, if nurses had better knowledge of workplace risk and protection with regard to AIDS, they had more positive attitude and a greater willingness to care for AIDS patients (Yeh, *et al.*, 1990). Another study on knowledge, attitudes and practices on AIDS patients among health workers in Nyeri district, Kenya, found that 75% knew the recommended clinical procedures to avoid HIV transmission, yet insufficient medical supplies such as needles and syringes, existed in the health facilities. This posed a considerable HIV risk to the health workers as well as patients. The researchers suggested continuing education opportunities for the health workers, such as on job training as well as adequate protective equipment to reduce the risk of HIV transmission (Anna, *et al.*, 1990).

Adequate protective gear means that health workers consistently wore protective gloves, gowns, and eyewear. A prospective study on the risk of exposure to HIV during surgery in Zambia found that the risk of contracting HIV infection for a surgeon after 5 years of practice to be 1.5%. While another surgeon in the Western health care setting has only 0.1% risk (Consten, *et al.*, 1995). The occupational exposure rate is relatively low, but the HIV sero-prevalence is so high that the relative cumulated sero-conversion risk for surgeons in Sub-Saharan Africa is estimated to be 15 times higher than in Western

countries (Consten, *et al.*, 1995). This implies that each year one out of 300 employees in Sub-Saharan Africa might become occupationally infected with HIV (Consten, *et al.*, 1995).

In determining risk, the volume of blood involved in percutaneous exposure is important, the type and gauge of needle used and the depth of penetration. Transmission of HIV through intact skin has not been documented as shown by a study involving 2712 instances of exposure of intact skin to HIV (Alastair, *et al.*, 1995). The recommended time period for testing for HIV antibody is at least 6 months after exposure. Seroconversion beyond that point is very rare and extending the duration of follow up is unlikely to detect new infections and saves mainly to prolong the anxiety of the exposed health worker (Alastair, *et al.*, 1995).

In considering occupational exposure in an African health setting, it is important first to assess the availability of such protective gear, before even considering use or non-use of the protective gears. Many voluntary health care charities involved in Africa have been targeting care for AIDS patients, but health care for patients with AIDS can only be as effective and equitable as the health care system itself. Usually aid provided by outside organisations such as WHO helps by supplementing health care funding (Lamont, *et al.*, 1996).

Following these and other observations AIDS summit in Paris; December 1994 resolved to reinforce medical care in needy countries as the extreme poverty of developing countries precludes funding by local governments. Another issue that has to be considered is the prioritization of the health sector so that a considerable percentage of the government budget has to be on health services in order to get a better quality and equity in service provision.

In Tanzania, the situation is basically the same as in most developing countries, with much health equipment being inadequate or absent (Gumodoka, et al., 1994). Usually the requirements of the health workers have not been assessed and their information has often been obtained from reports of workers who have visited or worked in affected areas (Lamont, *et al.*, 1996). This is reflected by the frustration experienced by health workers, who recognize the need for change but are inappropriately prepared or placed to effect any of the real changes needed. However many health workers are only vaguely aware of the risk they face while at work, while some still believe that little can be done to protect them (Tietjen, 1997).

Health Workers' Risk Perception of Occupationally Acquiring HIV

When providing care, all health workers must consider any patient to be potentially infected with HIV (CDC, 1996). Although there is a growing awareness of the seriousness of HIV, many health workers do not perceive themselves to be at risk. Even those who know that precautions such as hand washing and using gloves are important do not do so regularly (Tietjen, 1997). This is due to a mistaken belief that HIV is largely confined to the 'at risk populations' such as sex workers (Tietjen, 1997).

Lack of compliance in following the universal precautions include the perception that health facilities are a risky place to work and little can be done to make them safer (Gershon, 1996). The belief that, there is a conflict of interest between providing the best patient care and protecting oneself from getting an infection also adds to the confusion (Gershon, 1996).

Implementing effective strategies to ensure that health workers follow infection prevention guidelines is crucial to the preventing of the spread of infection. Education and other efforts intended to make the health care facility safer should be directed to all health workers (Tietjen, 1992). It is also important that supervisors regularly provide feedback and appropriate infection prevention practices, as well as support

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recommended infection prevention practices and model appropriate prevention behaviour (Lipscomb, *et al.*, 1997). The appropriate infection prevention precautions include, washing of hands with soap and water before a procedure, wearing of gloves before touching anything wet and using of clean high level disinfected or sterilised equipment. It also means proper disposal of waste material and decontamination or sterilisation of reusable items immediately after using them. Also using of physical barriers such as protective goggles, facemasks and plastic apron (Tietjen, 1997).

The increasing number of patients, being treated for HIV associated illness implies that more health workers will encounter patients infected with HIV. The risk of transmission of HIV can be minimized if health workers observe care while performing all invasive procedure, adhere rigorously to previously published recommendations and use universal precautions (Freedman, *et al.*, 1989).

Care of patients

By and large, care of those infected and affected by HIV/AIDS has not been satisfactory. To sense the patient's probable reactions and desires, the health worker must be adept at medical techniques to improve pregnancy and delivery outcome (Maehara, 1990). Assessing of the care given includes patient's satisfaction. Usually there should be no reactions to negative experiences in childbirth and there should be satisfaction with the health care. To attain patient satisfaction there should be a supportive environment,

which will be one that does not stigmatize or discriminate against people with HIV or AIDS (Borgdorff, 1994). This supportive environment will provide care for people with HIV/AIDS. The care will include counseling and provision of medical treatment. Provision of appropriate counseling and medical care depends partly on knowledge of the natural history of HIV infection, and partly on availability of adequate health equipment for use.

AIDS patients have continued to report dissatisfaction with the care they receive (Siminoff, *et al.*, 1998). Generally, AIDS patient's dissatisfaction has been related to lack of appropriate care and lack of communication with the staff. A classical case of dissatisfaction with the care given was shown by (Adegboye, 1994), who observed a 35 years old woman admitted in a certain hospital in Nigeria who complained that, on confirmation of her HIV status, a number of health workers only went to see the 'AIDS patient'. Only two of six doctors and one of four nurses were willing to take care of her.

There is still a gap to be filled if patients are to be satisfied with the services offered by the health sector. Health workers often have status in their communities, and they are responsible for caring of those who are ill. To ensure that they correctly understand the modes and routes of HIV transmission and approach those infected with HIV with empathy is crucial (Ngomuo, 1994).

Midwives are health workers whose work environment determines the care they deliver to patients in general. The midwife is probably the care provider who spends the largest proportion of her time in a supportive role, which is why midwifery practice centers on satisfaction and emotional-well being (Waldenstrom, 1997). There is concern that if nurses view AIDS patients as more demanding or requiring more nursing care than other patients, their care will suffer (Siminoff, *et al.*, 1998).

A special source of stress among health workers in the field of HIV/AIDS arises from the absence of a definitive cure for the condition (Stewart, 1995). The increasing number of AIDS patients implies that the number of people who practice medicine, nursing and midwifery will diminish, and the burden of AIDS care will fall on already overcrowded large urban hospitals (Carswell, 1988). At present midwives are concentrated in urban hospitals and lack access to women at the rural levels. To bridge the social and communication gap between the urban midwife and the rural population, greater attention must be given to the training and supervision of traditional birth attendants in order to ensure presence of a trained assistant at all births and therefore practice of safe motherhood (Kwasi, 1991).

The inadequacy of health workers was clearly seen in Magu District whereby there were only 28 professional midwives among whom 17 were concentrated in Magu District Hospital and the rest were scattered in the rest of the health centres and dispensaries.

Some dispensaries and one hospital had no professional midwife (Gumodoka, *et al.*, 1994). This implies that there are other professional cadres of health workers such as nurse assistants and MCHA who are providing services in the labour ward, who may not have got adequate midwifery training.

The inadequacy of midwives in the labour wards is a reflection of the inadequacy of all staffs in general including the health sector. Therefore it can be seen that training of adequate health personnel still need-increased efforts.

METHODOLOGY

Study site

Magu district is located East of Mwanza town; it borders the south shores of Lake Victoria. It covers an area of 3075 square kilometres of dry land and 1725 square kilometres of water. Magu district has a population of about 426,116 (Regional Annual Reports, 1998, projection of 1988 census). The population of women in the reproductive age (15-45) is 97,580. The district has six divisions, twenty-seven wards, one hundred and twenty five villages, and 51,475 households.

Magu district has mixed economy, which include fishing, petty business with most of the people practicing agriculture. The main food crops are maize, rice, and cassava. Cotton is the main cash crop. The climate consists of a long dry season from May to October followed by a period of rainfall from November to April.

Target Population

The target population was health workers conducting deliveries in the labour wards of Magu district at the time of the study. In-charges of facilities of the selected facilities were also interviewed, as well as patients who had already delivered in these facilities.

Sample selection

This was done through random selection of the facilities (dispensaries), then interviewing all the workers found, conducting deliveries. In the case of hospitals and health centres, all the health workers conducting deliveries were interviewed. In-charges were interviewed in the selected facilities as well as patients who had already delivered.

Study Design

The study was cross sectional/comparative of health workers conducting deliveries in the labour wards in Magu district. The study was mainly on HIV/AIDS related knowledge attitude and practices of health workers in the labour wards, towards pregnant women. It was assessing whether knowledge of HIV transmission is related to the health workers' attitude and practice towards pregnant women in the labour wards.

