SOCIAL DETERMINANTS, CHRONIC DISEASE AND THE WILL TO IMPROVE

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SOCIAL DETERMINANTS OF HEALTH

Conditions in the places where people live, learn, work, and play that affect a wide range of health risks and outcomes.
### Social Determinants of Health

<table>
<thead>
<tr>
<th>Economic Stability</th>
<th>Neighborhood and Physical Environment</th>
<th>Education</th>
<th>Food</th>
<th>Community and Social Context</th>
<th>Health Care System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employment</td>
<td>Housing</td>
<td>Literacy</td>
<td>Hunger</td>
<td>Social integration</td>
<td>Health coverage</td>
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<tr>
<td>Income</td>
<td>Transportation</td>
<td>Language</td>
<td>Access to healthy options</td>
<td>Support systems</td>
<td></td>
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<tr>
<td>Expenses</td>
<td>Safety</td>
<td>Early childhood education</td>
<td></td>
<td>Community engagement</td>
<td>Provider availability</td>
</tr>
<tr>
<td>Debt</td>
<td>Parks</td>
<td>Vocational training</td>
<td></td>
<td>Discrimination</td>
<td>Provider linguistic and cultural competency</td>
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<td>Medical bills</td>
<td>Playgrounds</td>
<td>Higher education</td>
<td></td>
<td>Stress</td>
<td>Quality of care</td>
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<td>Support</td>
<td>Walkability</td>
<td></td>
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<td></td>
<td>Zip code / geography</td>
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</tbody>
</table>

**Health Outcomes**

Mortality, Morbidity, Life Expectancy, Health Care Expenditures, Health Status, Functional Limitations
# PREVALENCE OF CHILD OBESITY

Nationwide the prevalence of obesity in youth (2 to 19 years old) was **18.5%** affecting **13.7 million children and adolescents**

<table>
<thead>
<tr>
<th>Age</th>
<th>Obesity Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 - 5 yr olds</td>
<td>13.9</td>
</tr>
<tr>
<td>6 - 11 yr olds</td>
<td>18.4</td>
</tr>
<tr>
<td>12 - 19 yr olds</td>
<td>20.6</td>
</tr>
</tbody>
</table>

- **WIC Population Overall,**
- **Ages 2 - 4:** 13.9% obesity (over the 95% weight for age and sex)

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>Obesity Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Indian/Alaska Native</td>
<td>18.5</td>
</tr>
<tr>
<td>Hispanic</td>
<td>16.4</td>
</tr>
<tr>
<td>Non-Hispanic white</td>
<td>12.1</td>
</tr>
<tr>
<td>Non-Hispanic black</td>
<td>11.4</td>
</tr>
<tr>
<td>Asians / Pacific Islander</td>
<td>10.0</td>
</tr>
</tbody>
</table>

32% of youth are overweight or obese.

29.1% of the WIC population is overweight or obese.

[Source: CDC.gov](https://www.cdc.gov)
Among children and adolescents aged 2-19 years old

**Education:** the prevalence of obesity increased with decreasing level of education of the head of household

**Income:** Obesity prevalence increases with decreasing levels of income:
- 10.9% among those in the highest income group
- 18.9% in the lowest income group

**Boys:** Obesity prevalence was lower in the highest income group among non-Hispanic Asian and Hispanic boys.

**Girls:** Obesity prevalence was lower in the highest income group among non-Hispanic white, non-Hispanic Asian, and Hispanic girls.

Obesity prevalence did not differ by income among non-Hispanic black girls.

CDC.gov
WHAT MAKES PEOPLE SICK?

50% YOUR LIFE

Income
Early Childhood Development
Disability
Education
Social Exclusion
Social Safety Net
Gender
Employment/Working Conditions
Race
Aboriginal Status
Safe and Nutritious Food
Housing/Homelessness
Community Belonging

25% YOUR HEALTH CARE

Access to Health Care
Health Care System
Wait Times

15% YOUR BIOLOGY

Biology
Genetics

10% YOUR ENVIRONMENT

Air Quality
Civic Infrastructure

SOCIAL DETERMINANTS OF HEALTH (SDOH)

the Waterloo Wellington Local Health Integration Network (LHIN) http://www.waterloowellingtonlhin.on.ca/forhsps/equity/socialdeterminants.aspx
DIABETES IN ADULTS

- 30 million have diabetes
  - 23 million diagnosed
  - 7 million not yet diagnosed
- 9.4% of the adult population of Maryland has diabetes

**Prediabetes**
- 84.1 million Adults aged 18 and older have prediabetes
- 33.9% of US adults have pre-diabetes, but only 11.6% were aware of it
- 8.4% of the adult population in Maryland have been told they have prediabetes

CDC - 2015 Data
Diabetes Rates in Adults

**Figure 2. Percentage of US Adults Aged 18 or Older With Diagnosed Diabetes, by Racial and Ethnic Group, 2013–2015**

- American Indian/Alaska Native: 15.1%
- Asian: 8.0%
- Hispanic: 12.1%
- Black, non-Hispanic: 12.7%
- White, non-Hispanic: 7.4%

Notes: Percentages are age-adjusted to the 2010 US standard population. Figure adapted from the National Diabetes Statistics Report, 2017. Data sources: 2013–2015 National Health Interview Survey and 2015 Indian Health Service National Data Warehouse (American Indian/Alaska Native data).

