



## Complete Summary

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### GUIDELINE TITLE

Prevention of secondary disease: diabetes.

### BIBLIOGRAPHIC SOURCE(S)

New York State Department of Health. Prevention of secondary disease: diabetes.  
New York (NY): New York State Department of Health; 2007. 4 p. [6 references]

### GUIDELINE STATUS

This is the current release of the guideline.

## COMPLETE SUMMARY CONTENT

SCOPE  
METHODOLOGY - including Rating Scheme and Cost Analysis  
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INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT  
CATEGORIES  
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## SCOPE

### DISEASE/CONDITION(S)

- Human immunodeficiency virus (HIV) infection
- Type 2 diabetes

### GUIDELINE CATEGORY

Prevention  
Risk Assessment

### CLINICAL SPECIALTY

Allergy and Immunology  
Endocrinology  
Family Practice  
Infectious Diseases

Internal Medicine  
Preventive Medicine

### **INTENDED USERS**

Advanced Practice Nurses  
Health Care Providers  
Nurses  
Physician Assistants  
Physicians  
Public Health Departments

### **GUIDELINE OBJECTIVE(S)**

To provide guidelines for prevention of diabetes and/or diabetes progression in human immunodeficiency virus (HIV)-infected patients

### **TARGET POPULATION**

Human immunodeficiency virus (HIV)-infected patients

### **INTERVENTIONS AND PRACTICES CONSIDERED**

1. Assessment of risk factors for type 2 diabetes
2. Lifestyle modifications including appropriate diet, weight control, and exercise
3. Fasting blood glucose test or random blood glucose values measurement
4. Prevention of disease progression including prescribing alternatives to a protease inhibitor-based antiretroviral regimen, life style interventions, nutrition plan, and referral to an endocrinologist

### **MAJOR OUTCOMES CONSIDERED**

Efficacy of identifying and reducing risk

## **METHODOLOGY**

### **METHODS USED TO COLLECT/SELECT EVIDENCE**

Hand-searches of Published Literature (Primary Sources)  
Hand-searches of Published Literature (Secondary Sources)  
Searches of Electronic Databases

### **DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE**

Not stated

### **NUMBER OF SOURCE DOCUMENTS**

Not stated

## **METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE**

Expert Consensus (Committee)

## **RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE**

Not applicable

## **METHODS USED TO ANALYZE THE EVIDENCE**

Review

## **DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE**

Not stated

## **METHODS USED TO FORMULATE THE RECOMMENDATIONS**

Expert Consensus

## **DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS**

AIDS Institute clinical guidelines are developed by distinguished committees of clinicians and others with extensive experience providing care to people with HIV infection. Committees\* meet regularly to assess current recommendations and to write and update guidelines in accordance with newly emerging clinical and research developments.

The Committees\* rely on evidence to the extent possible in formulating recommendations. When data from randomized clinical trials are not available, Committees rely on developing guidelines based on consensus, balancing the use of new information with sound clinical judgment that results in recommendations that are in the best interest of patients.

\* Current committees include:

- Medical Care Criteria Committee
- Committee for the Care of Children and Adolescents with HIV Infection
- Dental Standards of Care Committee
- Mental Health Committee
- Women's Health Committee
- Substance Use Committee
- Physician's Prevention Advisory Committee
- Pharmacy Committee

## **RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS**

Not applicable

## COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

## METHOD OF GUIDELINE VALIDATION

Peer Review

## DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

All guidelines developed by the Committee are externally peer reviewed by at least two experts in that particular area of patient care, which ensures depth and quality of the guidelines.

## RECOMMENDATIONS

### MAJOR RECOMMENDATIONS

#### Assessment and Prevention of Diabetes

Clinicians should assess for risk factors for type 2 diabetes in HIV-infected patients at baseline and annually (see Table 1 below).

Clinicians should emphasize appropriate diet, weight control, and exercise as methods to avoid the development of type 2 diabetes.

Clinicians should assess fasting blood glucose before initiating highly active antiretroviral therapy (HAART), 3 to 6 months after initiation, and at least annually thereafter.

Clinicians should administer 75 g of oral glucose (2-hour glucose tolerance test) to distinguish between impaired glucose tolerance (glucose level  $\geq 140$  mg/dL 2 hours after oral glucose) and diabetes (glucose level  $\geq 200$  mg/dL after oral glucose) in patients with repeated borderline fasting glucose values.

**Table 1: Risk Factors for Type 2 Diabetes in HIV-infected Patients\***

<ul style="list-style-type: none"><li>• PI use</li><li>• Severe body fat changes</li><li>• Hepatitis C infection</li><li>• Age <math>\geq 45</math> years</li><li>• Overweight (BMI <math>\geq 25</math> kg/m<sup>2</sup>)</li><li>• Habitual physical inactivity</li><li>• First-degree relative with diabetes</li><li>• Specific racial or ethnic groups<ul style="list-style-type: none"><li>• African American</li></ul></li></ul>	<ul style="list-style-type: none"><li>• Previously identified glucose metabolism disturbance (e.g., IGT or IFG on previous testing)</li><li>• History of vascular disease<ul style="list-style-type: none"><li>• Blood pressure <math>\geq 140/90</math> mmHg</li></ul></li><li>• High-density lipoprotein cholesterol (HDL-C) <math>&lt; 35</math> mg/dL</li><li>• Triglycerides <math>&gt; 250</math> mg/dL</li><li>• History of gestational diabetes or delivery of infant <math>&gt; 9</math> lbs</li><li>• Polycystic ovary syndrome or acanthosis</li></ul>
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<ul style="list-style-type: none"> <li>• Latino</li> <li>• Native American</li> <li>• Asian American</li> <li>• Pacific Islander</li> </ul>	nigricans
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IFG, impaired fasting glucose; IGT, impaired glucose tolerance; PI, protease inhibitor

\*Except for HIV-related risk factors (i.e., PI use, severe body fat changes, and hepatitis C), the information provided is based on criteria established by the American Diabetes Association for diabetes testing in asymptomatic non-HIV-infected adults.

