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Accessibility
Review Article

Treatment of Dermatological Conditions Associated with HIV/AIDS: The Scarcity of Guidance on a Global Scale

Suchismita Paul,1 Rachel Evans,2 Toby Maurer,3 Lulu M. Muhe,4 and Esther E. Freeman5

1Harvard Medical School, Boston, MA, USA
2HIV Department, World Health Organization, Geneva, Switzerland
3Department of Dermatology, University of California San Francisco School of Medicine, San Francisco, CA, USA
4Department of Maternal, Child and Adolescent Health, World Health Organization, Geneva, Switzerland
5Department of Dermatology, Massachusetts General Hospital, Harvard Medical School, Bartlett Hall 6R, 55 Fruit Street, Boston, MA 02114, USA

Correspondence should be addressed to Esther E. Freeman; esther.freeman@gmail.com

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Background. Skin diseases associated with Human Immunodeficiency Virus (HIV) infection are associated with significant morbidity and mortality. In resource-limited settings, nondermatologists and lay health care providers on the front line of HIV care provide much of the treatment for these conditions. Objective. To evaluate guidelines for treatment of HIV-related skin conditions and assess their accessibility, comprehensiveness, and quality of evidence employed.

Methods. A review was undertaken of all national and society guidelines which included treatment information on the ten highest burden HIV-related skin conditions. The search strategy included gray and peer-reviewed literature.

Results. Of 430 potential guidelines, 86 met inclusion criteria, and only 2 were written specifically to address HIV-related skin diseases as a whole. Treatment information for HIV-related skin conditions was embedded within guidelines written for other purposes, primarily HIV/AIDS treatment guidelines (49%). Development of guidelines relied either partially or completely on expert opinion (62%). Only 16% of guidelines used gradation of evidence quality and these were primarily from high-income countries (p = 0.001).

Limitations. Due to the nature of gray literature, not all guidelines may have been identified.

Conclusion. This review highlights the need for evidence-based summary guidelines that address treatment for HIV-related skin conditions in an accessible format.

1. Introduction

In 2013, the number of people living with Human Immunodeficiency Virus (HIV) was estimated to be 35 million (31.8 million adults and 3.2 million children <15 years) globally [1]. There were 2.1 million new HIV infections (1.9 million adults and 240,000 children) and 1.5 million deaths due to HIV-related causes (1.3 million adults and 190,000 children) [1]. The major causes of mortality are Acquired Immunodeficiency Syndrome (AIDS) related mortality or from opportunistic infections such as tuberculosis (TB) and cryptococcal infections. The initiation of combination antiretroviral therapy (cART) has led to a profound impact on mortality, averting 7.6 million deaths globally since 1995 [1].

Globally, skin conditions are the fourth leading cause of nonfatal disease burden in terms of years lost due to disability, ahead of conditions such as diabetes and COPD [2]. HIV-related skin conditions are important in terms of burden, impact on quality of life, and associated mortality. Prior to availability of effective cART, it was estimated that up to 90% of HIV-infected individuals have associated skin and mucosal conditions during the course of their illness [3]. Skin manifestations may be the first sign of HIV infection and therefore present an opportunity for HIV testing and earlier diagnosis [3]. Some muco-cutaneous conditions in particular are a proxy indicator for more advanced immunodeficiency and the need for prompt initiation of cART [4, 5]. Certain skin conditions can also lead to severe morbidity such as pain on swallowing from oropharyngeal candidiasis and recurrent
infections that are difficult to treat, such as scabies [6, 7]. Other conditions such as zoster and extensive tinea that are difficult to conceal may cause stigma and cause psychosocial stress and depression [8].

Particular challenges in the effective management of HIV-related skin conditions include the fact that they are difficult to treat and may recur more frequently compared to immunocompetent individuals in the absence of immune reconstitution with CART [9, 10]. Early recognition of HIV-related skin conditions presents the opportunity for earlier HIV diagnosis and cART initiation and may therefore improve overall survival [11]. In addition, in resource-limited settings, the focus is on more life-threatening opportunistic infections and skin conditions may be overlooked [12]. Finally, in many countries there is a lack of specialized dermatologists and the front line provision of HIV care is by primary care level nonspecialists that include medical officers, nurses, and midwives with minimal training in treatment of skin conditions [7, 13].

There is a need for clear practical but evidence-based guidance on the management of skin conditions in HIV-infected individuals. In this paper we review availability of national and professional society guidelines on HIV-related skin conditions and assess their accessibility, comprehensiveness, and the quality of evidence employed.

2. Methods

2.1. Search Strategy. We formulated a structured and comprehensive search strategy, using both peer-reviewed and gray literature as described in more detail below, to identify treatment guidelines for HIV-related skin conditions. Gray literature encompasses publications from governments, nongovernmental organizations, and societies that usually do not fulfill strict bibliographical requirements that are apparent in peer-reviewed literature [14]. The inclusion of gray literature sources was key in this process, since guidelines are not consistently or routinely included in peer-reviewed literature or in databases such as PubMed. Treatment guidelines were defined as a set of recommendations used to treat skin conditions in HIV-infected patients. Guidelines for children, adolescents, and adults were included as well as guidelines written in languages other than English.

2.2. Gray Literature Search. The gray literature search was performed in June 2014 and was divided into two categories: national guidelines and society guidelines. National guidelines were defined as guidelines developed by federal governments. From the UNAIDS database, 30 countries with highest HIV prevalence and 30 countries with the highest estimated number of people living with HIV were included [15]. Both lists were merged and duplicates were eliminated to yield a total of 43 countries. An additional 7 countries active in HIV/AIDS policy were selected on a discretionary basis to bring the list to a total of 50 countries (see the Appendix). The following specific databases along with web searches (Google, Google scholar) were used to obtain country-specific guidelines: World Health Organization (WHO), database of national HIV and TB guidelines, 2005–2011 [16]; USAID, AIDSTAR-One, National Treatment Guidelines [17]; the Interagency Task Team on the Prevention and Treatment of HIV Infection in Pregnant Women, Mothers and Children [18]; AIDSspace, Document Library [19]; and the Ministry of Health website for each country.

Society guidelines were defined as guidelines developed by nonprofit, nongovernmental organizations such as the Infectious Disease Society of America (IDSA) or international agencies such as the WHO (see the Appendix). Guidelines were also included from societies in dermatology, infectious diseases, and HIV/AIDS. These were obtained from the organizations’ webpages.

2.3. Peer-Reviewed Literature Search. The peer-reviewed literature search was carried out on PubMed using the Cochrane HIV/AIDS Group’s existing validated strategies to identify articles relevant to HIV infection and AIDS along with MeSH terms and relevant keywords to identify treatment guidelines for associated skin conditions [20].

2.4. Inclusion Criteria. For both gray and peer-reviewed literature, duplicate guidelines and older versions of the same guideline were excluded. Guidelines were included if they mentioned the treatment of one or more of ten selected HIV-related skin conditions: Kaposi’s sarcoma, scabies, seborrheic dermatitis, molluscum contagiosum, eosinophilic folliculitis, papular pruritic eruption, varicella/herpes zoster, tinea, oropharyngeal candidiasis, and drug reactions (Stevens-Johnson syndrome or toxic epidermal necrolysis). Our search was restricted to ten skin conditions to allow us to perform an extensive gray literature search. These ten conditions are representative of other HIV-related skin conditions in terms of high disease burden, available evidence, effective interventions, and applicability in resource-limited settings.

2.5. Data Collection and Analysis of Guidelines. After screening and selection, we analyzed eligible guidelines with regard to the publication date, the frequency of specific skin conditions represented, the category of source document where the treatment for HIV-related skin conditions was mentioned, and the methodology that was used to develop guidelines. The type of guideline under which treatment guidelines for HIV-related skin conditions are found is an important factor to assess how quickly and easily a busy health care professional can access such treatment information. To address this issue of accessibility, we defined different types of guidelines as follows: HIV/AIDS treatment guidelines (guidelines that address treatment of HIV/AIDS using antiretroviral therapies), disease-specific treatment guidelines (treatment for one of the ten skin conditions associated with HIV such as scabies or tinea), STD/STI treatment guidelines (treatment of sexually transmitted infections (STDS)), skin disease treatment guidelines (treatment for skin diseases in general), opportunistic infections treatment guidelines (treatment for HIV-associated opportunistic infections), and standard clinical treatment guidelines (treatment for general medical conditions such as cardiovascular disorders and dermatological disorders).
We also assessed the methodology that was used to develop the treatment guidelines. We searched each document to determine which of the following methods were employed: expert opinion (based on experts’ experience), scientific literature (based on results from clinical studies), graded evidence and strength of recommendations (based on rating systems such as Grading of Recommendations, Assessment, Development and Evaluation (GRADE) [21]), and adaptations from other guidelines (based on WHO and/or other guidelines).

