Food Glorious Food

Epidemiology of Food and Nutrition-Related Diseases and Conditions

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Conflict of Interest Disclosure

• I am a full-time employee of PepsiCo.

• The views and opinions expressed herein are my own and do not necessarily reflect those of PepsiCo.
Epidemiology of Food and Nutrition-Related Diseases and Conditions

• Historical perspectives
• Global trends in nutrition-related diseases
• Nutrition and health - a reason for hope
• The need for effective partnerships
## Food, Nutrition, and Health

<table>
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<tr>
<th>Time Period</th>
<th>Major Themes</th>
<th>Examples &amp; Dates</th>
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<tr>
<td><strong>1700's-1950's</strong></td>
<td>Severe Deficiency Diseases</td>
<td>Scurvy (1700-1750)</td>
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<td>Goiter (1820-1920)</td>
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<td>Beri-beri (1912)</td>
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<td>Pellagra (1900-1920)</td>
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<td>Rickets (1930's)</td>
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<td><strong>1950's - Today</strong></td>
<td>Non Communicable Diseases and Conditions</td>
<td>Obesity; Type 2 diabetes</td>
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<td>Heart disease; Stroke</td>
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<td>Some cancers</td>
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<td><strong>Tomorrow</strong></td>
<td>Health &amp; Wellness</td>
<td>Whole Foods</td>
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<td>Food Security</td>
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<td>Balanced Diets</td>
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The Aim of Dietary Guidelines: Then and Now

• Historically, nutrients were to prevent deficiencies

James Lind wrote a Treatise on Scurvy (1747). Where he described his clinical trials that proved that citrus fruits and juices would prevent scurvy.

Joseph Goldberger demonstrated in the early 1900"s that pellagra, was caused by a nutritional deficiency and could be cured by the addition of fresh milk, meats, or yeast to the diet.
In 1941, President Roosevelt pointed out the major nutrition challenge in the U.S.

“Every survey of nutrition shows that here in the United States, undernourishment is widespread and serious.”
Concerns about the total Food Supply and Food Supply Adjusted for Losses

Calories per person per day

Total food supply available for consumption

Food supply adjusted for spoilage, cooking losses, and other losses

1Rounded to the nearest hundred.

2Not calculated for years before 1970.
Between 1983 and 2000, per capita calorie intake in the US increased nearly 20%.

Calories per person per day

- **Total food supply available for consumption**
  - Rounded to the nearest hundred.

- **Food supply adjusted for spoilage, cooking losses, plate waste, and other losses**
  - Not calculated for years before 1970.
Important Drivers of the Rising Burden of Major Chronic Disease Risk Factors

- Lifestyle and behavioral changes
- Decreasing physical activity
- Nutritional transition
- Other major health transitions
Cardiovascular epidemic in countries of different stages of development

<table>
<thead>
<tr>
<th>Year</th>
<th>High Income Economies</th>
<th>Economies in Transition</th>
<th>Middle and Low Income Countries</th>
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<tbody>
<tr>
<td>1940</td>
<td>Rapid increase</td>
<td>Slow increase</td>
<td>Low rates</td>
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<tr>
<td>1950</td>
<td></td>
<td>Rapid increase</td>
<td>Slow increase</td>
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<tr>
<td>1960</td>
<td></td>
<td></td>
<td>Rapid increase in most countries</td>
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<tr>
<td>1970</td>
<td>Reach the peak</td>
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<td>First cause of death &amp; disability in most countries</td>
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<tr>
<td>1980</td>
<td>Progressive decline</td>
<td>Reach the peak in some countries</td>
<td>First cause of death &amp; disability in most countries</td>
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<td>1990</td>
<td>Remains as first cause of death &amp; disability</td>
<td></td>
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<td>2000</td>
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Source: WHO, NMH/MNC
Heart disease, stroke, cancer, diabetes, and other chronic diseases are leading causes of death globally.

Cardiovascular diseases are the leading cause of death in the world; Data from 2005

Deaths (millions)

HIV/AIDS: 2.8
TB: 1.6
Malaria: 0.9
CVD: 17.5
Cancer: 7.6
COPD: 4.1
Diabetes: 1.1

www.who.int/chp/chronic_disease_report/en/
In reality, 80% of these chronic disease deaths occur in low and middle income countries.

Projected deaths by major cause and World Bank income group, all ages, 2005

Projected global distribution of chronic disease deaths by World Bank income group, all ages, 2005

www.who.int/chp/chronic_disease_report/en/
Many of the leading risk factors for death are related to poor nutrition.
The NCD Alliance

Putting non-communicable diseases on the global agenda

The Aim of Dietary Guidelines: Then and Now

• From the 1950's to the present, the focus has been the prevention and control of NCDs.

