Wasted Food: Public Health Costs & Benefits

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1. NUTRITION
2. FOOD SECURITY
3. FOOD SAFETY
And...
4. OCCUPATIONAL SAFETY & HEALTH
NUTRITION
Nutrition

Opportunities - shared risk factors for poor nutrition + waste
- Oversupply, low valuation of food, large portion size

Challenges – win/lose
- Win- Health
  - “Fresh”
- Win-Waste
  - Highly processed foods

How Much Nutritional Value is Lost?

Neff, Kanter, Vandevijvere
Health Affairs. 2015.
Lost Nutritional Value

- Previous estimates: 1,249\textsuperscript{1} to 1,400\textsuperscript{2} calories/capita/day
- But, fruits, vegetables, other frequently wasted foods often lower in calories, higher in other nutrients
- First study to calculate nutritional value of wasted food in US
- Focus on under-consumed nutrients:
  - Dietary fiber, calcium, iron, magnesium, potassium, and vitamins A, C, D and E.\textsuperscript{3}
- 213 commodities, 2012 retail + consumer

\textsuperscript{1} Buzby et al, 2014  \textsuperscript{2} Hall et al, 2009.  \textsuperscript{3} DHHS/USDA, 2015.
“Each day we waste 5.9g dietary fiber per capita, or 19% of a "nutrient-day" of dietary fiber.”
“Nutrient-Days” Lost

“Each day we waste enough dietary fiber to meet RDA for 74M women or 48M men -- approx. 27% US adult population.”

Spiker, Hiza, Siddiqi & Neff
“Nutrient-Days” Loss

Each day we waste enough dietary fiber to meet RDA for 74M women or 48M men -- approx. 27% US adult population.

IMPORTANT CAVEAT:
We can’t actually recover ALL the food and wouldn’t necessarily want to!

Spiker, Hiza, Siddiqi & Neff
# “Gaps in Dietary Intake” In VT Farm Salvageable Veg + Berry Losses

US women consume approx. 97 mcg less VitA/day than recommended. In VT, enough salvageable veg + berries are discarded at the farm level to fill that gap for nearly 221,000 women.

## Table 5. Nutritional Content of Salvageable Vegetable and Berry Losses in Vermont (Modeled), for Selected Nutrients

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Nutritional content of salvageable loss of vegetables and berries (average per capita per day)</th>
<th>Average gap in dietary intake for adult women: National mean current intake minus Recommended Dietary Allowance or Adequate Intake</th>
<th>Equivalent number of gaps in dietary intake for adult women from salvageable veg.</th>
<th>Average gap in dietary intake for adult men: National mean current intake minus Recommended Dietary Allowance or Adequate Intake</th>
<th>Equivalent number of gaps in dietary intake for adult men from salvageable veg.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vitamin A</td>
<td>912 mcg</td>
<td>-27 mcg</td>
<td>36,075 adults</td>
<td>-17.7 g</td>
<td>18,139 adults</td>
</tr>
<tr>
<td>Vitamin E</td>
<td>0.12 mg</td>
<td>-0.1 mg</td>
<td>2,210 adults</td>
<td>0.8 mg</td>
<td>1,105 adults</td>
</tr>
<tr>
<td>Calcium</td>
<td>6.9 mg</td>
<td>-13 mg</td>
<td>67,306 adults</td>
<td>-20 mg</td>
<td>33,653 adults</td>
</tr>
<tr>
<td>Iron</td>
<td>0.2 mg</td>
<td>-0.4 mg</td>
<td>27,000 adults</td>
<td>0.2 mg</td>
<td>13,500 adults</td>
</tr>
<tr>
<td>Magnesium</td>
<td>6.3 mg</td>
<td>-36 mg</td>
<td>42,000 adults</td>
<td>-18 mg</td>
<td>21,000 adults</td>
</tr>
<tr>
<td>Potassium</td>
<td>78.4 mg</td>
<td>-2288 mg</td>
<td>1,675 adults</td>
<td>0.8 mg</td>
<td>537 adults</td>
</tr>
<tr>
<td>Dietary Fiber</td>
<td>0.5 g</td>
<td>-8.9 g</td>
<td></td>
<td>0.1 g</td>
<td></td>
</tr>
</tbody>
</table>