### 3. Results

As of June 2014, the gray and peer-reviewed literature search yielded a total of 430 potential guidelines once duplicates were removed, of which 86 guidelines (56 national and 30 society guidelines) met our selection criteria related to treatment guidelines for HIV-related skin conditions (Figure 1). The society guidelines were obtained from organizations like the WHO, American Academy of Dermatology (AAD), British HIV Association, IDSA, and others (see the Appendix). Of the fifty countries assessed for national guidelines (see the Appendix), fifteen did not have national guidelines for the treatment of HIV-related skin conditions although Australia and the United Kingdom had guidelines from societies. Included guidelines were in English, Ukrainian, Indonesian, Spanish, Portuguese, French, and Chinese.

Guidelines identified ranged from the years 1997 to 2014, with almost half (45%) more than five years old. Not all HIV-related skin conditions were included in each guideline. Among 86 total guidelines, oropharyngeal candidiasis, varicella/zoster, and Kaposi’s sarcoma were most frequently addressed (62%, 60%, and 50%, resp.), whereas eosinophilic folliculitis, tinea, and papular pruritic eruption were the least represented (9%, 21%, and 26%, resp.).

#### 3.1 Accessibility of Treatment Guidelines for HIV-Related Skin Conditions

Accessibility of the guidelines, defined as how easily treatment for HIV-related skin conditions are found, was poor. When searches of the gray literature were limited to guidelines that were specifically for HIV-related skin conditions, only two guidelines were identified, from AAD (1997) and the New York State Department of Health AIDS Institute (2004) [23, 24]. In the remaining 84 guidelines, treatment for different HIV-related skin conditions was mentioned within the context of HIV treatment in general (n = 41, 49%), STD guidelines (n = 2, 2%), skin disease treatment guidelines (n = 2, 2%), standard clinical treatment guidelines (n = 14, 17%), opportunistic infections treatment guidelines (n = 12, 14%), and disease-specific treatment guidelines (n = 13, 15%) (Table 1). Among national guidelines
Table 1: Summary of national and society guidelines for the treatment of HIV-related skin conditions.

| Country income category | List of countries                                                                 | National guidelines (n = 56) | Type of guidelines | Methodology |
|------------------------|-----------------------------------------------------------------------------------|------------------------------|--------------------|-------------|
|                        |                                                                                   | HIV/AIDS STD Opportunistic Gen. clinical Single disease Skin disease Gradation of quality Scientific lit. (SL) Expert opin. (EO) SL + EO Adapted + EO |
| Low income (17 countries) | Chad, Comoros, Congo, Ethiopia, Guinea, Guinea-Bissau, Haiti, Kenya, Malawi, Mozambique, Myanmar, Rwanda, South Sudan, Tanzania, Togo, Uganda, Zimbabwe Angola, Botswana, Brazil, Cameroon, China, Colombia, Côte d’Ivoire, Egypt, Gabon, Ghana,                              | 13 0 3 5 0 0 0 0 7 1 13 |
| Middle income (24 countries) | India, Indonesia, Jamaica, Lesotho, Mexico, Namibia, Nigeria, Peru, South Africa, Swaziland, Thailand, Ukraine, Vietnam, Zambia Australia, Bahamas, Canada, Equatorial Guinea, France, Russia, Trinidad and Tobago, UK, USA | 18 0 2 5 0 0 2 1 11 3 9 |
| High income (9 countries) | Australia, Bahamas, Canada, Equatorial Guinea, France, Russia, Trinidad and Tobago, UK, USA | 3 2 3 0 2 0 5 4 0 0 0 |
| Society guidelines (n = 30) |                                                                                   | 7 0 4 4 11 4 7 14 2 3 4 |

HIV/AIDS: HIV/AIDS treatment guidelines  
STD: STD/STI treatment guidelines  
Opportunistic: opportunistic infections treatment guidelines  
Gen. clinical: standard clinical treatment guidelines  
Single disease: disease-specific treatment guidelines  
Skin disease: skin disease treatment guidelines  
Gradation of quality: gradation of evidence quality  
SL: scientific literature  
EO: expert opinion  
Adapted: adapted from other guidelines.
produced by specific countries’ governments, the treatment
guidelines for HIV-related skin conditions were found within
five different types of guidelines, with the majority from
HIV/AIDS treatment guidelines (61%) and none from skin
disease treatment guidelines (Figure 2(a)). In contrast, among
guidelines produced by societies, this information was most
frequently contained within the disease-specific treatment
guidelines (37%) (Figure 2(b)).

With respect to the ease of finding treatment guidelines
for HIV-related skin conditions only 19 out of the 56 national
guidelines had a dedicated dermatology section. For the
remaining 37 national guidelines, treatment information for
different HIV-related skin conditions was dispersed through-
out the guideline.

3.2. Methodology Used to Develop Guidelines. There was a
wide variability in the methods used to develop the treatment
guidelines for HIV-related skin conditions, with most relying
on expert opinion either partially or completely (n = 53, 62%)
rather than evidence-based scientific literature (Figure 3(a),
Table 1). Guidelines frequently combined multiple method-
ologies such as adaptation from other guidelines along with
expert opinion (30%) or scientific literature combined with
expert opinion (8%). Only 14 guidelines (16%) employed
the highest quality of guideline development process, which
involves a rating system to grade the quality of evidence. The
rating systems varied and included GRADE, Oxford Centre
for Evidence-Based Medicine (CEBM), US Preventative Ser-
vices Task Force (USPSTF), IDSA/US Public Health Service
(IDSA/USPHS), or adaptations thereof.
Gross national income was correlated with the guideline methodology employed by national governments (Figure 3(b)). Low-income countries primarily adapted their guidelines from other sources (13 of 21) or relied on expert opinion (7 of 21). Middle-income countries relied on expert opinion (11 of 26) and adaptation from other guidelines (9 of 26), while a minor subset employed scientific literature (1 of 26) and gradation of evidence quality (2 of 26). High-income countries had either reviewed the scientific literature or used the gold standard of guideline development, gradation of evidence quality. High-income countries were significantly more likely to have employed an assessment of evidence quality in their guidelines (5 of 9 guidelines) as compared to lower- and middle-income countries (2 of 47 guidelines; \( p = 0.001 \)).

4. Discussion

Our study suggests that there is a paucity of comprehensive evidence-based guidelines that is specific for treatment of HIV-related skin conditions. Currently, either HIV-related skin condition treatment information is difficult to find within the different types of guidelines or the methodology used to prepare the guidelines is not based on clinical evidence. Additionally, many guidelines are outdated and information across the prominent HIV-related skin conditions is fragmented across several guidelines. Together, these gaps highlight the need for an evidence-based, easily accessible summary guideline document for HIV-related skin conditions.

For a lay searcher or busy health professional, accessibility of current guidelines is poor. Firstly, to find treatment regimens for HIV-related skin conditions, entire guidelines written for other purposes such as HIV/AIDS treatment or opportunistic infections must be hand-searched. This process is time-consuming and represents a barrier to access by busy health care professionals. Furthermore, information for the major HIV-related skin conditions is scattered across several guidelines, requiring reference to multiple guidelines when trying to develop a treatment plan.

The guidelines identified rarely used evidence-based medicine. Methodology for guideline development varied widely, including a large subset based completely or partially on expert opinion (62%). Treatment decisions based on unvalidated information may be more harmful than helpful and may lead to increased morbidity and even mortality [21, 25]. Generally, treatment of skin conditions is often not evidence-based due to the lack of high quality studies and reliance on expert opinion is warranted under these circumstances. Further studies are needed to see whether recommendations differ between expert opinions and evidence-based medicine for treatment of skin conditions. In the smaller portion of guidelines that did employ gradation of evidence quality (16%), there were several grading systems, including GRADE, IDSA, CEBM, and USPSTF. High-income countries were much more likely to employ evidence-based medicine, in contrast to lower-income countries with higher HIV prevalence rates and arguably more in need of quality guidelines. In low-income countries, guidelines were primarily adapted from the WHO. This reliance on global guidance further highlights the need for high quality international guidelines.

Finally, almost half of the guidelines analyzed are more than five years old, which limits healthcare professionals to using dated information to address HIV-related skin conditions. Guidelines should be reassessed for validity and updated every 3 years for it to be useful to clinicians [26].

Our study has several limitations. With gray literature research, it is possible to miss guidelines due to the nature of gray literature records that might not be accessible through conventional searches. Our search was performed in June 2014 and guidelines that became available online since then could have been missed. Additionally, only documents which specified “HIV” or “AIDS” were included, whereas general immune deficiency or impairment was not considered. Guidelines written in local languages might also have been overlooked because they were not searchable in English. Finally, we restricted the review to the 10 highest burden HIV-related skin conditions and the selected 50 countries. We make the assumption that these parameters are representative of HIV-related skin condition treatment guidelines globally.

This review highlights the need for an effective guideline document for busy healthcare professionals to treat HIV-related skin conditions and identifies a gap in guidelines development within the field of dermatology. A comprehensive treatment guideline for HIV-related skin conditions should be a compilation of the most up-to-date treatment recommendations that are strictly vetted through a rating system for the evidence quality and strength of recommendations (such as GRADE) [21]. Recurrent updating would arm healthcare professionals with the latest treatment information. In response to these previously unmet needs, as identified in this work, the WHO has developed new set of guidelines for the treatment of the ten HIV-related skin conditions that were discussed in this study [27]. These guidelines were developed using the Cochrane systematic review and the GRADE rating system. Additionally, these guidelines address the local needs and constraints within resource-limited settings by considering factors such as availability of medications and costs of drugs. With the adoption of such guidelines, which can be accessed and adapted to different health systems, we can hope to see a decrease in morbidity and mortality related to HIV-related skin conditions.

