

Dermatology and HIV/AIDS in Africa

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ABSTRACT

Human immunodeficiency virus and the acquired immunodeficiency syndrome (HIV/AIDS) have greatly complicated dermatologic disease and the required care in most regions of Africa. Opportunistic infections, ectoparasites, Kaposi sarcoma, and skin manifestations of systemic infections are exceedingly common in patients with HIV/AIDS. Dermatologists have contributed significantly to our knowledge base about HIV/AIDS and have played an important educational role regarding the clinical manifestations historically. Because of the increased burden of skin disease in Africa due to the HIV/AIDS epidemic we must redouble our efforts to provide dermatology education to care providers in Africa. We review the burden of skin disease in Africa, how it relates to HIV/AIDS and global infectious disease, current educational strategies in Africa to address this need, and suggest potential solutions to move these efforts forward.

Key words: Africa, AIDS, Dermatology, Education, HIV

INTRODUCTION

Skin diseases are not usually recognized as a major public health problem in developing countries, despite the fact that a recent report by the World Health Organization (WHO) estimates that 21–87% of the general population in developing countries has skin disease.^[1] Educational materials regarding cutaneous disease in pigmented skin are also limited.^[2] In this paper we review that the current burden of skin disease in Africa and how HIV/AIDS has led to an increase in opportunistic skin infections, ectoparasitic infestations, and other manifestations of systemic infections. We then review the current state of dermatology training in Africa, ongoing efforts to address this need, and propose potential solutions to improve dermatologic care for patients with HIV/AIDS in Africa.

Problems with the skin are among the main reasons for seeking care, accounting for up to 24% of primary care visits, and are one of the most common causes of morbidity.^[1,3,4] Transmissible processes, including infections and infestations, make up the majority of skin disease in many Sub-Saharan African countries accounting for 85% of skin disease in Tanzania, 78% in Malawi, 71.5% in Ethiopia, and 40.1% in Uganda.^[5] In addition to the immense burden of skin disease in Africa, diseases such as dermatitis, prurigo, scabies, and papular urticaria are commonly either untreated or over treated with strong topical steroids and antibiotics have been found to cause considerable disability.^[6] Skin disease may also be underreported. One study conducted in southwestern Ethiopia, in a community in which parasitic infestations, bacterial and fungal infections, and endemic nonfilarial elephantiasis are prevalent, found that 67% of households not reporting any skin conditions actually had at least one household member with a skin disease.^[7] These data reveal that the health consequences of dermatologic disease extend beyond the individual and, in fact, the public health is at risk since the common skin conditions include parasitic infestations and infections.^[7]

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The epidemic of human immunodeficiency virus (HIV)/acquired immunodeficiency syndrome (AIDS) in Africa further adds to the burden of skin disease. Dermatologists have contributed significantly to our knowledge base about HIV/AIDS and have played an important role in educating about the clinical manifestations historically. Additionally, dermatology has a significant role in managing the side effects associated with therapy. Through its literature on skin-related quality of life and through experience with managing diseases like leprosy that have a huge stigma, dermatologists are able to contribute to the management of HIV/AIDS-associated diseases. However dermatology is only just emerging as an expert in epidemiology, and although long twinned with sexually transmitted infections, it remains weak on public health roles such as contact tracing. According to the HIV/AIDS Epidemiological Surveillance Report for the WHO African Region 2005 Update, recent trends in HIV prevalence show that nearly 30% of women aged 15 to 49 attending antenatal clinics in Southern Africa are infected.^[8] More than 60% of all people living with HIV/AIDS globally live in sub-Saharan Africa.^[8] Skin manifestations are frequently the first sign of HIV infection and conversion to AIDS^[3] and 90% of individuals with HIV/AIDS are diagnosed with skin disease at some point during the course of their illness.^[7,9] Furthermore, the number of hospital admissions for dermatologic diseases in HIV/AIDS individuals, as a proportion of the admissions for dermatologic disease in all individuals, have dramatically increased from nearly 40% to 60% in various regions of South Africa.^[9]