Research Methods

The study used both quantitative and qualitative methods. Quantitative methods were in the form of structured questionnaire administered to all health workers in the labour wards of the selected facilities. Instrument checklist was also used to ascertain availability of protective gear in the labour wards. Qualitative methods in the form of in-depth key informant interviews to the in-charges of the facilities. Qualitative methods were also used to a selected patient in each labour ward in order to validate information reported by the health workers to the researcher and to ascertain the views of the users of

the health facilities. Observation of deliveries taking place at the time of the study was done using a checklist.

Data Collection

Pilot Study

The purpose of the pilot study was to check for feasibility of the study including application of the instrument, which was reviewed and changed accordingly. Pilot study was done by the researcher prior to the actual study in Mwanza region in a selected facility, Sekou-Toure Hospital. All health workers found in the labour wards were interviewed as well as the in-charge of the hospital and one patient found in the ward. Observation of deliveries was done following the checklist as well as actual presence of equipment was ascertained.

Sample size

The second aim of the pilot study was to determine the sample size for the actual study using a formula proposed by Fleiss (1981).

$$N = \frac{n'}{4} \times \left[1 + \sqrt{\frac{1+2(c+1)}{n'c\,|p2-p1|}}\right]$$

P1 was the proportion of knowledgeable health workers on HIV transmission who had positive attitude. This was found to be 62.5% after analysis of the results of the pilot study responses.

P2 was the proportion of knowledgeable health workers on HIV transmission who had poor to moderate attitude, which was found to be 100%, from the responses obtained from the pilot study responses.

C was the ratio of group-one health workers to group-two health workers, which was 0.11 or 1/9 (Ngomuo, 1994).

The value n' was derived from Fleiss formula, using power 80% and 95% confidence interval.

The sample size (N) was found to be 117 labour ward health workers required for the study in Magu district.

Collection of data in Magu District

Data collection was done after obtaining permission from the district authorities, in all the hospitals in the district and three health centres. One health centre could not be reached due to logistics and terrain problems. Dispensaries were randomly selected starting with ten dispensaries using the lottery method after obtaining the list of all dispensaries in the district. The rest of the dispensaries were added using the same method to complete the number of the health workers required for the study.

Training of Interviewers

One health worker was trained on how to administer the questionnaire and coding of the responses prior to the actual study.

Ethical Clearance

Request for ethical clearance from the authorities was done from the district authorities and ethical clearance was granted.

Interviews

Structured Interviews to all health workers found in the labour wards of these facilities at the time of the study were done. The unit of observation was taken to be the number of health workers and not the number of facilities. Interviews were done after an informed written consent of the worker or patient. These interviews were mainly composed of close-ended, structured questions as well as statements requiring the worker to select a response according to his or her views.

Semi-structured interviews were administered to the in-charges of the visited facilities. Twenty interviews were done, with each interview lasting for about half an hour. The responses of these interviews were written as they are by the researcher. Semi-structured interviews were also done to a patient found in the labour wards of the selected facilities. Ten interviews were done to these patients using an open-ended interview guide; they were stopped after there was no more new information from the patients. The aim of the interviews was to get the views of the users of the facility so as to ensure validity of the information given by the workers.

Observational checklist of the deliveries found at the time of the study was also done following a list of what should be the ideal practice of deliveries in the labour wards. Similarly equipment checklist was also done to ascertain the presence of the necessary basic delivery equipment that should be present in a facility conducting deliveries.

Research Instrument

There were two major types of research instrument, according to the study design. One type of instrument for the qualitative data was in the form of questions guides to the in-charges of the facilities, and patients who had already delivered in the selected facilities. The other type of research instrument for quantitative information was in the form of a questionnaire.

The questionnaire consisted of thirty-eight different questions, which were a mixture of open-ended and close-ended questions. The open-ended question required the health worker to list information. The close-ended questions required the worker to give a 'yes' 'no' or 'I don't know' response. The other type of close-ended questions required the worker to choose a response from a range of 'I totally agree' to 'I totally disagree' responses.

The questionnaire was divided into several subsections. The first part consisted of the demographic identity of the health worker, which had nine questions including question on experience of the health worker as well as educational level and profession. This was

followed by four questions on general awareness of the worker on HIV/AIDS and then ten questions to test knowledge. The fourth part of the questionnaire consisted of three questions on training of the health worker, followed by four questions on availability of protective gear and direct questions on practice and use of protective gear. The fifth part consisted of questions testing attitude, risk, and fear and seniors influence on the use of protective gear. There were nine questions on attitude, four questions on risk perception, two questions to test fear and three questions to test for seniors' influence on the health workers' use of protective gear.

Measurement of Knowledge

Knowledge was tested by a series of ten questions, on general knowledge of the modes of HIV transmission in the workplace as well as outside the workplace. The workers were asked to respond 'yes', 'no' or 'I don't know' to those questions. The responses to these questions were scored correct responses were given a score of one and those who did not know a score of zero. The sum score was then given a scale ranging from zero to ten, divided into three categories; those who had high knowledge, those with moderate knowledge and those who had poor knowledge. Any health worker who answered seven or more correct responses out of the ten questions was taken to have high knowledge. Any worker who got five to six correct responses was taken to have moderate knowledge, while a worker who had less than five correct responses was taken to have poor knowledge on the modes of HIV transmission.

Measurement of Attitude

A total of nine questions were used to evaluate the health workers' attitude and they consisted of a statement followed by responses ranging from 'I totally agree' to 'I totally disagree'. A scoring system was used whereby, those who agreed correctly were given a score of one, and those who responded negatively were given a score of zero. Those who did not know were not considered. The scores were then added to get the final score, which was scaled from one to nine; categorised into positive attitude, fair attitude, and poor attitude. Those who scored positively six questions to nine were classified as having positive attitude and those who scored positively four to five were taken to have fair attitude while those who scored positively less than four questions were classified as having poor attitude.

Measurement of Risk Perception

Risk perception of HIV transmission in the workplace was determined through a series of four questions. They started with how the individual perceives as his or her risk in attending pregnant women in the labour ward. The second category aimed at assessing how the health workers perceive as the severity of HIV if one gets it. The third category was on the protective measures that one needs to take, if one considers HIV disease to be a serious disease and if one thinks that he or she is susceptible to the disease. The responses were given score of one for the response implying risk and score of zero for those implying no risk. Those who did not know were not included. The sum score was then given a scale from one to four; categorised into those who implied risk for at least

two or more questions, which was taken to be health workers who perceived themselves to be at risk because of their daily work in the wards. Those who implied risk in less than two questions were taken to be health workers who did not perceive themselves to be at risk because of their daily work in the labour wards. Finally, assessment of what could trigger the health worker to do self-protection was determined.

Measurement of Seniors' Influence on the Health Workers' Use of Protective Gear

There were three questions assessing this, these questions were scored the responses which implied seniors' influence was given a score zero and the responses which implied no influence were given a score of one. The sum score was then scaled ranging from one to three; those who had less than two for sum score were taken to be influenced and those whose sum score was greater or equal to two were taken not to be influenced by the seniors.

Measurement of Fear

This was assessed through two questions, the responses ranged from 'I totally disagree' to 'I totally agree' these were scored whereby those who perceived fear when they do not have protective gear were given a score one and those who did not a score of zero. The sum score was then obtained with those scoring equal or less than one scaled as having no fear, while those whose sum score was more than one scaled as having fear when they do not have protective gear.

Qualitative information

This was in the form of an interview guide containing open-ended questions whereby each question represented a specific theme answering a specific objective. Prior to the questions a specific part describing the demographic variable of the in-charge or patient was answered. The questions are as shown in the appendix. The other part of qualitative information collected was in the form of an observational checklist, which is also shown in the appendix.

Validation

This was ensured through use of multiple methods, which consisted of qualitative as well as quantitative methods. Qualitative methods were in the form of in-depth key informant interview and observation checklists of actual deliveries. Quantitative methods in the form of a structured questionnaire administered to all health workers in the selected facilities as well as checklist of equipment. All these methods were done to ensure validity of the research results.

Data Management and analysis

Quality checks were done daily and corrections were done the same day while still in the field. Names of the interviewees as well as the interviewers were written on every questionnaire, to facilitate these checks. The investigator did the key informant interviews and the checklists.

Data entry for the quantitative data was done followed by data cleaning of the coded responses. Analysis of the data using contigency tables according to the study objectives was done, whereby chi squared test was used to compare for two proportions. Results were considered significant if the P value was less or equal to 0.05.

Analysis was done using computer programme EPI INFO version 6 for the quantitative information, according to the objectives of the study. Similar analysis was done for data that required scoring and arrangement in scales.

Analysis of qualitative information

The notes were studied to find out the key ideas and recurrent themes. Constant comparison of all the data relevant to each category was done to the rest of the data. The identified themes were then copied from the interview guide and categorised into the different groups of ideas, to obtain the different analytical categories. The groups of ideas from the respondents were presented by using quotations following the different themes so as to obtain the summarised version of the relayed information, which was then written following the objectives of the study. Observations were summarized following the guide used during observations of the deliveries. The resulting information was then written as it is for each of the studied facility.

Definition of terms used in the study

Attitude is a mental and neural state of readiness, organised through experience, exerting a directive or dynamic influence upon the individual's response to all objects and situations with which it is related (Allport, 1935).

