

# iAIDS: HIV-Related Internet Resources for the Practicing Clinician

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**In this review, we collate 25 clinically useful human immunodeficiency virus (HIV)–related Web sites to facilitate efficient access to online resources according to themes of clinical inquiry: (1) comprehensive clinical information, (2) opportunistic infections, (3) antiretroviral drug interactions, (4) care of HIV-infected women and children, and (5) continuing medical education. We evaluated these Web sites for clinical content and quality using criteria including the currency of information, inclusion of references, sponsors, whether the site is useful in resource-limited settings, ease of navigation, and content specific for each theme. Using the specified criteria, we provided overall ratings for each Web site. We conclude that the Web sites listed in this review can help extend knowledge about best practices and provide real-time patient care support to clinicians.**

As the body of data that must be considered by clinicians when making management decisions for human immunodeficiency virus (HIV)–infected individuals has grown, the Internet has become an invaluable source of clinically relevant information for the practice of HIV medicine. HIV maintains a particularly robust impact on the Web community, relative to other common diseases; it has more Google hits per death than do breast cancer, lung cancer, heart disease, stroke, diabetes, Alzheimer disease, influenza, renal disease, and septicemia (Figure 1). While the impact of HIV on the Web has remained relatively constant, the details have changed since previous reviews have been published [2, 3].

In contrast with traditional printed material, the information on the Internet is fluid, and it can be constantly updated with the most recent data in real time. This has nurtured the development of interactive resources that allow clinicians to input individualized queries to answer specific questions related to each unique patient. The Internet also allows practitioners with varying levels of experience and resource availability, including

those who practice in developing nations, to seek real-time “expert opinion.” As a result, many practitioners worldwide have come to rely on the Internet. Although the Internet expands the scope of knowledge available to the individual practitioner, there is no guarantee that the information taken from the Internet is reliable or updated to reflect the current standard of care.

The objective of this review is to identify Web sites that can act as starting points for clinicians to access up-to-date online information about HIV clinical management. To that end, 4 physicians who treat HIV-infected individuals and who use the Web in their practice gathered together to organize and evaluate HIV-related Web sites with clinical content. The result was an organized set of tables that can be used during interactions with our patients and that can be a useful starting point for other HIV clinicians to obtain current clinically relevant information.

## METHODS

**Web site identification.** A series of Internet searches conducted from December 2009 through March 2010 using standard search engines such as Google and Yahoo was conducted querying for search terms including “HIV,” “HIV and medicine,” “HIV and clinical,” “HIV and guidelines,” “HIV and clinical guidelines,” “HIV and drug interactions,” and other relevant search terms of interest. Additional Web sites were identified from previous use and experience by the authors as clinicians serving HIV-infected individuals and from Web links

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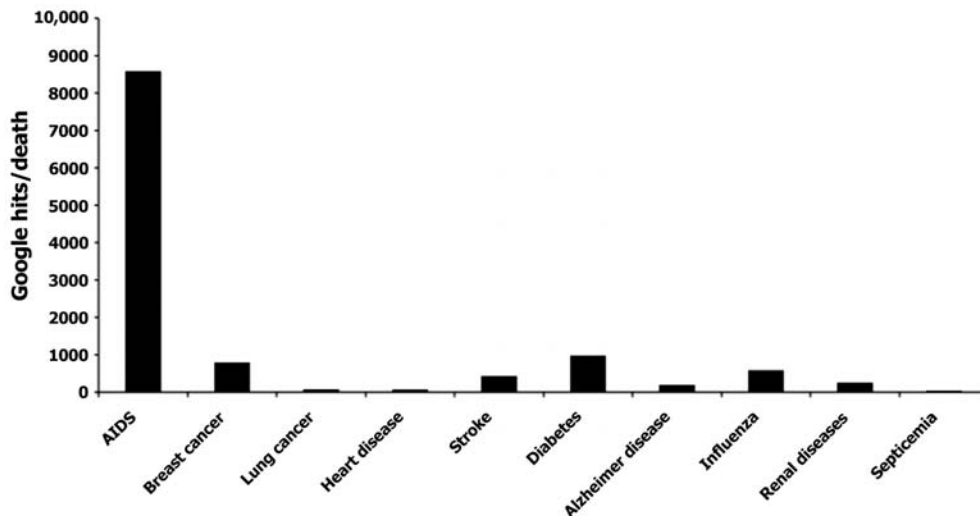
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**Figure 1.** Number of Web sites per death for the top 10 causes of death in the United States. The top 10 causes of death in the United States, based on 2006 data [1], and HIV were used as search terms in a Google search in March 2010. Bar graph for each disease represents number of disease-specific Web sites per US death caused by that disease.

