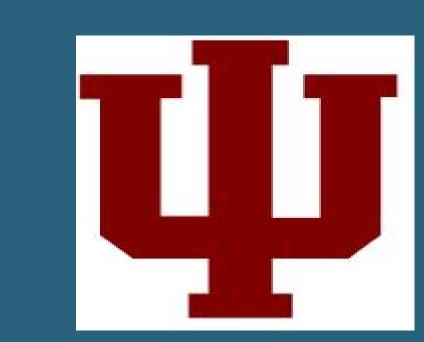
Using a Health Impact Assessment in a Food Desert

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The Marion County Public Health Department and the Indiana University Richard M. Fairbanks School of Public Health conducted a health impact assessment of the potential development of a full service grocery store within the Meadows community. The Meadows community is designated as a food desert by the U.S. Department of Agriculture.

. The five study questions: 1) Is there reasonable access to healthy foods, i.e. a blend of fresh and frozen produce, low-fat dairy products, whole grains and low-fat meats within the Meadows community? 2) Do community residents believe they have reasonable access to healthy foods in their community? 3) What is the current health status of the Meadows community population as it relates to nutrition? 4) Is there a relationship between availability of healthy foods and health outcomes such as obesity, high blood pressure, and diabetes? and 5) Is there a relationship between access to healthy foods and the consumption of healthy foods?

. The food environment survey was done using the NEMS-S protocol. Findings showed that only 1 of the 10 convenience stores in the area had the majority of the healthy food options, with only 3 stores selling any fresh produce, all by the piece, while all stores stocked 100% fruit juice and diet sodas.

via results from a neighborhood survey distributed to neighborhood residents (n = 242). Exposure to

. The relationship between access to healthy foods and the consumption of healthy foods was determined

healthy food items was not found to be significantly associated with the purchase of healthy food options

Baseline Health Information

Total all causes rates per

Cause of Death

Ischemic Heart Disease

Cerebrovascular Disease

(official cause of death)

*95% CI: (12.8-24.3%) **95% CI: (33.6-47.4%)

Table: Hospitalization and ED rates for the Meadows and Marion County 2009-2011

gency Department Encounter Data, 2009-2011 (principal diagnosis)

Table: Mortality Data for Meadows and Marion County for 2008-2012

Source: Marion County Resident & Hospital Discharges, 2009-2011(principal diagnosis); Marion County Emer-

Source: Marion County Public Health Department Resident Death Certificate Analytic Data set, 2008-2012

Table: Average calculated cost for Meadows and Marion County Residents Heart Disease, Diabetes and Hyper-

Source: AHRQ Medical Expenditure Panel Survey 2011: Marion County Public Health Department, 2012

Marion County

Pictured below is the Excel Center, an adult high school where surveys were conducted, which could be the location of future