Appendix

See Tables 2 and 3.

Abbreviations

AAD: American Academy of Dermatology
AIDS: Acquired Immunodeficiency Syndrome
cART: Combination antiretroviral therapy
CEBM: Centre for Evidence-Based Medicine
COPD: Chronic obstructive pulmonary disease
GRADE: Grading of Recommendations, Assessment, Development and Evaluation
HIV: Human Immunodeficiency Virus
| Country     | Type of guideline | Year | Publishing body | Title                                                                 | Disease treatment included                                                                 | Methodology              | Link                                                                                   |
|-------------|-------------------|------|-----------------|----------------------------------------------------------------------|-------------------------------------------------------------------------------------------|--------------------------|----------------------------------------------------------------------------------------|
| Angola      | HIV/AIDS treatment guidelines | 2011 | Ministry of Health | Normas de Tratamento Anti-Retroviral                                   | (i) Drug reactions                                                                    | Adapted from other guidelines | http://www.emtct-iatt.org/wp-content/uploads/2013/04/Angola_National-ARV-Guidelines_2011.pdf |
| Australia   | No national guidelines identified; however, guidelines exist from societies (see society guidelines) |       |                  |                                                                      |                                                                                            |                          |                                                                                        |
| Bahamas     | HIV/AIDS treatment guidelines | 2005 | Caribbean Epidemiology Centre | Caribbean Guidelines for the Care and Treatment of Persons with HIV Infection | (i) Oral candidiasis (ii) Seborrhoeic dermatitis (iii) Varicella/herpes zoster (iv) Molluscum contagiosum (v) Scabies (vi) Eosinophilic folliculitis (vii) Kaposi's sarcoma (viii) Drug reactions (ix) Papular pruritic eruptions | Scientific literature + expert opinion | http://www.who.int/hiv/pub/guidelines/caribbean_art.pdf |
| Botswana    | HIV/AIDS treatment guidelines | 2007 | Ministry of Health | Acute Care: Botswana Integrated Management for HIV/AIDS and Other Illness | (i) Oral candidiasis (ii) Scabies (iii) Tinea (iv) Varicella/herpes zoster (v) Drug reactions (vi) Seborrhoeic dermatitis (vii) Molluscum contagiosum (viii) Papular pruritic eruption (i) Varicella/herpes zoster (ii) Oral candidiasis (iii) Kaposi's sarcoma (iv) Drug reactions | Adapted from other guidelines | http://www.gov.bw/global/moh/pc_moh_07.pdf |
| Brazil      | HIV/AIDS treatment guidelines | 2008 | Ministry of Health | Recomendacoes para Terapia Antirretroviral em Adultos Infectados pelo HIV 2008 | (i) Kaposi's sarcoma                                                                   | CEBM                      | http://www.aidstar-one.com/sites/default/files/Brazil_National_Treatment_Guidelines_2008.pdf |
| Cameroon    | HIV/AIDS treatment guidelines | 2004 | Ministry of Public Health | Guide National de Prise en Charge des Personnes Vivant avec le VIH/SIDA-Cameroun | (i) Oral candidiasis (ii) Kaposi's sarcoma (iii) Scabies (iv) Varicella/herpes zoster (v) Seborrhoeic dermatitis (vi) Molluscum contagiosum | Expert opinion            | http://www.aidstar-one.com/sites/default/files/treatment/national_treatment_guidelines/Cameroon_tagged.pdf |
| Canada      | STD/STI treatment guidelines | 2008 | Public Health Agency of Canada | Canadian Guidelines on Sexually Transmitted Diseases | (i) Scabies                                                                         | USPSTF                     | http://www.phac-aspc.gc.ca/std-mts/sti-its/cgtsi-ldcits/index-eng.php#toc               |
| Country            | Type of guideline | Year | Publishing body                                      | Title                                                                 | Disease treatment included                                                                                       | Methodology                                      | Link                                                                 |
|--------------------|-------------------|------|-----------------------------------------------------|----------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|-------------------------------------------------|----------------------------------------------------------------------|
| Chad               | None identified   |      |                                                     |                                                                      |                                                                                                                |                                                 |                                                                      |
| China              | None identified   |      |                                                     |                                                                      |                                                                                                                |                                                 |                                                                      |
| Colombia           | HIV/AIDS treatment guidelines | 2010 | Ministry of Health and Social Protection | Guía para el Manejo de VIH/SIDA Basada en la Evidencia | (i) Drug reactions                                                                                              | IDSA-USPHS                                      | http://www.aidsspace.org/upload_desc.php?user=7977&upid=2030          |
| Comoros            | HIV/AIDS treatment guidelines | 2007 | Ministry of Health | Guide de Prise en Charge de L’Infection a VIH aux Comoros | (i) Oral candidiasis (ii) Seborrheic dermatitis (iii) Scabies (iv) Drug reactions (v) Papular pruritic eruptions (vi) Varicella/herpes zoster (vii) Kaposi’s sarcoma (viii) Molluscum contagiosum | Adapted from other guidelines + expert opinion | http://www.aidstar-one.com/sites/default/files/Comoros_2007_tagged_0.pdf |
| Congo              | None identified   |      |                                                     |                                                                      |                                                                                                                |                                                 |                                                                      |
| Côte d’Ivoire      | HIV/AIDS treatment guidelines | 2005 | Ministry of Health and Population | Guide de Prise en Charge de L’Infection a VIH/SIDA de L’Adulte et de L’Enfant | (i) Oral candidiasis (ii) Papular pruritic (iii) Drug reactions (iv) Varicella/herpes zoster (v) Seborrheic dermatitis (vi) Kaposi’s sarcoma (vii) Molluscum contagiosum | Expert opinion                                  | http://www.aidsspace.org/upload_desc.php?user=7977&upid=1921          |
| Egypt              | None identified   |      |                                                     |                                                                      |                                                                                                                |                                                 |                                                                      |
| Equatorial Guinea  | None identified   |      |                                                     |                                                                      |                                                                                                                |                                                 |                                                                      |
| Ethiopia           | Opportunistic infections treatment guidelines | 2008 | Federal Ministry of Health | Guidelines for Management of Opportunistic Infections and Antiretroviral Treatment in Adolescents and Adults in Ethiopia | (i) Varicella/herpes zoster (ii) Molluscum contagiosum (iii) Tinea (iv) Scabies (v) Oral candidiasis (vi) Drug reactions (vii) Papular pruritic eruption (viii) Kaposi’s sarcoma | Adapted from other guidelines + expert opinion | http://www.who.int/hiv/pub/guidelines/ethiopia_art.pdf                |
| Standard treatment guidelines | 2010 | Drug Administration and Control Authority of Ethiopia | Standard Treatment Guideline for Primary Hospitals | (i) Varicella/herpes zoster | Expert opinion                                                                                                  |                                                 | http://apps.who.int/medicinedocs/documents/s17820en/s17820en.pdf     |
| France             | HIV/AIDS treatment guidelines | 2010 | Ministry of Health and Sports | Prise en Charge Médicale des Personnes Infectées par le VIH | (i) Kaposi’s sarcoma (ii) Varicella/herpes zoster (iii) Oral candidiasis | CEBM                                             | http://www.sante.gouv.fr/IMG/pdf/ Rapport_2010_sur_la_prise_en_charge_medicale_des_personnes_infectees_par_le_VIH_sous_la_direction_du_Pr_Patrick_Yeni.pdf |
| Country       | Type of guideline                                      | Year   | Publishing body              | Title                                                                 | Disease treatment included                                                                 | Methodology          | Link                                                                 |
|--------------|--------------------------------------------------------|--------|------------------------------|----------------------------------------------------------------------|-------------------------------------------------------------------------------------------|----------------------|----------------------------------------------------------------------|
| Gabon        | None identified                                        |        |                              |                                                                      | (i) Oral candidiasis (ii) Varicella/herpes zoster (iii) Seborrheic dermatitis            |                      |                                                                      |
| Ghana        | Standard treatment guidelines                          | 2010   | Ministry of Health           | Standard Treatment Guidelines                                        | (i) Oral candidiasis (ii) Varicella/herpes zoster (iii) Seborrheic dermatitis            | Expert opinion      | http://apps.who.int/medicinedocs/documents/s18015en/s18015en.pdf |
| Guinea       | HIV/AIDS treatment guidelines                          | 2011   | Ministry of Health and Hygiene | Normes et Protocoles de Prise en Charge de L'Infection par le VIH chez L'Adulte et L'Enfant en Guinee | (i) Oral candidiasis (ii) Varicella/herpes zoster (iii) Kaposi's sarcoma                | Expert opinion      | http://www.who.int/hiv/pub/guidelines/guinea_art.pdf?ua=1          |
| Guinea-Bissau| None identified                                        |        |                              |                                                                      |                                                                                          |                      |                                                                      |
| Haiti        | HIV/AIDS treatment guidelines                          | 2010   | Ministry of Public Health and Population | Manuel de Normes de Prise en Charge Clinique et Therapeutique des Adolescents et Adultes Vivant avec le VIH/SIDA | (i) Oral candidiasis (ii) Varicella/herpes zoster (iii) Papular pruritic eruptions (iv) Seborrheic dermatitis (v) Kaposi's sarcoma | Expert opinion      | http://www.aidsspace.org/upload_desc.php?user=7977&upid=1914      |
| India        | Opportunistic infections treatment guidelines          | 2007   | National AIDS Control Organisation | Guidelines for Prevention and Management of Common Opportunistic Infections/Malignancies among HIV-Infected Adult and Adolescent | (i) Oral candidiasis (ii) Seborrheic dermatitis (iii) Varicella/herpes zoster (iv) Molluscum contagiosum (v) Scabies (vi) Kaposi's sarcoma (vii) Tinea | Expert opinion      | http://naco.gov.in/upload/Policies%208%20Guidelines/ 7-Guidelines%20for%20Prevention% 20and%20Management%20of%20common% 20opportunistic%20infections.pdf |