at the Web sites identified through the Internet search. The contents of the identified Web sites were reviewed for clinical relevancy and quality. All Web sites included were accessed and reviewed for content within the 4 weeks prior to manuscript submission, to ensure that the information included in this review is current. Web sites were listed as having received private industry funding or not, where relevant. Funding determinations were based on information available at each Web site. Web sites that receive funding from pharmaceutical, biotechnology, or other health care-related companies were listed in the tables as being funded by “industry.” Web sites that generated revenue solely from advertisements unrelated to the medical industry were not labeled as industry funded.

**Evaluation criteria.** The clinical relevance of Web sites was assessed on the basis of criteria tailored to specific topics, as indicated in each table. The quality of Web sites was evaluated using 4 criteria, including (1) the published Health On the Net Code of Conduct for medical and health Web sites (HON-Code), (2) inclusion of reference citations, (3) information that was current and up-to-date, and (4) ease of navigation. In brief, the HONCode was established as an ethical code to improve the quality of information for medical and health Web sites, using a set of 8 principles (authoritative, complementarity, privacy, attribution, justifiability, transparency, financial disclosure, and advertising policy). Further information on the HONCode can be found online [4]. A Web site was considered up-to-date if the topics covered had been updated since the most recent publication of guidelines on those topics.

**Evaluation method.** Web sites were scored on a scale of 1 to 4 based on how well they met the 4 criteria, with a score of 4 being the best possible rating. Specifically, 1 point was

awarded for each of the following: fulfilling  $\geq 7$  criteria of the HONCode; citing relevant references on the topics covered; providing information that was mostly or entirely up-to-date; and having good or excellent ease of navigation on the Web site. Web sites were included in this review on the basis of (1) whether they met the review’s objective criteria for clinical relevancy and quality, and (2) the authors’ consensus on their subjective evaluations of the usefulness of the Web sites.

## RESULTS

All the Web sites shown in the tables were evaluated on the basis of the criteria described in the Methods, as well as additional criteria described below. Although all the Web sites listed in this review are very useful resources, the tables were designed to highlight the differences between the Web sites. Table 1 lists Web sites that offer comprehensive HIV-related information. All are comprehensive resources that offer current information about antiretroviral medications and resistance to those medications, drug-drug interactions, obstetric guidelines, pediatric guidelines, treatment of opportunistic infections, HIV primary care, HIV prevention, and sexually transmitted infections and that cite their sources and fulfill nearly all the HON criteria. These Web sites are those that we access when starting a search for clinically relevant information related to HIV, and 4 of the most useful of these sites are shown in Figure 2.

