NURSING CARE of the HIV-Infected INMATE

METABOLIC COMPLICATIONS of HIV
Module 9

SUMMER / FALL 2007

This learning activity is co-provided by The Albany Medical Center Hospital Provider Unit and the Division of HIV Medicine.
MISSION:
This module is designed to equip correctional nurses with the basic knowledge needed to provide safe, comprehensive care to inmates infected with HIV. Each module provides an overview of a pertinent topic so that correctional nurses have a reference tool readily available for their care of HIV-infected inmates. To obtain copies of previous modules, please visit Albany Medical College’s website at: www.amc.edu/patient/services/hiv/index.html (go to correctional education).

LEARNING OBJECTIVES:
After reading this monograph, the corrections nurse should be able to:
1) Describe common metabolic complications of HIV and antiretroviral therapy.
2) Discuss the recommended approach to screening for dyslipidemia and diabetes mellitus in HIV-infected patients.
3) Discuss the approach to managing changes in body morphology in HIV-infected patients.

DISCLOSURE STATEMENT:
The monograph author, Minda Hubbard, is a member of the Speakers’ Bureaus of the following companies: Boehringer Ingelheim Pharmaceuticals, Inc., Bristol-Myers Squibb Virology & Gilead Sciences, Inc.

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To obtain Continuing Nursing Education credit, a minimum of 80% of the questions must be answered correctly on the self assessment test on page 9. The estimated time for completion of this activity is approximately 50 minutes.

There is no fee for the nursing continuing education credit for this monograph. This learning activity is awarded 0.8 contact hour through June 30, 2008.

IMPORTANT: READ THESE INSTRUCTIONS BEFORE PROCEEDING!

DIRECTIONS:
1. Time yourself throughout all portions of this activity.
2. Read the enclosed monograph.
3. Take the self assessment test.
4. Fill out the program evaluation. Please be sure to include the length of time it took you to complete the activity, self assessment test, and evaluation.
5. Complete the reader information form including your name and address.
6. Fully complete the HRSA participant information form in black pen. Each bubble must be fully shaded.
7. To assure your receipt of Continuing Nursing Education credit, please mail your completed self assessment test, program evaluation, reader information form and HRSA participant information form (3 pages total) to:
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INTRODUCTION

Since the development of highly active antiretroviral therapy (HAART), mortality and morbidity due to AIDS has declined significantly. People with HIV who are receiving effective treatment can often expect to enjoy a much longer life span. As these patients advance in age, they often develop co-morbidities related to hereditary tendencies and lifestyle issues (smoking, sedentary lifestyles, poor dietary habits).

These factors all contribute to higher incidences of cardiovascular disease, diabetes and hypertension. In addition, long-term exposure to HIV treatments, as well as direct viral effects of HIV, appear to increase risk for health complications (Glesby, 2001). The purpose of this learning module is to assist health care providers in understanding some of the more common long-term health complications currently seen in HIV-infected patients: body habitus changes, cardiovascular disease, abnormalities of lipid and glucose metabolism and bone disorders.

FAT REDISTRIBUTION

It is estimated that 40-50% of HIV-infected patients exhibit an abnormality in body composition (Grinspoon, 2005). The umbrella term ‘lipodystrophy’ is often used to describe fat redistribution in patients with HIV. The two types of abnormalities that can occur are:

- lipodystrophy (fat loss): most often seen in the face, arms, legs and buttocks, along with vascular prominence in the legs and arms
- lipohypertrophy (fat accumulation): usually seen in the abdomen, posterior neck and breasts

These two aspects of lipodystrophy are distinct from one another, although both may occur simultaneously in the same patient. Both are equally upsetting to patients and have a significant impact on quality of life. In addition to affecting body image, these body habitus changes can be very stigmatizing, particularly lipoatrophy, which occurs predominantly in the setting of HIV.

