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Article *in* International Journal of Emergency Medicine · January 2009

DOI: 10.1007/s12245-008-0065-8 · Source: PubMed

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DOI 10.1007/s12245-008-0065-8

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The role of emergency department HIV care in resource-poor settings: lessons learned in western Kenya

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Received: 16 January 2008 / Accepted: 9 September 2008 / Published online: 19 November 2008

Abstract The human immunodeficiency virus (HIV) pandemic in sub-Saharan Africa and other high prevalence regions continues to overwhelm health care systems. While there has been a global response to improve the delivery of antiretroviral therapy in these high prevalence regions, there are few models that have developed an adequate plan to deal with HIV specifically in resource-poor emergency department settings. In this manuscript, we report on the experience scaling up HIV care at one emergency department in a large referral hospital located in western Kenya. Specifically, we describe how rapid bedside HIV testing helps to narrow the differential diagnosis of disease processes in acute care patients and how HIV screening of patients discharged from the emergency department can detect HIV-infected individuals.

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Since its inception, emergency medicine has always been at the front lines addressing the current health needs of the community. Leaders in emergency medicine have been dedicated to the care of underserved populations—the indigent, immigrants, those who do not have access to primary care. Important health care issues within the community such as alcoholism, drug use, and domestic abuse are intensely studied in emergency departments (EDs) in order to find ways to optimize the care of these vulnerable populations. This same spirit of addressing community needs must be applied to ED settings in the developing world, and the community needs in much of the developing world today center around human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS).

The effects of HIV across the globe are immense. HIV has now become the leading cause of death in adults aged 15–59 worldwide [1]. Of particular concern is the devastating effect HIV has had on sub-Saharan Africa [2]. An estimated 7.2% of people living in sub-Saharan Africa are infected with HIV [3], and the average age of life in many of the hardest hit countries has dropped by 15–20 years since the pandemic struck [4]. As the number of cases in sub-Saharan Africa continues to climb, medical systems are inundated with patients affected by HIV [5, 6].

Many hospitals in the USA have seen the effect of HIV in their own communities and have effectively developed plans in their EDs to adapt. Over the last decade, several EDs—especially those serving high-risk, inner-city populations—began developing specific HIV testing programs in this setting. These programs have demonstrated ED-based HIV testing can identify large numbers of HIV-infected individuals and can successfully link these newly

diagnosed individuals to care [7–9]. The success of these ED-based, HIV testing efforts has led the US Centers for Disease Control and Prevention to recommend routine HIV testing for all ED patients in the USA [10].

In contrast to the many reports of improved HIV care in EDs in the USA—where the prevalence of HIV is relatively low—there are only limited reports of programs focusing on HIV in EDs in high HIV prevalence, resource-poor countries. However, the few experiences that have been documented show very high rates of HIV-associated illnesses in the acute care setting. Curry et al. conducted one study in Papua New Guinea and found an HIV seroprevalence of 19% in an ED in Port Moseby [11]. In another study from Kampala, Uganda, Nakanjako et al. reported roughly 50% of patients studied at their medical emergency unit were HIV infected [12]. Data from Moi Teaching and Referral Hospital in western Kenya show the incidence of HIV among ambulatory medical patients tested in the ED to be approximately 23% [13]. This number increases twofold in patients who are admitted to the medical ward [14].

Even though EDs in many developing countries are experiencing HIV and its related complications with increasing frequency, there is still relatively little effort put forth by either international HIV/AIDS organizations or emergency medicine organizations to advance HIV care given in this setting.

How can emergency medicine fit into HIV care in developing countries? The routine diagnosis of HIV infection and the optimization of care of acutely ill HIV-infected patients represent two medical challenges that must be improved upon in highly HIV-endemic yet under-resourced EDs.

HIV-infected patients often present to the ED setting early in the course of their disease. Especially in resource-poor countries, where patient/health care interactions are scarce, health care providers must use this opportunity to identify those patients who are HIV infected. Routine HIV testing of patients discharged from the ED not only helps the ED staff provide appropriate clinical care but allows for early detection and referral of HIV-positive patients who might not otherwise be tested until much later in their disease course. In addition, testing patients that are ultimately discharged from the ED also provides an opportunity for those patients who test negative to receive HIV preventive counseling.

Improving the medical care of the acutely ill patient with HIV is equally important. The majority of HIV-infected patients, even those who are acutely ill with opportunistic infections, are young and otherwise healthy. They are often the breadwinners of the household and the caregivers of both the young and the elderly. If these patients can make it through the initial barrage of opportunistic infections and on to antiretroviral therapy, they will often go on to live productive, healthy lives. Especially in resource-poor countries, prompt ED diagnosis and treatment can decrease the time to initiate appropriate therapy by up to 24 h and can greatly improve the patient's hospital course.

We share the initial experience addressing the HIV pandemic from the ED setting at one large referral center in Kenya.