| Indonesia    | HIV/AIDS treatment guidelines                          | 2011   | Ministry of Health           | Tatalaksana Klinis Infeksi HIV dan Terapi Antiretroviral           | (i) Varicella/herpes zoster (ii) Oral candidiasis (iii) Kaposi's sarcoma                | Adapted from other guidelines + expert opinion | http://www.spiritia.or.id/Dok/pedomanart2011.pdf |
| Country       | Type of guideline          | Year | Publishing body                        | Title                                                                                       | Disease treatment included                                                                 | Methodology                  | Link                                                                 |
|---------------|----------------------------|------|----------------------------------------|---------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|------------------------------|----------------------------------------------------------------------|
| Jamaica       | HIV/AIDS treatment guidelines | 2005 | Caribbean Epidemiology Centre         | Caribbean Guidelines for the Care and Treatment of Persons with HIV Infection                | (i) Oral candidiasis (ii) Seborrheic dermatitis (iii) Varicella/herpes zoster (iv) Molluscum contagiosum (v) Scabies (vi) Eosinophilic folliculitis (vii) Kaposi's sarcoma (viii) Drug reactions (ix) Papular pruritic eruptions | Scientific literature + expert opinion | http://www.who.int/hiv/pub/guidelines/caribbean_art.pdf |
| Kenya         | HIV/AIDS treatment guidelines | 2005 | Ministry of Health                    | Guidelines for Antiretroviral Drug Therapy in Kenya                                         | (i) Drug reactions (ii) Kaposi's sarcoma (iii) Scabies (iv) Papular pruritic eruptions (v) Tinea (vi) Varicella/herpes zoster (vii) Drug reactions (viii) Molluscum contagiosum (ix) Seborrheic dermatitis | Expert opinion | http://www.who.int/hiv/pub/guidelines/kenya_art.pdf |
|               | Opportunistic infections treatment guidelines | 2008 | Ministry of Health                    | National Manual for the Management of HIV-Related Opportunistic Infections and Conditions |                                                                                                                                                   | Adapted from other guidelines + expert opinion | http://nascop.or.ke/library/ART%20guidelines/National%20Manual%20for%20the%20management%20of%20HIV%20related%20OIs.pdf |
|               | Standard treatment guidelines | 2009 | Ministry of Medical Services          | Clinical Guidelines for the Management and Referral of Common Conditions at Levels 2-3: Primary Care | (i) Oral candidiasis (ii) Seborrheic dermatitis (iii) Varicella/herpes zoster (iv) Kaposi's sarcoma | Adapted from other guidelines + expert opinion | http://apps.who.int/medicinedocs/documents/s20999en/s20999en.pdf |
| Lesotho       | HIV/AIDS treatment guidelines | 2007 | Ministry of Health and Social Welfare | Working Draft-Lesotho National ART Guidelines                                             | (i) Oral candidiasis (ii) Scabies (iii) Kaposi's sarcoma (iv) Varicella/herpes zoster (v) Molluscum contagiosum (vi) Tinea (vii) Seborrheic dermatitis (viii) Drug reactions | Expert opinion | http://www.who.int/hiv/pub/guidelines/lesotho_art.pdf |
|               | Standard treatment guidelines | 2005 | Ministry of Health and Social Welfare | Standard Treatment Guidelines and Essential Medicines List for Lesotho 2005                | (i) Oral candidiasis (ii) Varicella/herpes zoster (iii) Tinea                                                                                 | Expert opinion | http://www.who.int/selection_medicines/country_lists/ls0_2005_STGs_EML.pdf |
| Country       | Type of guideline                  | Year | Publishing body | Title                                                                 | Disease treatment included                                      | Methodology                  | Link                                                                 |
|---------------|-----------------------------------|------|----------------|------------------------------------------------------------------------|------------------------------------------------------------------|----------------------------|----------------------------------------------------------------------|
| Malawi        | HIV/AIDS treatment guidelines     | 2006 | Ministry of Health | Treatment of AIDS: Guidelines for the Use of Antiretroviral Therapy in Malawi | (i) Kaposi’s sarcoma                                              | Expert opinion              | https://www.google.com/url?sa=t&rct=j&q=&esrc=s&sSOURCE=web&cd=1&cad=rja&uact=8&ved=0CBQFjAA&url=http%3A%2F%2Fwww.hivunitmohmw.org%2Fuploads%2FMalawi-ARV-Guidelines-2ndEdition.doc&ei=P8acU9WcAeXSAT1iYGwAw&usg=AFQjCNGw66c6cSW6YKODVauuFT9IM5lxaxg&sig2=sk9DLvD9yr8onBg6BSzg&bvm=bv.6891936.d.cWc |
|               |                                   |      |                |                                                                        | (ii) Oral candidiasis                                             |                           | http://apps.who.int/medicinedocs/documents/s18801en/s18801en.pdf      |
|               |                                   |      |                |                                                                        | (iii) Molluscum contagiosum                                       |                           |                                                                      |
|               | Standard treatment guidelines     | 2009 | Ministry of Health | Malawi Standard Treatment Guidelines 4th Edition 2009                   | (iv) Kaposi’s sarcoma                                              | Adapted from other guidelines + Expert opinion |                                                                      |
|               |                                   |      |                |                                                                        | (v) Varicella/herpes zoster                                        |                           |                                                                      |
|               |                                   |      |                |                                                                        | (vi) Drug reactions                                               |                           |                                                                      |
| Malawi        | Opportunistic infections treatment guidelines | 2010 | Ministry of Health | Guidelines for the Management of HIV-Related Illnesses in Paediatrics  | (i) Kaposi’s sarcoma                                              | Expert opinion              | http://www.medcol.mw/paediatrics/uploads/HIVguidelines.pdf            |
|               |                                   |      |                |                                                                        | (ii) Oral candidiasis                                             |                           |                                                                      |
|               |                                   |      |                |                                                                        | (iii) Molluscum contagiosum                                       |                           |                                                                      |
|               |                                   |      |                |                                                                        | (iv) Kaposi’s sarcoma                                              |                           |                                                                      |
|               |                                   |      |                |                                                                        | (v) Papular pruritic eruptions                                     |                           |                                                                      |
|               |                                   |      |                |                                                                        | (vi) Varicella/herpes zoster                                       |                           |                                                                      |
|               |                                   |      |                |                                                                        | (vii) Scabies                                                     |                           |                                                                      |
|               |                                   |      |                |                                                                        | (viii) Drug reactions                                             |                           |                                                                      |
|               |                                   |      |                |                                                                        | (i) Oral candidiasis                                              |                           |                                                                      |
|               |                                   |      |                |                                                                        | (ii) Varicella/herpes zoster                                       |                           |                                                                      |
|               |                                   |      |                |                                                                        | (iii) Tinea                                                       |                           |                                                                      |
|               |                                   |      |                |                                                                        | (iv) Scabies                                                      |                           |                                                                      |
|               |                                   |      |                |                                                                        | (v) Seborrheic dermatitis                                          |                           |                                                                      |
|               |                                   |      |                |                                                                        | (vi) Papular pruritic eruptions                                     |                           |                                                                      |
|               |                                   |      |                |                                                                        | (vii) Kaposi’s sarcoma                                             |                           |                                                                      |
|               |                                   |      |                |                                                                        | (viii) Drug reactions                                             |                           |                                                                      |
|               | HIV/AIDS treatment guidelines     | 2011 | Ministry of Health | Clinical Management of HIV in Children and Adults                      | (i) Varicella/herpes zoster                                       | Adapted from other guidelines                                      | http://www.who.int/hiv/pub/guidelines/malawi_art.pdf                  |
|               |                                   |      |                |                                                                        | (ii) Seborrheic dermatitis                                         |                           |                                                                      |
|               |                                   |      |                |                                                                        | (iii) Papular pruritic eruptions                                   |                           |                                                                      |