Risk is defined as exposure to the chance of injury or loss. Risk is relative to the observer. It is the probability that something unpleasant will happen (Anon, 1989).

Fear is an aversion reaction to negative experience by a person.

A health worker was taken to be any one, who had any medical qualification, conducting deliveries in the health facilities at the time of the study.

RESULTS

The results are arranged into two sections following the design of the study. The first category of results shows qualitative information following the study objectives. The qualitative result is preceded by the demographic characteristics of the respondents. This is followed by the quantitative results part of the study, which is also arranged following the study objectives.

Characteristics of the Study Sample and Health Facilities in Magu District

The initial part of the results shows the description of the health facilities in the district by ownership, followed by the distribution of the health workers in the government facilities by their profession. Finally, the description of in-charges of the facilities and description of the interviewed patients follows.

Health Infrastructure

Table 1 shows that there are a total of 57 facilities, among which the government owns 73.7% of all the facilities in the district. The voluntary facilities are owned by religious organisations, they constitute 5.3% the rest of the facilities are privately owned. Twenty-two government dispensaries have no trained personnel for deliveries they have nurse assistants and medical attendants. Two dispensaries do not perform deliveries at all, as well as most private dispensaries.

Table 1. The distribution of health facilities in Magu district by ownership

Health Facility Ownership	*Hospitals*	*Health Centres*	*Dispensaries*	*Total (%)*
Government	1	4	37	42 (73.7)
Voluntary	1	0	2	3 (5.3)
Private	0	0	12	12 (21.1)
Total	2	4	51	57 (100)

Health Workers in the Labour Wards

Table 2. The distribution of health workers by their professional cadre, (government facilities) in Magu district

Professional cadre	***Number***	***(%)***
Medical Officers	1	0.3
Assistant Medical Officers	1	0.3
Clinical Officers & Assistant Clinical Officers	23	7.5
Dental Assistant	1	0.3
Nursing Officers	8	2.6
Public Health Nurses- Grade B	3	1.0
Nurse Midwives	27	8.8
Laboratory Technician	1	0.3
Maternal and Child Health Aide (Mcha)	20	6.5
Medical Attendants	223	72.4
Total	308	100

Table 2 shows that there are 27 (8.8%) nurse midwives and 8 (2.6%) nursing officers in the whole district; medical attendants constitute 72.4% of all the health workers in the district, while MCHA constitute 6.5% of all the district personnel.

In-charges of the health facilities in Magu district

Table 3. The distribution of the in-charges of the selected health facilities by demographic characteristics

		Number	*Percentage*
Age (years)	30-40	13	65
	> 40	7	35
Sex	Male	19	95
	Female	1	5
Experience (years)	1-10	8	40
	11-20	9	55
	> 20	1	5
Professional cadre	ACO	13	65
	CO	6	30
	AMO	1	5

Table 3 shows that the average age of the in-charges of the facilities is 30-40 (65%), with males being 95% of the in-charges.

More than half (55%) had eleven to twenty years experience and they are mostly Assistant Clinical Officers (60%).

Description of the interviewed patients

There were ten in-depth interviews done to patients found in the labour wards of the selected facilities who had already delivered. The patients interviewed had their age range from 23-36 years; they had an average of one to six parities. The patients had stayed for an average of 1-13 days, and 90% had primary education.

General occurrence of AIDS patients, who attend the respective facility, varied from one to four patients per month. Seventy three percent of the in-charges said that they have at one time attended a patient suspected to have HIV in the labour wards in their facilities.

Qualitative Information

In-depth Interviews to the In-Charges of the Facilities

There were twenty interviews done to the facility in-charges, in the form of semi-structured interviews following a predetermined question guide. The resulting information was meant to complement the information of the health workers on the different studied themes.

Knowledge of Labour Wards' Health Workers on the Perceived Modes of HIV Transmission

Respondents views on training of health workers

The in-depth interviews on whether there is any training offered to the health workers on how to take precautions in the workplace yielded different results. Most of the in-

charges said they offered on the job training, as well as weekly, continued education in the form of clinical presentations to their workers. Other facilities were visited by TANESA, which gave them booklets as well as health education to the health workers on the whole aspect of HIV.

One in-charge said that;

> " We *usually have discussions with the workers during the rounds and we also offer health education to the workers on how the disease is transmitted and how to protect oneself at work and outside the workplace by not being promiscuous as well as not offering unnecessary injections".*

One facility was also a centre for STD treatment therefore the health workers get more training on all sexually transmitted diseases.

Training of the health worker is an important step towards ensuring that the health workers get appropriate knowledge of care of patients in the context of HIV/AIDS.

HIV/AIDS Related Attitude and Practice of Health Workers Towards Pregnant Women in the Labour Wards

When asked if there is any change in attending patients due to the presence of AIDS; most of the respondents thought that there are changes in the way the workers handle the patients, although others thought that generally there are no changes.

One in-charge said that;

> *"Workers are now more careful to avoid being infected, for example, in the past one could deliver a pregnant woman without necessarily wearing gloves which is not possible now".*

They also sighted sterilization of equipment for the required time as now being very important as well as using of syringe and needle to one patient only. They thought that there was a need to minimize treating patients in a way that will require use of syringes.

When describing the need of protective gear, one respondent said that;

> *"The need for protective gear is now more obvious as there are changes in handling patients especially when there is lack of protective gear".*

The in charges also noted that, there is positive attitude in attending these patients because most of the health workers are generally aware of HIV/AIDS.

One respondent said that;

> *"Awareness has now increased therefore less fear of AIDS patients and general changes in behaviour in handling patients. Awareness has also increased on how to handle these patients, as gloves are now available".*

Nevertheless they also sighted an example that in some facilities every patient now has to come with his or her own syringe, which led to difficulties in attending patients.

When asked their role in the care of AIDS patients, most of the respondents showed positive attitude. They said that they take care of AIDS patients like all the other patients. They said that, AIDS patients get all the services like other patients and that they make sure that there is no stigma towards these patients. They thought that it is important to give all the services that are possible to these patients.

One respondent said that;

> "We *treat them symptomatically and we refer them in case of serious cases. We also offer counseling to them and we educate the public on how to take care of the general cleanliness of the patients* as well as *helping them at home and consider orphans left by AIDS patients".*

Many respondents sighted counseling and treatment of symptoms as what they provide to these patients.

However, other respondents showed negative attitude towards these patients.

One respondent said that;

"We are careful so that they don't infect us and we are therefore careful when handling them".

The responses showed that, there was both positive attitude as well as negative attitude towards pregnant women in the labour wards, although most respondents showed positive attitude.

Patients' Views on the Health Workers' Practice in the Labour Wards

When asked whether they were satisfied with the reception and care that they received in the facility, most of the patients had adequate reception and care while delivering.

One patient said that;

"I was given good advice to stay instead of going home after the delivery, which saved my life, as they later on found I was anaemic therefore I was given blood".

When asked about their experience during this delivery, most of the patients were helped adequately so they did not have any major problem.

One respondent said that;

"This was my first pregnancy but I didn't have much problems, I was helped by the workers as well as my relatives".

Most patients did not think that they could have got a better treatment than what they got at the facility.

Only one said that;

> *"I came to deliver in this dispensary as I always get my services in this clinic, otherwise I could have had better care in a hospital".*

When asked whether they were adequately cared for during labour, most of the patients said that they were told what to do. All the patients were not alone when delivering, a nurse delivered most of them, and for a few there was as well a clinician. When asked if there was something they didn't like in the facility they were generally satisfied except for one patient who sighted the toilets as being dirty. When asked on the state of the services offered by the workers, most of the patients said that they are generally good.

Observation Checklist on Practice of the Health Workers when they are Delivering Pregnant Women

Language and attitude was good with clear guidance to the patient. They were communicating with the patient at all times of the delivery in all the deliveries observed. They had good rapport towards the patient reflecting in a positive attitude towards the patient. Appropriate guidance to the patient was present but at times there were so many directives to the patient resulting into an element of confusion.

Checking of vital signs was also present. Health worker use of protective gear was in the form of gloves in all facilities, although they were very careful in handling the whole process to avoid body fluids. There was no health worker wearing an apron even for the facilities, which had an apron in the labour room. Physical assistance of the workers to the patient was present at all times.

Due to the fact that there was scarce gauze in the delivery rooms, cleaning of the patient was done mostly by using the patient's clothes, which at times were dirty. There was no running (tap) water in the labour room in any facility except for one hospital. They also did not have gauze and had very little cetrimide to use for the patient with the exception of one hospital.

Guidance on the care of the baby was not there unless the patient asked. The workers observed the cord of the baby for any bleeding as well as the whole body for any abnormality after the delivery. After delivery they directed the patients on personal hygiene, diet as well as coming to the clinic for their baby's care. Some of the patients were told to rest for some days before doing manual jobs.

Generally the facilities visited were moderately clean, delivery beds were mostly new, with new mackintosh, but otherwise the buildings were quite old and needed some form of repair, with the exception of the hospitals.

The Health Workers' Risk Perception of HIV Transmission in the Workplace when they are Delivering Pregnant Women in the Labour Wards

When asked if they think there is any danger to the labour ward health worker, in attending patients during this pandemic of HIV/AIDS, most of them agreed.