### **Key Point:**

If fasting blood glucose tests are not feasible, random blood glucose values may be used as an alternative screening method. Patients with random glucose consistently <100 mg/dL do not require follow-up testing. A random glucose >140 mg/dL should prompt use of a standardized diagnostic test, such as a glucose tolerance test. A random plasma glucose  $\geq$ 200 mg/dL, either repeated on a subsequent day or in the presence of unequivocal symptoms of hyperglycemia (e.g., serum glucose >400 mg/dL, lactic acidosis, small to moderate amounts of ketones, serum pH of <7.3, bicarbonate of <15 mEq/L, anion gap >12), meets the threshold for the diagnosis of diabetes.

### **Prevention of Diabetes Disease Progression**

Clinicians who lack experience in treating diabetic patients should refer patients for evaluation by clinicians experienced in managing diabetes.

When possible, clinicians should prescribe alternatives to a protease inhibitor-based HAART regimen in patients with preexisting glucose intolerance or diabetes.

Clinicians should recommend life-style interventions, including diet, exercise, weight management, and smoking cessation, for HIV-infected patients with glucose intolerance or diabetes.

When possible, HIV-infected patients with diabetes should develop and maintain a nutrition plan with a qualified nutrition counselor.

Clinicians should refer diabetic patients who are not responsive to medical intervention or who have symptoms and signs of worsening diabetes to an endocrinologist.

For additional information regarding the management of diabetes in the setting of antiretroviral (ARV) therapy, see the National Guideline Clearinghouse summary of the New York State Department of Health guideline, [Long-Term Complications of Antiretroviral Therapy](#).

### **CLINICAL ALGORITHM(S)**

None provided

## EVIDENCE SUPPORTING THE RECOMMENDATIONS

### TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is not specifically stated for each recommendation.

## BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

### POTENTIAL BENEFITS

Appropriate assessment and prevention of diabetes and diabetes disease progression in human immunodeficiency virus (HIV)-infected patients

### POTENTIAL HARMS

Not stated

## IMPLEMENTATION OF THE GUIDELINE

### DESCRIPTION OF IMPLEMENTATION STRATEGY

The AIDS Institute's Office of the Medical Director directly oversees the development, publication, dissemination and implementation of clinical practice guidelines, in collaboration with The Johns Hopkins University, Division of Infectious Diseases. These guidelines address the medical management of adults, adolescents and children with HIV infection; primary and secondary prevention in medical settings; and include informational brochures for care providers and the public.

The HIV Clinical Guidelines Program works with other programs in the AIDS Institute to promote adoption of guidelines. Clinicians, for example, are targeted through the Clinical Education Initiative (CEI) and the AIDS Education and Training Centers (AETC). The CEI provides tailored educational programming on site for health care providers on important topics in HIV care, including those addressed by the HIV Clinical Guidelines Program. The AETC provides conferences, grand rounds and other programs that cover topics contained in AIDS Institute guidelines.

Support service providers are targeted through the HIV Education and Training initiative which provides training on important HIV topics to non-physician health and human services providers. Education is carried out across the State as well as through video conferencing and audio conferencing.

The HIV Clinical Guidelines Program also works in a coordinated manner with the HIV Quality of Care Program to promote implementation of HIV guidelines in New York State. By developing quality indicators based on the guidelines, the AIDS Institute has created a mechanism for measurement of performance that allows providers and consumers to know to what extent specific guidelines have been implemented.

Finally, best practices booklets are developed through the HIV Clinical Guidelines Program. These contain practical solutions to common problems related to access, delivery or coordination of care, in an effort to ensure that HIV guidelines are implemented and that patients receive the highest level of HIV care possible.

## **IMPLEMENTATION TOOLS**

Personal Digital Assistant (PDA) Downloads

For information about [availability](#), see the "Availability of Companion Documents" and "Patient Resources" fields below.

## **INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES**

### **IOM CARE NEED**

Living with Illness  
Staying Healthy

### **IOM DOMAIN**

Effectiveness

## **IDENTIFYING INFORMATION AND AVAILABILITY**

### **BIBLIOGRAPHIC SOURCE(S)**

New York State Department of Health. Prevention of secondary disease: diabetes. New York (NY): New York State Department of Health; 2007. 4 p. [6 references]

### **ADAPTATION**

Not applicable: The guideline was not adapted from another source.

### **DATE RELEASED**

2007 May

### **GUIDELINE DEVELOPER(S)**

New York State Department of Health - State/Local Government Agency [U.S.]

### **SOURCE(S) OF FUNDING**

New York State Department of Health

### **GUIDELINE COMMITTEE**

Not stated

## **COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE**

Not stated

## **FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST**

Not stated

## **GUIDELINE STATUS**

This is the current release of the guideline.

## **GUIDELINE AVAILABILITY**

Electronic copies: Available from the [New York State Department of Health AIDS Institute Web site](#).

## **AVAILABILITY OF COMPANION DOCUMENTS**

This guideline is available as a Personal Digital Assistant (PDA) download from the [New York State Department of Health AIDS Institute Web site](#).

## **PATIENT RESOURCES**

None available

## **NGC STATUS**

This NGC summary was completed by ECRI Institute on June 28, 2007.

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