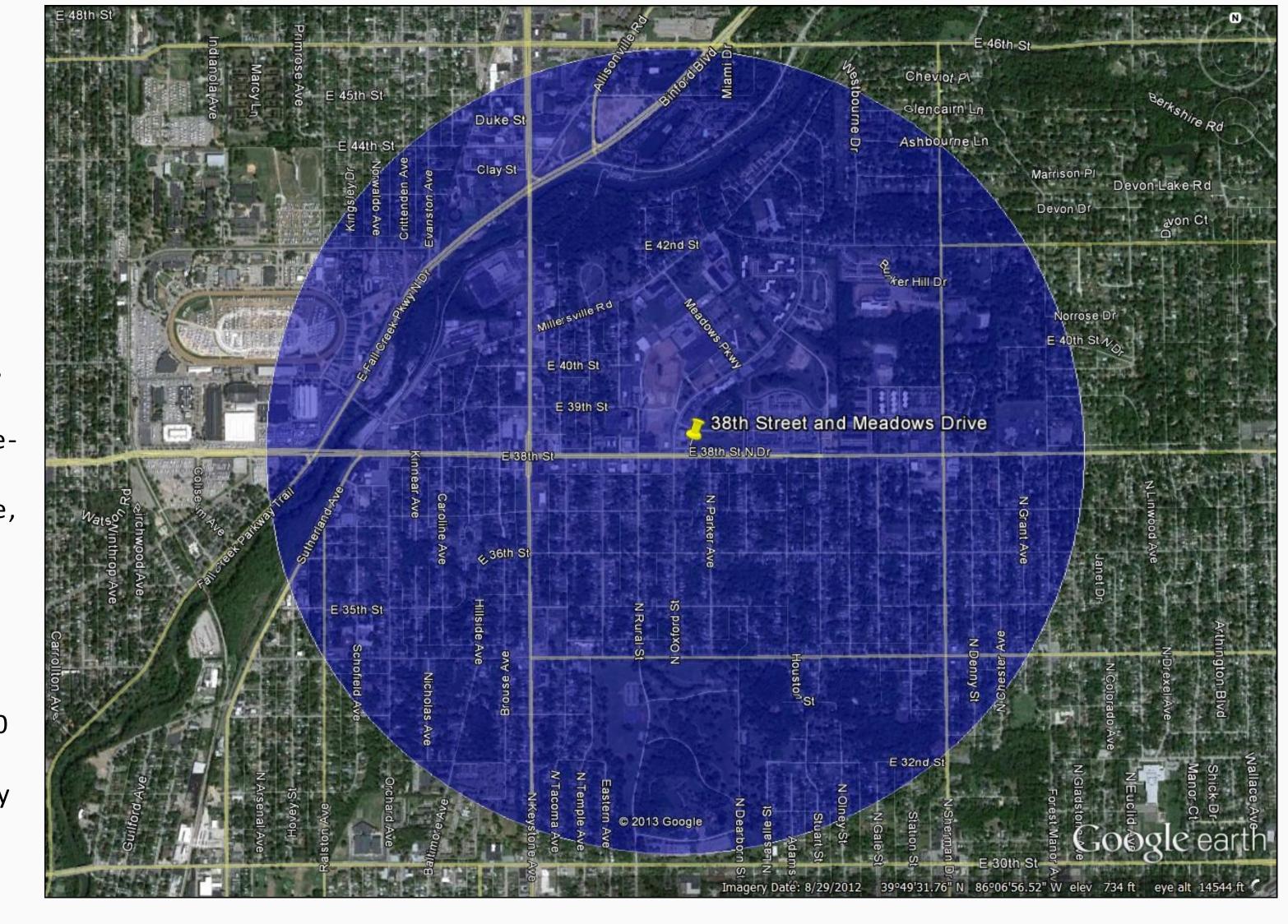
nutritional education courses.



Recent mixed-income housing built in the Meadows, phase II of a



The area in blue is a one-mile radius around the proposed location of the grocery store. All survey respondents lived within this area, and all convenience stores that were assessed with NEMS were located within this region



Results of the Neighborhood Survey

Total Sample Size: n = 242

High Exposure = More than 80% of grocery shopping done at stores with all NEMS-S healthy options available.

High Selection = Purchasing 12 or more of the 16 fruits and vegetables from the NEMS-S survey on a regular basis.

	High Expo- sure	Low Expo- sure	Total
High Selec-	106	45	151
Low Selec-	66	25	91
Total	172	70	242

Odds Ratio and 95% Confidence Interval: 0.89, 0.50—1.58

Other Findings

- . Females are statistically significantly more likely to buy healthy food options when exposed to them than males (p = 0.004, 1.308 - 4.205).
- No significant differences in purchasing behaviors when stratified by presence of children under 18 in the household or by age group.
- . Mortality for cerebrovascular disease is 27% higher, Diabetes mortality 41% higher, and Hypertension 70% higher in the Meadows
- . Hospitalization rates are 12% higher for ischemic heart disease, 47% higher for cerebrovascular disease, 48% higher for diabetes and 113% higher for hypertension

Methods

- Review of the literature covering associations between obesity and access to healthy food options, food availability in low-income areas, and potential impacts of bringing a grocery store to a food desert.
- Neighborhood Survey (see survey below)
- Nutrition Environment Measures Survey (NEMS-S)
- for Grocery and Convenience stores
- Statistical analysis (SAS 9.3) to determine association between exposure to healthy food outcomes and the purchasing of healthy foods.
- . Covariates included age group, gender, and whether there were children below 18 years of age within the household.
- Policy recommendations based on results of NEMS-S and neighborhood survey.
 - Gas station convenience stores and fast food restaurants are the



