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# HIV Clinician

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## Can the bone disease experienced by HIV-infected patients be attributed to HAART?

Paul Monier, MD

The success of treating HIV-infected patients with highly active antiretroviral therapy, or HAART, has been tempered by the emergence of complications that may be related to the long-term use of these therapeutic agents. In fact, providers who treat these patients have tended to become more conservative when initiating therapy with HAART, partly because of these toxicities. In addition to insulin resistance, hyperlipidemia, lactic acidosis and lipodystrophy, metabolic bone disorders including osteoporosis, osteopenia and osteonecrosis have emerged as a complication of HIV infection during the era of HAART. Whether these are attributable to HIV infection itself or are due to an

undesirable effect of its treatment remains unclear. Regardless of the cause, bone disease must be recognized as a complication of HIV infection by clinicians who regularly treat HIV-infected individuals.

### Osteoporosis

The relationship between HIV infection, its treatment and the risk of early development of osteopenia and osteoporosis continues to evolve. Osteoporosis is a skeletal disorder in which reduced bone strength leads to an increased risk of fractures. While gradual bone loss is common, risk factors for the development of accelerated bone loss include female sex (particularly after menopause), low weight, white race, smoking, excessive alcohol use and history of fracture.<sup>1</sup>

See Bone disease, next page

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## Dentistry

### Thalidomide for recurrent aphthous ulcerations

Kishore Shetty, DDS

Recurrent aphthous ulcers (RAU) are the most common oral ulcerative disease, affecting 10-15% of the general population. Clinically, RAU presents as extremely painful, shallow ulcerations with an erythematous halo on unattached oral mucosa. First described by Hippocrates in 400 BC, the disease is identified by several names by the lay public and professionals: canker sores, cold sores, aphthous stomatitis. RAU have been reported in 2-4% of HIV-seropositive patients and are more frequent in advanced stages of their disease. Accurate diagnosis of oral lesions in the HIV-

seropositive patient may require biopsy in combination with a clinical examination and patient history.

The pathogenesis of RAU involves a predominantly cell-mediated immune response in which tumor necrosis factor plays a major role. A monoclear (lymphocytic) cell infiltrate in the epithelium in the preulcerative stage is followed by a localized papular swelling. The painful papule then ulcerates and a fibrinous membrane covers the ulcer, which is infiltrated mainly by neutrophils, lymphocytes and plasma cells.

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## Medicine

# The incidence of bone disease in HIV has risen dramatically

### [Bone disease, from page 1](#)

Secondary causes of osteopenia or osteoporosis are numerous and include corticosteroid use, hypogonadism, and nutritional defects, all factors not uncommonly seen with HIV infection.

Most studies suggest that bone mineral density (BMD), a marker of bone strength, is not compromised as a result of HIV infection alone. In a recent evaluation, investigators found that BMD did not change significantly for two years of follow-up in a cohort of 141 seropositive women.<sup>2</sup> In another cross-sectional study comparing HIV-positive to seronegative women older than age 35 years, no association was found between HIV infection and reduced BMD.<sup>3</sup> Contrary to this, a large study recently reported the prevalence of osteopenia/osteoporosis in HIV-positive patients to be 28%, compared to 16% in non-infected persons.<sup>4</sup> Clearly, more data is needed to determine if HIV in itself predisposes to decreased BMD.

Several reports have implicated protease inhibitors (PIs) in the development of accelerated bone loss in HIV-infected individuals. In one study, the relative risk of developing osteopenia/osteoporosis in patients receiving PIs was 2.19 when compared to those not taking a PI. In addition, there was a trend towards worsening BMD with longer exposure to PIs.<sup>5</sup> Other

studies have yielded similar results. Contradicting these findings was a recent evaluation that suggested that PI use for longer than one year was actually protective against reduced BMD in women over 35 years of age.<sup>3</sup> Studies are underway to broaden the understanding of the dynamics between PI use and bone metabolism.

### **Osteonecrosis**

Osteonecrosis, which is commonly referred to as “avascular necrosis (AVN) of

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**Studies are needed to determine what role, if any HAART plays in the development of bone disease.**

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bone,” is a disorder in which skeletal pain develops from the death of cellular elements of bone. It most commonly affects the femoral head, and is bilateral ~60% of the time. Although the mechanism of development of this disease is not well understood, it is generally thought to be related to interruption of the blood supply to bone. Established risk factors for its development include prolonged treatment with corticosteroids, excessive use of alcohol, and injection drug use. Other associations

include the presence of antiphospholipid antibodies and hyperlipidemia, although a direct causal effect has not been proven.<sup>6</sup>

Osteonecrosis has clearly emerged as a complication of HIV infection. Some studies have suggested a link between HAART and this disorder, but the presence of case reports prior to the widespread use of antiretroviral agents and other studies showing no relationship have made this debatable. In one large series, 339 asymptomatic HIV-positive patients were screened for avascular necrosis of the hip, using MRI, and compared with 118 age and sex-matched HIV-negative controls.<sup>7</sup> Fifteen cases were identified in the HIV-positive group compared to none in the controls. While clearly suggesting an association between HIV infection and AVN, no link between the use of HAART, CD4 cell counts, or degree of viremia and this disorder were seen. A possible link between previous use with corticosteroids, usually in conjunction with treatment of *Pneumocystis carinii* pneumonia, was suggested in this and other studies as well.

