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Section C

Diet, Food Production, and Public Health
Global Health and Disease: The Nutrition Transition

- Changes in food type, availability, cost, physical activity

- Many lower- and middle-income countries are facing a “double burden” of disease

Sources: World Health Organization and International Diabetes Foundation.
Health care systems of low- and middle-income countries are overwhelmed by the rise in non-communicable diseases.

- Globally, obesity has more than doubled since 1980
- 80% of those with diabetes live in developing countries
  - **Note:** 90% of all diabetes cases are Type II
  - 1985: 30 million cases globally
  - 2010: 285 million cases globally
  - 2030: 366 million cases globally—estimated
- Heart disease and stroke
- Certain cancers

By decreasing morbidity and mortality, advanced medical interventions that treat symptoms of chronic disease may mask the impacts of our diet and food system on public health.

Sources: World Health Organization and International Diabetes Foundation.
Underweight and overweight now coexist in the same countries, communities, and households.
What Does the World Eat?

Fighting Hunger Worldwide

The cost of hunger to developing nations is an estimated US$450 billion per year.

It takes only 25 US cents for WFP to give a hungry schoolchild a cup of food with all the nutrition needed for the day.

The number of undernourished people worldwide is just under 1 billion—equivalent to the population of North America and Europe combined.

Hunger Map 2011

Category | 1 | 2 | 3 | 4 | 5 | Incomplete data
Undernourished | <5% | 5-9% | 10-19% | 20-34% | ≥35% | 100%
Description | Extremely low | Very low | Moderately low | Moderately high | Very high | Incomplete data

Source: The State of Food Insecurity in the World 2011, Food and Agriculture Organization of the United Nations. Washington, D.C., 2011. All rights reserved. The information contained herein is subject to change without notice.

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It is not a definitive study, but an approximation based on available data.
Inequitable Distribution of Food

Who Consumes the World’s Food?

- Grain consumption per capita per year
  - US ~ 800 kg
  - Italy ~ 400 kg
  - Taiwan ~ 300 kg
  - China ~ 250 kg
  - India ~ 200 kg

Why?

- Meat-based diets consume more resources than plant-based diets (Source: USDA)
  - ~700 kg grain to produce 100 kg of beef
  - ~650 kg grain to produce 100 kg of pork
  - ~260 kg grain to produce 100 kg of poultry

- 1,000 kg water is used to produce 1 kg of grain
Global Meat Demand Doubling in 30 Years

- Since 1961, US per capita meat consumption has increased by 70% from 141 pounds to 223 pounds (100 kg)
- Global demand for meat will double from the 1990s to 2020
- The average American derives 67% of protein from animal sources, compared to 34% worldwide

<table>
<thead>
<tr>
<th>Actual and Projected Meat Consumption (million metric tons)</th>
<th>1983</th>
<th>1993</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>16</td>
<td>38</td>
<td>85</td>
</tr>
<tr>
<td>India</td>
<td>3</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>Developed countries</td>
<td>88</td>
<td>97</td>
<td>115</td>
</tr>
<tr>
<td>Less-developed countries</td>
<td>50</td>
<td>88</td>
<td>188</td>
</tr>
<tr>
<td>World</td>
<td>139</td>
<td>184</td>
<td>303</td>
</tr>
</tbody>
</table>

Global Meat Consumption: 82% Increase Since 1961

Lbs. Per Capita

Source: Food and Agriculture Organization of the United Nations (FAO).
Do We Need All That Protein and Meat?

- The average US adult male consumes 170% of RDA for protein (56g)

- The average US adult female consumes 127% of RDA for protein (46g)

- Note: recommended dietary allowance (RDA) equals the average daily dietary intake level that is sufficient to meet the nutrient requirement of nearly all (97%) healthy individuals in a particular life stage and gender group (USDA)
Basic Dietary Advice Is the Same

- **World Health Organization**
  - Achieve energy balance and a healthy weight
  - Eliminate trans-fatty acids, limit total fats and saturated fats, shift fats toward unsaturated fats
  - Increase consumption of fruits, vegetables, legumes, whole grains, and nuts
  - Limit sugar and salt (sodium)

- **US Dietary Guidelines for Americans, 2010**
  - Balance calories with physical activity to manage weight
  - Consume more of certain foods and nutrients, such as fruits, vegetables, whole grains, fat-free and low-fat dairy products, and seafood
  - Consume fewer foods with sodium (salt), saturated fats, trans fats, cholesterol, added sugars, and refined grains
Federal Farm Subsidies vs. Dietary Guidelines

The Farm Bill Subsidies Breakdown

<table>
<thead>
<tr>
<th>Category</th>
<th>Amount</th>
<th>Percentage</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meat, dairy</td>
<td>$51,832,388,116</td>
<td>73.80%</td>
<td>[direct and indirect through feed]</td>
</tr>
<tr>
<td>Grains for human consumption</td>
<td>$9,288,990,323</td>
<td>12.23%</td>
<td>[corn, wheat, sorghum, oats, barley]</td>
</tr>
<tr>
<td>Sugar, starch, oil, alcohol</td>
<td>$7,507,626,820</td>
<td>10.69%</td>
<td>[corn, sugar beet, canola, 80% sunflower as oil]</td>
</tr>
<tr>
<td>Nuts and legumes</td>
<td>$1,339,263,892</td>
<td>1.91%</td>
<td>[soy, peanuts, 20% sunflower as seeds]</td>
</tr>
<tr>
<td>Apples</td>
<td>$261,540,987</td>
<td>0.37%</td>
<td></td>
</tr>
<tr>
<td>Total agricultural subsidies</td>
<td>$70,299,820,137</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>

Source: Physicians Committee for Responsible Medicine. All Rights Reserved.