One respondent said that;

> *"The risk is there especially if the worker has some lacerations in the hands and arms".*

While another one said,

> *"The danger is there especially if the worker does not follow guidelines on precautions, for example use of bare hands when delivering".*

They also thought it was more dangerous due to excessive blood contact in the labour room as well as if not careful on handling instrument one can prick oneself with contaminated instrument. They also said it is now more dangerous due to the possibility of being infected and due to the fact that there is scarce instrument now to perform their daily work for example kerosene for sterilization of equipment such as gloves, scissors, and aprons. They generally thought that there is now more risk when attending patients compared to the past.

Availability of Protective Gears in the Labour Wards in Relation to the Number of Health Workers and Deliveries Taking Place

When asked if they have enough equipment for their daily work such as gloves, most of the respondents said that they do not have enough for their requirements.

One respondent said;

> *"We do not have enough equipment for example, at times we only have 20 pairs for all the activities in the facility which is not enough".*

Another one responded that;

> *"We do not have enough equipment especially gloves are inadequate, for example one patient in one delivery can use up to five pairs".*

For some few facilities they had enough equipment, although for the case of antenatal clinics patients come with their own gloves.

One respondent said that;

> *"We have enough equipment, for example we get 100 pairs of gloves from the drug kit and the rest of our requirement are supplied by JICA so we have enough equipment for our daily needs".*

It can be seen that most of the facilities had inadequate equipment. Only the hospital that was run by religious organisation had enough protective gear, as well as the district hospital. The other facility that declared enough equipment depended on donations from JICA, which may not be reliable.

Most respondents were not happy with the situation of the equipment in these facilities. One respondent said that;

> *"No, the equipment is not enough as the population density is increasing while the amount in the drug kit has not been changed".*

Also another respondent said that;

> *"No, usually by two weeks we experience shortages in drugs and other instrument".*

While another respondent said that;

> *"No they are not enough for example a kit have only 40 pairs of gloves which is too little for the whole facility".*

It can be seen that most facilities experience shortages of equipment at one time in a month, although others thought that they had enough for their requirement.

The Source of Equipment in the Facilities of Magu District

When asked the source of the working gear most of them responded that they got monthly drug kits from the District Medical Officer. The private as well as the voluntary owned facilities said that they usually buy them or sometimes get donations from Christian Commission, UMATI, or UNICEF.

The District Medical Officer said that;

> *"We get drugs and equipment from Medical Stores Department, TANESA, and UNICEF. The drug kits are obtained in three months from MSD, while the other equipment is irregular".*

He also said that they sometimes buy the equipment any time because they have enough funds due to cost sharing. For the in-charges of the facilities they said that they could get their other equipment when available

Health Workers' Use of Appropriate Protective Gears when Conducting Deliveries in the Labour Wards

When asked if the health workers follow universal guidelines or precautions when using equipment that have been used on patients, most of the in-charges agreed.

They said due to the increased awareness most of them usually wear gloves.

One respondent said that;

> *"They usually do prior preparation as well as being extra careful when handling used equipment".*

Another respondent said;

> *"They usually clean the instruments, sterilize them and make sure that they do not mix the used and the non-used equipment. When handling forceps, they use gloves".*

All the respondents thought that the health workers followed the appropriate precautions in the labour room when delivering pregnant women.

Disposal of Used Equipment in the Health Facilities

When asked how they usually disposed unwanted equipment, most of the respondents said that usually the disposable equipment is burnt in a pit, while the reusable equipment is sterilized. Others said that they throw it in a pit covered by a slab, while others said that they throw it in a pit latrine. One hospital has an incinerator.

It can be seen that most of the facilities had adequate and appropriate means of disposal of used equipment, although in some facilities the observed pit latrines were in a poor state.

Fear of Health Workers in Attending Pregnant Women, if there is Lack of Protective Gear in the Wards

Most of the respondents said that the workers show fear if they don't have enough protective gear due to the increased risk.

One respondent said that;

> *"Usually due to the fact that there are no enough protective gear, we usually advise the workers to buy their own gloves".*

Another respondent said that;

> *"Usually patients have to buy their own gloves, as they are not enough".*

While another respondent said that;

> *"The health workers usually show a lot of fear and can even not attend the patient if there is no gloves".*

One in-charge of a hospital, which has enough protective gears, said that;

> *"It is not applicable to our situation because we have enough protective equipment, therefore they don't show any fear".*

The respondents showed that there was fear if the health workers did not have adequate protective equipment, and they only didn't show fear when they had adequate equipment for their needs.

Quantitative Results

A total of 117 health workers were interviewed using a questionnaire.

Table 4. The distribution of the labour wards' health workers by demographic characteristics

Characteristic		Number	Percentage
Sex	Male	11	9.4
	Female	106	90.6
Age in years	20-35	45	39.1
	36-45	60	50.7
	> 45	10	8.7
Professional cadre	Midwives	34	29.1
	Clinical Officers	3	2.6
	Assistant Clinical Officers	5	4.3
	Nurse Assistants	61	52.1
	Maternal and Child Health Aide (MCHA)	12	10.3
	Others (Health Attendants)	2	1.7
Experience in years	1-10	59	52.6
	11-20	44	39.2
	> 20	9	7.9

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Table 4 shows that 90.6% of the interviewed health workers were female as compared to only 9.4% who were males. Half of the respondents (50.7%) were in the age group thirty-six to forty five years; two of the respondents did not give their age. Most of the health workers (52.1%), found in the labour wards conducting deliveries at the time of the study were nurse assistants, followed by trained midwives (29.1%) and Maternal and Child Health Aide (MCHA) (10.3%). Most (52.6%) of the workers had less than 10 years experience.

Awareness of HIV/AIDS

Table 5. Awareness of the health workers on HIV/AIDS

Awareness	*Number (%)*
Ever heard the disease AIDS	116 (99.1)
Ever seen a patient of AIDS in the workplace	103 (88)
Ever attended a patient of AIDS	94 (80.3)

Table 5 shows that most of the health workers had heard the disease AIDS (99.1%), while a slightly lower percentage (80.3) had actually attended in the ward a patient confirmed or suspected to have AIDS.

Knowledge of HIV Transmission

Table 6. The scale used to assess the level of correct knowledge on the modes of HIV transmission. among the labour wards' health workers in Magu district

Number of questions scored correctly	*Number of health workers (Percentage)*	*Scale of knowledge*	*Percentage*
3	2 (1.7)	Poor knowledge	2.6
4	1 (0.9)		
5	2 (1.7)	Moderate knowledge	5.1
6	4 (3.4)		
7	16 (13.7)	High knowledge	92.3
8	28 (23.9)		
9	47 (40.2)		
10	17 (14.5)		

Table 6 shows that among labour wards' health workers of Magu district, 2.6% had poor knowledge of the modes of HIV transmission; 5.1% had moderate knowledge. Ninety two point three percent had high knowledge on the modes of HIV transmission.

Table 7. Proportion of labour wards' health workers in Magu district who had correct knowledge on the modes of HIV transmission

Mode Of Transmission	*Number (%)scored correct*
Heterosexual contact	115 (98.3)
Blood transfusion	115 (98.3)
Parenteral inoculation as by needlesticks used on infected patient	112 (95.7)
Mucocutaneous exposure as in eyes through infected blood	40 (34.2)
Infected blood/body fluid on intact skin	100 (85.5)
Mosquito bite	105 (89.7)
Touching infected body fluids such as amniotic fluid	76 (65)
Touching vomitus from infected patient	97 (82.9)
Mother to her child during delivery	103 (88)
Improperly cleaned instrument from an infected patient used to another patient	110 (94)

Table 7 shows that, 66% were not aware of the possibility of transmission of HIV through the mucous membranes such as through eyes. Thirty five percent of the health workers thought that touching infected amniotic fluid could transmit HIV. Most of the workers (98.3%) knew that heterosexual contact and blood transfusion transmit HIV.

Table 8. Knowledge of the labour wards health workers as compared to selected characteristics

Characteristic		*High knowledge (%)*	*Moderate to poor knowledge (%)*
Age (years)	20-35	41 (91.1)	4 (8.9)
	36-45	57 (95)	3 (5)
	> 45	8 (80)	2 (20)
Sex	Male	9 (81.8)	2 (19.2)
	Female	99 (93.7)	7 (6.3)
Education level	Primary	60 (93.7)	4 (6.3)
	Secondary	29 (90.6)	3 (9.4)
	College	19 (90.4)	2 (9.6)
Professional cadre of the health worker	Midwives	31 (91.2)	3 (8.8)
	Clinical Officers	3 (100)	0
	Assistant Clinical Officers	3 (60)	2 (40)
	Nurse Assistants	58 (95.1)	3 (4.9)
	MCHA	11 (91.7)	1 (8.3)
	Health Attendant	2 (100)	0
Training	Trained	81 (93.1)	6 (6.9)
	Not trained	27 (90.0)	3 (10)
Experience in years	1-10	52 (88.1)	7 (11.9)
	11-20	42 (95.5)	2 (4.5)
	> 20	9 (100)	0

Age of the health workers

Table 8 shows that there was significant association between age in years and the knowledge of HIV transmission ($\chi^2 = 40.56$, $P<0.05$). High knowledge was seen in those who had 36-45 years of age, whereby 95% were found to be knowledgeable. In the age group 20-35, 91.1% were found to have high knowledge. In the age group >45, 80% of the health workers in this age category were found to have high knowledge on the modes of HIV transmission.