However, the incidence of this disorder occurring in the setting of HIV infection has risen dramatically since 1996, suggesting an association with HAART either as a direct toxicity or due to immunologic phenomena. Other hypotheses include that this rise in occurrence is simply a consequence of patients living



longer, a complication of long-standing infection or improved recognition by healthcare providers. Long-term prospective studies are needed to evaluate the cause of AVN in HIV-infected patients and to determine what role, if any, HAART plays in its development.

### Conclusion and Recommendations

Metabolic bone disorders continue to emerge as an important complication of HIV infection. Clearly, further studies are needed to determine the etiology of bone disease in these patients and whether or not the treatment of HIV plays a role. In the meantime, clinicians who treat HIV-positive patients must be aware of the relationship between bone disease and HIV infection. Guidelines set forth for the detection and prevention of osteoporosis in seronegative individuals should be adhered to and early evaluation considered in HIV-positive patients taking protease inhibitors who present with historical features or physical findings that suggest disease. In patients identified with compromised bone strength, fracture risk should be evaluated and measures taken to reduce their occurrence. Therapeutic interventions used to treat HIV-negative patients with osteoporosis should be employed when indicated. Clinicians must maintain a high index of suspicion for osteonecrosis in patients presenting with bone or joint pain. The only effective treatment of this disorder is surgical and early intervention is associated with more favorable results. ❖

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## Dentistry

# Studies show that thalidomide heals oral aphthous ulcerations

### Thalidomide, from page 1

RAU are often quite painful, may lead to difficulty in speaking, eating, and swallowing, and may negatively affect patients' quality of life. In patients with advanced HIV disease, aphthous ulcers may exacerbate weight loss. While most apthae are small and heal within 7-10 days, larger ulcers can persist for weeks or months. Consequently, therapy for the disease of RAU should address both healing and the prevention of new ulcers.

The primary goals of therapy for RAU are relief of pain, reduction of ulcer duration, and restoration of normal oral function. Secondary goals include reductions in the frequency and severity of recurrences and maintenance of remission. Table I illustrates the topical and systemic agents for RAU approved by the FDA. Topical medications can achieve the primary goals but have not been shown to alter recurrences or remission rates, especially in cases of large apthae in HIV-positive patients. This necessitates the use of systemic medications. The agents listed in Table I have had limited success in the management of major aphthous ulcers in the HIV-positive patient.

There has been renewed interest in the therapeutic potential of thalidomide despite its known teratogenic effects in humans. Of primary interest to patients with HIV infection are results demonstrating the healing of oral aphthous ulcerations. Furthermore, thalidomide has suggested benefit in the management of HIV-associated wasting and may alter tumor necrosis factor alpha, known to induce the expression of HIV by infected cells.

### **History of thalidomide**

Thalidomide was first introduced as Contergan in 1956 in West Germany as a sedative. Because of its presumed safety and anti-emetic effect, thalidomide was given to pregnant women suffering from morning sickness and for nausea associated with influenza. Between its introduction and removal in late 1960s from the market, thousands of babies were born with severe deformities, most notably vestigial, often flipper-like limbs, as well

as malformed internal organs. The teratogenic effects of thalidomide became known and the drug was withdrawn from the world market in 1961. During the period when it was being prescribed to expectant mothers, it was found that thalidomide also had some anti-inflammatory effects. In 1964, a physician in Israel was confronted with a patient with erythema nodosum leprosum (ENL), one of the many manifestations of leprosy. ENL is characterized by painful skin nodules and nerve damage. With few other options, his doctor administered thalidomide, some of which remained in a local hospital pharmacy. Within a few days, the nodules vanished and did not come back as long as the drug was continued.

Worldwide use over the past 30 years has confirmed thalidomide as the preferred treatment for moderate to severe ENL in men and women without childbearing potential, and this application led to its availability in the United States for many years on a compassionate-use, investigational basis for the treatment of ENL. This immunomodulatory activity of thalidomide provided the rationale for continued research in numerous disorders such as RAU.

### **Mechanism of action**

The mechanism of action of thalidomide is not fully understood, and it may be related to immune modulation, cytokine inhibition, and/or antiangiogenesis. Importantly, the drug is not mutagenic, cytostatic, or myelosuppressive. In healthy male volunteers, thalidomide, 200 mg for four days, induced a significant decrease in a circulating T-helper to T-suppressor cells ratio, compared with pretreatment values. The decreased helper-to-suppressor cell ratio resulted from a significant decrease in the percentage and absolute numbers of circulating T-helper cells and an apparent increase in the percentage and absolute numbers of T-suppressor cells. Thalidomide also inhibits TNF-alpha production by accelerating the degradation of messenger RNA encoding the protein.

### **Pharmacokinetics**

Thalidomide is absorbed slowly from the gastrointestinal tract. The extent of absorption is proportionate with the dose at lower doses, but at doses higher than 200 mg, a flattening of peak concentration is observed, with an associated delay in the time to peak concentration. Peak plasma concentrations occur three to four hours after drug administration. The effects of administration with food on the peak concentration and extent of absorption are minor, increasing or decreasing by less than 10%.

Thalidomide is not hepatically metabolized to any appreciable extent. The primary degradation pathway for thalidomide appears to be nonenzymatic spontaneous hydrolysis in blood and tissue, but metabolism by aromatic hydroxylation has also been observed.

The mean elimination half-life of thalidomide is approximately five to seven hours and is not altered by dose or after multiple dosing. Total body clearance in healthy volunteers is 10.41 +/- 2.40 L/h. Renal clearance is 1.15ml/min, indicating mainly nonrenal elimination. Urinary excretion of thalidomide is small, with 0.7% of the dose excreted unchanged in urine; 0.02% is excreted as 4-OH-thalidomide 12 to 24 hours after the dose. There is also no evidence to suggest that age, gender, or race affects the pharmacokinetic parameters of thalidomide.