As a continent with a high prevalence of HIV/AIDS, Africa is in need of appropriate and adequate management of dermatologic disease. In many developing countries, health care centers are often run by clinical officers or nurses, rather than physicians, who act as the primary care workers but have very limited training in diagnosing dermatologic conditions.^[10,11] These primary care providers can be taught to diagnose and treat skin diseases commonly seen in the primary care setting, including highly prevalent dermatologic diseases such as pyoderma and scabies.^[1] A study conducted in Lilongwe, Malawi, from January 1988 till June 1989 examined a total of 34,002 patients in which the prevalence of pyoderma was found to be 10.4% in adults and 26% in children, and the prevalence of scabies was 31.6% in adults and 40.4% in children.^[12] However, primary care providers may have difficulty diagnosing and treating other important skin diseases, such as dermatitis, infections, genodermatoses, papulosquamous diseases, and pigmentary disorders, which often need referrals to specialized dermatology centers.^[1,3,6,13-16] Moreover, some patients may be dissatisfied with the dermatologic care they receive from their primary care providers. A study by Figueroa *et al.*^[7] found that 60%

of patients with skin disease living in rural areas of Ethiopia refused free evaluations by dermatologists, possibly due to the dissatisfaction with previous unsuccessful treatments. This same study also found that these patients, most of whom had access only to the local health facility, were spending 50–100% of their cash income on treatments for skin diseases, which were ineffective in 63–74% of cases.^[7] It can be shown that given appropriate dermatologic management, these patients are not only more satisfied, but also waste less income on ineffective treatments. The current WHO initiative to relieve poverty is helped by reducing the cost of self-treatment for disfigurement and discomfort of skin disease by such therapies that are both ineffective and, as with depigmenting creams, harmful. The WHO also recently outlined the need for a greater emphasis in training of health practitioners at both the primary care and specialist levels in the identification and management of dermatologic problems, and a public health focus on prevention.^[17]

CURRENT STRATEGIES FOR DERMATOLOGY TRAINING IN AFRICA

Africa suffers from a scarcity of dermatologists, compounded by the fact that most dermatologists are centered near urban areas and are not accessible to 70% of the rural population.^[10,18,19] For example, it is estimated that Nigeria has approximately 30 formally trained dermatologists serving a population of 120 million and a country of 36 states.^[19] These dermatologists tend to aggregate toward the southern part of Nigeria and around three large towns.^[16,19] Dermatologists have not practiced in the northwestern region of Nigeria in the recent years and, therefore, patients with skin diseases have relied on health care personnel who are not fully trained in dermatologic care.^[16] Furthermore, approximately one-third of the dermatologists in Nigeria are in private practice, leaving only two-thirds who work in teaching, specialist, or general hospitals, further reducing access for those with limited incomes.^[19]

With the exception of Egypt and South Africa, currently there are few dermatology training programs offered in Africa. Furthermore, for decades those trained in the developed world have emigrated there or, if returning to their country of origin, have set up an urban-based private practice. To address this issue, the International Foundation for Dermatology (IFD), a non-profit organization that aims to improve dermatologic care in underserved areas of developing countries, established the Regional Dermatology Training Center (RDTC) in Tanzania in 1992.^[11,20,21] The RDTC provides a 2 year dermatologic training program for experienced medical assistants and nurses from various

sub-Saharan African countries, including Kenya, Malawi, Botswana, Cameroon, Swaziland, Uganda, Ghana, and Sierra Leone.^[11,20,21] The program incorporates two international conferences for community dermatology, two curriculum workshops, and documents prepared by the International Committee of Dermatology, which are approved by the International League of Dermatology Societies and the WHO, entitled “Healthy Skin for All.”^[22] The graduates serve as dermatologic resources in their countries, since many of the countries from where they come have few or no dermatologists.^[21] In addition, a 4 year dermatology residency program was established at the RDTC in 1998.^[20] This is only one of two dermatology residency training programs in all of east and central Africa and offers one residency position per year. Due to the limited number of dermatology training programs in Africa, the dermatology residents trained at the RDTC have come from Tanzania as well as other countries, including Ethiopia and Botswana. The faculty and residents play a critical role in the dermatologic care of people living in Tanzania and its surrounding countries, as it is one of few tertiary care referral hospitals with a specialized dermatology clinic. The Mbarara University of Science and Technology in Uganda also provides a 3 year dermatology residency program, which has matriculated one new dermatologist each year since 2004.^[23] These new dermatologists will help improve dermatologic care currently provided by the approximately six dermatologists and eight dermatology officers serving the twenty-five million people living in Uganda.^[23] More recently in 2006, Ethiopia founded a training scheme for dermatologists assisted by others from the United Kingdom (UK) and Italy.