|               |                                   |      |                |                                                                        | (iv) Scabies                                                      |                           |                                                                      |
|               |                                   |      |                |                                                                        | (v) Oral candidiasis                                              |                           |                                                                      |
|               |                                   |      |                |                                                                        | (vi) Kaposi’s sarcoma                                              |                           |                                                                      |
| Mexico        | None identified                   |      |                |                                                                        | (i) Oral candidiasis                                              |                           |                                                                      |
| Mozambique    | HIV/AIDS treatment guidelines     | 2010 | Ministry of Health | Guia de Tratamento Antiretroviral e Infeccoes Oportunistas no Adulto, Adolescente e Gravidas | (ii) Varicella/herpes zoster                                     | Expert opinion              | http://www.who.int/hiv/pub/guidelines/mozambique_art.pdf?ua=1         |
|               |                                   |      |                |                                                                        | (iii) Tinea                                                       |                           |                                                                      |
|               |                                   |      |                |                                                                        | (iv) Scabies                                                      |                           |                                                                      |
|               |                                   |      |                |                                                                        | (v) Seborrheic dermatitis                                          |                           |                                                                      |
|               |                                   |      |                |                                                                        | (vi) Papular pruritic eruptions                                     |                           |                                                                      |
| Myanmar       | HIV/AIDS treatment guidelines     | 2011 | Ministry of Health | Guidelines for the Clinical Management of HIV Infection in Adults and Adolescents in Myanmar | (i) Varicella/herpes zoster                                       | Adapted from other guidelines + Expert opinion                      | http://aidstar-one.com/sites/default/files/Myanmar_2011.pdf          |
|               |                                   |      |                |                                                                        | (ii) Seborrheic dermatitis                                         |                           |                                                                      |
|               |                                   |      |                |                                                                        | (iii) Papular pruritic eruptions                                   |                           |                                                                      |
|               |                                   |      |                |                                                                        | (iv) Scabies                                                      |                           |                                                                      |
|               |                                   |      |                |                                                                        | (v) Oral candidiasis                                              |                           |                                                                      |
|               |                                   |      |                |                                                                        | (vi) Kaposi’s sarcoma                                              |                           |                                                                      |
| Country   | Type of guideline                  | Year | Publishing body                        | Title                                                                 | Disease treatment included                                      | Methodology                                      | Link                                                                 |
|-----------|-----------------------------------|------|----------------------------------------|----------------------------------------------------------------------|------------------------------------------------------------------|--------------------------------------------------|----------------------------------------------------------------------|
| Namibia   | Standard clinical treatment guidelines | 2011 | Ministry of Health and Social Services | Namibia Standard Treatment Guidelines                                | (i) Kaposi’s sarcoma (ii) Scabies (iii) Seborrheic dermatitis (iv) Molluscum contagiosum (v) Eosinophilic folliculitis (vi) Drug reactions (vii) Varicella/herpes zoster (viii) Tinea (ix) Oral candidiasis | Expert opinion                                    | http://apps.who.int/medicinedocs/documents/s19260en/s19260en.pdf     |
| Namibia   | HIV/AIDS treatment guidelines       | 2014 | Ministry of Health and Social Services | National Guidelines for Antiretroviral Therapy                        | (i) Drug reactions                                                | Adapted from other guidelines + expert opinion     | http://preventcrypto.org/wp-content/uploads/2012/07/Namibia-National-ART-guidelines-2014.pdf |
| Nigeria   | HIV/AIDS treatment guidelines       | 2007 | Federal Ministry of Health             | National Guidelines for HIV and AIDS Treatment and Care in Adolescents and Adults | (i) Oral candidiasis (ii) Varicella/herpes zoster (iii) Kaposi’s sarcoma (iv) Scabies (v) Drugs reactions | Scientific literature + expert opinion             | http://www.who.int/hiv/amds/Nigeria_adult_2007.pdf                    |
| Peru      | None identified                    |      |                                        |                                                                     |                                                                  |                                                  |                                                                      |
| Russia    | None identified                    |      |                                        |                                                                     |                                                                  |                                                  |                                                                      |
| Rwanda    | HIV/AIDS treatment guidelines       | 2007 | Ministry of Health                    | Guide de Prise en Charge des Personnes Infestées par le VIH au Rwanda | (i) Oral candidiasis (ii) Varicella/herpes zoster (iii) Molluscum contagiosum | Adapted from other guidelines + expert opinion     | http://www.aidstar-one.com/sites/default/files/treatment/nationalTreatment_guidelines/Rwanda_2007_cleaner_version_tagged.pdf |
| Rwanda    | HIV/AIDS treatment guidelines       | 2013 | Ministry of Health                    | National Guidelines for Prevention and Management of HIV, STIs & Other Blood Borne Infections | (i) Oral candidiasis (ii) Varicella/herpes zoster (iii) Kaposi’s sarcoma | Adapted from other guidelines + expert opinion     | http://www.aidsspace.org/upload_desc.php?user=7977&upid=2149          |
| South Africa | HIV/AIDS treatment guidelines     | 2010 | National Department of Health         | The South African Antiretroviral Treatment Guidelines 2010            | (i) Oral candidiasis (ii) Varicella/herpes zoster (iii) Seborrheic dermatitis (iv) Molluscum contagiosum (v) Tinea (vi) Drug reactions (vii) Kaposi’s sarcoma | Expert opinion                                    | http://www.aidstar-one.com/sites/default/files/South_Africa_National_HIV_Treatment_Guidelines_Combined_2010.pdf |
| South Africa | Standard clinical treatment guidelines | 2012 | National Department of Health         | Standard Treatment Guidelines and Essential Drugs List for South Africa | (i) Drug reactions (ii) Oral candidiasis (iii) Kaposi’s sarcoma | Scientific literature + expert opinion             | http://www.health.gov.za/docs/Policies/2012/Standard_treatment_guidelines_and_essential_medicines_list_2012.pdf |
| Country          | Type of guideline                  | Year | Publishing body                      | Title                                                   | Disease treatment included                                                                 | Methodology                                 | Link                                                                 |
|------------------|-----------------------------------|------|--------------------------------------|---------------------------------------------------------|-------------------------------------------------------------------------------------------|--------------------------------------------|----------------------------------------------------------------------|
| South Sudan      | None identified                    |      |                                      |                                                         | (i) Papular pruritic eruptions (ii) Molluscum contagiosum (iii) Varicella/herpes zoster (iv) Oral candidiasis (v) Kaposi's sarcoma (vi) Drug reactions | Adapted from other guidelines + expert opinion | http://www.emtct-iatt.org/wp-content/uploads/2013/04/Swaziland_National-Pediatric-HIV-Guidelines_2010.pdf |
| Swaziland        | HIV/AIDS treatment guidelines      | 2010 | Ministry of Health and Social Welfare | Swaziland Paediatric HIV/AIDS Treatment Guidelines     | (i) Papular pruritic eruptions (ii) Molluscum contagiosum (iii) Varicella/herpes zoster (iv) Oral candidiasis (v) Kaposi's sarcoma (vi) Drug reactions | Adapted from other guidelines + expert opinion | http://www.emtct-iatt.org/wp-content/uploads/2013/04/Swaziland_National-Pediatric-HIV-Guidelines_2010.pdf |
|                  | HIV/AIDS treatment guidelines      | 2010 | Ministry of Health and Social Welfare | National Comprehensive HIV Package of Care             | (i) Drug reactions                                                                        | Adapted from other guidelines + expert opinion | http://www.who.int/hiv/pub/guidelines/swaziland_art.pdf               |
| Tanzania         | HIV/AIDS treatment guidelines      | 2012 | Ministry of Health and Social Welfare | National Guidelines for the Management of HIV and AIDS | (i) Oral candidiasis (ii) Papular pruritic eruptions (iii) Scabies (iv) Seborrheic dermatitis (v) Molluscum contagiosum (vi) Kaposi’s sarcoma (vii) Varicella/herpes zoster | Adapted from other guidelines + expert opinion | http://pmtct.or.tz/wp-content/uploads/2013/03/ART-guidelines_PDF.pdf |
| Thailand         | None identified                    |      |                                      |                                                         | (i) Oral candidiasis (ii) Seborrheic dermatitis (iii) Varicella/herpes zoster (iv) Molluscum contagiosum (v) Scabies (vi) Eosinophilic folliculitis (vii) Kaposi's sarcoma (viii) Drug reactions (ix) Papular pruritic eruptions | Scientific literature + expert opinion         | http://www.who.int/hiv/pub/guidelines/caribbean_art.pdf              |