### **Thalidomide and recurrent aphthous ulcerations**

The National Institute of Allergy and Infectious Diseases AIDS Clinical Trials Group evaluated the activity of thalidomide as therapy for oral aphthous ulcers in HIV-infected patients in a double blind, randomized, placebo-controlled study. Of 57 patients included in the analysis, 28 received placebo and 29 received thalidomide, 200 mg orally once daily at bedtime for four weeks. Overall, 26 (90%) of the 29 patients in the thalidomide group had a complete or partial response at the end of week four, compared with only seven (25%) of 28 patients in the placebo group. Complete resolution was achieved in some patients within as little as one week after the



start of therapy, although the median time to complete healing among responding patients was 3.5 weeks. In addition, quality-of-life measures clearly show that thalidomide reduced pain from the aphthous lesions and improved the patient's ability to eat. A retrospective analysis evaluated the efficacy of thalidomide for recurrent aphthous stomatitis in 25 immunocompetent patients receiving initial doses of 50 to 100 mg/d. Treatment duration ranged from one to 55 months. Of the 25 patients, six demonstrated complete healing and were able to stop treatment without recurrence. An additional 10 patients responded and remained in clinical remission with low-dose thalidomide.

Neuropathy associated with thalidomide is manifested by painful paresthesia of the hands and feet, often accompanied by sensory loss in the lower limbs. Irreversible neuropathy may result if treatment is continued too long

or signs of motor dysfunction develop. Neuropathy limits long-term use of thalidomide. Most reported cases occurred at dosages of 100-300 mg/day given for more than six months.

The National Institute of Dental and Craniofacial Research and the National Institutes of Health have recently announced a multi-site clinical trial to test the effectiveness of a topically applied formulation of thalidomide. The researchers predict that the topical thalidomide, when applied in a dosage of 20 mg, will effectively heal and reduce the pain associated with aphthous ulcers, without causing the side effects of a systemic dose of the drug

Therapy with thalidomide requires teaching patients to identify the early signs of neuropathy and to understand the risk of teratogenicity. Prickling, tingling, numbness, or pain in the extremities suggests the need for an examination by a physician. Patients should be evaluated at baseline and

monthly for the first three months, after which examinations for manifestations of neuropathy should continue periodically. Sensory nerve action potential (SNAP) testing should be performed at baseline and every six months. All patients, pharmacists, and physicians must participate in the System for Thalidomide Education and Prescribing Safety (STEPS) program. Patients must meet eligibility criteria to receive the drug. Informed consent must be obtained to ensure education about contraceptive measures for men and women, the frequency of pregnancy testing, and the symptoms and evaluation of peripheral neuropathy.❖

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Table 1 Topical Agents for Recurrent Aphthous Ulcers	
Amlexanox	Most effective for minor ulcers
Antibiotics	May be used as a rinse for patients with multiple ulcers
Chlorhexidine Gluconate	Effectiveness is unpredictable
Corticosteroids	Superpotent strength formulations are most effective
Systemic Agents for Recurrent Aphthous Ulcers	
Colchicine	Suppressive therapy Limited by GI toxicity
Dapsone	Suppressive therapy Requires careful laboratory testing
Pentoxifylline	Least toxic suppressive therapy Controlled efficacy studies are needed
Thalidomide	Acute treatment for patients with ulcerations unresponsive to topical therapy

Table reproduced with modifications from Eisen 2001

See Thalidomide, next page



## Dentistry

### Thalidomide, from page 5

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## Nutrition

# BMI and BIA: They're often confused... so what's the difference?

*Ginger Bouvier, MD, LDN, RD*

It is essential to screen and monitor the nutritional status of patients with HIV/AIDS.

Evaluation of weight and weight changes may be the most widely used and most simple method for determining nutritional status. It is crucial that a patient's weight be properly obtained. Actual measurements for both weight and height, rather than patient's self-report, should be obtained whenever possible. A balance beam scale (sometimes called a "doctor's scale") should be used, and calibrated at least monthly. A bathroom scale, purchased at a department store, is not acceptable equipment for obtaining a patient's weight.

BMI (Body Mass Index) and BIA (Bioelectrical Impedance Analysis) are both nutrition screening tools. Several other nutrition screening tools can be used to identify patients at risk for malnutrition or nutritional complications, however, only BMI and BIA are described here, as they are often confused with one another.

*BMI or Body Mass Index is a simple tool for determining appropriateness of weight for height* (Figure 1). BMI is highly correlated with many measures of body fat, as well as with risk of mortality.<sup>1</sup> It is quick and easy to use, with patient information that is usually available to clinicians. BMI is not sensitive enough to identify or predict nutritional risks in the acute-care

setting, but is useful in targeting healthy and unhealthy weight, particularly in the outpatient setting. BMI does not involve measurement or evaluation of body composition, and therefore is not an accurate method for assessing the amount of lean body mass or body fat. The classification of the BMI score is shown in Figure 2.

*BIA or Bioelectrical Impedance Analysis is a method of body composition assessment which allows for evaluation of percentages of lean body mass, body fat, total body water, and extracellular tissue.* BIA is also a quick and easy tool, but involves more than the use of a mathematical equation. BIA has been used extensively in patients with HIV/AIDS to detect changes in body composition, and has been used as a predictor of survival in this population.<sup>2</sup>

To perform a BIA, a bioelectrical impedance analyzer, adhesive electrodes, and body composition analysis computer software are needed. This equipment typically comes as a relatively inexpensive package, ranging from \$2,500 to \$8,000.