Priority Recommendations

- Seek out existing food sources and assist them to increase the healthy foods they offer
- Provide nutrition and cooking education for various age groups and gen-
- Support increased transit to the area and sidewalk expansion
- Share data with stakeholders and continue to support a TIF or similar development measures
- Negotiate with the new grocery store with the right "footprint" to meet the needs of the Meadows area and to provide a pharmacy, cooking demonstrations and labeling to further support intake of healthy foods
- Source: Stakeholder meeting 5-23-13

Reporting

- Joseph Taylor Symposium 2-27-13 (poster)
- Robert Bringle Symposium 4-30-13 (poster)

- Written summaries to all stakeholders

Results of Nutrition Environment Measures Survey

- . A total of 11 convenience stores and 0 grocery stores were located within the 1-mile radius identified to the left.
- One store declined participation, making the sample size n = 10
- . Of the 10 convenience stores surveyed, 6 were gas stations and 4 were other types of convenience stores (Family Dollar, Walgreens, etc.)
- Of the 10 stores, only 30% (n = 3) sold apples and bananas, while 20% (n = 2) sold oranges.
- Only one store sold any additional fruit, which included grapes, cantaloupe, strawberries, watermelon, and pears.
- . Only 1 store (10%) of stores surveyed sold any fresh vegetables. The following vegetables were available:
- None of the stores (n = 0) had lean meat or fat-free/reduced fat hot dogs.

Carrots, tomatoes, sweet peppers, lettuce and cucumbers.

- Only 2 stores (20%) had 1% or skim milk as an option.
- Low-fat baked goods (bagels, English muffins, or low-fat muffins) were available at 40% of stores (n = 4).
- . Low-sugar cereals (Cheerios, Grape Nuts, etc.) were available at 80% of stores.
- . Only 30% of stores (n = 3) had baked chips or 100% whole wheat bread available, but in two of those three, baked chips and 100% whole wheat bread were more expensive than their regular alternatives.
- . All stores had diet soda and 100% fruit juices available, though two of those (20%) charged more for 100% fruit juice over less-healthy fruit juice cocktail drinks of the same size and brand.

Monitoring and Evaluation

- . All six steps of the hia process were completed
- . The health of the Meadows residents was consistently poorer than the rest of the county
- Input from the stakeholders was obtained for each step
- . It is too early to determine if the HIA information will help in getting a full service grocery store
- . The number of individuals trained in the HIA process was increased

Discussion

- Very few healthy food options exist in the Meadows
- Only 76% of residents could shop outside of the area
- . Over 34% of residents could not able to find and purchase the groceries they needed
- More than 54% of respondents would change their shopping patterns if a grocery store was closer
- . There was a healthy demand for fruits and vegetables, but they can not easily and cheaply buy these in the Meadows
- . Mortality for all causes in 22% higher in the Meadows

Conclusions

- The presence of a grocery store in the Meadows would:
- Increase the frequency that residents would shop
- Increase the amount of healthy food residents would consume
- Decrease the incidence of obesity, diabetes and cardiovascular disease n the Meadows community
- Decrease the costs of obesity, diabetes and cardiovascular disease



The Meadows is a low-income, urban

Acknowledgement:

Thank you to the Indiana Minority Health Coalition for their support to conduct this project.

- Stakeholder meeting 5-23-13 (oral)
- Indiana Minority Health Coalition Annual Meeting 6-19-13 (oral presen-
- Posted on the partners websites

Limitations

- Not all survey respondents fell within the 1-mile radius of the proposed grocery
- Difficult to find pre-determined, reliable cut-off points for exposure and outcome levels
- Potential interviewer bias due to several different surveyors collecting responses
- . Data sources for secondary analysis had various parameters (some zip code, some census tracts)
- Too much time was spent on early steps
- Improve the survey by asking about purchasing "unhealthy foods" not just "healthy foods"