• Dietary guidance now aims to prevent or control:
  – Obesity; Type 2 diabetes
  – Cardiovascular diseases, Stroke
  – Cancers
  – Other NCDs
Global Trend in Type 2 diabetes

From: The Global Burden of Metabolic Risk Factors of Chronic Diseases Collaborating Group, Imperial College UK
Age-standardized mean Systolic Blood Pressure in 2008

Men

Women

Danaei et al. *Lancet* 2011
Global overweight and obesity 1960

From: The Global Burden of Metabolic Risk Factors of Chronic Diseases Collaborating Group, Imperial College UK
Global overweight and obesity 2010

From: The Global Burden of Metabolic Risk Factors of Chronic Diseases Collaborating Group, Imperial College UK
Four papers published in the Lancet with important global & regional trends in nutrition-related risk factors

National, regional, and global trends in body-mass index since 1980: systematic analysis of health examination surveys and epidemiological studies with 960 country-years and 9.1 million participants

National, regional, and global trends in systolic blood pressure since 1980: systematic analysis of health examination surveys and epidemiological studies with 786 country-years and 5.4 million participants

National, regional, and global trends in serum total cholesterol since 1980: systematic analysis of health examination surveys and epidemiological studies with 321 country-years and 3.0 million participants

National, regional, and global trends in fasting plasma glucose and diabetes prevalence since 1980: systematic analysis of health examination surveys and epidemiological studies with 370 country-years and 2.7 million participants
Dear Dr. Chan:

RE: A Global Commitment to Action on the Global Strategy on Diet, Physical Activity and Health

As the CEOs of major international food and non-alcoholic beverage companies we would like to take this opportunity ahead of the World Health Assembly in May to set out our global commitment to further action in support of continuing efforts to implement the 2004 WHO Global Strategy on Diet, Physical Activity and Health.

We fully recognise that experts agree that significant increases in non-communicable diseases (such as cardiovascular disease, hypertension and diabetes) are directly linked to increasing prevalence of obesity resulting from a number of factors including poor diets, less physical Activity and changes in lifestyle in both developed and developing countries around the world.

The WHO Strategy acknowledges that efforts to help people improve their diet and health require actions by all stakeholders – including the private sector. As companies, we take this responsibility seriously and have already taken concrete steps to

- Reformulate our existing products and develop innovations that offer healthier options for our consumers;
- Provide our consumers with more and clearer information about the nutritional composition of their foods and beverages;
- Adopt voluntary measures on the marketing and advertising of food and beverages, particularly to children; and
- Promote greater physical activity, sports and healthier lifestyles, including in the workplace.
Successful promotion of HEALTH is feasible, however:

- Governmental coordination and leadership will be required.
- Actions across multiple sectors of government and society will be necessary.
- Recognition of major resource constraints is crucial.
- Efforts across chronic diseases with common risk factors must be integrated.
- **Partnerships with the food industry must be encouraged.**
What can the food industry do?

- Promote Health and Wellness through:
  - Balanced diets
  - Whole foods
  - Closer to whole foods
  - Processed foods that are beneficial
The role and challenges of the food industry in addressing chronic disease

Derek Yach*1, Mehmood Khan2, Dondeena Bradley3, Rob Hargrove4, Stephen Kehoe5 and George Mensah6

Summary
Increasingly, food companies play an important role in stemming the rising burden of nutrition-related chronic diseases. Concrete actions taken by these companies include global public commitments to address food reformulation, consumer information, responsible marketing, promotion of healthy lifestyles, and public-private partnerships. These actions are reviewed together with eleven specific PepsiCo goals and commitments that address products, the marketplace, and communities at large. Interim progress on these goals and commitments are discussed as well as constraints hampering faster progress. Further disease prevention depends on increasing implementation of private-public initiatives.
Components of foods for optimal health

• **Foods to encourage**
  - Whole and fiber-rich grain foods
  - Vibrantly colored vegetables and potatoes
  - Brightly colored fruits and 100% fruit juices
  - Low-fat and fat-free milk, cheese and yogurt
  - Lean meats, skinless poultry, fish, eggs, beans nuts and seeds

• **Nutrients to encourage**
  - Protein, fiber, vitamins A, C and E, calcium, magnesium, iron, potassium
Components of foods for optimal health

• **Nutrients to limit:**
  
  – saturated fats
  – trans fats
  – cholesterol
  – salt (sodium)
  – added sugars
  – AND total calories
The food industry can address the imbalance between our current and optimal consumption

1. Tip the balance of current production in favor of nutrient-dense whole grains.
2. Expand the offerings for delicious, convenient, accessible, and affordable vegetable-based products.
3. Create novel, value-added, low- or reduced-fat dairy products.
4. Deliver fruit-based products that have the full goodness of whole fruit.
The Need to Create Partnerships with the Private Sector

Editorial

Public Health’s Inconvenient Truth: The Need to Create Partnerships With the Business Sector

Elizabeth Majestic, MS, MPH

www.cdc.gov/pcd/issues/2009/apr/08_0236.htm
Developing Trust and Building Effective Public-Private Partnerships

- Like any other relationship, public-private partnerships must be built on trust.
- Trust requires a commitment to open and honest dialogue.
- Common ground and barriers to collaboration must be discussed.

*Thomas & Curtis. World Bank; 2003.*
Conclusions

“The best time to plant a big tree is twenty years ago. The second best time is now.”

– African Proverb

Tackling the major issues of food- and nutrition-related diseases and conditions is like planting a big tree – we should have started 20 to 50 years ago. However, the second best time to do so is now.
THANK YOU!