With the BIA technique of body composition analysis, electrodes are placed on the dominant hand and foot of the subject, and a painless low-voltage, alternating current is passed through the subject's body from the analyzer. The impedance, or resistance, and reactance to electrical flow are then determined. The obtained resistance and reactance, along



with the subject's height, weight, age and gender, are entered into the computer software program which uses existing prediction equations to yield estimates of body composition.<sup>3</sup>

The principle of bioelectrical impedance is based on the concept that the flow of electric current is facilitated through hydrated tissue and fluid compared to fat. Therefore, impedance to the flow of electric current is directly related to the amount of body fat. BIA is a non-invasive, relatively inexpensive method of estimating body composition in the clinical setting. BIA tests are extremely useful in tracking trends in body composition changes and in determining the effectiveness of nutrition interventions.❖

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Figure 1: **Calculating BMI**

$$\text{BMI} = \frac{\text{weight (kg)}}{\text{height}^2 \text{ (m)}} \quad \text{OR} \quad \text{BMI} = \frac{\text{weight (lb)}}{\text{height}^2 \text{ (in)}} \times 704.5$$

Example: an individual weighs 143 lbs. (65 kg) and is 67 inches (1.7 meters) tall

$$\text{BMI} = 65 \text{ kg} / (1.7)^2 = 22.5 \text{ kg/m}^2$$

$$\text{BMI} = 143 / (67)^2 \times 704.5 = 22.4$$

*To convert pounds to kilograms, divide by 2.2*

*To convert inches to meters, multiply by 2.54, then divide by 100*

Figure 2: **Classification of BMI**

Extremely underweight:	< 18.5 kg/m <sup>2</sup>
Underweight	18.5 – 19.9 kg/m <sup>2</sup>
Healthy weight:	20.0 – 25.0 kg/m <sup>2</sup>
Overweight:	25.1 – 29.9 kg/m <sup>2</sup>
Obese:	≥ 30 kg/m <sup>2</sup>
Extremely obese:	≥ 40 kg/m <sup>2</sup>

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## Pharmacy

# The role of clinical pharmacist is pivotal in HIV outpatient clinics

Tina Edmunds-Ogbuokiri,  
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One of the major outcomes of the application of highly active antiretroviral therapy (HAART) to HIV disease, is the dramatic decrease in opportunistic infections that often accompany untreated or poorly treated HIV infections, thereby making this disease a chronic but manageable infection, amenable to long-term ambulatory care management.

The gains of HIV pharmacotherapy notwithstanding, problems with long-term toxicities due to antiretroviral therapy remain a concern, sometimes causing a parallel increase in hospital admissions. As this transition into long-term ambulatory care occurs within the prevailing atmosphere of lifelong polypharmacy, pharmacists, as gatekeepers for patients' medications, are placed in a position to offer unique services.

As the healthcare provider most accessible to the general public, and especially HIV-infected patients in-between their provider visits, ambulatory care pharmacists can play a pivotal role in optimizing HIV therapies. This can be done through their understanding of the pharmacology, side effects, issues affecting adherence for each individual patient, and drug-drug interactions associated with each patient's combination therapy. When ambulatory care pharmacists are trained to

effectively communicate this information to other members of the healthcare team through formal and informal HIV updates, as well as one-on-one consults to providers, patients, significant others and caregivers, improvements in clinical and virologic outcomes can be achieved for HIV-infected patients.

One such area where pharmaceutical care services can be optimized is through an assessment of the overlapping toxicities that tend to occur or be exacerbated when different combinations of drugs are offered to an individual patient. Since most current pharmacy computer software is able to list active and inactive medications on the patient profile, ambulatory care pharmacists are well-positioned to assist the provider in assessing to what extent individual drugs being administered to the patient may have caused or exacerbated toxicity. The tables shown here attempt to offer guidance on such overlapping adverse toxicities as they occur in HIV-infected patients undergoing HAART therapy along with concomitant drugs that cause similar toxicities. Hopefully their use will assist providers of HIV care to achieve better overall treatment outcomes. ♦

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**Table 1: HIV-related drugs with overlapping toxicities\***

- a) Drugs that cause bone marrow suppression**
- AZT
  - Cidofovir
  - Cancer chemotherapy
  - Dapsone
  - Flucytosine
  - Ganciclovir
  - Hydroxyurea
  - Interferon- $\alpha$
  - Pentamidine
  - Pyrimethamine
  - Ribavirin
  - Sulfadiazine
  - Trimethoprim-sulfamethoxazole (high doses)
  - Trimetrexate
- b) Drugs that cause nephrotoxicity**
- Adefovir (now removed from clinical trials)
  - Aminoglycosides
  - Amphotericin B
  - Foscarnet
  - Indinavir
  - Pentamidine
- c) Drugs that cause pancreatitis**
- Didanosine
  - Ethanol
  - Lamivudine (in children)
  - Pentamidine
  - Valproic acid



\* Concomitant administration of agents not recommended or if unavoidable, close clinical monitoring suggested.

**\*\*Cotrimoxazole**

\*\* Cotrimoxazole causes a 40% increase in the plasma concentrations of lamivudine and so may increase lamivudine toxicity such as headaches, myalgia and neutropenia. Monitor closely upon concomitant use.

