Street vendors' variable contribution to urban food environments
differences by weather, season, and neighborhood

Sean C. Lucan, MD, MPH, MS
slucan@yahoo.com

Disclosures
None

Background

Distribution of Food-Environment Studies, Jan '09 - May '10

Kirkpatrick et al (2010) "Web-based compilation: measures of the food environment" NEMS website
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Methods

To figure out where vendors are AND what vendors sell

- Scanned all 42 mi² of the Bronx (~1,000 linear miles, including highway ramps)
- Recorded unique ID (permit #, license plate, distinctive features) and location
- Asked vendors times and locations for selling (and if weather is a factor)
- Observed offered foods & drinks from displays, signs, and menus
Methods

To examine associations by "neighborhood"

![Map of New York City](image)

*FITNESSGRAM data, Grades: K-8, Ages 5-15, 2010-2011 school year

NYC Department of Education & NYC Department of Health and Mental Hygiene, Bureau of Epidemiology Services

Source: NYC Community Health Survey, 2010

Body Mass Index (BMI) was calculated based on percent of adults’ self-reported weight and height. A BMI between 25.0 and 29.9 is classified as overweight, and a BMI of 30 or greater is classified as obese.

Children are classified as obese if they have a BMI percentile \( \geq 95\% \) and/or a BMI \( \geq 25 \). Age and gender specific BMI percentiles were calculated based on year 2000 CDC growth charts (http://www.cdc.gov/growthcharts/clinical_charts.htm) from height and weight.

What FOODS do street vendors sell?

- **Produce:** varieties of fruits and vegetables
- **Whole grain option?** any whole grain option (yes/no)
- **Processed foods:** varieties of mass-manufactured, pre-packaged items
- **Processed foods:** varieties of foods made or prepared by vendor

What DRINKS do street vendors sell?

- **Sugary drinks:** sodas, juices, sports/energy drinks, flavored milks
- **Milk?** unsweetened whole, 2%, 1%, or skim (yes/no)
- **Calorie-free drinks:** water, seltzer, unsweetened coffee, tea
Results

<table>
<thead>
<tr>
<th>Vendor category</th>
<th>N</th>
<th>%</th>
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<tbody>
<tr>
<td>Fresh produce</td>
<td>84</td>
<td>22.6</td>
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<td>Water</td>
<td>12</td>
<td>3.2</td>
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<td>Ethnic prepared</td>
<td>39</td>
<td>10.3</td>
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<tr>
<td>Other prepared</td>
<td>58</td>
<td>15.6</td>
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<tr>
<td>Frozen novelty</td>
<td>164</td>
<td>44.1</td>
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<tr>
<td>Other</td>
<td>15</td>
<td>4.0</td>
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372 vendors total (including 72 “in transit”)

Results

- 5% ‘non-produce’ vendors offered any fruits or vegetables
- 18% produce vendors had some prep/processed foods (cookies, chips, pies)
- 25% of vendors offering caloric drinks offered no calorie-free alternative
- 3 vendors sold milk (2 sold beer)
- 1 vendor sold whole grain

Categorizing vending by the foods sold

- “Healthier” - whole foods: fresh produce, unprocessed grains, unsweetened nuts
- “Less-healthy” - processed/prepared foods: bagged chips, preserved meats, sweets
- “Mixed” - offering both some “healthier” and some “less-healthy” food items

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Results

- All types of vendors less numerous on rainy days; only 14% sell in all weather
- 90% of produce vendors (often selling from exposed tables) did not sell in rain
- 95% of vendors of frozen novelty (e.g., ice-cream trucks) did not sell in rain

** Preponderance of “less-healthy” decreased in relative terms on wet days

Results

- Fresh-produce vendors declined by >50% in winter
- Frozen-novelty vendors virtually disappeared in winter
- Other types of vendors declined by as much as a third in winter

** Shifts from summer to winter, closely paralleled shifts from dry to wet days

Results

>75% vendors (poorest communities; highest % Hispanic residents)
Results

Correlations: “less-healthy” vending per capita & mean neighborhood characteristics

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Strengths / Limitations

Strengths

- First county-wide study in developed world
- Multidimensional approach (“macro” + “micro”)
- A modest advance over usual “healthy” vs. “unhealthy” dichotomy

Limitations

- Cross-sectional: static picture of moving target
- Mobile vendors in isolation (respective of stores and restaurants)
- Generalizability to other communities outside of the Bronx

Conclusion

- Mobile vendors vary in items they offer and consistency of their presence
- Vendors offer “less-healthy” items over “healthier” items overall
- Wet days / winter months reduce all vendors; “less-healthy” vending most
- Some neighborhood correlations less substantial in winter
- Vendors may worsen demographic, diet, diet-related health disparities

But …

Mobile food vendors have the potential to do a lot of good
Acknowledgements / More Information

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Sean C. Lucan: slucan@yahoo.com (happy to talk)