Table 2 lists Web sites that help navigate the varied and complex drug interactions that often occur with antiretrovirals. Each of these Web sites provides information about antiretroviral medications and was evaluated for the ease of use, the ability to view multiple interactions simultaneously, and the

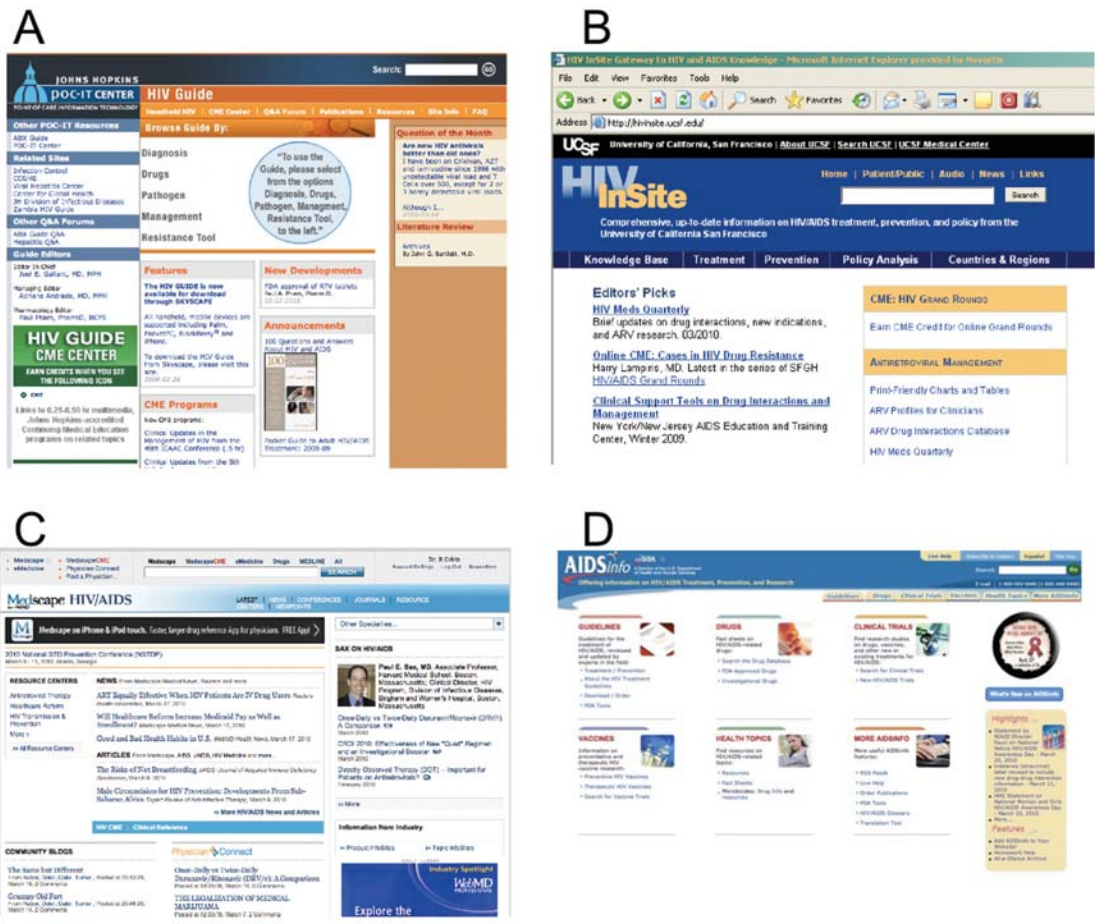
**Table 1. List of Web Sites Offering Comprehensive Human Immunodeficiency Virus (HIV)-Related Information**