| Togo             | None identified                    |      |                                      |                                                         | (i) Oral candidiasis (ii) Seborrheic dermatitis (iii) Varicella/herpes zoster (iv) Molluscum contagiosum (v) Scabies (vi) Eosinophilic folliculitis (vii) Kaposi’s sarcoma (viii) Drug reactions (ix) Papular pruritic eruptions | Scientific literature + expert opinion         | http://www.who.int/hiv/pub/guidelines/caribbean_art.pdf              |
| Trinidad and Tobago | HIV/AIDS treatment guidelines    | 2005 | Caribbean Epidemiology Centre         | Caribbean Guidelines for the Care and Treatment of Persons with HIV Infection | (i) Oral candidiasis (ii) Seborrheic dermatitis (iii) Varicella/herpes zoster (iv) Molluscum contagiosum (v) Scabies (vi) Eosinophilic folliculitis (vii) Kaposi’s sarcoma (viii) Drug reactions (ix) Papular pruritic eruptions | Scientific literature + expert opinion         | http://www.who.int/hiv/pub/guidelines/caribbean_art.pdf              |
| Uganda           | HIV/AIDS treatment guidelines      | 2009 | Ministry of Health                   | National Antiretroviral Treatment Guidelines for Adults, Adolescents, and Children | (i) Drug reactions                                                                        | Adapted from other guidelines + expert opinion | http://www.aidstar-one.com/sites/default/files/treatment/national_treatment_guidelines/Uganda_guidelines_2009.pdf |
| Uganda           | Standard clinical treatment guidelines | 2012 | Ministry of Health                   | Uganda Clinical Guidelines 2012                          | (i) Drug reactions                                                                        | Adapted from other guidelines + expert opinion | http://sure.ug/?download=UCG%202012.pdf                             |
| Country        | Type of guideline | Year | Publishing body                  | Title                                                                 | Disease treatment included                                                                                           | Methodology                          | Link                                                                 |
|---------------|-------------------|------|----------------------------------|----------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|---------------------------------------|----------------------------------------------------------------------|
| UK            | No national guidelines identified; however, guidelines exist from societies (see society guidelines) |      |                                  |                                                                      |                                                                      |                                                      |                                                                      |
| Ukraine       | Opportunistic infections treatment guidelines | 2007 | Ministry of Health               | Clinical Protocol for the Treatment of Opportunistic Infections in Patients with HIV and AIDS | (i) Oral candidiasis  
(ii) Varicella/herpes zoster  
(iii) Kaposi's sarcoma | Adapted from other guidelines + expert opinion | http://moz.gov.ua/ua/portal/dn_20031212_580.html |
|               | Opportunistic infections treatment guidelines | 2004 | Centers for Disease Control and Prevention | Treating Opportunistic Infections Among HIV-Infected Adults and Adolescents | (i) Oral candidiasis  
(ii) Varicella/herpes zoster | IDSA-USPHS | http://www.cdc.gov/mmwr/pdf/rr/rr5315.pdf |
|               | STD/STI treatment guidelines                      | 2010 | Centers for Disease Control and Prevention | Sexually Transmitted Diseases Treatment Guidelines, 2010 Guidelines for the Prevention and Treatment of Opportunistic Infections in HIV-Exposed and HIV-Infected Children | (i) Scabies | Scientific literature | http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5912a1.htm |
| USA           | HIV/AIDS treatment guidelines                     | 2011 | US Department of Veteran Affairs  | Dermatologic Conditions-Primary Care of Veterans with HIV               | (i) Seborrheic dermatitis  
(ii) Eosinophilic folliculitis | Scientific literature | http://www.hiv.va.gov/provider/manual-primary-care/dermatologic.asp |
|               | Disease-specific treatment guidelines             | 2011 | Department of Health and Human Services | Clinical Information: Molluscum Contagiosum                       | (i) Molluscum contagiosum | Scientific literature | http://www.cdc.gov/ncidod/dvrmd/molluscum/clinical_overview.htm |
|               | Disease-specific treatment guidelines             | 2013 | National Cancer Institute         | Kaposi's Sarcoma Treatment                                         | (i) Kaposi's sarcoma | Scientific literature | http://www.cancer.gov/cancertopics/pdq/treatment/kaposi/HealthProfessional/page3 |
|               | Opportunistic infections treatment guidelines      | 2013 | Department of Health and Human Services | Guidelines for the Prevention and Treatment of Opportunistic Infections in HIV-Infected Adults and Adolescents | (i) Varicella/herpes zoster  
(ii) Oral candidiasis  
(iii) Kaposi's sarcoma | IDSA-USPHS | http://aidsinfo.nih.gov/guidelines/html/4/adult-and-adolescent-oi-prevention-and-treatment-guidelines/0 |
| Vietnam       | HIV/AIDS treatment guidelines                     | 2009 | Ministry of Health               | Guidelines for HIV/AIDS Diagnosis and Treatment                     | (i) Oral candidiasis  
(ii) Varicella/herpes zoster  
(iii) Molluscum contagiosum  
(iv) Drug reactions | Adapted from other guidelines | http://www.aidspace.org/upload_desc.php?user=7977&upid=2000 |
| Country         | Type of guideline                      | Year | Publishing body                | Title                                                                 | Disease treatment included                                                                 | Methodology                   | Link                                                                 |
|----------------|----------------------------------------|------|-------------------------------|----------------------------------------------------------------------|---------------------------------------------------------------------------------------------|-------------------------------|----------------------------------------------------------------------|
| Zambia         | HIV/AIDS treatment guidelines          | 2002 | Central Board of Health        | Integrated Technical Guidelines for Frontline Healthworkers          | (i) Seborrheic dermatitis (ii) Papular pruritic eruptions (iii) Molluscum contagiosum (iv) Oral candidiasis (v) Varicella/herpes zoster (vi) Kaposi’s sarcoma (vii) Papular pruritic eruptions (viii) Molluscum contagiosum (ix) Eosinophilic folliculitis | Expert opinion                | http://pdf.usaid.gov/pdfdocs/PNADD029.pdf                           |
| Zambia         | HIV/AIDS treatment guidelines          | 2008 | Zambia HIV National Guidelines | Zambia HIV National Guidelines                                        | (i) Oralcandidiasis (ii) Varicella/herpes zoster (iii) Kaposi’s sarcoma (iv) Seborrheic dermatitis (v) Molluscum contagiosum (vi) Eosinophilic folliculitis | Scientific literature         | http://www.zambiahivguide.org/                                      |
| Zimbabwe       | Standard clinical treatment guidelines  | 2008 | Ministry of Health             | Standard Treatment Guidelines, Essential Medicines List & Essential Laboratory Supplies List for Zambia | (i) Kaposi’s sarcoma                                                                      | Expert opinion                | http://apps.who.int/medicinedocs/documents/s9280en/s9280en.pdf      |
| Zimbabwe       | HIV/AIDS treatment guidelines          | 2010 | Ministry of Health             | Adult and Adolescent Antiretroviral Therapy Protocols 2010            | (i) Drug reactions                                                                        | Adapted from other guidelines + expert opinion | http://www.who.int/hiv/pub/guidelines/zambia_art.pdf?ua=1            |
| Zimbabwe       | Standard clinical treatment guidelines  | 2011 | Ministry of Health and Child Welfare | 6th Essential Drugs List and Standard Treatment Guidelines for Zimbabwe | (i) Varicella/herpes zoster (ii) Seborrheic dermatitis (iii) Drug reactions (iv) Kaposi’s sarcoma (v) Papular pruritic eruptions (vi) Oral candidiasis | Scientific literature + expert opinion | http://globalhealth.stanford.edu/documents/EDLIZ%202011%206th%20edition.doc |
| Zimbabwe       | HIV/AIDS treatment guidelines          | 2013 | Ministry of Health and Child Care | Guidelines for Antiretroviral Therapy for the Prevention and Treatment of HIV in Zimbabwe | (i) Drug reactions (ii) Kaposi’s sarcoma                                                   | Adapted from other guidelines + expert opinion | https://www.google.com/url?sa=t&rct=j&q=&src=a&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=0CCcQFjAA&url=http%3A%2F%2Fwww.emict-iatt.org%2Fwp-content%2Fuploads%2F2014%2F05%2F2013-zimbabwe-arv-guidelines-main-document.pdf&ei=YPeMU_z2FqWnsASEYyHoBQ&usg=AFQjCNhchlkdhbz14yZIM7SOV32vdCgn1Q&sig2=ZeVau9vbaQxaZxYV5aOA&bvm=bv.6819837,d.cWc |
| Society                              | Type of guideline                | Year | Title                                                                 | Disease treatment included                                                                 | Methodology                       | Link                                                                 |
|-------------------------------------|---------------------------------|------|----------------------------------------------------------------------|---------------------------------------------------------------------------------------------|-----------------------------------|----------------------------------------------------------------------|
| AIDS MEDS                           | HIV/AIDS treatment guidelines   | 2011 | Opportunistic Infections                                             | (i) Kaposi’s sarcoma (ii) Varicella/herpes zoster (iii) Molluscum contagiosum (iv) Oral candidiasis | Expert opinion                    | http://www.aidsmeds.com/articles/Ons_4898.shtml                      |
| American Academy of Dermatology (AAD)| Skin disease treatment guidelines | 1997 | Guidelines of Care for Dermatologic Conditions in Patients Infected with HIV | (i) Oral candidiasis (ii) Papular pruritic eruptions (iii) Kaposi’s sarcoma (iv) Varicella/herpes zoster (v) Molluscum contagiosum (vi) Scabies (vii) Seborrheic dermatitis (viii) Eosinophilic folliculitis | Scientific literature              | http://www.ncbi.nlm.nih.gov/pubmed/?term=Guidelines+of+Care+for+Dermatologic+Conditions+in+Patients+Infected+with+HIV |
| American Cancer Society             | Disease-specific treatment guidelines | 2013 | Kaposi Sarcoma                                                        | (i) Kaposi’s sarcoma                                                                         | Scientific literature              | http://www.cancer.org/acs/groups/cid/documents/webcontent/003106-pdf.pdf |
| Australasian Society for HIV Medicine | Opportunistic infections treatment guidelines | 2009 | HIV Management in Australasia                                        | (i) Scabies (ii) Seborrheic dermatitis (iii) Drug reactions (iv) Eosinophilic folliculitis (v) Papular pruritic eruptions (vi) Tinea (vii) Molluscum contagiosum (viii) Oral candidiasis (ix) Varicella/herpes zoster (x) Kaposi’s sarcoma | Scientific literature + expert opinion | http://www.ashm.org.au/images/Publications/Monographs/HIV_Management_Australasia/HIV-Management-Australia-2009.pdf |
| British Association of Sexual Health and HIV | Disease-specific treatment guidelines | 2008 | United Kingdom National Guideline on the Management of Scabies Infestation | (i) Scabies                                                                                 | Gradation of evidence quality     | http://www.bashh.org/documents/27/27.pdf                               |
| British Columbia Centre for Excellence in HIV/AIDS | Opportunistic infections treatment guidelines | 2009 | Therapeutic Guidelines for Opportunistic Infections                  | (i) Oral candidiasis (ii) Varicella/herpes zoster                                             | Scientific literature              | http://www.cfenet.ubc.ca/sites/default/files/uploads/docs/Opportunistic_Infection_Therapeutic_Guidelines2009.pdf |