**d) Drugs that cause hepatotoxicity**

Delavirdine  
Efavirenz  
Fluconazole  
Isoniazid  
Ketoconazole  
Nevirapine  
Nucleoside reverse transcriptase inhibitors  
Protease inhibitors  
Rifabutin  
Rifampin

**e) Drugs that cause rash with or without pruritis**

Abacavir  
Cotrimoxazole  
Dapsone  
NNRTIs  
Amprenavir

**f) Drugs that cause diarrhea**

Clindamycin  
Didanosine  
Nelfinavir  
Ritonavir  
Saquinavir  
Lopinavir/ritonavir

**g) Drugs that cause ocular toxicity**

Isoniazid (optic neuritis and optic atrophy)  
Cidofovir  
Ethambutol  
Lamivudine (uveitis in children)  
Rifabutin

**h) Drugs to avoid in patients with peripheral neuropathy (provider should assess risk to individual patient and take action as needed)**

**Single Ingredient drugs**

Didanosine (Videx, ddl)  
Nitrofurantoin (oral)  
Nitrofurantoin macrocrystal (oral)  
Nitrofurantoin sodium injection  
Stavudine (Zerit, d4T)  
Zalcitabine (Hivid, ddC)

**Multiple ingredient drugs**

Didanosine/calcium carbonate/magnesium salt (oral)  
Didanosine/magnesium salt/sodium citrate (oral)  
Nitrofurantoin/hexylresorcinols/cetrimonium (oral)  
Nitrofurantoin/nitrofurantoin macrocrystal (oral)  
Nitrofurantoin/pyridoxine HCL (oral)  
Nitrofurantoin/tetracaine (oral)  
Sulfadiazine/nitrofurantoin (oral)  
Sulfadiazine/nitrofurantoin/phenazopyridine (oral)  
Sulfamethizole/nitrofurantoin (oral)

**Related table  
next page**

See The role of clinical pharmacists page 10

**Plan ahead to attend HIV conferences...**

- ▲ July 8-11, 2003  
5th International Workshop on Adverse Drug Reactions and Lipodystrophy in HIV  
Paris, France  
Email: lipodystrophy@us.intmedpress.com
- ▲ July 13-17, 2003  
The 2nd IAS Conference on HIV Pathogenesis and Treatment  
Paris, France  
Contact: JCD Conseil  
Email: ias2003@jcdconseil.com
- ▲ July 27-30, 2003  
2003 National HIV Prevention Conference  
Atlanta, Georgia  
Email: info@2003HIVPrevConf.org
- ▲ October 26-29, 2003  
9th European Conference on Clinical Aspects and Treatment of HIV-Infection  
Warsaw, Poland  
Sponsor: European AIDS Clinical Society  
Email: eacs2003@kit.de
- ▲ December 2-5, 2003  
8th World STI/AIDS Congress  
Punta del Este, Uruguay  
Contact: Congrex Sweden AB  
Email: congrex@congrex.se
- ▲ May 2-7, 2004  
17th International Conference on Antiviral Research  
Tucson, Arizona  
Sponsor: The International Society for Antiviral Research  
Contact: Dr. Brent C. Korba  
Email: korbabe@gusun.georgetown.edu
- ▲ June 3-5, 2004  
13th International Symposium on HIV & Emerging Infectious Diseases  
Toulon, France
- ▲ July 11-16, 2004  
XV International AIDS Conference  
Bangkok, Thailand



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**Table 2: Drug interactions with anti-*Pneumocystis carinii* pneumonia agents**

<b>Drug</b>	<b>Major adverse reactions</b>	<b>Interactions</b>
Atavaquone	Transaminase elevation, rash, fever	Increases levels of ZDV
Dapsone	Rash, nausea/vomiting, anemia, methemoglobinemia, neutropenia, thrombocytopenia, transaminase elevation	Increases levels of trimethoprim and dapsone that may increase both the pharmacologic and toxic effects of both drugs. Rifampin increases metabolism of dapsone while ddl decreases absorption of dapsone and may lead to failure of dapsone prophylaxis. Avoid.
Pentamidine	Nephrotoxicity, hyperglycemia, transaminase elevation, hyperkalemia, neutropenia, thrombocytopenia, pancreatitis, potentially life-threatening ventricular arrhythmias	Foscarnet: increased risk of nephrotoxicity, severe hypoglycemia and hypocalcemia. Avoid drugs that cause or exacerbate pancreatitis such as ddl.
Primaquine	Hemolysis (especially in G6PD-deficiency). Fever, rash, methemoglobinemia, transaminase elevation.	
Clindamycin	Diarrhea, nausea, vomiting, pseudomembranous colitis, rash, fever, transaminase elevation	Opiates and diphenoxylate may worsen diarrhea. Kaolin-pectin antidiarrheals decrease absorption of clindamycin. Patient needs close monitoring.
Trimethoprim-sulfamethoxazole	Skin: erythema multiforme (Stevens-Johnson syndrome, rare), generalized skin eruptions, epidermal necrolysis, exfoliative dermatitis, photosensitivity, urticaria, pruritus. Nausea, vomiting, transaminase elevation, neutropenia, thrombocytopenia and fever.	Increased prothrombin time for patients on warfarin. Increases levels of dapsone and half-life of phenytoin due to protein binding.

Source: Adapted from multiple sources, mostly from Pharmacist's Drug Handbook 2002, American Society of Health Systems Pharmacists, Bethesda, Maryland and the DHHS Guidelines for the use of antiretroviral agents in HIV-infected adults and adolescents. Washington, DC. Department of Health and Human Services (DHHS) and the Henry J. Kaiser Foundation, February 4, 2002.