Resource [reference]	Web address	Source; location(s)	Sponsor(s)	HIV resistance	HIV primary care	STI guidelines	Ease of navigation <sup>a</sup>	Rating <sup>b</sup>
AIDSInfo [5]	<a href="http://www.aidsinfo.nih.gov">http://www.aidsinfo.nih.gov</a>	DHHS; US	DHHS, NIH, NLM, HRSA, CDC				4	4
AIDSMap [6]	<a href="http://www.aidsmap.com">http://www.aidsmap.com</a>	NAM; UK	Consortium of UK government agencies, UNAIDS, WHO, private trusts, and industry	X			3	4
CDC [7]	<a href="http://www.cdc.gov/hiv/">http://www.cdc.gov/hiv/</a>	CDC; US	CDC		X	X	3	4
HIV InSite [8]	<a href="http://hivinsite.ucsf.edu/">http://hivinsite.ucsf.edu/</a>	UCSF; US	Industry	X	X	X	4	4
HIVMA [9]	<a href="http://www.hivma.org">http://www.hivma.org</a>	HIVMA; US	IDSA		X		3	4
Johns Hopkins HIV Guide [10]	<a href="http://hopkins-hivguide.org/">http://hopkins-hivguide.org/</a>	Johns Hopkins University; US	Industry	X	X	X	3	4
The Body Pro [11]	<a href="http://www.thebodypro.com/">http://www.thebodypro.com/</a>	Body Health Resources; US	Body Health Resources Corp.	X	X	X	4	4
International AIDS Society—USA [12]	<a href="http://www.iasusa.org">http://www.iasusa.org</a>	IAS-USA; US	Industry	X			3	4
Medscape HIV/AIDS [13]	<a href="http://www.medscape.com/hiv">http://www.medscape.com/hiv</a>	Medscape WebMD; US	Web MD		X	X	4	4
UpToDate [14]	<a href="http://www.uptodate.com">http://www.uptodate.com</a>	UpToDate, Inc.; US	Funded by subscriptions	X	X	X	4	4
AIDS Education and Training Centers National Resource Center [15]	<a href="http://aidsetc.org">http://aidsetc.org</a>	AETC National Resource Center, UMDNJ, IAS-USA, UCSF Center for HIV Information; US	HRSA	X	X	X	3	3
HIV Medicine [16]	<a href="http://www.hivmedicine.com/">http://www.hivmedicine.com/</a>	Amedeo Group, Flying Publisher; Germany and France	HIVMA	X	X	X	3	3
Antimicrobe [17]	<a href="http://www.antimicrobe.org">http://www.antimicrobe.org</a>	Antimicrobe.org; US	Part of a series of textbooks focused on antimicrobial therapy	X	X		2	2

**NOTE.** AETC, AIDS Education and Treatment Centers; CDC, Centers for Disease Control and Prevention; DHHS, Department of Health and Human Services; HIVMA, HIV Medical Association; HRSA, Health Resources Services Administration; IAS-USA, International AIDS Society—USA; IDSA, Infectious Diseases Society of America; NAM, National AIDS Manual; NIH, National Institutes of Health; NLM, National Library of Medicine; STI, sexually transmitted infection; UCSF, University of California at San Francisco; UK, United Kingdom; UMDNJ, University of Medicine and Dentistry of New Jersey; UNAIDS, United Nations AIDS; WHO, World Health Organization.

<sup>a</sup> Ease of navigation rating on a 1–4 scale, with 4 being very easy.

<sup>b</sup> Overall rating on a 1–4 scale based on consensus of the authors, with 4 being excellent.



**Figure 2.** Screenshots of selected Web sites. *A*, Johns Hopkins HIV Guide (<http://www.hopkins-hivguide.org/>) [10]. *B*, HIV InSite (<http://hivinsite.ucsf.edu/>) [8]. *C*, Medscape's HIV/AIDS homepage (<http://www.medscape.com/hiv>) [13]. *D*, AIDSInfo.gov (<http://www.aidsinfo.nih.gov>) [5].

presence of an interactive applet. Sites that provide information on the mechanism of the interactions are noted in Table 2.

Table 3 summarizes Web sites with information on the management of opportunistic infections. Many of these are Web sites from Table 1 that provide bedrock guidelines for the management of opportunistic infections as part of their comprehensive design. All of the listed Web sites provide information about prophylaxis and treatment of opportunistic infections. Additionally, we evaluated whether the Web sites provide information on potential interactions of antiretroviral medications with medications used to treat opportunistic infections and information about treatment of tuberculosis concurrent with HIV infection.