Diabetes Rates in Children

**Figure 6. Incidence of Type 2 Diabetes Among US Children and Adolescents Aged 10 to 19 Years, by Race/Ethnicity, 2011–2012**

- American Indian: 46.5 per 100,000
- Asian/Pacific Islander: 12.2 per 100,000
- Hispanic: 19.2 per 100,000
- Black, non-Hispanic: 32.6 per 100,000
- White, non-Hispanic: 3.9 per 100,000

Note: American Indian youth who participated in the SEARCH study are not representative of all American Indian youth in the United States. Thus, these rates cannot be generalized to all American Indian youth nationwide. Data source: SEARCH for Diabetes in Youth Study.
Americans under age 20

193,000 are diagnosed with Type 1 or Type 2 diabetes (approximately 0.24% of that population)

In 2011—2012, the annual incidence of newly diagnosed diabetes in youth was estimated at
  17,900 with type 1 diabetes,
  5,300 with type 2 diabetes.

American Diabetes Association, updated March, 2018
Prevalence of overweight and obesity in youth with diabetes in USA: the SEARCH for Diabetes in Youth study.

RESULTS:

<table>
<thead>
<tr>
<th>Prevalence of</th>
<th>Among youth with T2DM</th>
<th>Among youth with T1DM</th>
</tr>
</thead>
<tbody>
<tr>
<td>overweight</td>
<td>10.4%</td>
<td>22.1% (higher than those without diabetes (16.1%)</td>
</tr>
<tr>
<td>obesity</td>
<td>79.4%</td>
<td>12.6% Range: Non-Hispanic White 10.7% to African-American 20.1%</td>
</tr>
</tbody>
</table>

RISK FACTORS FOR OBESITY

What is the level of health and nutrition literacy?

How do parents learn about healthy eating?

- Their own parents incorporating the generational family influences?
- Health education classes that may exist for a short duration during their lives?
- Repeated exposure to food company marketing practices promoting high intakes of processed foods with high levels of fat and sugar throughout their lifetimes?
RISK FACTORS FOR OBESITY

Are parents aware of the **Division of Responsibility** in feeding young children?

**Parents are responsible for:**
- Serving appropriate food (healthy and developmentally appropriate)
- At a set schedule

**Infants and Children are responsible for:**
- Whether to eat or not
- Choose the foods to eat from among those served
- HOW MUCH to eat
RISK FACTORS FOR OBESITY

Low intake of whole plant-based foods, especially fruits and vegetables. What we eat, what we should eat.
# RISK FACTORS FOR OBESITY

Watch these 6 documentaries to change the way you think about food! - Make it Easier to Eat Healthy!!!

<table>
<thead>
<tr>
<th>Fed Up</th>
<th>What the Health</th>
<th>Food, INC.</th>
<th>Super Size Me</th>
<th>Forks Over Knives</th>
</tr>
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<tbody>
<tr>
<td><img src="image1.png" alt="Fed Up poster" /></td>
<td><img src="image2.png" alt="What the Health poster" /></td>
<td><img src="image3.png" alt="Food, INC. poster" /></td>
<td><img src="image4.png" alt="Super Size Me poster" /></td>
<td><img src="image5.png" alt="Forks Over Knives poster" /></td>
</tr>
</tbody>
</table>

**Ways to watch these films:**

- **Fed Up**
  - This film follows families as they struggle with childhood obesity. It explains the harmful effect of sugar on the body and how the food industry has manipulated the truth and pressured the government so that public health policy is unable to protect the consumer.
  - $2.99
  - Amazon Instant Video ($2.99)
  - YouTube ($2.99)
  - Google Play Store ($2.99)
  - iTunes ($3.99)
  - MCPL (library)

- **What the Health**
  - Describes collusion and corruption in government and big business that is costing us trillions of healthcare dollars and keeping us sick.
  - FREE!
  - Available in Spanish
  - You can watch this film for free on youtube.com

- **Food, INC.**
  - Explores the horrific farm practices of the meat, poultry, pork and grain industries and explore how a handful of huge corporations place profits before consumer health, worker safety and the environment.
  - FREE!
  - Spanish subtitles available
  - You can watch this film for free on dailymotion.com
  - MCPL (library)

- **Super Size Me**
  - Director Morgan Spurlock’s social experiment in fast-food gastronomy sees him attempting to subsist uniquely on food from the McDonald’s menu for an entire month. In the process his weight balloons, his energy level plummets and he experiences all sorts of unexpected – and terrifying – side effects.
  - FREE!
  - Available in Spanish
  - You can watch this film for free on vimeo.com or youtube.com
  - MCPL (library)

- **Forks Over Knives**
  - Tells the story of the 2 doctors who, over the last 3 decades, explored the link between animal foods in the diet and cancer and heart disease. They concluded eating a whole foods plant-based diet can actually reverse many health problems!
  - $2.99 or FREE if you have a Netflix Subscription
  - Amazon Instant Video ($2.99)
  - YouTube ($2.99)
  - Google Play Store ($2.99)
  - Netflix (Subscripton)
  - iTunes ($3.99)
  - MCPL (library)

RISK FACTORS FOR OBESITY

Low intake of fiber
Fiber keeps the gut healthy by helping waste move quickly through the GI tract and it keeps a healthy diversity of good bacteria in the gut. Researchers have identified a lower diversity of bacteria in individuals who are obese.