## Nursing

# What do HIPAA rules and regulations mean for HIV clinics?

*Marsha J. Bennett, DNS, APRN, ACRN, and Michelle M. Gloss, MS*

Congress passed the Health Insurance Portability and Accountability Act (HIPAA) in 1996. On April 14, 2003, this law came into full operation.

### What is HIPAA?

Congress enacted HIPAA in response to the growing concern that an individual's health information could be subverted to inappropriate use, a concern heightened by the increasing computerization of medical record files.

There are three parts to HIPAA: privacy, security, and transactions. Although signed into law in 1996, only the "portability" part of HIPAA (the part that protects your ability to get health insurance if you have a current or pre-existing medical condition) had been implemented. Now the "accountability" aspects of HIPAA are also in force.

*Transaction* rules for HIPAA concern the standardization of reporting formats for health-related information. The impetus is to use online, electronic processing of all claims, referral certifications, authorizations, and coordination of benefits. Obviously, the switch to electronic files is preferable to paper systems.

*Privacy and security* involve protected health information (PHI). Any medical information that contains any patient identifiers (such as name, phone

numbers, medical record numbers, social security numbers, zip codes, etc.) must have protected access. HIPAA regulations protect all records (electronic, paper, oral) that have the potential for individual identification and are stored or transmitted. Considering the difficulty associated with protecting huge volumes of paper-based systems, the impetus is again toward electronic files and methods.

Privacy, in HIPAA rules and regulations, means protecting an

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**Patients are in the process of being informed about what the new rules will mean to them.**

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individual's medical information from commercial use, personal gain, or malicious harm. The HIPAA Privacy Rule provides the first national standards for protecting the privacy of health information. Providers must obtain informed consent from patients in order to disclose or use PHI for activities related to treatment and payment; however, there are exceptions. First, PHI can be disclosed without a patient's consent in an emergency situation. In this

case, the provider must deliver the Notice of Privacy Practices and receive the Notice Acknowledgement from the patient as soon as appropriate after emergency treatment is delivered. Second, correctional facilities can obtain PHI without patient consent for the care and treatment of inmates. Finally, PHI may be given to law enforcement officials in response to a subpoena. HIPAA requires separate consents to disclose PHI for activities like marketing, research or other specific purposes.

HIPAA requires that an organization define who has access to PHI and how much of the patient record is accessible to office staff for their daily work. While physicians and others providing direct patient care may discuss and share entire records with colleagues, only minimum necessary information may be exchanged in all other disclosures.

All patients are now being informed of the new HIPAA rules and regulations and what they mean to them: who has access to their records, the privacy and security of their records, their rights about permission to release records, and other HIPAA guidelines. Patients are signing acknowledgment forms that they have received this information.

Fax machines, notorious culprits for sending and receiving sensitive information into "the void" or into the wrong hands, are now monitored for

See HIPAA and HIV, next page



## Nursing

# HIV clinicians have long protected their patients' records

### HIPAA and HIV, from page 11

identity of the persons receiving the faxes. This applies to faxes within organizations, and especially to faxes sent to persons outside of an organization. Special disclosure statements regarding recipients and misuse of information are standard on all fax cover sheets now.

Security involves the organization's efforts to prevent unauthorized breaches of privacy, such as lost, destroyed, or stolen files, as well as data inadvertently sent to the wrong person(s). Security measures may take the following forms:

- Physical (locked files, locked rooms)
- Administrative (user IDs and passwords, rules governing access and punitive action for violations)
- Technological (encryption, digital signatures, safe-boots).

### **What does this mean for HIV?**

Every hospital, clinic, and private practice, regardless of size, must comply with HIPAA. Those of us involved in HIV care have long been aware and hypervigilant about protecting our patient's records and information. We have witnessed the pain and damage that can be experienced when unplanned and unauthorized disclosure of HIV status has occurred: loss of jobs, loss of housing, and even loss of family and friends'

support. Remembering the Florida case of a disgruntled employee selling the names of HIV-infected persons from his laptop database is a nightmare scenario none of us ever wants to see repeated. Accordingly, HIPAA has teeth that carry with it severe civil and criminal penalties for noncompliance, as well as broadening fraud and abuse laws to cover private insurance, not just Medicare/Medicaid.

## Noncompliance with HIPAA rules and regulations carries severe civil and criminal penalties.

While HIPAA does make special rules for special records, such as psychotherapy notes ([http://www.aracnet.com/~oahhs/issues/hipaa/special\\_records.htm](http://www.aracnet.com/~oahhs/issues/hipaa/special_records.htm)), HIV/AIDS records are not addressed as a separate category. Patients are still protected regarding release of information under HIPAA rules, but a separate consent is not required for release of HIV/AIDS information, unless an individual state chooses to enact such legislation. Yet patients remain concerned about the

confidentiality of their health information, especially their HIV status. In one report (Whitter-Goldstein et al., *AIDS Care*, 2001; 13; 457-466), fears of breaches of confidentiality resulted in patients actually neglecting treatment in order to prevent release of any information.

"The unmistakable legacy of HIPAA will be to encourage computerization of all personal health information" (Kibbe, 2001, paragraph 7, available at <http://www.aafp.org/fpm/20010300/43what.html>).

Some have compared readiness and preparation for HIPAA to the Y2K experience, only more costly. Although we all seemed to weather the Y2K transition without cataclysmic incident, it remains to be seen if HIPAA, with its push to all-electronic systems, will be able to deliver on the promise of privacy and security it is intended to provide.❖

### RESOURCES

The US Department of Health and Human Services Office of Civil Rights provides guidelines on HIPAA at [www.cms.hhs.gov/hipaa/](http://www.cms.hhs.gov/hipaa/)

Information on HIPAA Privacy Rule and Public Health can be found at [http://www.cdc.gov/privacy\\_rule](http://www.cdc.gov/privacy_rule), as well as the April 11, 2003 (Vol 52) issue of MMWR.