Other creative and successful skin disease training programs implemented in the primary care setting include 1 day training programs on the basic management of common skin diseases in the sub-Saharan French-speaking African country of Mali.^[24] This program focused on a group of priority skin diseases and used an algorithm for the standardized management of common skin disorders prevalent in the area.^[24] Another program implemented in western Kenya trained community health workers in identifying and treating common dermatoses.^[4] This program used on-the-spot training with a dermatologist as well as one weekend seminar each year.^[4] Furthermore, training schemes are available in Europe, in which the UK, London, and Cardiff have provided Diplomas in Dermatology. Paris and Bordeaux have also done the same for French-speaking countries. In addition, the international journal *Community Dermatology*, published by IFD and supported by leading international dermatologists, is being distributed to health care workers in rural areas of Africa and other developing countries.^[25] This annual journal offers

up-to-date information on the diagnosis and treatment of skin diseases, focusing on resources that are available in those rural areas.^[25] Lastly, the RDTC provides postgraduate continuing medical education by an international faculty each January for returning graduates. However, those graduates living outside central and east Africa often cannot afford to attend the annual continuing medical education held at the RDTC in Moshi, Tanzania.

Regarding educational outreach from more developed countries, there are several notable efforts. A dermatology training experience has been established in Gaborone, Botswana for US or Canadian-based senior dermatology residents which is sponsored by the American Academy of Dermatology through a partnership with the University of Pennsylvania. This program also utilizes teledermatology with worldwide volunteer dermatologists through <http://africa.telederm.org>. Teledermatology, while promising in many respects, will likely only serve as an adjunct service to sustainable dermatologic education and care in Africa. Providing remote teledermatology services is extremely helpful for individual difficult cases, but will be insufficient to fill the global need for dermatologic care.

FUTURE EFFORTS TO IMPROVE SKIN CARE IN AFRICA

The work of organizations such as the IFD and ICTHES should be commended as they have made significant contributions in the care of individuals with skin diseases in developing regions. However, there still is much room for improvement in dermatology training and in managing skin disease. Possible directions include the following:

Provide educational resources that are culturally and racially appropriate

The representation of skin disease of non-Caucasians is limited in educational resources. Ebede and Papier^[2] found that only 2% of the educational opportunities available at the American Academy of Dermatology Annual Meeting focused on ethnic or dark skin.^[2] Somewhat more favorably, patients with ethnic or dark skin were represented in 4% to 19% of widely used dermatology textbooks.^[2] This limited representation of patients with darker skin may pose challenges in the training of dermatologic disease in Africa, since individuals with darker skin may vary in their presentation of common skin diseases and require different management.^[2] Textbooks written for the developed world emphasize the latest therapies, many of which are too expensive, unavailable, and not cost-effective for the developing world. These texts give insufficient detailed

information about low technology and low cost therapies, e.g. the exact use of honey for wound healing or sunflower seed oil for atopic dermatitis. Therefore, educational resources including images and discussion of patients with darker skin and tropical diseases, as well as information on the use of low cost therapies, would be of great value for dermatology training in Africa and other developing countries.

Integrate safe and effective traditional medical practices into management options

Although most training programs in Africa concentrate on modern biomedical treatment methods, many individuals prefer and can only afford traditional medicine, which is also sustainable and locally available, as for example honey. The continued availability of imported therapies is always unpredictable. Traditional healers are sometimes more accessible and affordable and are viewed as culturally appropriate.^[10] Forty-three percent of individuals living in rural Tanzania would rather consult a traditional healer than go to a modern health facility for their skin problems.^[10] The global utilization of traditional medicine (alternative and complementary medicine when transferred from traditional practice) is of public health interest.^[26] In Asia, such practice is usually a written tradition of long standing. In Africa, such a tradition is unwritten and is more difficult to collect evidence on the safety and efficacy relating to preparation and dosage schedules. Some herbals such as aloe or bee products, including honey and propolis, are now shared with other continents but have untested differences due to soil and climate. It is of special interest in the management of a global epidemic such as AIDS, if only because of the extent of its utilization and the reports of efficacy especially from Asia. The possible value of incorporating traditional medicine into care in developing countries is exemplified by the recent establishment of a Siddha hospital in India by the non-governmental organization Gandeepam.^[27] The medical practices of this hospital include using herbal preparations in the treatment of HIV/AIDS and HIV/AIDS-related illnesses.