Sex of the health workers

There was no significant association between sex and the level of knowledge of HIV transmission ($\chi^2 = 1.87$, $P>0.05$).

Education level of the health workers

The educational level was significantly related to knowledge on the modes of HIV transmission ($\chi^2 = 12.52$, $P<0.05$). Health workers who had primary education had high knowledge on the modes of HIV transmission (93.7%), followed by workers who had secondary education (90.6%). Finally among workers who had college education whereby (90.4%) had high knowledge on the modes of HIV transmission.

Training on HIV/AIDS

Training was not significantly related to knowledge although 90.8% of those trained had high knowledge while 9.2% of the trained health workers had poor to moderate knowledge on the modes of HIV transmission ($\chi^2 = 0.30$, $P>0.05$).

Professional cadre of the health workers

Cadre of the health workers was compared to knowledge on HIV transmission to assess whether knowledge of the modes of transmission is related the workers' cadre. Cadre of the health workers was not significantly associated to knowledge of HIV transmission in the workplace ($\chi^2 = 8.50$, $P>0.05$).

Experience of the health worker

There was no significant association between experience of the health worker and the level of knowledge of the modes of HIV transmission ($\chi^2 = 29.71$, $P>0.05$).

Knowledge on the Universal precautions in the workplace

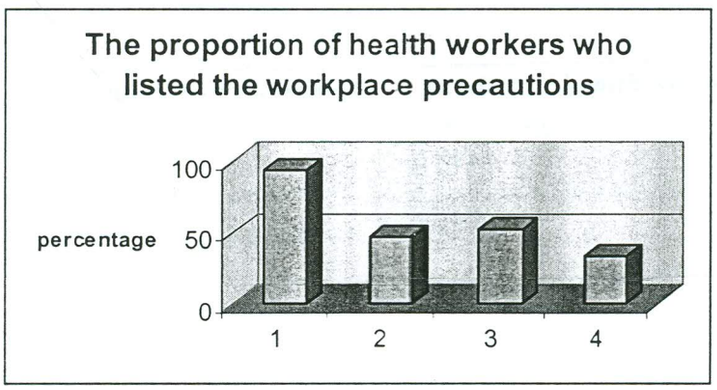
Asking the health workers to list the precautions assessed knowledge of the health workers on the universal guidelines/precautions in the workplace.

Table 9 shows that, 94% knew the universal precautions in the workplace. There was significant association between knowledge of the universal precautions and knowledge of HIV transmission ($\chi^2 = 13.17$, $P<0.05$).

Table 9. Knowledge of universal precautions as compared to knowledge of HIV transmission

	High knowledge	Moderate to poor knowledge	Total
Know the guidelines	104 (94.5%)	6	110 (94%)
Do not know the guidelines	4 (57.1%)	3	7
Total	108 (92.3%)	9	117

Figure 1: The proportion of health workers who listed the workplace precautions



Key

1 is health workers who know the universal precautions in the workplace (94.5%)

2 is health workers who were able to list one precaution (47.7%)

3 is health workers who were able to list more than one precaution (52.3%)

4 is the proportion of health workers who listed 'use of gloves' only (33.9%).

Figure 1 shows that 33.9% listed use of gloves as the precaution they take in the workplace. More than half knew more than one precaution (52.3%), the responses included 'use of apron' 'covering of any cut wound' 'correct disposal of equipment used on patients' 'washing of hands' as well as 'proper sterilization of equipment'.

HIV/AIDS Related Attitude of Health Workers towards Pregnant Women in the Labour Wards, in Magu District

Table 10. Scale used to assess HIV/AIDS related attitude of health workers towards pregnant women in the labour wards of Magu district

Number of questions answered positively	*Number of health workers (Percentage)*	*Scale of attitude*	*Percentage*
2	1 (1)	Poor	3.9
3	3 (2.9)		
4	14 (13.6)	Fair	35.9
5	23 (22.3)		
6	24 (23.3)	Positive	60.3
7	25 (24.3)		
8	12 (11.7)		
9	1 (1)		

Table 10 shows that 3.9% had poor attitude towards pregnant women in the labour wards, while 35.9% had fair attitude. Sixty point three percent of the labour wards' health workers in Magu district had positive attitude.

Table 11. The proportion of health workers who showed positive attitude towards pregnant women in the labour wards

Statement	*Positive Attitude (%)*
I think I should be informed when the patient I attend has HIV	27 (23.9)
AIDS patients should have a separate ward from other patients	75 (65.8)
AIDS patients should have separate health workers attending them	92 (82.1)
Presence of HIV/AIDS have not changed the way I attend pregnant women	74 (63.2)
There is no need of using gloves while delivering pregnant women	109 (94.8)
There is no need of using apron while delivering pregnant women	110 (95.7)
Lack of fresh gloves does not change the way I attend pregnant women	89 (78.1)
Lack of apron does not change the way I attend pregnant women	60 (52.2)
I need to have special pay after I attend AIDS patients because of the risk	40 (35.1)

Table 11 shows that three-quarters (76.1%) of the health workers thought that they should be informed when attending HIV patients. A third of the workers (34.2%) thought that AIDS patients should be put in a separate ward from other patients. More than half of the health workers (64.9%) thought that they should be paid special allowances on attending HIV patients. Sixty three percent thought that presence of HIV have not affected them with the way they attend pregnant women.

Table 12. HIV/AIDS Related Attitude of the Health Workers as compared to Selected Characteristics

		Positive attitude	*Poor to fair attitude*
High knowledge		60 (60.6)	39 (39.4)
Poor to moderate knowledge		2 (50)	2 (50)
Know a colleague who has acquired HIV due to occupational exposure		15 (42.8)	20 (57.2)
Does not know		47 (69.1)	21 (30.9)
Experience in years	1-10	32 (60.4)	21 (39.6)
	11-20	21 (56.7)	16 (43.3)
	> 20	6 (75)	2 (25)

Table 12 shows that, there was no significant association between having knowledge on the modes of HIV transmission and attitude towards pregnant women in the context of HIV/AIDS (χ^2 = 0.18, P>0.05). Attitude of the health workers was significantly

associated to knowledge of a health worker that a certain colleague acquired HIV due to his/her job in the wards (χ^2 =6.59, P<0.05). Those who knew such a colleague had more poor to fair attitude (57.2%), as compared to those who did not know such a colleague (30.9%). Attitude of the health worker was not significantly associated to the experience in years of that health worker (χ^2 = 24.92, P>0.05).

Risk Perception

Perceived risk in the workplace of acquiring HIV by health workers delivering patients in the labour wards of Magu district.

Table 13. The proportion of health workers who perceive themselves as at risk of getting HIV due to their daily work in the labour wards

Statement	*Perceive risk Number (%)*
'I think I am at risk of acquiring HIV through my daily work in the labour ward'.	93 (80.9)
'The disease AIDS would have serious consequence if I get it'	106 (90.6)
'When I deliver pregnant women I need to protect myself from blood or body fluids'	104 (88.9)
'I am satisfied with my workplace because of there being no possibility of acquiring HIV'.	77 (66.4)
The overall number of health workers who perceives risk	104 (91.2)
Number of workers who do not perceive risk	10 (8.8)

Table 13 shows that, 91.2% of the health workers in the labour wards of Magu district, thought that they were at risk of getting HIV in the workplace because of their daily work in the labour wards.

Table 14. Association between risk perception and knowledge, attitude, experience of the health worker, as well as knowledge of a colleague perceived to have acquired HIV due to their daily work in the wards

		Perceive risk	*Not at risk*	*Total*
Knowledge	High knowledge	100 (96.2%)	4 (3.8)	104
	Poor to moderate knowledge	6 (60%)	4 (40)	10
Attitude	Positive	58 (95.1%)	3 (4.9)	61
	Poor to fair	36 (90%)	4 (10)	40
Know a colleague	Yes	37 (92.5%)	3 (7.5)	40
	No	67 (90.5%)	7 (9.5)	74
Experience in years	1-10	52 (89.6%)	6 (10.4)	58
	11-20	39 (92.8%)	3 (7.2)	42
	> 20	8 (88.9%)	1 (11.1)	9

Table 14 shows that, knowledge was significantly related to the health worker's risk perception, 96.2% of the workers who had high knowledge perceived themselves to be at risk due to their daily work in the wards ($\chi^2 = 18.11$, $P<0.05$).

Attitude of the health workers was not significantly associated to risk perception (χ^2= 0.96, P>0.05).

Knowledge of a colleague perceived to have acquired HIV due to the workplace risk was not significantly associated to the health worker risk perception (χ^2 =0.12, P>0.05).

Experience of the health worker was not related to the risk perception when delivering pregnant women in the labour wards (χ^2 =32.89, P>0.05).

Availability of Protective Gear in the Labour Wards

This was determined through direct questions to the health workers; as well as instrument checklist, which was done through actual observation of the delivery rooms of the selected facilities.

Table 15 shows that 90% facilities had a delivery book present. Thirty five percent use partogram when delivering pregnant women.

Forty percent of the facilities had adequate number of gloves as well as apron in the labour wards. Most of the facilities (60%) had incomplete delivery kit, as well as no water in the delivery rooms (60%). All the facilities visited had at least a delivery bed in the labour room as well as antiseptic in the form of cetrimide.