The etiology of lipoatrophy is thought to be mitochondrial toxicity occurring as a side effect of certain HIV medications. These drugs, primarily zidovudine (AZT), stavudine (D4T) and didanosine (ddl), belong to the nucleoside reverse transcriptase inhibitor (NRTI) class and were among the first agents available to treat HIV. Therefore, patients who became infected with HIV in the early years of the epidemic would have likely been treated with these drugs, and possibly remained on them for a long period of time. More is being learned about long-term exposure to these medications.

The combination of thymidine-containing NRTIs, plus a protease inhibitor (PI), appears to be most causative of lipoatrophy (Grinspoon, 2005). One strategy for treating lipoatrophy is to switch patients off thymidine analogues onto non-thymidine analogues, (abacavir or tenofovir), if it is possible to do so without jeopardizing control of the patient’s HIV disease. Although studies show improvement in lipoatrophy with these switches, the effects may take several years and not all patients will experience an improvement (Brinkman, 1999).

Risk factors for the development of lipoatrophy include low CD4 nadir, (lowest CD4 count being below 100 cells/mm³), white race, older age, lower body weight before therapy, and a prior diagnosis of AIDS (Lichtenstein, 2001). In patients with these
risk factors, lipoatrophy is more common and less likely to respond to interventions. Facial implants with polylactic acid (Sculptra) help with body image issues, but are costly and not covered by most health insurance plans.

In addition to the changes in the patient’s appearance, lipoatrophy is linked to abnormalities of metabolic function. Peripheral fat loss leads to the release of free fatty acids into the circulation. In the liver this can result in hepatic steatosis (fatty liver); in the pancreas this can result in B cell dysfunction and impaired glucose metabolism. (Brinkman, 1999). These disruptions put the patient at risk for coronary events. This is discussed more fully in the section Cardiovascular Disease on page 5.

Treatment options for fat accumulation are even less clear. Exercise can decrease abdominal fat (Jones, 2001). Surgical interventions, (liposuction of dorsocervical fat pads) can offer relief but this is generally only a temporary solution, as the fat accumulation tends to recur (Piliiero, 2003). This procedure is not routinely covered by insurance, unless it is deemed medically necessary. Growth hormone injections have been shown to decrease fat accumulation. However, this treatment is limited by high cost and numerous side effects (hyperglycemia, fluid retention). In addition, therapeutic effects only last while the patient is on therapy. A lower dose of growth hormone therapy is currently under study to determine if this will provide a more tolerable, less costly treatment alternative (Grunfeld, 2007).

Patients with lipodystrophy, (either lipoatrophy and/or fat accumulation), are at risk for metabolic syndrome, a constellation of symptoms that may include hypertension, impaired glucose metabolism and/or hyperlipidemia. HIV-infected patients with lipodystrophy should be closely monitored for these other abnormalities by regular monitoring of fasting blood glucose and lipid levels (Glesby, 2007).

**HYPERLIPIDEMIA**

Abnormalities of lipids (hypertriglyceridemia and hypercholesterolemia) have become a significant clinical issue in the management of HIV-infected patients. Although antiretroviral therapy often contributes to the development of lipid problems, HIV itself has been shown to cause these abnormalities.

For reasons not entirely clear, during the natural course of HIV infection, there are changes in lipids likely due to wasting and the presence of chronic inflammation in the body. These changes occur in the advanced stages of immunosuppression when the CD4 count is low, and HIV viral load is elevated. The results are decreased high-density lipoprotein (HDL) and low-density lipoprotein (LDL), and increased triglycerides (Dube, 2003). When the patient is subsequently treated with antiretrovirals, a rise in LDL and total cholesterol will occur, potentially due to the reversal of effects on lipids due to HIV itself. Low HDL persists (Riddler, 2003).