Consider inexpensive, novel types of both high- and low-technology educational resources that can be widely distributed

One newly organized group hoping to improve education and point-of-care service regarding dermatologic diseases in Africa is the International Dermatology Educational Alliance (IDEA). The IDEA group, in collaboration with several academic groups in Africa, aims to develop and implement a HIV/AIDS-focused dermatologic diagnostic decision support software program for use in African

countries. This will include images of skin disease in African patients as well as realistic diagnostic and treatment options available in Africa. This educational program and point-of-care tool will be used to train general physicians, assistant medical officers, and community health workers in Africa in diagnosing and properly managing AIDS-related skin diseases. Technology advances will make information and resource sharing between developed and developing countries with limited resources possible. The application of these advances in developing countries with poor infrastructure can be a challenging venture. However, a combination of technology-based tools where available with traditional (and non-traditional) low-technology educational methods can serve to improve the care of skin disease and HIV in African patients. Inclusion of these educational tools in the primary care setting is crucial, especially since there are a limited number of dermatologists and dermatology residency training programs in Africa.

IDEA is a new organization formed to help meet the needs of people suffering from skin disease in limited resource settings, with a particular focus on the consequences of HIV/AIDS or the side effects of its therapy. It aims to provide teaching materials of high quality pertinent for use by medical personnel in Africa. This intervention aims to improve diagnostic skills and eliminate the consequent inappropriate prescribing often costly to the recipient. It hopes to educate health care providers, including traditional healers, and will especially focus on the common problems of scabies, fungal infections, and pyodermas that affect the quality of life across all age groups and especially so in the patient population affected by AIDS. The IDEA group hopes that through the creation, validation, and wide distribution of these educational tools focused on skin disease diagnosis and management, particularly in those with HIV, a positive impact can be made in improving the burden of skin disease for those living in an area of the world desperately in need of improved health care education, supplies, and sustainable delivery methods.

Computerized diagnostic decision support systems^[28] and computerized dermatology educational tools^[29] have been used successfully in medical schools and free clinics in the United States to improve dermatology education to medical students and primary care providers.^[30] Successful teledermatology programs between African countries and western universities exist.^[31] When used in conjunction with teledermatology for patients in low resource settings, computerized educational systems and diagnostic decision support systems empower the primary care doctors during direct patient care. Measuring the impact of educational

initiatives always presents a challenge, but usage statistics and surveys of medical providers and patients that take part in the programs is usually the most direct measurement of a program's success. However, due to the limitations of the medical systems in many African countries, studies designed to measure actual patient outcomes before and after implementation of these programs may be restricted by costs.

CONCLUSION

Many infections and infestations affect the skin in patients from developing countries. In Africa, the increase of HIV/AIDS in many areas has complicated the diagnosis and treatment of many of these skin conditions. Despite the overwhelming need for specialist dermatology care for these patients, training programs for dermatologists and primary care providers remain limited. We believe the formation of global networks of educational leaders can help remedy by providing educational resources that are culturally and racially appropriate, by integrating safe and effective traditional medical practices into the teaching, and through the wide distribution of inexpensive, novel types of both high- and low-technology educational resources for dermatology. These resources can be combined with teaching initiatives and telemedicine to provide dermatology education with broader scope and immediate impact. Healthy, sustainable, relationships between local educators, health care providers, and international collaborators should be based on a foundation of mutual learning and respect. These relationships are critical to improve the quality of dermatology care for patients with HIV/AIDS in Africa.

KEY POINTS

- There is a tremendous burden of skin disease that either is not being treated or is probably being under-treated, largely due to the scarcity of dermatologists and dermatologic training in Africa.
- The HIV/AIDS epidemic in Africa further increases the burden of skin disease.
- Several programs have been developed to help increase dermatologic care in Africa, including the Regional Dermatology Training Program (RDTC) in Tanzania implemented by the International Foundation for Dermatology (IFD).
- There is need for the development of additional programs that are as follows.
 - Provide educational resources that are culturally, ethnically, and geographically appropriate.
 - Integrate traditional medical practices into management options when possible.
- Consider inexpensive, novel types of both high- and low-technology educational resources that can be widely distributed and combined with telemedicine and distance learning where appropriate.
- The International Dermatology Educational Alliance (IDEA) group aims to improve the burden of skin disease in Africa, particularly in people living with HIV/AIDS, through the wide distribution of educational tools that aid in the diagnosis and management of skin diseases.

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