The Converging Epidemics of Obesity, Metabolic Syndrome (Pre-Diabetes) and HIV: The Chronic Disease Status of Humanity

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Why do we have large numbers of people with:

- Obesity
- Cardiovascular disease
- Metabolic syndrome
- Type 2 diabetes
- Cancer
- Other chronic diseases
“The pen is mightier than the sword.”

Edward Lytton (English novelist, 1839)
“The fork and the couch are mightier than the sword.”

(Lewis, 2007)
What is the basic problem?

Nutritional Deficiency

Decreased Functional Capacity

Values Orientation

Information

Motivation

Access

Behavioral Skills

Education
Levels of Determinants of Behavior and Disease

- Society
- Community
- Neighborhood
- Family
- Individual
Leading Causes of Death
United States, 2000

- Heart disease
- Stroke
- Lung cancer
- Chronic lung disease
- Unintentional injuries
- Prostate cancer
- Breast cancer
- Diabetes mellitus
- Pneumonia
- Colon cancer
- Suicide
- Chronic liver disease
- Homicide
- HIV/AIDS

Age-Adjusted Mortality (per 100,000 population)

US Department of Health and Human Services: Health United States 2003
### "Actual" Causes of Death
United States, 2000

<table>
<thead>
<tr>
<th>Cause</th>
<th>Percent of Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tobacco use</td>
<td>20%</td>
</tr>
<tr>
<td>Poor diet/Physical inactivity</td>
<td>18%</td>
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<tr>
<td>Alcohol use</td>
<td>5%</td>
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<tr>
<td>Microbial agents</td>
<td>4%</td>
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<tr>
<td>Toxic agents</td>
<td>3%</td>
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<tr>
<td>Motor vehicle crashes</td>
<td>3%</td>
</tr>
<tr>
<td>Firearms</td>
<td>2%</td>
</tr>
<tr>
<td>Sexual behaviors</td>
<td>2%</td>
</tr>
<tr>
<td>Illicit drugs</td>
<td>1%</td>
</tr>
</tbody>
</table>

Cardiovascular Disease
(The #1 Killer!)

1. It is the number one cause of death globally and is projected to remain the leading cause of death.
2. An estimated 17.5 million people died from cardiovascular disease in 2005, representing 30% of all global deaths.
3. Of these deaths, 7.6 million were due to heart attacks and 5.7 million were due to stroke.
4. Around 80% of these deaths occurred in low and middle income countries.

Cardiovascular Disease Risk for HIV: Key Points to Share with Patients

- As HIV infection has become a chronic condition, it is important to address other health issues, such as cardiovascular disease.
- Some HAART agents are thought to increase the risk of cardiovascular disease, so changing the regimen might reduce risk.
- Some studies suggest that treatment interruption actually increases the risk of cardiovascular disease.
- Research to better understand the association of HAART and cardiovascular disease is still ongoing.
- Although long-term heart disease risks are a concern, control of HIV infection is still the primary objective.
Total Number of HIV Cases Worldwide (1990-2007)

Approximately 33 million people were living with AIDS at the end of 2007.

How is Obesity Typically Defined?

- Obesity is typically defined using Body Mass Index (BMI) with weight (kg) divided by height (m²).
- Overweight (BMI ≥ 25 and < 30)
- Class I Obesity (BMI ≥ 30 and < 35)
- Class II Obesity (BMI ≥ 35 and < 40)
- Class III Obesity (BMI ≥ 40)
A Rapidly Emerging Epidemic...

- In 1980, fewer than 47% of Americans were overweight and less than 15% were obese.
- Today, approximately two-thirds of Americans are overweight and between 27%-32% are obese.
- Annual deaths from obesity in the United States estimated at 122,000; compared to 430,000 from smoking.


Childhood obesity is dramatically rising and is now the most significant health crisis affecting children today.

Obesity during youth is related to metabolic syndrome during this time and an increased risk of obesity, diabetes, cardiovascular disease, and overall mortality in adulthood.


Overweight/Obesity is listed as one of the leading health indicators in *Healthy People 2010* and obesity is second only to tobacco use as a public health threat and as the leading cause of preventable deaths in the United States.
Trends in Prevalence of Obesity
United States, 1960-2004

NHES and NHANES, JAMA 2006;1549-55
Whereas HIV used to be primarily associated with wasting in the pre-HAART era...

Several studies have demonstrated a significant prevalence of overweight and obesity among persons living with HIV.

1. 27% - overweight and 21% - obese (women) and 33% - overweight and 6% - obese (men); 1998.