Patients on therapy for HIV may also exhibit hyperlipidemia due to medication side effects. The PI class has been linked to hyperlipidemia, (most notably ritonavir), but all drugs in this class with the exception of atazanavir and saquinavir may contribute to lipid disorders. Stavudine is the only medication in the NRTI class that has been shown to contribute to hyperlipidemia (Gallant, 2004). Host factors such as family history, obesity, high fat diet and smoking also contribute to the patient’s risk for hyperlipidemia and overall cardiovascular risk.

All HIV-infected patients should have an annual fasting lipid panel, regardless of whether or not they are on antiretroviral therapy. Check for any family history of dyslipidemia, diabetes, alcohol use, or concomitant medications that may increase lipids. If starting HAART, a baseline lipid panel should be checked and another assessment should be
**TABLE 1 ALGORITHM FOR EVALUATION and INITIAL TREATMENT of DYSLIPIDEMIA in HIV-INFECTED PATIENTS***

- Check fasting lipid panel (total cholesterol, HDL-C, triglycerides, calculated LDL-C) before starting antiretroviral therapy and 3-6 months after
  - If TG > 400 mg/dL, calculated LDL-C is not reliable
  - If TG > 200 mg/dL, calculate non-HDL-C = total cholesterol – HDL-C, which is a secondary goal of therapy after LDL-C
- Consider secondary causes of dyslipidemia (e.g. hypothyroidism, nephrotic syndrome, excessive alcohol intake, medication-induced, poorly controlled diabetes mellitus)
- Risk stratify and determine LDL-C goal based on National Cholesterol Education Program Adult Treatment Panel III guidelines

- Address non-lipid risk factors (e.g. smoking, hypertension)
- Recommend lifestyle modification (diet, exercise)
  - Repeat lipid panel in 4-8 weeks
- If high TGs and/or LDL-C may be related to specific antiretroviral, consider changing regimen if treatment history and/or resistance data permit
  - e.g. switch within PI class, change PI to NNRTI, change stavudine to tenofovir or abacavir
- If not at lipid goal in 4-8 weeks, consider lipid-lowering therapy

- LDL-C or non-HDL-C and TG < 500 mg/dL
  - Start statin (pravastatin, atorvastatin, fluvastatin are preferred)
  - Check fasting lipids and LFTs in 4-6 weeks

- TG ≥ 500 mg/dL
  - Start fibrate (gemfibrozil or micronized fenofibrate)
  - Check fasting lipids and LFTs in 4-6 weeks

*Adapted from http://www.aidsetc.org/pdf/p02-et/et-03-00/dyslipidemia.pdf. Further details on risk stratification, lifestyle modification, and lipid-lowering therapy are available at this website.
done 3-6 months later. If the lipid panel is normal, annual monitoring is adequate (NYSDOH, 2007).

In patients with dyslipidemia, evaluation and management recommendations are based on NCEP guidelines. These guidelines and other algorithms for the management of dyslipidemia in HIV can be accessed at www.aidsetc.org. See Table 1 for a summary of these recommendations.

LDL is the initial focus unless triglycerides are greater than 500. Triglycerides greater than 1000 should be addressed aggressively due to the potential risk of pancreatitis. Lifestyle modifications should be reinforced on an ongoing basis. However, aggressive lipid management should be pursued to limit the risk of cardiovascular complications, and often requires medical treatment. Cholesterol abnormalities are typically treated with statins. There are significant drug-drug interactions between some statins and PIs. Simvastatin and lovastatin cannot be co-administered with PIs. Fluvastatin, atorvastatin and pravastatin can all be used but atorvastatin should be dose-reduced (Bartlett, 2005). Pravastatin should not be used with darunavir (Sekar, 2007). Consultation with a pharmacist or HIV specialist for patients on PI therapy with hypercholesterolemia is recommended. Hypertriglyceridemia is treated with fibrates, niacin, and/or fish oil. New data shows the addition of ezetimibe to be effective in lowering LDL if statins are not effective. There are no drug-drug interactions between ezetimibe and antiretroviral therapy (Wohl, 2007). Often patients will present with mixed lipid abnormalities requiring more than one medication.