Unique resources exist to support clinicians who care for HIV-infected women, children, or pregnant mothers, as shown in Table 4. These resources were evaluated for content including interactions of antiretroviral therapy with contraceptive agents; reproductive health planning, including guidelines to prevent maternal-fetal transmission of HIV; and pediatric guidelines.

A number of well-designed Continuing Medical Education

(CME) Web sites offer a practical way for clinicians to keep abreast of developments in HIV care (Table 5). These sites were evaluated for the type of presentation and content of the CME offered.

## DISCUSSION

We have identified the Web sites that we, as practicing physicians who care for individuals infected with HIV, rely on when seeking clinical information. Although we have identified Web sites that are clinically useful, accurate, and up-to-date, there are many other valuable sites available on the Web. The sites listed may be used as starting points to explore the Web further for additional resources. Combining these sites with powerful search engines such as Google, Yahoo, or Bing will identify other Web sites that provide useful information.

A European-based nongovernmental organization called "Health On the Net" (HON) [32] evaluates Web sites for their reliability and appropriateness and certifies them accordingly [33]. The HON seal on a Web site suggests that the content is

**Table 2. Web Site Resources with Information to Evaluate Drug-Drug Interactions during Treatment of Human Immunodeficiency Virus (HIV)–Infected Persons**

Resource [reference]	Web address	Source; location	Sponsor(s)	Interactive applet	View multiple drug interactions simultaneously	Cites mechanism	Resource-limited setting <sup>a</sup>	Ease of navigation <sup>b</sup>	Rating <sup>c</sup>
HIV InSite [8]	<a href="http://hivinsite.ucsf.edu/insite?page=ar-00-00-02">http://hivinsite.ucsf.edu/insite?page=ar-00-00-02</a>	Center for HIV information/UCSF; US	Industry	X			3	4	4
Medscape [13]	<a href="http://www.medscape.com/druginfo/druginterchecker">http://www.medscape.com/druginfo/druginterchecker</a>	WebMD Health Professional Network; US	Industry	X	X	X	3	4	4
University of Liverpool HIV Drug Interactions Web site [18]	<a href="http://www.hiv-druginteractions.org/">http://www.hiv-druginteractions.org/</a>	Liverpool HIV Pharmacology Group/ University of Liverpool; UK	Industry	X	X	X	3	4	4
Clinical Care Options [19]	<a href="http://clinicalcareoptions.com/HIV/Treatment%20Updates/ARV%20Interactions/Interactive%20Tool/drug-drug%20tool.aspx">http://clinicalcareoptions.com/HIV/Treatment%20Updates/ARV%20Interactions/Interactive%20Tool/drug-drug%20tool.aspx</a>	Clinical Care Options; US	Industry	X	X	X	2	4	3
FDA MedWatch [20, 21]	<a href="https://www.accessdata.fda.gov/scripts/medwatch/medwatch-online.htm">https://www.accessdata.fda.gov/scripts/medwatch/medwatch-online.htm</a>	FDA; US	DHHS	X			1	3	3
Toronto General Hospital Immunodeficiency Clinic [22]	<a href="http://www.hivclinic.ca/main/drugs_home.html">http://www.hivclinic.ca/main/drugs_home.html</a>	Toronto General Hospital; Canada	Industry				2	3	3
FDA [20]	<a href="http://www.fda.gov/ForConsumers/ByAudience/ForPatientAdvocates/HIVandAIDSActivities/ucm117891.htm">http://www.fda.gov/ForConsumers/ByAudience/ForPatientAdvocates/HIVandAIDSActivities/ucm117891.htm</a>	FDA; US	DHHS				2	3	2

**NOTE.** DHHS, Department of Health and Human Services; FDA, US Food and Drug Administration; UCSF, University of California at San Francisco; UK, United Kingdom.

<sup>a</sup> Content targeted to resource limited areas based on 1–3 scale with 3 being most useful for resource limited settings.

<sup>b</sup> Ease of navigation rating on 1–4 scale, with 4 being very easy.