2. 34% - overweight and 9% - obese (total sample); 2001.

3. 31% - overweight, obese - 14%, and wasting - 9%; 2005.

4. 34% - overweight and 29% - obese (women) and 40% - overweight and 13% - obese (men); 2006


What is Metabolic Syndrome?

- The criteria for diagnosing metabolic syndrome are not indisputable.
- The criteria proposed by the National Cholesterol Education Program Adult Treatment Panel III are currently recommended and widely used.
- The American Heart Association and the National Heart, Lung, and Blood Institute recommend that metabolic syndrome be identified as the presence of three or more of these components:
What is Metabolic Syndrome?

1. Elevated waist circumference:
   Men ≥ 102 cm and Women ≥ 88 cm

2. Elevated triglycerides ≥ 150 mg/dL

3. Reduced HDL cholesterol:
   Men < 40 mg/dL and Women < 50 mg/dL

4. Elevated blood pressure ≥ 130/85 mm Hg

5. Elevated fasting glucose ≥ 100 mg/dL
1. According to a recent report in the United States, 24 million adults now have diabetes (7.8% of the population) and another 57 million adults have impaired fasting glucose or pre-diabetes.

2. Metabolic syndrome is present in at least 22% of United States men and women and varies substantially by ethnicity (highest in Hispanics and lowest in Blacks).


Prevalence of Metabolic Syndrome in HIV

Several studies have demonstrated the following rates of metabolic syndrome among persons living with HIV.

1. The prevalence of metabolic syndrome was lower in HIV-infected patients (24.3%) than controls (34.1%); 2006.

2. The prevalence of metabolic syndrome using ATP III guidelines in HIV-infected patients was similar to controls (25.5% vs 26.5%, respectively); 2007.

3. HIV-infected patients had a higher prevalence of metabolic syndrome than controls (20.8% vs 15.8%) using ATP III criteria, but the difference was smaller using IDF criteria (22.1% vs 20.5%); 2007.

4. Other studies have found the rate to be anywhere between 11% and 45%; 2008.


To date, these studies have shown that obesity and metabolic syndrome (and thus cardiovascular disease) are significant problems within the HIV population. Positive correlations between BMI and total cholesterol, triglycerides, and glucose have also been demonstrated. Related disorders such as lipodystrophy, hyperlipidemia, and insulin resistance have also become much more common for people living with HIV.
What are some of the contextual factors of the obesity and metabolic syndrome problems?

<table>
<thead>
<tr>
<th>Meal</th>
<th>Whopper</th>
<th>Calories</th>
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<td>Value Meal</td>
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<tr>
<td>$3.39</td>
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<tr>
<td>Small French Fries</td>
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<tr>
<td>22 oz. Soft drink</td>
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<td>King Size Value Meal</td>
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<td>32 oz. Soft Drink</td>
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<tr>
<td>Total</td>
<td>1,470</td>
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</tbody>
</table>
7-11 Fountain Drink Choices

32 oz
400 calories

40 oz
500 calories

44 oz
550 calories

52 oz
650 calories
Obesity compared to other problems

More people are now overweight or obese than people who smoke, live in poverty, or drink heavily.

The Financial Impact of Obesity

Obesity costs between $70-$100 Billion a year in public health expenditures and accounts for almost 10% of total health care costs in the United States.

Adcox S. New state law seeks to cut down obesity. Ithaca Journal 2002 Sep 21;5A.
The Financial Impact of Obesity

Obesity contributes to higher health care expenditures than either smoking or alcohol use.

Obese adults (18 to 65) have 36% higher than average annual medical expenditures compared to those of normal weight.

The Financial Impact of Obesity

Americans spend between $30-$40 Billion every year on weight loss products.

The Relationship Between Physical Inactivity, Poor Nutrition, and Obesity

In 2002, 25% of Americans did not participate in any leisure time physical activities in the previous month.

The Relationship Between Physical Inactivity, Poor Nutrition, and Obesity

Unfortunately, more than 60% of all people do not achieve this amount of exercise and are inactive by definition.

The Effect of Physical Inactivity on Obesity

Consuming less than 100 excess calories per day is the principal cause of weight gain in the majority of people.

Therefore, increasing physical activity by just 100 calories per day could theoretically prevent weight gain in most people, which averages out to walking 2,000 additional steps each day.

Childhood obesity. Don’t take it lightly.

Food Stamps can help. Call 1-888-328-3483 to see if you qualify.

my kinda shoppin’ spree

I’m lovin’ it

Dollar Menu
Thank you for your attention!