Source: Nutritional data from USDA, and RDA/AI data from Hellwig, Otten, & Myers, 2006.
WASTED SEAFOOD

- Dietary Guidelines: 2x seafood
- Global fish stocks declining
- Aquaculture ½ global seafood supply, but high resource use
- **Evidence synthesis: up to 47% US seafood supply wasted**
- Could fill 34% gap between current seafood consumption, USDA-recommended
- Lost "nutrient-years"
  - 9.5 million men’s “protein-years”
  - 18.5 million adult “EPA+DHA years”
FOOD SECURITY
Food Security

Opportunities: Win-Win

Shorter term Food Sec
• Food recovery
• Prevention extends food $

Longer term Food Sec
• Extend resources, GHG “budget”
• Halving FLW equivalent to 20% of 2050 global food gap (Searchinger)

Challenges - limitations of food recovery
• Not always “good food”
• Reduced disincentive to overproduce (moral licensing)
• Divert energy from addressing hunger directly & reducing waste
• Super-efficient food system leaves reduced buffer for emergencies
FOOD SAFETY
Food Safety

Opportunities

• Education/home ec: Food safety=#1 reason US consumers give for discarding food
• Prevent food from becoming unsafe
  – Food storage and packaging
  – Prevent food recalls
• National date labeling policy

Lose - Health

• Inadequately precautionary: taking food safety risks to prevent waste

Lose - Waste

• Overly precautionary: when in doubt, throw it out

Neff, Vandevijvere, Kanter 2015; Neff, Truant & Spiker, 2015
OCCUPATIONAL INJURY/ILLNESS
OSH Concerns

• Intervening to address wasted food can provide jobs

• Risks:
  – Microbial - bioaerosols; slips/trips/falls (slides from unstable piles, cave-ins); caught in processing equipment; run over by mobile equipment; musculoskeletal injuries - lifting & repetitive motions; motor vehicle crashes

• Wasted food: many new, private/nonprofit, small firms; volunteers/interns/students
  – Risk higher for newer employees
  – More sanitation fatalities in private vs public
  – No OSHA oversight if <11 employees, much of ag

### Industries Related to Wasted Food: Injuries / Illnesses 2016 (BLS)

<table>
<thead>
<tr>
<th>Industry</th>
<th>Injury*/100</th>
<th>Illness**/10k</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>All Private Industry</strong></td>
<td>2.8</td>
<td>14.1</td>
</tr>
<tr>
<td>Agriculture, Forestry, Fishing &amp; Hunting</td>
<td>5.7</td>
<td>43.3</td>
</tr>
<tr>
<td>Food Manufacturing – ex Fruit Veg manuf/specialty food</td>
<td>4.1</td>
<td>35</td>
</tr>
<tr>
<td>Refrigerated warehousing &amp; storage</td>
<td>5.6</td>
<td>3.9</td>
</tr>
<tr>
<td>Solid Waste Landfill</td>
<td>4.7</td>
<td>15.6</td>
</tr>
<tr>
<td>Solid waste collection</td>
<td>4.9</td>
<td>9.7</td>
</tr>
</tbody>
</table>

* Recordable injuries; **Total cases illness
Industries Related to Wasted Food: Fatalities – CFOI 2016

<table>
<thead>
<tr>
<th></th>
<th>Fatality Rate/100k</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Wage &amp; Salary Workers</td>
<td>3.0</td>
</tr>
<tr>
<td>Waste management &amp; remediation svcs</td>
<td>12.7</td>
</tr>
<tr>
<td>Farming, fishing &amp; forestry occupations</td>
<td>24.9</td>
</tr>
<tr>
<td>Truck transportation</td>
<td>25.6</td>
</tr>
<tr>
<td>Refuse &amp; recyclable material collectors</td>
<td>34.1</td>
</tr>
</tbody>
</table>

→ Need research, safety/health training/TA, oversight
Conclusions

- Many points of connection between wasted food & public health
- Mostly benefits, but there are costs also –
- Needs active attention to find ways around the challenges
Thank You!

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Johns Hopkins Center for a Livable Future
• Website: http://jhsph.edu/clf
• Opportunities for students:
  • Food Systems Certificate
  • MPH concentration
  • Funding: masters, doctoral