| Society                                | Type of guideline                              | Year | Title                                                                 | Disease treatment included                  | Methodology | Link                                                                 |
|----------------------------------------|------------------------------------------------|------|----------------------------------------------------------------------|---------------------------------------------|-------------|----------------------------------------------------------------------|
| British HIV Association (BHIVA)        | Opportunistic infections treatment guidelines  | 2011 | British HIV Association and British Infection Association Guidelines for the Treatment of Opportunistic Infection in HIV-Seropositive Individuals 2011 | (i) Varicella/herpes zoster (ii) Scabies (iii) Oral candidiasis | CEBM        | http://www.bhiva.org/documents/Guidelines/OI/hiv_v12_is2_iss2Press_Text.pdf |
| British HIV Association and British Infection Association | HIV/AIDS treatment guidelines                | 2014 | Guidelines for HIV-Associated malignancies 2014                        | (i) Kaposi's sarcoma                         | GRADE       | http://www.bhiva.org/documents/Guidelines/Malignancy/2014/MalignancyGuidelines2014.pdf |
| British Society for Sexual Health and HIV | Disease-specific treatment guidelines          | 2014 | DRAFT-UK National Guideline for the Management of Genital Molluscum in Adults, 2014 | (i) Molluscum contagiosum                   | CEBM        | https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=0CB0QFjAA&url=http%3A%2F%2Fwww.bashh.org%2Fdocuments%2FMC%2520draft%25202014.doc&ei=CoibU-HMrmsASmxAE&usg=AFQjCNF1Dx4UQrTIIYL3gbXqmQIZVbjkQ&sig2=2dBFgaS0PlOvgqjAMCW8_A&bvm=bv.6891936,d.cWc |
| Cancer Care Ontario                    | Disease-specific treatment guidelines          | 2013 | Liposomal Anthracyclines in the Management of Patients with HIV-Positive Kaposi's Sarcoma: Guideline Recommendations | (i) Kaposi's sarcoma                        | Scientific literature | https://www.cancercare.on.ca/common/pages/UserFile.aspx?serverId=6&path=/File%20Database/CCO%20Files/PEBC/pebc12-8f.pdf |
| Society                                      | Type of guideline          | Year  | Title                                                                 | Disease treatment included                                           | Methodology                  | Link                                                                 |
|---------------------------------------------|----------------------------|-------|-----------------------------------------------------------------------|-----------------------------------------------------------------------|-----------------------------|----------------------------------------------------------------------|
| EACS European AIDS Clinical Society         | HIV/AIDS treatment guidelines | 2013  | EACS European AIDS Clinical Society Guidelines                        | (i) Varicella/herpes zoster (ii) Oral candidiasis                      | Scientific literature       | http://www.eacsociety.org/Portals/0/Guidelines_Online_131014.pdf     |
| European Society of Clinical Microbiology and Infectious Diseases | Disease-specific treatment guidelines | 2012  | ESCMID Guideline for the Diagnosis and Management of Candida Diseases 2012: Patients with HIV Infection or AIDS | (i) Oral candidiasis                                                  | GRADE                      | https://www.escmid.org/fileadmin/src/media/PDFs/4ESCMIDLibrary/2MedicalGuidelines/ESCMID_Candida_Guidelines_CMI_Dec2012_HIV-AIDS.pdf |
| Family Health International 360            | HIV/AIDS treatment guidelines | 2004  | HIV/AIDS Care and Treatment                                           | (i) Scabies (ii) Varicella/herpes zoster (iii) Oral candidiasis (iv) Tinea (v) Molluscum contagiosum (vi) Papular pruritic eruptions (vii) Drug reactions (viii) Seborrheic dermatitis (ix) Kaposi’s sarcoma | Scientific literature       | http://www.fhi360.org/sites/default/files/media/documents/HIV-AIDS%20Care%20and%20Treatment%20Burundi%202004.pdf |
| German and Austrian AIDS Society           | Opportunistic infections treatment guidelines | 2013  | Therapy and Prophylaxis of Opportunistic Infections in HIV-Infected Patients: A Guideline by the German and Austrian AIDS Societies | (i) Varicella/herpes zoster (ii) Oral candidiasis                      | Scientific literature + expert opinion | http://www.daignet.de/site-content/hiv-therapie/leitlinien-1/2013_Infection_OI_LL%20englisch%20neu.pdf |
| HIV Clinical Resource                      | Skin disease treatment guidelines | 2004  | Dermatologic Manifestations                                           | (i) Oral candidiasis (ii) Tinea (iii) Varicella/herpes zoster (iv) Molluscum contagiosum (v) Scabies (vi) Seborrheic dermatitis (vii) Drug reactions | Scientific literature       | http://www.hivguidelines.org/clinical-guidelines/infants-children/dermatologic-manifestations/ |
| Society                                | Type of guideline          | Year | Title                                                                 | Disease treatment included                             | Methodology                        | Link                                                                 |
|----------------------------------------|----------------------------|------|----------------------------------------------------------------------|--------------------------------------------------------|------------------------------------|----------------------------------------------------------------------|
| Infectious Diseases Society of America | Disease-specific guidelines| 2000 | Practice Guidelines for the Treatment of Candidiasis. Infectious Diseases Society of America Practice Guidelines for the Diagnosis and Management of Skin and Soft-Tissue Infections | (i) Oral candidiasis                              | Scientific literature                      | http://www-ncbi-nlm-nih-gov.ezp-prod1.hul.harvard.edu/pubmed/10770728 |
|                                        | Skin disease treatment guidelines | 2011 | (i) Varicella/herpes zoster                                           | IDSA-USPHS                                             |                                    | http://www.idsociety.org/uploadedFiles/IDSA/Guidelines-Patient_Care/PDF.Library/Skin%20and%20Soft%20Tissue.pdf |
| International Antiviral Society USA    | Skin disease treatment guidelines | 2006 | Dermatologic Manifestations of HIV Infection                           | (i) Papular pruritic eruptions                        | Expert opinion                      | https://www.iasusa.org/sites/default/files/tam/13-5-149.pdf            |
| International Foundation for Dermatology (IFD) | Disease-specific treatment guidelines | ?    | Protocols/Management of Tinea Capitis                                 | (i) Tinea                                              | Scientific literature                      | http://www.ifd.org/protocols/tinea-capitis                             |
| International Foundation for Dermatology (IFD) | Disease-specific treatment guidelines | ?    | Reports & Management Protocols: Management of Scabies                  | (i) Scabies                                             | Scientific literature                      | http://www.ifd.org/protocols/scabies                                   |
| International Union against STIs (IUSTI) | Disease-specific treatment guidelines | 2010 | European Guideline for the Management of Scabies                      | (i) Scabies                                             | Adapted from other guidelines             | http://www.iusti.org/regions/Europe/pdf/2010/Euro_Guideline_Scabies_2010.pdf |
| Médecins Sans Frontières               | Standard clinical treatment guidelines | 2013 | Clinical Guidelines: Diagnosis and Treatment Manual for Curative Programmes in Hospitals and Dispensaries | (i) Varicella/herpes zoster (ii) Scabies (iii) Oral candidiasis (iv) Seborrheic dermatitis (v) Tinea | Adapted from other guidelines + expert opinion | http://refbooks.msf.org/msf_docs/en/clinical_guide/cg_en.pdf             |
| Society                                      | Type of guideline                      | Year | Title                                                                 | Disease treatment included                                                                 | Methodology                       | Link                                                                 |
|---------------------------------------------|----------------------------------------|------|----------------------------------------------------------------------|-----------------------------------------------------------------------------------------|-----------------------------------|----------------------------------------------------------------------|
| Stanley Ho Centre for Emerging Infectious Diseases | HIV/AIDS treatment guidelines          | 2007 | HIV Manual 2007                                                      | (i) Varicella/herpes zoster (ii) Molluscum contagiosum (iii) Oral candidiasis (iv) Papular pruritic eruptions (v) Eosinophilic folliculitis | Scientific literature              | http://www.info.gov.hk/aids/pdf/g190htm/iv_index.htm                  |
|                                             |                                        |      | Interventions for the Prevention and Management of Oralpharyngeal Candidiasis Associated with HIV Infection in Adults and Children | (i) Oral candidiasis                                                                     | Scientific literature              | http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD003940.pub3/abstract |
| The Cochrane Library                        | Disease-specific treatment guidelines  | 2010 |                                                                     | (i) Oral candidiasis                                                                     | Scientific literature              | http://www.ncbi.nlm.nih.gov.ezp-prod1.hul.harvard.edu/pubmed/23805440 |
|                                             | HIV/AIDS treatment guidelines          | 2008 | Integrated Management of Childhood Illness for High HIV Settings     | (i) Oral candidiasis (ii) Seborrheic dermatitis (iii) Scabies (iv) Drug reactions (v) Papular pruritic eruptions (vi) Varicella/herpes zoster (vii) Tinea (viii) Molluscum contagiosum (i) Eosinophilic folliculitis (ii) Papular pruritic eruption (iii) Scabies (iv) Molluscum contagiosum (v) Varicella/herpes zoster (vi) Kaposi sarcoma | Scientific literature + expert opinion | http://www.ncbi.nlm.nih.gov.ezp-prod1.hul.harvard.edu/pubmed/23805440 |
| Standard clinical treatment guidelines       |                                        | 2011 | IMAI District Clinician Manual: Hospital Care for Adolescents and Adults | Manual on Paediatric HIV Care and Treatment for District Hospitals | (i) Oral candidiasis | Adapted from other guidelines                                         | http://www.who.int/influenza/patient_care/DCM.Volume_1.pdf           |
| WHO                                         | HIV/AIDS treatment guidelines          | 2011 | Integrated Management of Childhood Illness                          | (i) Papular pruritic eruptions (ii) Tinea (iii) Scabies (iv) Varicella/herpes zoster (v) Seborrheic dermatitis (vi) Drug reactions | Scientific literature              | http://apps.who.int/iris/bitstream/10665/104772/16/9789241506823_Chartbook_eng.pdf?ua=1 |
| Standard clinical treatment guidelines       |                                        | 2014 | Integrated Management of Childhood Illness                          |                                                                                         | Scientific literature              | http://apps.who.int/iris/bitstream/10665/81170/1/9789241548373_eng.pdf?ua=1 |
| Standard clinical treatment guidelines       |                                        | 2013 | Pocket Book of Hospital Care for Children                           | (i) Oral candidiasis                                                                     | Scientific literature              | http://apps.who.int/iris/bitstream/10665/104772/16/9789241506823_Chartbook_eng.pdf?ua=1 |
IDSA: Infectious Disease Society of America
STDs: Sexually transmitted infections
TB: Tuberculosis
USPHS: US Public Health Service
USPSTF: US Preventative Services Task Force
WHO: World Health Organization