Table 15. Instrument present in the labour wards of the selected health facilities

Item		*Number of facilities (%)*
Delivery book	Present	18 (90)
	Absent	2 (10)
Partogram	Use	7 (35)
	Do not use	13 (65)
Gloves	Adequate	8 (40)
	Not adequate	12 (60)
Apron	Present	8 (40)
	Absent	12 (60)
Number of apron	One	5 (25)
	Two	3 (15)
	Three	1 (5)
Delivery kit	Complete	5 (25)
	Incomplete	12 (60)
	Absent	3 (15)
Water	Present	8 (40)
	Absent	12 (60)
Delivery beds	One	5 (25)
	Two	12 (60)
	Three	2 (10)
	Four	1 (5)

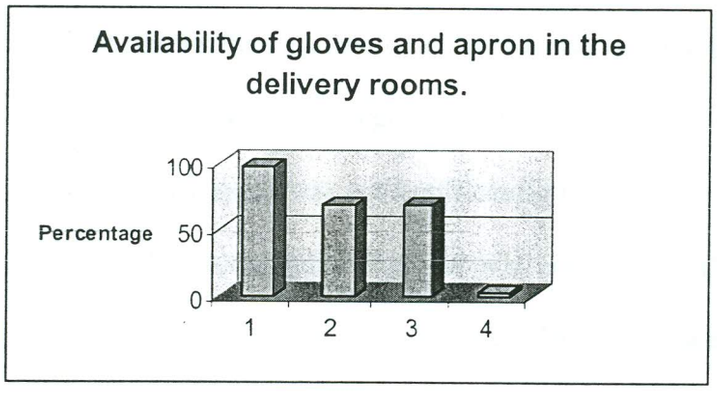
The Average Number of Personnel in the Health Facilities

The average number of personnel in the facilities is around three to four in the dispensaries and ten to fifteen in the health centres. There are about fifteen to twenty personnel in the labour wards of the hospitals.

Availability of protective gear in the labour wards

Figure 2 show that, most of the health workers (97.4%) could get gloves when delivering pregnant women. Two point six percent cannot get either gloves or an apron when they want to conduct deliveries in the labour wards.

Figure 2: The availability of gloves and apron in the delivery rooms



Key of figure 2

1 is the proportion of health workers who can get gloves (97.4%)

2 is the proportion of health workers who can get apron (68.4%)

3 is the proportion of health workers who can get gloves and apron (68.4%)

4 is the proportion of health workers who can not get both gloves and apron (2.6%).

Table 16. Availability of protective gear as compared to attitude of the health workers and their risk perception

	Get gloves	*Get apron*
Positive attitude	60 (60%)	47 (65.3%)
Poor to fair attitude	40 (40%)	25 (34.7%)
Perceive risk	101 (90.9%)	72 (92.3%)
Does not perceive risk	10 (9.0%)	6 (7.6%)

Table 16 shows that, availability of gloves was not significantly related to attitude of the health worker towards pregnant women in the labour wards (χ^2=0.05, P>0.05). Availability of apron was not significantly related to attitude of the health worker (χ^2= 0.36, P>0.05). Availability of gloves was not significantly related to the health workers' risk perception (χ^2=0.29, P>0.05). Availability of apron was also not significantly related to the health workers' risk perception (χ^2=3.20, P>0.05).

Table 17. The Proportion of Health Workers who declare Constant Use of Protective Gears when conducting Deliveries in the Labour Wards

		Number of health workers (%)
Use of gloves	Yes	112 (95.7)
	No	5 (4.3)
Use of apron	Yes	80 (68.4)
	No	37 (31.6)

Table 17 shows that, 95.7% use gloves when delivering pregnant women in the labour wards while 68.4% use an apron when they are delivering pregnant women.

Table 18 shows that knowledge on the modes of HIV transmission was significantly related to the health worker use of gloves when delivering pregnant women (χ^2=7.61, P <0.05). Ninety seven point two percent of the highly knowledgeable health workers use gloves, 77.8% of the health workers who have poor to moderate knowledge on the modes of HIV transmission use gloves when delivering pregnant women. Knowledge was also significantly associated to the health worker' use of apron when delivering pregnant women (χ^2=12.17, P<0.05). Seventy point four percent of the highly knowledgeable workers use an apron when delivering pregnant women, while 66.7% of the health workers who have poor to moderate knowledge on the modes of HIV transmission use an apron when delivering pregnant women. The health workers' risk perception was significantly associated to the health workers' use of gloves (χ^2=17.00, P <0.05). A significant proportion (98.1%) of the health workers who perceive risk in the

workplace use gloves, while 70% of the health workers who do not perceive risk in the workplace use gloves. Risk perception was not significantly related to their use of apron when delivering pregnant women (χ^2=0.55, P>0.05). The health workers' attitude was not significantly related to their use of gloves (χ^2=2.02, P>0.05) or apron (χ^2=3.20, P> 0.05). Seniors influence was not significantly related to the health workers' use of gloves (χ^2=0.08, P>0.05) or use of apron (χ^2=1.97, P>0.05).

Table 18. Use of appropriate protective gear in comparison to the health workers' knowledge, risk perception, seniors' influence and their attitude

Parameter		***Use of gloves (%)***		***Use of apron (%)***	
		Yes	*No*	*Yes*	*No*
Knowledge	High knowledge	105 (97.2)	3	76(70.4)	32
	Poor to moderate knowledge	7 (77.8)	2	6 (66.7)	3
Risk perception	Perceive risk	102 (98.1)	2	72 (69.2)	32
	Does not perceive risk	7 (70)	3	8 (80)	2
Seniors influence	Present	107 (97.3)	3	77 (70)	33
	Absent	3	0	1 (33.3)	2
Attitude	Positive	59 (95.2)	3	48 (77.4)	14
	Negative	41	0	25 (60.9)	16

Table 19. The proportion of health workers who showed seniors' influence on the use of protective gear in their workplace

	Number	*Percentage*
My seniors insist on the use of gloves when delivering pregnant women.	113	99.1
My seniors insist on the use of apron when delivering pregnant women	109	94
My seniors get concerned when I do not protect myself from contaminated equipment when delivering pregnant women	103	88
The scale for the overall seniors' influence	110	97.4%

Table 19 shows that ninety seven percent thought that their seniors insisted on the use of protective gear when delivering patients in the labour wards.

Fear in attending pregnant women by health workers, of HIV transmission if they do not have protective gear

Table 20 shows that the overall level of fear of health workers in attending pregnant women in the labour wards if they do not have protective gear is 73.6%.

Most of the workers reported fear when they did not have gloves (96.5%) as compared to when they did not have apron (76.8%).

Table 20. The level of fear of HIV transmission in the workplace by health workers delivering patients in the labour wards, if they do not have protective gear

Parameter		*Fear*	*No fear*
Overall scale of fear	Number	81	29
	Percentage	73.6	26.4
I get fear of getting HIV when delivering pregnant women, if I do not have gloves.		111 (96.5%)	4 (3.5%)
I get fear of getting HIV when delivering pregnant women, if I do not have an apron		86 (76.8%)	26 (23.2%)

Table 21 shows that there was no significant association between fear and knowledge of a colleague whom the worker thinks has acquired HIV due to his/her daily work in the wards, (χ^2=0.47, P>0.05).

There was also no significant association between fear and both risk perception (χ^2= 0.83, P>0.05) as well as attitude of the worker towards pregnant women (χ^2=0.02, P> 0.05).

Table 21. The level of fear of HIV transmission in the workplace, by health workers delivering patients, if they do not have protective gear as compared to their knowledge, risk perception and attitude

Parameter		*Fear*	*No fear*
Knowledge	High knowledge	77(73.3%)	28
	Poor to moderate knowledge	4 (80%)	1
Know a colleague whom they think has acquired HIV in the workplace.	Yes	28(77.8%)	8
	No	53(71.6%)	21
Risk perception	Perceive risk	72 (72.7%)	27
	Does not perceive risk	7 (87.5%)	1
Attitude	Positive	45 (75%)	15
	Negative	28 (73.7%)	10

Table 21 also shows that there was no significant association between having knowledge on the modes of HIV transmission and perception of fear if one does not have appropriate protective gear (χ^2=0.11, P>0.05).

DISCUSSION

This study aimed at assessing HIV/AIDS related knowledge, attitude, and practice of health workers, towards pregnant women in the labour wards, in Magu district. Assessment of knowledge attitude and practice of health workers relies on what the respondents told the interviewer. although observation was also done, but still the information obtained is not free of bias. Health workers might have given a response, which they think the interviewer wanted. This might also be true as well for the observed data, which displays positive attitude of the workers, which might not be the real practice when there are no observers.

Patients' interviews were done so as to reduce such bias, but the interviewed patients might also give responses, which they think is what you need to hear. Combination of methods, that is, qualitative and quantitative methods had the aim of producing more consistent results, so that the final result is reliable.

Generally in-depth interviews displayed that health workers in the labour wards in Magu district take appropriate care of patients in the labour wards. They portrayed positive attitude despite the conditions of unavailability of protective and other equipment necessary for basic deliveries. The patients were also generally satisfied with the care they were receiving in the health facilities. It was also seen that health workers were highly knowledgeable on the modes of HIV transmission, but this knowledge was not

associated with the resulting attitude of these workers. The health workers in the labour rooms also felt at risk working in the delivery rooms because of the possibility of HIV transmission in the workplace.