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## Mental Health

# Guidelines assist clinicians in screening for partner violence

Mindy Kronenberg, PhD  
and Jill Hayes Hammer, PhD

Intimate partner violence (IPV) has been described as a problem that has reached epidemic proportions.

The majority of IPV victims are women; each year approximately 30% of women in cohabitating, heterosexual relationships are raped, physically assaulted, or stalked by their male partners. However, both men and women are victims and perpetrators of IPV. In a recent survey, 15% of men and 11% of women in cohabitating, homosexual relationships and 7.7% of men in cohabitating, heterosexual relationships reported being abused by a partner (Tjaden & Thoennes, 2000). IPV is an issue of particular concern for individuals with HIV, as women with HIV are significantly more likely to suffer domestic violence than their non-HIV-infected counterparts.

The past several decades have brought increased attention to the widespread impact of IPV. The government has implemented laws to protect victims and punish perpetrators, and millions of public and private monies have been spent to establish community agencies to serve victims of IPV. Despite the efforts of government and community agencies to increase public awareness of IPV, family violence, by its very nature, is a silent crime. Perpetrators of domestic violence often use isolation from family and friends as a primary mechanism of controlling their

partners. Psychological abuse, combined with social isolation and financial control, increases the likelihood that an individual will remain in an abusive relationship. Victims of IPV who are also HIV-infected bear a double stigma, and perpetrators may use their partner's HIV status to keep them in an abusive relationship.

The medical community has become involved in the effort to protect victims of IPV. In January of 1992, all accredited hospitals were required to establish policies for the identification and treatment of victims of family violence (American Medical Association, 1992). The growing trend for the medical community to play a key role in the fight against IPV reflects the fact that medical personnel, particularly primary care providers, are in a unique position to identify, educate, and refer victims of IPV. Primary health care providers are often the only health care professionals with whom victims have contact. However, many clinicians have not received the necessary training to screen for IPV.

The following are guidelines to assist clinicians in screening for IPV (adapted from the American Medical Association's *Diagnostic and Treatment Guidelines on Domestic Violence*).

- Include IPV screening as a routine part of each patient visit. IPV transcends gender, sexual orientation, race, age, and socioeconomic divisions; therefore, all patients are potential victims of IPV and should be screened accordingly.

- Conduct screening for IPV in a confidential, private setting without the partner (or any other adult or child) present.
- Victims of IPV are often ashamed of their victim status or feel responsible for the abuse; therefore, direct questions asked in a nonjudgmental manner are suggested. Inform the patient that the screening is a routine part of the medical examination and that the same questions are asked to all patients.

A standard set of questions, the SAFE questions, have been developed to screen for domestic violence (Asher, 1993; Neufeld, 1996). The following are specific questions that Neufeld (1996) and Asher (1993) suggest clinicians use in their screenings.

- **S**tress/Safety: What kind of stress exists in your relationship? How safe do you feel with your partner? Should I be concerned for your safety?
- **A**fraid/Abused: Have there been situations in your relationships in which you felt afraid? Have you ever had a partner threaten or physically hurt you or your children? Have you ever had a partner force you to engage in sexual intercourse?
- **F**ight/Friends/Family: People in relationships fight; what happens when you and your partner disagree? Are any friends or family members aware that you have been hurt by a partner? Could you tell

See Partner violence next page



## Mental Health

# *HIV-infected victims of partner violence bear a double stigma*

### Partner violence, from page 13

them if you have been hurt, and do you think they would be able to give you support?

- **Emergency plan:** Do you have a safe place to go and the resources you and your children would need for an emergency? If you are in danger now, would you like help in locating a shelter? Would you like to talk to me or a counselor about developing an emergency plan?
- Some victims of domestic violence do not recognize that they are abused; therefore, it is often beneficial to ask specific questions that define abuse. For example, when asking if an individual has been abused, it may be helpful to add “for example, has your partner ever pushed, shoved, slapped, kicked, physically restrained, or thrown something at you?” or “Has your partner called you names, put you down, destroyed things you care about, or kept you from seeing your family or friends?” For individuals with HIV, specific questions may include, “Has your partner ever threatened to reveal your HIV status as a means of controlling you or demeaned you because of your HIV status?”
- Documentation is of primary importance when a patient discloses domestic violence. Direct quotes from the victim and photographs and detailed descriptions of any physical injuries are especially beneficial.

- Many individuals will not admit that they are victims of IPV or do not feel comfortable discussing the issue. For these individuals, information may be made available through posters and brochures, which may be obtained through community agencies.

After a disclosure of IPV has been made, the two most important roles of the primary care provider are to listen supportively and to provide appropriate referrals. As the victims of IPV are often isolated and either blame themselves for the abuse or feel that they deserve the abuse, the clinician may be the only supportive contact available to the victim. The clinician may provide support by listening, adopting a nonjudgmental stance, validating the feelings and experiences of the victim, expressing concern, and emphasizing the value of the victim's safety.

Any disclosure of IPV must be taken seriously. Threats or “minor” injuries may quickly escalate to more serious physical harm or even death. If a patient discloses that he/she is a victim of IPV, ensuring the patient's safety is of utmost importance. Helping the victim identify a social support network of family, friends, and community agencies is a first step in planning for an individual's safety.