A switch in antiretroviral regimen may be helpful if it is possible to accomplish this without sacrificing control of the patient’s HIV disease. HIV consultation should be used to guide this decision, and potentially eliminate antiretrovirals that are aggravating the hyperlipidemia.

DISORDERS OF GLUCOSE METABOLISM

Abnormalities of glucose metabolism, either hyperinsulinemia or new onset Type 2 diabetes, occur much more often in HIV-infected individuals. Estimates among HIV-infected patients range from 7% developing hyperinsulinemia and diabetes, to 35% with impaired glucose tolerance (Hadigan, 2001). Risk factors include fat redistribution, obesity, family history, hepatitis C co-infection, and treatment with PIs with or without thymidine analogue drugs (Glesby, 2007). As noted previously, the emergence of this disorder should alert the clinician to monitor for other symptoms of metabolic syndrome, as the risk for a cardiac event is significant. Potential sequelae of diabetes are neuropathy, nephropathy, retinopathy, dermatologic disorders and increased susceptibility to certain infections. Screening of fasting glucose levels should be done at least annually and any time there is a change in antiretroviral regimen. Weight should be monitored and healthy lifestyle management should be encouraged, including dietary measures to limit concentrated sweets and recommendations for regular exercise. Treatment for glucose abnormalities in HIV-infected patients is the same as in HIV negative patients with the use of insulin sensitizing agents and/or sulfonyureas (Grinspoon, 2005).

CARDIOVASCULAR DISEASE

Medical complications such as diabetes and hyperlipidemia contribute to increased risk for cardiovascular events. One large prospective study has linked PI use to an increased risk of myocardial infarction (Friis-Moller, 2006). However, there is a growing body of data demonstrating that HIV itself appears to be a risk factor. The SMART study examined clinical parameters in patients with HIV.
who had interruptions in their antiretroviral therapy based on their CD4 counts. Patients who were randomized to have intermittent therapy vs. those in the control arm who had continuous therapy for their HIV, had higher rates of cardiovascular complications. This strongly suggests that controlling HIV viral load is cardioprotective (Phillips, 2007). Although there are correlations between antiretroviral therapy and cardiovascular risk, what we now believe is that:

- Controlling HIV remains the highest priority in terms of caring for the HIV-infected patient. Potential drug toxicities are outweighed by the benefits of controlling viral load and maximizing immunologic function.
- Rates of myocardial infarction and other cardiovascular events are declining in patients with HIV, largely due to the fact that providers are much more diligent in monitoring and treating patients for these complications.
- Assessment of modifiable risk factors should be routinely done in patients with HIV. Smoking cessation, weight loss and control of diabetes, hypertension and hyperlipidemia should be addressed (Reiss, 2006).

**BONE DISORDERS**

The incidence of osteopenia and osteoporosis is much higher in HIV-infected patients (Brown, 2006). Risk factors for bone mineral density disorders include smoking, steroid use, low body weight, sedentary lifestyle and hypogonadism. There is some evidence to suggest that HIV itself, as well as antiretroviral treatment, contribute to bone loss but this is not conclusive. Treatment with alendronate and/or calcium plus vitamin D appears to be effective (McComsey, 2007). Although there are currently no recommendations for routine screening, it is reasonable to consider DEXA scans on patients with more than one risk factor for bone mineral loss.

**CONCLUSION**

In the era of effective treatment for HIV, patients are living longer and developing fewer AIDS-related conditions. Long-term effects of antiretrovirals, plus other lifestyle factors, are increasingly contributing to metabolic complications and co-morbidities in people living with HIV. While maintenance of viral suppression remains the highest priority in these patients, health care workers caring for HIV-infected patients need to remain vigilant in monitoring for and treating these other complications to maximize the health of our patients.
BIBLIOGRAPHY


Brinkman K & Kakuda TN. Mitochondrial toxicity induced by nucleoside-analogue reverse-transcriptase inhibitors is a key factor in the pathogenesis of antiretroviral therapy-related lipodystrophy. Lancet. 1999;354:1112-1115.