Both in-depth interviews and questionnaires' interviews displayed lack of equipment in the facilities, whereby patients sometimes were forced to buy own equipment in order to get services in these facilities. When such situation existed, the workers experienced fear secondary to lack of protective gear. However other routine protective gear in this case aprons were not used routinely even when available.

Discussion of these results has been done consecutively utilizing both results from qualitative data and quantitative data in accordance with the study objectives.

Knowledge of labour ward health workers on HIV transmission yielded the following results. Almost all the health workers had heard the disease AIDS (99.1%) and those who had not (0.9%) could possibly be accounted for by interviewing error, such as wrong recording of the response. With respect to the labour wards, a slightly lower percentage is found to have attended a patient known or suspected to have HIV. This could be explained by lack of routine testing for HIV in pregnant women, so there might be present some undetected cases.

Generally, health workers in Magu district were found to be highly knowledgeable on the modes of HIV transmission whereby 92.3% were found to be highly knowledgeable. This is slightly higher to what Ngomuo found in 1994 in health workers in Moshi district, which was 90%, but slightly lower to what Kohi (1992), found in nurses of referral hospitals of Tanzania, which was 96%. It is slightly higher figure to the levels found in the general population, which is around 90%. Usually the type of questions used in all these cited studies contained similar ideas or themes, although there was a slight variation on the specific questions.

Misconceptions of viable routes of HIV transmission were found especially on the issue of transmission of HIV through mucous membranes such as eyes. Only 34.2% could answer correctly, that HIV could be transmitted through mucous membranes such as eyes, while the rest of the workers thought that such transmission was not possible. Thirty five percent of the labour wards health workers also thought that touching infected body fluids such as amniotic fluid could transmit HIV disease. Such misconception in health workers implies that HIV education still needs increased efforts in the health workers who are a very important group and who should be the educators of the rest of the population because of their status in the communities.

Knowledge of the modes of HIV transmission in the workplace setting as well as outside the workplace setting was significantly related to the health workers age, meaning that the observed differences in the health workers knowledge varied within the age groups.

Knowledge was highest in the age group 36-45 years and was lowest in the above 45 years' age group. Knowledge of the modes of HIV transmission did not vary with the sex of the health worker. Females constituted 90.6% of all the studied population, which could be accounted by the fact that midwives are usually female, although the male health workers can also do deliveries. There was no variation in the level of knowledge by sex because of the mode of acquisition of this knowledge whereby, it can be seen as cited in other studies that the source of information on HIV/AIDS has been the media, the press or journals (Steel, *et al.*, 1995). Knowledge as a public good is available to all who are interested, therefore no variation by sex.

Knowledge was related to the health workers education level a fact, which could also be seen in other studies as well (Laschinger, *et al.*, 1993, Siminoff, *et al.*, 1998). The variation was contradicting because knowledge was higher in those who had primary education, followed by those with secondary education and lowest in those with college education. The variation of the level of knowledge in the different education levels could also be explained by the mode of acquisition of this knowledge, which could be through other sources of informations rather than the classroom (Steel, *et al.*, 1995)

Knowledge did not vary with the health workers' years of experience, which is in contrast to other studies (Glad, 1995, Evans, *et al.*, 1993), which showed that experience was related to the level of knowledge the worker had. Knowledge was also not related to

the workers' professional cadre which contrasts the findings of Ngomuo, (1994), whereby knowledge varied with the professional cadre of the health worker.

In-depth interviews of the respondents showed that, prior training of the health workers on how to attend HIV patients in the workplace in Magu district was mostly offered to the health workers' in the form of on the job training. It was also offered in the form of weekly-continued education to the workers as well as health education and booklets by the TANESA project.

The study found out that training did not significantly affect knowledge of the modes of HIV transmission, which could be explained by the fact that this training might not be repetitive therefore not very effective. It is thought that if health workers get repetitive health education on HIV/AIDS, this will make it more effective.

Knowledge was significantly related to the knowledge of the universal precautions in the workplace indicating that, knowledge of how the disease is transmitted is a reflection of the overall knowledge of HIV disease, including the workplace guidelines on how to protect oneself. However when asked to list the precautions in the workplace, less than half the health workers (47.7%) listed a single precaution, with a third of them (33.9%) mentioning only use of gloves.

Knowledge of the modes of HIV transmission was not related, to the health workers attitude towards pregnant women. This is similar to other studies, which also showed that, knowledge does not necessarily lead to positive attitude towards AIDS patients (Randall, *et al.*, 1993, Bayler, *et al.*, 1996). Nevertheless these are in contrast to other studies, which found that knowledge led to positive attitude (Laschinger, *et al.*, 1993, Siminoff, *et al.*, 1998).

On assessing attitude, generally, 60.2% of the health workers in Magu district showed positive attitude towards HIV patients in the labour wards. This contrasts what Kohi (1992), found for the nurses of referral hospitals in Tanzania, who showed negative attitude and fear of contagion. The observed change in attitude now to positive could be accounted for by the increasing awareness therefore less fear of AIDS patients and general changes in handling patients as seen in the in-depth interviews.

However negative attitude still exists, a third of the workers (34.2%) think that AIDS patients need to be put in a separate ward from other patients; one fifth of the workers (17.9%) thinks that AIDS patients should have separate health workers attending them. Three quarters of the workers (76.1%) think that they should be informed of the HIV status of the patient, while 64.9% need to be paid special allowances after attending AIDS patients because of the risk. This implies that although people are basically knowledgeable changing their attitude to positive still needs increased efforts.

Nevertheless the in-charges of the studied facilities mostly showed positive attitude. They emphasized a need for taking care of AIDS patients like all the other patients, so that they get all the services possible to these patients without isolating them. They thought that it was important that there should be no stigma to AIDS patients.
However some of the in-charges thought there was a need of being careful when handling AIDS patients due to the possibility of being infected.

Knowledge of a colleague perceived to have acquired HIV due to the workplace risk was significantly associated to the resulting attitude of the worker towards pregnant women. The health workers who knew such colleague tended to have more negative attitude (57.2%) compared to those health workers who did not know such colleague (30.9%). There was no evidence for the fact these infections were actually occupationally acquired, however such thinking in health workers implied that these health workers were concerned with the possibility of occupational acquisition of HIV/AIDS and they actually know someone who has acquired HIV/AIDS in the workplace. This fact could account for the poor to fair attitude seen in such workers. However this was not related to that worker's risk perception, or fear if one does not have appropriate protective gear.

Generally, although the study found many health workers as having positive attitude, the in-depth interviews yielded mixed results, with some health workers displaying negative views. Such negative views were in statements such as the opinion that they need to be

very careful so that the patients do not infect them. Usually health workers offer these patients counseling services, symptomatic treatment, referral services and all the services that are possible to patients. The increasing awareness had led to the health workers identifying a need to minimize treating of patients in a manner that will require use of syringes, as well as using of syringe and needle to one patient only so as to reduce the possibility of HIV transmission in these facilities.

When considering practice of the health workers using patients' views, most patients were of the view that they had adequate care in the facilities as they were adequately guided during the whole process of the delivery. They thought that they could not have got better care than what they got in the facilities, as the services were good. These views have the limitation of the fact that the interviewer was part of those services offered. Observation of deliveries showed that the health workers had positive attitude during the attendance of the delivery process. They were showing the ideal practice of the whole process considering the available resources, which could imply no much change of the care of patients except for the increased carefulness. The ideal practice seen implies that the workers still portrayed positive attitude although they were aware of the possibility of transmission.

Considering risk, most of the health workers in the labour wards of Magu district (91.2%), perceive themselves to be highly at risk of acquiring HIV due to their occupational exposure. Although it is known that HIV among health workers result

primarily from infections acquired outside the workplace (Stewart, 1995), still these workers and other workers in similar studies (Marcus, *et al.,* 1989), perceive themselves as at risk as the chance of infection although small, it is still there. This is in contrast to other studies whereby although there is growing awareness of the seriousness of HIV/AIDS, many health workers do not perceive themselves as at risk due to the mistaken belief that HIV is largely confined to the 'at risk populations' such as sex workers (Tietjen, 1997).

The health worker's risk perception was higher in health workers who were highly knowledgeable on the modes of HIV transmission while, it was lower for the workers who, had poor to moderate knowledge on the modes of HIV transmission. However risk perception was not related to the health workers attitude towards patients, that is a health worker who perceive himself or herself as at risk, did not necessarily have negative attitude towards HIV patients.

While determining if the in-charges also perceived any danger to the labour ward health workers, most of them thought so. The reasons for this perception of risk for labour wards health workers were identified as, excessive blood or body fluid contact in the labour room. Others were if the worker has some lacerations or open wound especially in the hands and arms, scarcity of protective equipment as well as the possibility of being infected if not careful on handling instrument. It is also shown in other studies (Arnow, *et al.*, 1997) that, the increasing number of people infected means that health

workers are now encountering more people who are infected and therefore the high risk perception.

In Magu district the in-charges of the facilities reported that they see an average of one to four patients per month suspected or confirmed to have AIDS in their facilities. This could be accounted by the fact that, most of Magu district consists of rural areas, which although HIV is now increasing in rural areas (Borgdoff, 1994), still it has not yet reached the proportions found in towns. Another reason is that this diagnosis is solely done on the basis of symptoms and signs, which mean only full-blown AIDS patients will be detected by these in-charges of the facilities.