<sup>c</sup> Overall rating on a 1–4 scale based on consensus of the authors, with 4 being excellent.

**Table 3. Web Sites with Information about Managing Opportunistic Infections Associated with Human Immunodeficiency Virus (HIV) Infection**

Resource [reference]	Web address	Source; location	Sponsor(s)	Therapy/HAART interactions	Tuberculosis treatment	Resource-limited settings <sup>a</sup>	Ease of navigation <sup>b</sup>	Rating <sup>c</sup>
AIDSinfo [5]	<a href="http://aidsinfo.nih.gov/">http://aidsinfo.nih.gov/</a>	NIH and DHHS; US	DHHS, NIH, NLM, HRSA, CDC	X	X	1	3	4
HIV InSite [8]	<a href="http://hivinsite.ucsf.edu/">http://hivinsite.ucsf.edu/</a>	UCSF; US	Industry	X	X	3	3	4
HIVMA [9]	<a href="http://www.hivma.org/">http://www.hivma.org/</a>	HIVMA; US	IDSA			1	3	4
Johns Hopkins HIV Guide [10]	<a href="http://hopkins-hivguide.org/">http://hopkins-hivguide.org/</a>	Johns Hopkins University; US	Industry	X	X	3	3	4
BHIVA [23]	<a href="http://www.bhiva.org/Home.aspx">http://www.bhiva.org/Home.aspx</a>	BHIVA; UK	BHIVA	X	X	1	2	3
NYS Dept of Public Health [24]	<a href="http://www.hivguidelines.org/Content.aspx">http://www.hivguidelines.org/Content.aspx</a>	NYS Dept of Health AIDS Institute (in collaboration with Johns Hopkins University Division of Infectious Diseases); US	NYS Dept of Health	X	X	1	2	3
Antimicrobe [17]	<a href="http://antimicrobe.org">http://antimicrobe.org</a>	Antimicrobe.org; US	Part of a series of textbooks focused on antimicrobial therapy	X	X	3	2	3

**NOTE.** BHIVA, British HIV Association; CDC, Centers for Disease Control and Prevention; DHHS, Department of Health and Human Services; HAART, highly active antiretroviral therapy; HIVMA, HIV Medical Association; HRSA, Health Resources Services Administration; IDSA, Infectious Diseases Society of America; NIH, National Institutes of Health; NLM, National Library of Medicine; NYS, New York State; UCSF, University of California at San Francisco.

<sup>a</sup> Content targeted to resource limited areas based on 1–3 scale with 3 being most useful for resource limited settings.

<sup>b</sup> Ease of navigation rating on 1–4 scale, with 4 being very easy.

<sup>c</sup> Overall rating on 1–4 scale based on consensus of the authors, with 4 being excellent.

**Table 4. Web Sites with Information about Human Immunodeficiency Virus (HIV)-Related Issues for Women and Children**

Resource [reference]	Web address	Source; location	Sponsor(s)	Antiretroviral and oral contraceptive agent interactions	Reproductive health and planning	Pediatric dosages guidelines	Pediatric guidelines for obstetrics and prevention of mother-to-child transmission	Resource-limited settings <sup>a</sup>	References cited	Current and updated	Ease of navigation <sup>b</sup>	Rating <sup>c</sup>
Women, Children, and HIV [25]	http://www.womenchildrenhiv.org/	UMDNJ, UCSF; US	UMDNJ and the Center for HIV Information, UCSF	X	X	X	X	3	Yes	Most	4	4
Global Coalition on Women and AIDS [26]	http://www.womenandaids.net/resource-centre/hiv-this-week.aspx	GCWA; Geneva	UNAIDS/multiple women's organizations					3	Yes	All	4	4
AIDSinfo [5]	http://www.aidsinfo.nih.gov/HealthTopics/	DHHS; US	DHHS	X	X	X	X	3	Yes	All	3	4
Antiretroviral Pregnancy Registry [27]	http://www.apregistry.com/	Kendle.com; US	Industry					1	Yes	Most	3	4
FDA [20]	http://www.fda.gov/ForConsumers/ByAudience/ForPatientAdvocates/HIVandAIDSactivities/ucm118951.htm	FDA; US	FDA	X				1	n/a	All	3	4
The Body Pro [11]	http://www.thebodypro.com/index/treat/guidelines_child.html	The Body; US	Body Health Resources Corporation	X	X	X	X	1	Yes	Most	3	4
WHO [28]	http://www.who.int/hiv/topics/paediatric/en/	WHO; Geneva	WHO		X	X		3	Yes	Most	3	4
WHO [29]	http://www.who.int/hiv/topics/mct/en/	WHO; Geneva	WHO		X		X	3	Yes	Most	3	4