As IPV has become recognized as a national problem, its impact on children has also gained attention. A recent study found that 43% of

female IPV victims lived with children under 12 years of age (Rennison & Welchans, 2000). IPV and child abuse frequently co-occur; however, child witnesses of IPV, even those without physical scars, are also victims. Children who grow up in violent households are more likely to exhibit aggression, developmental delays, academic difficulties, and psychological symptoms such as depression or anxiety. Exposure to domestic violence also has long-term psychological and social consequences. Child witnesses of domestic violence are at highest risk to become future victims or perpetrators of family violence. Clinicians may serve to educate parents about the effects that exposure to domestic violence has on children. When referring a patient to domestic violence services, the clinician should be aware of similar supportive services available for the child witnesses of IPV. By identifying and addressing the problems associated with childhood exposure to domestic violence, clinicians may play a vital role in preventing the intergenerational transmission of family violence.

### REFERRALS

National Domestic  
Violence Hotline  
1-800-799-SAFE (7233)  
<http://www.ndvh.org>

Victim's Services Domestic Violence  
Shelter Tour  
1-800-621-HOPE (4673)

Louisiana Coalition Against Domestic  
Violence  
225-752-1296



Mississippi State Coalition Against Domestic Violence  
1-800-898-3234

Arkansas Coalition Against Domestic Violence  
1-800-269-4668

Coalition to End Domestic and Sexual Violence  
1-800-656-1111

Domestic Violence Advisory Counsel  
1-800-897-LINK

Domestic Violence Hotline  
1-800-829-1122

Friends of Battered Women and their Children  
1-800-603-HELP

The Rape, Abuse, Incest National Network  
1-800-656-HOPE (4673)

Women's Rape Crisis Center  
1-800-489-7273

Contact your local domestic violence shelters and community mental health centers for additional resources. ❖

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**NOTE TO HIV CLINICIANS:**

Visit the HIV Clinician Website regularly for links of value to you:

- Treatment Guidelines
- Case Consultation
- Clinical Programs
- Clinical Trials
- Slide Sets
- Training Resources
- Conferences
- Statistics
- Newsletter
- Medical Databases
- Resources in
  - Louisiana
  - Mississippi
  - Arkansas

[www.deltaaetc.org](http://www.deltaaetc.org)

**Get your CEs at Delta AETC's HIV Clinical Preceptorships**

**For physicians, nurse practitioners and physician assistants:**

CARE AND MANAGEMENT OF THE PATIENT WITH HIV DISEASE  
A 2-day clinical course with curriculum developed by LSUHSC Infectious Diseases faculty. This program is held three times a year in New Orleans. For current program dates and CME information, contact Danielle Pierce at 504-903-0788.

**For advanced practice nurses and registered nurses:**

COMPREHENSIVE MANAGEMENT OF THE PATIENT WITH HIV DISEASE  
A 3-day clinical training and skills-building course in HIV disease. This program is held three times a year in New Orleans. For current program dates and CE information, contact Danielle Pierce at 504-903-0788.

**For dentists:**

ORAL HEALTH MANAGEMENT OF THE PATIENT WITH HIV DISEASE  
A 1-day clinical course for dentists with curriculum developed by dental faculty at the LSUHSC Infectious Diseases Dental Clinic. This program is held three times a year in New Orleans. For current program dates and CDE information, contact Danielle Pierce at 504-903-0788.

**For pharmacists:**

PHARMACEUTICAL CARE ISSUES IN HIV DISEASE  
A half-day course for practicing pharmacists with curriculum developed by recognized experts in the field of HIV treatment. The course takes place at Xavier University of Louisiana College of Pharmacy at New Orleans. This program is held three times a year in New Orleans. For current program dates, contact Danielle Pierce at 504-903-0788.

See back cover for our training calendar



## Stay current with the latest HIV/AIDS journal articles

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## Delta ETC CONTINUING EDUCATION PROGRAMS

### NEW ORLEANS, LOUISIANA

*A clinical preceptorship for physicians:* Care and Management of the Patient with HIV Disease—August 4-5 and November 3-4, 2003. 13 CMEs from AAFP. Contact: Danielle Pierce, 504-903-0788 or dpierce@lsuhsc.edu

### NEW ORLEANS, LOUISIANA

*A clinical preceptorship for dentists and dental hygienists:* Oral Health Management of the Patient with HIV Disease—August 4 and November 3, 2003. 7 hours CDEs. Contact: Danielle Pierce, 504-903-0788 or dpierce@lsuhsc.edu

### NEW ORLEANS, LOUISIANA

*A clinical preceptorship for pharmacists:* Pharmaceutical Care Issues in HIV Disease—August 31 and December 7, 2003. 21 contact hours. Contact: Danielle Pierce, 504-903-0788 or dpierce@lsuhsc.edu

### NEW ORLEANS, LOUISIANA

*A clinical preceptorship for APRNs, PAs, RNs:* Comprehensive Management of the Patient with HIV Disease—September 8-10 and December 1-3, 2003. 21 contact hours. Contact: Danielle Pierce, 504-903-0788 or dpierce@lsuhsc.edu

### JACKSON, MISSISSIPPI

*A multidisciplinary preceptorship for primary care providers:* Comprehensive Management of HIV Disease—September 25-26, 2003. Discipline-specific CEs. Contact Jessie Lindsay at 601-984-5542 or jlindsay@medicine.umsmed.edu. Clinical preceptorships are ongoing (by request).

### PINE BLUFF AND LITTLE ROCK, ARKANSAS

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