Competing Interests
The authors have no competing interests to declare.

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References

[1] UNAIDS, The gap report, 2014, http://www.unaids.org/en/media/unaids/contentassets/documents/unaidspublication/2014/UNAIDS_Gap_report_en.pdf.
[2] R. J. Hay, N. E. Johns, H. C. Williams et al., “The global burden of skin disease in 2010: an analysis of the prevalence and impact of skin conditions,” Journal of Investigative Dermatology, vol. 134, no. 6, pp. 1527–1534, 2014.
[3] E. Tschachler, P. R. Bergstresser, and G. Stingl, “HIV-related skin diseases,” The Lancet, vol. 348, no. 9028, pp. 659–663, 1996.
[4] E. N. Nnoruka, J. C. Chukwuka, and B. Anisui, “Correlation of mucocutaneous manifestations of HIV/AIDS infection with CD4 counts and disease progression,” International Journal of Dermatology, vol. 46, supplement 2, pp. 14–18, 2007.
[5] V. Mendiratta, S. Mittal, A. Jain, and R. Chander, “Mucocutaneous manifestations in children with human immunodeficiency virus infection,” Indian Journal of Dermatology, Venereology and Leprology, vol. 76, no. 5, pp. 458–466, 2010.
[6] S. A. Coopman, R. A. Johnson, R. Platt, and R. S. Stern, “Cutaneous disease and drug reactions in HIV infection,” The New England Journal of Medicine, vol. 328, no. 23, pp. 1670–1674, 1993.
[7] J. Hu, K. McKoy, A. Papier et al., “Dermatology and HIV/AIDS in Africa,” Journal of Global Infectious Diseases, vol. 3, no. 3, pp. 275–280, 2011.
[8] G. Schmid-Ott, B. Jaeger, H. W. Kuensebeck, R. Ott, and F. Lamprecht, “Dimensions of stigmatization in patients with psoriasis in a ‘Questionnaire on Experience with Skin Complaints’,” Dermatology, vol. 193, no. 4, pp. 304–310, 1996.
[9] T. A. Maurer, “Dermatologic manifestations of HIV infection,” Topics in HIV Medicine, vol. 13, no. 5, pp. 149–154, 2005.
[10] M. E. Garman and S. K. Tyring, “The cutaneous manifestations of HIV infection,” Dermatologic Clinics, vol. 20, no. 2, pp. 193–208, 2002.
[11] S. Lowe, R. A. Ferrand, R. Morris-Jones et al., “Skin disease among human immunodeficiency virus-infected adolescents in Zimbabwe: a strong indicator of underlying HIV infection,” Pediatric Infectious Disease Journal, vol. 29, no. 4, pp. 346–351, 2010.
[12] R. Hay, S. E. Bendecck, S. Chen et al., “Skin diseases,” in Disease Control Priorities in Developing Countries, D. T. Jamison, J. G. Breman, A. R. Measham et al., Eds., chapter 37, The International Bank for Reconstruction and Development/The World Bank Group, Washington, DC, USA, 2006.
[13] M. Waugh, “Skin diseases—clinical indicator of immune status in HIV infection,” International Journal of Dermatology, vol. 44, no. 8, pp. 705–706, 2005.
[14] A. M. Cook, I. G. Finlay, A. G. K. Edwards et al., “Efficiency of searching the gray literature in palliative care,” Journal of Pain and Symptom Management, vol. 22, no. 3, pp. 797–801, 2001.
[15] UNAIDS, HIV Estimates with Uncertainty Bounds. UNAIDS Report on the Global AIDS Epidemic—2013, 2014, http://www.unaids.org/en/dataanalysis/knowyourepidemic/epidemiology-publications/.
[16] WHO, Database of National HIV and TB Guidelines, 2005–2011, 2014, http://www.who.int/hiv/pub/national_guidelines/en/.
[17] USAID, AIDSTAR-One, National Treatment Guidelines, June 2014, https://aidsfree.usaid.gov/resources/guidance-data/treatment.
[18] The Interagency Task Team on the Prevention and Treatment of HIV Infection in Pregnant Women, Mothers and Children, June 2014, http://www.emtct-iatt.org/.
[19] AIDSspace, “Library,” 2014, http://www.aidspace.org/library.php.
[20] Cochrane Review Group on HIV/AIDS, June 2014, http://hiv.cochrane.org/about-cochrane-hiv-aidsgroup.
[21] G. H. Guyatt, A. D. Oxman, G. E. Vist et al., “GRADE: an emerging consensus on rating quality of evidence and strength of recommendations,” The British Medical Journal, vol. 336, no. 7650, pp. 924–926, 2008.
[22] The World Bank Group 2014, July 2014, http://data.worldbank.org/country.
[23] M. J. Rico, S. A. Myers, and M. R. Sanchez, “Guidelines of care for dermatologic conditions in patients infected with HIV,” Guidelines/Outcomes Committee. American Academy of Dermatology, Journal of the American Academy of Dermatology, vol. 37, no. 3, part 1, pp. 450–472, 1997.
[24] S. G. Pahwa, E. L. Handelsman, and H. T. Shin, Dermatologic Manifestations. HIV Clinical Resource, August 2014, http://www.hivguidelines.org/wp-content/uploads/p-derm-714.08.pdf.
[25] A. D. Oxman, J. N. Lavis, and A. Fretheim, “Use of evidence in WHO recommendations,” The Lancet, vol. 369, no. 9576, pp. 1883–1889, 2007.
[26] P. G. Shekelle, E. Ortiz, S. Rhodes et al., “Validity of the agency for healthcare research and quality clinical practice guidelines: how quickly do guidelines become outdated?” Journal of the American Medical Association, vol. 286, no. 12, pp. 1461–1467, 2001.
[27] World Health Organization, Guidelines on the Treatment of Skin and Oral HIV-Associated Conditions in Children and Adults, World Health Organization, 2014, http://www.who.int/maternal_child_adolescent/documents/skin-mucosal-and-hiv/en/.