Availability of equipment is still inadequate in Magu district, which is similar to the results found in 1994 by Gumodoka when doing a brief situational analysis of facilities in the district. Gloves are inadequate in 60% of the facilities same as for aprons. Only 40% of the facilities have water in the labour rooms, while three-fifth (60%) of the facilities have an incomplete delivery kit and 15% have no delivery kit at all. It is known that all health workers prior to contact with blood and other body fluids from any patient should wear gloves, and that gloves should be changed after each contact this is not possible if these gloves are inadequate in such facilities.

Paradoxically, 97.4% of the health workers said that they could get gloves when delivering pregnant women, for some of the facilities the patients have to bring their

own gloves and sometimes the workers have to find their own gloves for fear of emergency situations. This warrants a need to consider distribution of adequate number of protective gear per facility. Aprons availability is limited only to 68.4% of the health workers, while it is known that apron or gown is necessary when performing procedures that can lead to splashes of body fluids such as amniotic fluids and blood in deliveries.

In-charges of the facilities mostly had the views that the protective gear was not enough for the requirements of one month, which is usually the time set for another kit distribution. They said that mostly the gear lasted one half of the month only. Few facilities, which depended on some other source other than the DMO for their requirement, had enough protective gear. Most of the equipment is obtained from the District Medical Officer, whose source is usually the Medical Stores Department. Other equipment is obtained from different donations of organisations such as Christian Commission as well as projects in the district, which include TANESA, UNICEF and UMATI. The inadequacy of enough gear makes the worker to be in difficult conditions of deficiencies in the labour wards.

The DMO said that now they can buy their own drugs for use if they finish their supply early from the MSD, which is an advantage after the introduction of cost sharing in the district hospital. Usually for the DMO source to the health centres and dispensaries, the drug kit is distributed monthly, but for the other equipment the supply is irregular. Usually the drug kit contains gloves as well as antiseptics for the facility use besides

having drugs. It can be noted that, as one in-charge pointed out, although the population density is increasing, the amount in the drug kit is the same, therefore not adequate. Nevertheless it was shown in this study that availability of gloves or apron was not related to the health workers' attitude or their risk perception when delivering pregnant women. This implied that the workers' attitude or their risk perception did not vary with the presence or absence of protective gear.

Two point six percent of the health workers can not get gloves or apron when they want to deliver pregnant women. Although this number might seem to be small, but the issue still need to be addressed. The lack of protective gear is a significant barrier to consistent use of universal precautions in the workplace, which implies more risk to the health workers. As shown in a study in Nyeri district, Kenya, there is a need to provide adequate protective equipment to the health workers to reduce the risk of HIV transmission in the workplace. The workers (in Nyeri) were aware of the recommended procedure to avoid occupational transmission but the protective equipment was inadequate (Anna, *et al.*, 1990).

When assessing use of the available protective equipment, 95.7% of the health workers in Magu district use gloves, while 68.4% ever use an apron when delivering pregnant women. The use of gloves as well as apron was significantly related to the health worker's level of knowledge. This means that, the highly knowledgeable health workers were more likely to use protective equipment when delivering pregnant women as

compared to the health workers who had poor to moderate knowledge. This is a justification of the fact that training of health workers on all the aspects of HIV/AIDS could increase the number of health workers who will see the importance of use of protective gear. The health workers who perceived themselves as at risk were also more likely to use gloves when delivering pregnant women, although this was not the case for the use of apron. However the attitude of the health worker did not determine the health worker's use of protective gear.

Although it was seen that there was considerable seniors' influence to the workers to protect themselves in the workplace (97.3%), this was not related to the final outcome of use or non-use of protective gear. It is has been suggested in other studies that supervisors should regularly provide feedback and appropriate infection prevention practices as well as modelling appropriate prevention behaviour (Lipscomb, *et al.*, 1997).

The health workers in Magu district when handling used equipment are extra careful due to the increased awareness. Use of protective gear is also accompanied with cleaning of the instrument as well as sterilisation of the non-disposable equipment. Most of the facilities had clean delivery rooms, although others had no running water. The disposable equipment is usually adequately disposed of either in a pit, burnt or disposed in a pit latrine. Care of needles, sharps and other materials following appropriate cleaning policies for contaminated equipment as well as the working place is followed.

However in the observed deliveries there was no health worker who was using either a gown or an apron when delivering a pregnant woman, this was irrespective of its availability in the labour room. The availability of protective equipment may at times not determine its use, a fact implying that health workers need to be adequately trained and motivated to use the appropriate protective gear.

Fear of HIV transmission in the workplace by health workers delivering patients in the labour wards in Magu district, if they do not have protective gear was found to be 73.6%. Most of the workers declared fear if they did not have gloves (96.5%), as compared to when they did not have an apron (76.8%). This fear was not related to whether they were highly knowledgeable on the modes of HIV transmission or not knowledgeable.

The health workers did not show negative attitude to patients as a result of fear if they did not have protective gear. Fear was as well not related to their risk perception of acquiring HIV infection in their workplace. However it was found that in some facilities, the magnitude of fear could at times make the worker not attend the patient if there is no protective gear, so patients had to buy their own gloves.

Fear of attending patients was as well is found in several other studies (Steel, *et al.*, 1995, Kemppainen, *et al.*, 1992, Kohi, 1992), whereby most of the workers had fear of

contagion resulting into negative attitude to patients secondary to high risk perception. The issue of availability of protective gear was not mentioned in the above studies.

CONCLUSION

Health workers in the labour wards of Magu district are highly knowledgeable on the modes of HIV transmission. They are aware of how HIV is transmitted both in the workplace as well as outside the workplace. They are also aware of what should be done for the health worker to protect themselves to prevent HIV transmission in the workplace.

The major contrast that has been observed in this study is the fact that knowledge of the modes of transmission of HIV does not necessarily mean positive attitude to those who are affected with the disease. The distinct issue that comes out is that having HIV is still an issue that is attached to stigma and therefore AIDS patients are still regarded as a distinct group of patients. This is why some health worker still think, that they should actually get payments after attending such patients. Such outlook is usually towards AIDS but not towards other fatal diseases, the reason being that AIDS is related to high risk sexual behaviours. therefore if one acquires the disease the inference will directly be that and not the workplace risk. The other fact that could account for the negative attitude is the fact that. to date there is still, no cure for the disease.

Nevertheless observation of what the heath worker actually practice showed positive attitude towards patients. Health workers take care of the whole delivery in a supportive manner taking account of the available equipment The minimum requirement is reached

with regard to the ideal process of labour and care of the baby is done as well. So, although their responses may show negative attitude they still display positive attitude to the patients and as well as the ideal practice.

Health worker in Magu district perceive risk of HIV transmission in their workplace, a fact that could be accounted for by the fact that the wards in most facilities are inadequately prepared to perform what they are supposed to perform. Health workers during their training are prepared on how to do the ideal practice in their facilities but usually the equipment inadequacy makes this difficult. The compromise results into a lowered performance from the ideal, which results into high-risk perception especially when the health worker is knowledgeable.

Nevertheless these health workers perceive only their risk, but what about the patient's risk? There is a need to make this workplace safe both for the worker as well as for the patient. Another fact is that the health workers may perceive high risk in obtaining infection in the workplace, but most of the infections may actually be obtained outside the workplace. However it is important that health workers practice safe work practice by using protective barriers as recommended especially when available. This can be potentiated by training of health workers on the ideal practice as well as continued supervision of their behaviour in the workplace, to reduce the possibility of transmission. Repeated training on the workplace guidelines and precautions is a very important step towards achieving safe workplaces, both for the worker and the patient.

Fear observed to be present when the workers do not have protective equipment is secondary to the overall lack of protective gear as well as the health worker's perception of risk. Fear can be minimized if the recommended protective equipment is always available for the health worker to use, and if the health worker is adequately knowledgeable on how to create a safe environment.

Although attitude and practice are inner values as well as person's risk' perception, external influences can help in changing such attitudes. Such external influences will be in the form of appropriate training of the health workers as well as ensuring availability of the necessary equipment.

RECOMMENDATIONS AND FUTURE RESEARCH

It is recommended that training of health workers be effectively and efficiently done to the health workers so that these workers are equipped with the knowledge of how to create safe working place, for themselves as well as for the patients. This training should be on all aspect of HIV/AIDS, especially the workplace precautions, hoping that this will change the health workers' attitude to HIV/AIDS patients.

There is a need to provide adequate protective gear to the health facilities, in the form of gloves as well as aprons, together with the above training, so that health workers are not limited when they want to create safe workplaces. This could be done through increasing the amount in the drug kit, so as to ensure the monthly supply to the facilities is adequate. This might reduce the feeling of fear as well as perception of risk of health workers of acquiring HIV infection when delivering pregnant women in the labour wards.

Health workers should be encouraged to change their attitude to positive when taking care of AIDS patients, in order to reduce stigma displayed by them and the whole society in general. The change to positive attitude could be encouraged through educating of the workers that AIDS patients need care like all the other patients.

Quality of care of health services is an area that need further research so that, a clear basis of the required changes in the health services provided is known. The results will help to improve on the services that are offered to the patients.

Possibility of alternative financing mechanisms in health facilities other than the district hospital should be studied and instituted so that, health workers are not forced to buy their own gloves when the gloves are not available in the facilities due to fear of infection.

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