HELPFUL WEBSITES:

AIDS Education & Training Centers
(AETC) National Resource Center ........... www.aidsetc.org
Association for Nurses in AIDS Care ....... www.anacnet.org
CDC National Prevention ..................... www.cdcnpin.org
Information Network
Centerforce ....................................... www.centerforce.org
Corrections Learning Network ............... cln.esd101.net
National Commission on Correctional Health Care
National Criminal Justice Reference Service
National Hepatitis C Prison Coalition..... www.hcvinprison.org
New York/New Jersey AIDS Education & Training Center (AETC)........ www.nynjaetc.org
The Body ........................................... www.thebody.com

DID YOU KNOW?

The AIDS Education & Training Center (AETC) Program, administered by the Health Resources and Services Administration, supports a network of 11 regional centers that coordinate free education for health care providers treating persons living with HIV/AIDS. These 11 centers cover all 50 states and are a resource which is available to health care providers desiring HIV clinical education. To learn of an AETC in your region, visit www.aidsetc.org or call (973) 972-6587.

BILINGUAL INMATE HEALTH EDUCATION NEWSLETTER (INSIDE HEALTH/DENTRO DE LA SALUD)

This publication is available on-line at Albany Medical College’s website below. Articles are written at a 4th grade reading level and discuss general health and infectious disease topics. This newsletter is relevant for all inmates, regardless of their HIV status. Copyright is waived. Please print, photocopy and distribute freely. This is a collaborative initiative among Albany Medical College, the New York State Department of Correctional Services and the pharmaceutical industry.

SAVE THE DATE!

SATELLITE VIDEOCONFERENCE & WEBCAST

“HIV Therapy, Management & Emerging Treatment Options”
Part of the ongoing series,
“Management of HIV/AIDS in the Correctional & Community Setting”

Wednesday, October 3, 2007
12:30-2:30 PM Eastern Time

For additional information:
www.amc.edu/hivconference
ybarraj@mail.amc.edu
518.262.4674.

Please share this monograph with your nursing colleagues making photocopies of the Continuing Nursing Education documents if needed. Additional copies of this monograph can also be downloaded from Albany Medical College’s website at:
www.amc.edu/patient/services/hiv/index.html
(go to correctional education).
**DIRECTIONS:** Please select the **BEST** answer and circle your response directly on the self assessment test. To obtain Continuing Nursing Education credit, a minimum of 80% of the questions must be answered correctly. To assure your receipt of Continuing Nursing Education credit, please complete the self assessment test, program evaluation, reader information form and HRSA participant information form (3 pages total).

This activity is eligible for nursing credit through **June 30, 2008**. Individuals who mail the required documentation noted above after this date will be ineligible for credit. The estimated time for completion of this activity is approximately 50 minutes. There is no fee for the nursing continuing education credit for this monograph. Albany Medical College mailing information is on the reverse side of this document.

1) **Which of the following statements regarding fat redistribution is false?**
   A. lipoatrophy is thought to be caused by certain HIV medications
   B. fat redistribution is seen in approximately ½ of all HIV+ patients
   C. lipoatrophy occurs predominately in the setting of HIV
   D. patients may experience lipoatrophy or lipohypertrophy, but not both

2) **When educating an HIV+ inmate about lipoatrophy, which of the following statements is true:**
   A. it is important to monitor T cells and viral load following a switch in medication to be sure that HIV remains under control
   B. the inmate can expect a reversal of fat loss relatively quickly
   C. lipoatrophy involves only facial changes
   D. many treatment options are readily available to treat lipoatrophy