Benefits of a high fiber diet:
• improved gut microbiome - the body’s first line of defense against allergens, antibodies, and inflammation.
• weight loss
• lower cholesterol levels – fiber keeps the waste moving faster so less cholesterol is absorbed back into the blood stream
• lower risk of diabetes
• better blood sugars

Fiber is found in unprocessed plant foods. There is absolutely no fiber in animal foods!
Inadequate physical activity

Income will affect where one lives – are there playgrounds?

Is it safe to be outside?

Are parents working 2 jobs so there is little time for organized or supervised play?

Is there money for a gym membership?

Is there transportation to get there?
RISK FACTORS FOR CHRONIC DISEASE

Obesity and all of its risk factors!

Obesity causes:
- Enlargement of heart, clogging of the arteries
- Deformity of the joints
- Increased incidence of cancer
- Insulin resistance leading to diabetes

Harmful effects of visceral body fat
- Production of hormones that affect the balance of other hormones

PREVENTION SAVES MONEY

The Cost of Diabetes

The Staggering Costs of Diabetes

More than 30 MILLION AMERICANS have diabetes

Health care costs for Americans with diabetes are 2.3x GREATER than those without diabetes

Diagnosed diabetes costs America $327 BILLION per year

$1 IN $7 Health care dollars is spent treating diabetes and its complications

84 MILLION Americans have prediabetes

Learn how to fight this costly disease at diabetes.org/congress

Today 410 Americans will be diagnosed with diabetes. Additionally, diabetes will cause 396 Americans to undergo an amputation and 137 will enter end-stage kidney disease treatment.

American Diabetes Association
Reducing Childhood Obesity through U.S. Federal Policy
A Microsimulation Analysis, Alyson H. Kristensen, MPH, et al...

Compared 3 policies for effectiveness by the year 2032
- afterschool physical activity programs
- an advertising ban on junk foods
- excise tax on sugar sweetened beverages (SSB)

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4762259/
Reducing Childhood Obesity through U.S. Federal Policy
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**Predicted Outcomes for 2032 and Conclusions:**
- the afterschool physical activity programs would reduce obesity the most among children aged 6–12 years (1.8 percentage points)
- the advertising ban would reduce obesity the least (0.9 percentage points).
- the SSB excise tax would reduce obesity the most among adolescents aged 13–18 years (2.4 percentage points).
- All three policies would reduce obesity more among blacks and Hispanics than whites, with the SSB excise tax reducing obesity disparities the most and providing funding for additional prevention.

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4762259/
The Will to Improve Systems Approach to Eliminate Childhood Obesity - Policies

**Policies**
- Eliminate industry influence and use only science-based evidence in making USDA Dietary Guidelines
- Place more limitations on advertising of unhealthy foods including fast foods to adults
- Incentivize innovative food companies providing healthy options and/or “show me how”

**Health Care Systems**
- Require insurance companies to pay for more nutrition education services
- Build infant/child feeding instructions in obstetrician offices and maternity wards

**Education**
- Provide more physical activity and health education in schools
The American Academy Pediatrics suggests encouraging parents to:

• Purchase the smallest amount possible of sugar-sweetened beverages, high-calorie snacks and sweets and more healthy foods and beverages.

• Make the healthy foods and beverages as visible as possible; conversely, place high-calorie foods in the back of pantries and refrigerators.

• Promote the idea that children eat five or more servings of fruits and vegetables daily.

• Limit the amount of screen time.
THE WILL TO IMPROVE
SYSTEMS APPROACH TO
ELIMINATE CHILDHOOD OBESITY

Folks, it’s not rocket science!
REFERENCES

Australian Prevention Partnership
*Using Systems science to understand the determinants of inequities in healthy eating;* Sharon Friel, Melanie Pescud, Eleanor Malbon, Amanda Lee, Robert Carter, Joanne Greenfield, Megan Cobcroft, Jane Potter, Lucie Rychetnik, Beth Meertens
Published: November 30, 2017

the Waterloo Wellington Local Health Integration Network (LHIN) http://www.waterloowellingtonlhin.on.ca/forhsps/equity/socialdeterminants.aspx


CDC Diabetes Report Card, 2017
to get more data - https://care.diabetesjournals.org/content/34/Supplement_2/S161
https://care.diabetesjournals.org/content/39/9/1635

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