**NOTE.** DHHS, Department of Health and Human Services; FDA, US Food and Drug Administration; GCWA, Global Coalition of Women and AIDS; UCSF, University of California at San Francisco; UMDNJ, University of Medicine and Dentistry of New Jersey; UNAIDS, United Nations AIDS; WHO, World Health Organization.

<sup>a</sup> Content targeted to resource-limited areas, rated on the basis of a 1–3 scale, with 3 being most useful for resource-limited settings.

<sup>b</sup> Ease of navigation rating on 1–4 scale, with 4 being very easy.

<sup>c</sup> Overall rating on 1–4 scale based on consensus of the authors, with 4 being excellent.

**Table 5. Web Sites Offering Credits for Continuing Medical Education (CME) Related to the Clinical Care of Human Immunodeficiency Virus (HIV)-Infected Patients**

Resource [reference]	Web address	Source; location	Sponsor(s)	Images	Slide shows	Case based	Resource-limited setting <sup>a</sup>	Ease of navigation <sup>b</sup>	Rating <sup>c</sup>
HIV Web Study [30]	<a href="http://depts.washington.edu/hivaids/index.html">http://depts.washington.edu/hivaids/index.html</a>	University of Alabama; US	University of Washington		X	X	2	4	4
Clinical Care Options HIV [19]	<a href="http://www.clinicaloptions.com/HIV.aspx">http://www.clinicaloptions.com/HIV.aspx</a>	Clinical Care Options; US	Industry		X		1	4	4
International AIDS Society–USA [12]	<a href="http://www.iasusa.org/cow/">http://www.iasusa.org/cow/</a>	IAS-USA; US	IAS- USA; industry	X		X	2	4	4
Medscape [13]	<a href="http://cme.medscape.com/hiv">http://cme.medscape.com/hiv</a>	WebMD; US	WebMD				1	4	4
PeerView Press [31]	<a href="http://www.peerviewpress.com/?category=AIDS/HIV">http://www.peerviewpress.com/?category=AIDS/HIV</a>	Peer View Press; US	Peer View Institute; industry		X		1	4	4
The Body Professional—news and CME [11]	<a href="http://www.thebodypro.com/cme/cmindex.html">http://www.thebodypro.com/cme/cmindex.html</a>	The Body; US	The Body		X	X	3	4	4

**NOTE:** IAS-USA, International AIDS Society–USA.

<sup>a</sup> Content targeted to resource-limited areas, rated on the basis of a 1–3 scale, with 3 being most useful for resource-limited settings.

<sup>b</sup> Ease of navigation rating on 1–4 scale, with 4 being very easy.

<sup>c</sup> Overall rating on 1–4 scale based on consensus of the authors, with 4 being excellent.



up-to-date and clinically accurate. All the Web sites listed in Tables 1–5 closely adhere to the HON principles, even if they are not formally HON accredited.