Prior to 2001, there was no effective HIV care program in the catchment area of the Moi Teaching and Referral Hospital. The providers in all health care settings were reluctant to even discuss HIV with patients because this diagnosis—without the availability of antiretroviral therapy—was generally considered fatal. Since this time, an effective HIV care program called Academic Model for Prevention and Treatment of HIV was developed at the Moi Teaching and Referral Hospital and the surrounding clinics [15]. This program, which was developed as a collaborative effort between Indiana University School of Medicine in the USA and the Moi Teaching and Referral Hospital School of Medicine in Kenya. AMPATH is a PEPFAR (the US President's Emergency Plan for AIDS Relief)-funded program, which delivers care through Kenyan Ministry of Health facilities. More than 70,000 HIV-infected adults and children are enrolled in AMPATH, with nearly half of all patients maintained on antiretroviral therapy. While the delivery of antiretroviral medications remains a cornerstone of services offered by AMPATH, medical therapy is administered in the context of comprehensive care addressing nutritional, financial, and psychosocial considerations of patients.

While the AMPATH clinicians who received specialized training in HIV excelled in the care of these patients, the clinical providers at the Moi Teaching and Referral Hospital who were not trained at AMPATH —such as those clinicians who work in the ED—were still reluctant to broach the subject of HIV with their patients. The obstacles for clinicians to providing better HIV care in the ED setting were many: the majority of the local health care providers were educated before HIV care was available in Kenya and had not received additional training on HIV-related topics; there was and still is a large stigma attached to HIV in Kenya; and many of the clinicians believed that HIV care was something that was only to be done at the designated HIV care clinics.

The staff at the Moi Teaching and Referral Hospital have found that not only is the ED setting an acceptable place to participate in HIV care, but the ED setting is a crucial place to engage the HIV pandemic head on. In accordance with the Kenyan Ministry of Health HIV testing guidelines [16], the department strives to test all patients who present to the department with signs and symptoms that could be related to HIV infection. This includes all medical patients and all

patients from other medical fields with signs or symptoms that could be attributed to HIV. The ED at the Moi Teaching and Referral Hospital is staffed by dedicated HIV counselors who perform the HIV testing and counseling. As recommended by the World Health Organization, testing is done using two rapid HIV tests, which, if both are positive, confirms a diagnosis of HIV in this high prevalence setting [17]. In addition to the ED-based rapid HIV testing program, ongoing education within the department provides the staff with essential knowledge on the recognition and therapy of common opportunistic infections.

As in many hospitals in sub-Saharan Africa, patients with unknown HIV status in severe respiratory distress or coma are commonplace at the Moi Teaching and Referral Hospital. Prior to HIV/AIDS, these patients who presented for acute care were treated for common diseases such as tuberculosis, bacterial infections, and malaria. Unfortunately, the HIV pandemic has created a new list of potential diagnoses. Nearly 50% of medical patients admitted through the ED are now HIV infected and the differential diagnosis includes opportunistic infections such as cryptococcosis, toxoplasmosis, and *Pneumocystis jiroveci* pneumonia. The knowledge of the patients HIV status, through rapid HIV testing, narrows the differential diagnosis of these acutely ill patients significantly. If a patient is found to be HIV infected, knowledge of common opportunistic infections guides the clinicians in the delivery of appropriate antimicrobial and resuscitative therapy.

For the less acutely ill patient, HIV testing of patients discharged from the ED has become an integral component of the medical care in the ED. Patients who test negative are counseled on how they can stay uninfected. Patients who test positive are counseled on HIV and are given hope as they are referred to comprehensive HIV care. These patients are walked directly to the AMPATH– center, which is located on the same campus as the hospital.

The staff in the ED at the Moi Teaching and Referral Hospital continue to face the health care challenges of HIV on a daily basis: the difficulties of diagnosis and testing in the acute setting, lack of knowledge, and fear of open discussion due to stigma. Despite these challenges, both the health care providers and patients have gained from this concentrated effort to focus on addressing the needs of the community within the ED setting.

In developing countries, health care providers practicing in the ED must not shy away from HIV care but rather must use the venue as an important access point to care for this vulnerable population. The staff in the ED can play a critical role in both the diagnosis and treatment of each acutely ill HIV patient as well as an equally important role in screening of HIV disease. However, there must be a concerted effort to advance the capabilities of EDs to combat this crisis. In a time when international emergency medicine is a new and rapidly growing field, it is essential to understand and appreciate the importance of developing a solid HIV care plan for patients presenting to the world's EDs.

Acknowledgments The authors acknowledge the staff at Moi Teaching and Referral Hospital and AMPATH for their efforts in the emergency department care of HIV-infected patients.

Funding This research was supported in part by a grant to the USAID-AMPATH Partnership from the United States Agency for International Development as part of the President's Emergency Plan for AIDS Relief (PEPFAR). Drs. Waxman and Carter were supported by the infrastructure and resources provided by the Lifespan/Tufts/Brown Center for AIDS Research, an NIH-funded program #P30AI42853. Dr. Waxman was supported by the National Institutes of Health Grant 5T32DA013911-04.

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