3) **The nucleoside reverse transcriptase inhibitor that has been shown to contribute to hyperlipidemia is:**
   A. lamivudine
   B. stavudine
   C. abacavir
   D. didanosine

4) **Patients starting on antiretroviral therapy should have a fasting lipid panel checked:**
   A. six months after beginning therapy
   B. not recommended to routinely check a fasting lipid panel in these patients
   C. at baseline and 3-6 months later
   D. at baseline and one year later

5) **The following medications are contraindicated when treating hyperlipidemia in patients on protease inhibitors:**
   A. fluvastatin and atorvastatin
   B. simvastatin and lovastatin
   C. ezetimibe and pravastatin
   D. atorvastatin and fish oil

6) **The following patients are not considered at risk for HIV-related bone disorders:**
   A. obese patients
   B. smokers
   C. patients on long-term steroids
   D. patients with hypogonadism

7) **Risk factors for glucose abnormalities include all of the following except:**
   A. family history, fat redistribution and hepatitis C co-infection
   B. obesity, treatment with protease inhibitors and fat redistribution
   C. family history, obesity and hepatitis C co-infection
   D. smoking, hypertension and sedentary lifestyle

8) **The following statement regarding cardiovascular (CV) disease in HIV+ patients is true:**
   A. keeping patients on their HIV treatment is important, even if they are experiencing long-term toxicities putting them at risk for CV disease
   B. rates of myocardial infarction are on the rise in HIV+ patients
   C. assessment of modifiable risk factors is less important in HIV+ patients due to their numerous other medical issues
   D. interruptions of HIV therapy appear to be a safe way to minimize cardiovascular risk

9) **When assessing the lipid panel of an HIV+ inmate, the LDL is the target component unless:**
   A. the patient is also diabetic
   B. the patient has a prior history of cardiovascular disease
   C. the patient’s triglycerides are >500mg/dL
   D. the patient is >50 years of age

10) **Inmate Gonzalez reports for a routine HIV follow-up visit. He has been stable on his medications for 3 years and is now exhibiting symptoms of fat redistribution. Appropriate interventions include all of the following except:**
    A. stopping his antiretroviral treatment to see if his symptoms resolve
    B. reviewing his diet to assess for high fat and sugar intake
    C. checking his blood glucose and lipid levels
    D. educating him about the various possible causes of the changes he is seeing in his body
To assure your receipt of Continuing Nursing Education credit, please mail your completed self assessment test, program evaluation, reader information form and HRSA participant information form (3 pages total) to: Jim Ybarra, Albany Medical College, 47 New Scotland Avenue, Mail Code 158, Albany, NY 12208. Please allow 6-8 weeks for education credit processing. An attendance certificate and self assessment test answer key will be mailed to you at that time. If you have any questions, please contact Jim Ybarra at (518) 262-4674 or ybarraj@mail.amc.edu.

**PLEASE COMPLETE THIS FORM BY COMPLETELY FILLING IN THE CIRCLES WITH BLACK PEN OR PENCIL.**

<table>
<thead>
<tr>
<th>1. As a result of completing the program, I am able to meet the following program goal: to equip the correctional nurse to arrange the necessary care and services to optimize the health of the HIV-infected patient.</th>
<th>STRONGLY DISAGREE</th>
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<th>STRONGLY AGREE</th>
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<td>2. As a result of reading this module, I am able to achieve the following objectives:</td>
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<td>STRONGLY AGREE</td>
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<td>b. Discuss the recommended approach to screening for dyslipidemia and diabetes mellitus in HIV-infected patients.</td>
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<td>c. Discuss the approach to managing changes in body morphology in HIV-infected patients.</td>
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<td>3. The objectives of this program were relevant to the overall goals of the program.</td>
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<td>4. The monograph was an effective learning tool for me.</td>
<td>STRONGLY DISAGREE</td>
<td>DISAGREE</td>
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<td>STRONGLY AGREE</td>
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<td>5. The author of this monograph was an effective teacher.</td>
<td>STRONGLY DISAGREE</td>
<td>DISAGREE</td>
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<td>6. There was no commercial bias in this learning activity.</td>
<td>STRONGLY DISAGREE</td>
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<td>7. Any off label (non-approved) use of FDA approved drugs or devices were identified.</td>
<td>STRONGLY DISAGREE</td>
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Time required to complete this learning activity: ___________ minutes