The comprehensive Web sites that were selected to appear in Table 1 are useful resources for practicing clinicians. *HIV InSite* and *AIDSInfo* are great starting points for information on clinical management of HIV. *AIDSMap* provides useful information about treatment of HIV in resource-limited settings. The Centers for Disease Control and Prevention provides information on HIV epidemiology and public health programs. *Antimicrobe* and *HIV Medicine* provide useful online textbooks; the latter is translated into 6 languages. Although not included in our tables, The Stanford HIV Drug Resistance Database [34] is the definitive site to help interpret individual patient resistance tests and to make decisions about salvage regimens for clinicians who manage patients with antiretroviral drug resistance.

The Web sites listed in Table 2 that provide information to evaluate potential drug-drug interactions during the treatment of HIV-infected persons all provide current and easily accessible information about antiretrovirals and cite references. Several offer user-friendly applets that will quickly provide salient interactions among lists of medications entered by providers in real time (eg, *Medscape*, *Clinical Care Options*, *HIV InSite*, and *the University of Liverpool*), whereas others provide in-depth information about the pharmaceutical science underlying interactions (eg, *University of Liverpool* and *HIV InSite*). The US Food and Drug Administration (FDA) Web site lists all currently approved antiretrovirals, and *FDA Medwatch* [21] allows clinicians to report adverse events from these medications. *The Toronto General Hospital Immunodeficiency Clinic* provides printable tables of known interactions.

Information pertaining to the management of opportunistic infections is readily available on the Internet. Web sites listed in Table 3 all are excellent resources and contain guidelines for treatment, prophylaxis, diagnostics, and drug-drug interactions. They each fulfill all the HON criteria and cite references. We found *the Johns Hopkins* and *HIV InSite* Web sites to be most easily navigated, whereas *AIDSInfo* offers the most-comprehensive and well-referenced information. In addition to guidance on the management of opportunistic infections, *the New York State Department of Public Health* site provides an extensive set of topics relating to other complications of HIV infection, including substance use, mental health disorders, oral diseases, and others.

Several Web sites are dedicated to the specific HIV-related issues that women and children face. All the Web sites listed in Table 4 are excellent resources; however, *Women, Children, and HIV*, although having limited original content, most completely directs the reader to relevant information. The World Health Organization site is the best for resource-limited set-

tings, and the *AIDSInfo* site is the best for resource-rich settings. *The Global Coalition on Women and AIDS* is a unique compilation of recent publications relating to women's health. *Antiretroviral Pregnancy Registry*, supported by pharmaceutical companies, serves the important function of gathering and broadcasting information on adverse events from antiretrovirals used in pregnancy.

There is an abundance of CME related to HIV and AIDS available on the Internet. The Web sites listed in Table 5 all are excellent sources of CME that are current and provide clinically useful information. They each cite most or all of their sources. *HIV Web Study*, from the University of Washington, offers a wide array of interesting and brief case studies of common clinical scenarios. Clinicians can select CME presented in a myriad of creative formats, including clinical cases (*International AIDS Society* and *HIV Web Study*) or expert-narrated slide shows showcasing cutting-edge topics or summarizing recent HIV conferences (*Medscape*, *The Body Pro*, *Clinical Care Options*, and *PeerView Press*). *Partners ID Images* [35] does not offer formal CME credit but deserves mention as an excellent site for case-based learning with remarkable images.

Finally, as the 2-way interactivity of Web pages created according to the "Web 2.0" ideal continues to expand, the way HIV clinicians use the Web will evolve in ways we cannot currently predict. One can even envision optimistic scenarios in which the Internet, though clearly unable to reproduce the benefits of receiving care directly from physicians with HIV expertise, could become widespread and accessible enough for clinicians with varying levels of HIV training to provide effective, up-to-date care with appropriate consultation, perhaps even in resource-limited settings. These resource-limited settings need not be confined to developing countries, because there are many parts of developed countries where access to physicians trained in HIV medicine remains limited. Indeed, a testable hypothesis is whether clinicians, who may or may not be physicians, without HIV training who can access HIV-related Internet resources can provide better medical care to HIV-infected patients, compared with clinicians who do not use the Internet.

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