Comments: ____________________________________________________________________________________

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**READER INFORMATION FORM**

(Please print legibly as all information is needed for education credit processing.)

Name (first and last): _________________________________________________________________________

Degree: _______________________________________ Title: (NP, RN, LPN) __________________________

Facility Name: ______________________________________________________________________________

Facility Address: _____________________________________________________________________________

E-mail Address (if applicable): __________________________________________________________________

Please proceed to the next page and complete the HRSA participant information form.
HRSA AIDS Education and Training Centers
PARTICIPANT INFORMATION FORM

Please completely fill in the circles (o) when answering the questions.

1. To create your unique ID number, use the month of your birth, the day of your birth, and the last four digits of your SSN For example, May 29, 123-45-6789 has the ID number 05296789.

   Birth MM DD
   Last 4 SSN # # # #
   Unique ID Number

2. Date of Training (mm/dd/yy)

   mm / dd / yy

3. Your Primary Professional Discipline (Select one)
   - Dentist
   - Other Dental Professional
   - Nurse Practitioner
   - Other Advanced Practice Nurse
   - Nurse
   - Pharmacist
   - Physician
   - Physician Assistant

4. Your Primary Function Role (Select one)
   - Administrator
   - Agency Board Member
   - Care Provider/ Clinician
   - Case Manager
   - Client/Patient Educator

5. Your Principal Employment Setting (Select one)
   - Clinic
   - Other Settings
     - Academic Health Center
     - Community Health Center
     - Family Planning
     - HIV Clinic
     - Hospital-Based Clinic
     - Indian Health Services/Tribal
     - Infectious Disease
     - Maternal/Child Health
     - Mental Health
     - Rural Health
     - Sexually Transmitted Disease
     - Substance Abuse

6. Primary Employment Setting/Zip code
   a. Rural
   b. Urban
   c. Suburban

7. Is the employment setting a faith-based organization?
   - Yes
   - No
   - Don't Know

8. Does the employment setting receive Ryan White Program Funding?
   - Yes
   - No
   - Don't Know

   If you don't know, please write the full name of your employer:

9. Are you of Hispanic, Latino/a or Spanish origin?
   - Yes
   - No

10. Your Racial Background (Select all that Apply)
    - American Indian/Alaska Native
    - Native Hawaiian/Other Pacific Islander
    - Asian
    - Black or African American
    - Other

11. Your Gender
    - Female
    - Male
    - Transgender

12. Do you provide services directly to clients/patients?
    - Yes
    - No [Stop here, You are done with this form.]

13. Do you provide services directly to HIV-infected clients/patients?
    - Yes
    - No [Stop here, You are done with this form.]

14. How many years have you been providing services directly to HIV infected clients/patients? [Round up to the nearest whole year.]

15. Estimate the NUMBER of HIV-infected clients/patients to whom you provide direct services in an average MONTH:
    - None [Stop here, You are done with this form.]
    - 1-9
    - 10-19
    - 20-49
    - 50+

For questions 16-18, estimate the PERCENTAGE of your HIV infected clients/patients in the past YEAR who were:

16. Racial or Ethnic Minorities
    - None
    - 1-24%
    - 25-49%
    - 50-74%
    - > 75%

17. On Antiretroviral Therapy
    - None
    - 1-24%
    - 25-49%
    - 50-74%
    - > 75%

18. Women
    - None
    - 1-24%
    - 25-49%
    - 50-74%
    - > 75%