Background:
Childhood obesity is a significant public health issue in the U.S. In New Jersey five cities—Newark, Trenton, Camden, New Brunswick and Vineland—have been identified to have high rates of childhood obesity and overweight. The larger social science longitudinal study from which this project originated, The New Jersey Child Health Study (Impact of Environmental Changes on Children’s BMI and Behaviors: A Panel Study), aims to evaluate the impact of changes in the food and physical activity environment on childhood obesity and related behaviors in these cities. The study is following a randomly selected cohort of 1,200 children from these cities for a total follow up period of five years.

In 2009-2010, the research team collected baseline data on obesity-related behaviors and weight status that included relevant changes to food and physical activity environments to which these children were exposed. These changes could have include new presence of opportunities for healthy eating or physical activity; significant enhancement of existing opportunities, as well as any non-intervention related change.

The physical activity environment domains of interest are: physical activity facilities, elements of complete streets (bike lanes, sidewalks and traffic calming measures, etc.) and parks and trails. The food environment domains of interest are: corner stores, farmers markets, community gardens, grocery stores and supermarkets.

Introduction:
Primary data collection was conducted to assess part of the food environment by auditing corner stores in Camden, Newark, New Brunswick, and Trenton for healthy food offerings. To identify corner stores of interest in these cities, we used commercial data as well as classification protocol developed by the research team. We also received insight from public health workers that were working on initiatives and interventions conducted in some of these corner stores. They were working in the community directly with the owners of these corner stores in order to increase healthier options; we added these stores to our list. The help we received from these individuals included teaming up in order to enter some stores.

The tool that we used for this auditing was adapted from the Nutrition Environment Measures Survey in Convenience Stores (NEMS-CS). Robin DeWeese created the auditing tool and conducted the training for the data collectors. We only used the availability portions of the NEMS-CS; when we develop the short form, we will not ask about price or quality. The goal was to develop a short form that can be conducted over the telephone.

Method:
Materials:
- pen or pencil
- multiple copies of the survey
- a letter explaining study aims
- the protocol instructions
- a cell phone to communicate with Ms. DeWeese, record time and take pictures
- money for snack purchasing
- a list of the stores to visit
- an iPad for entering survey into Qualtrics application.
- Spanish language skills

Roles of each researcher:
Data Collector:
- Prepare materials: surveys, pencils, money for snack purchases, protocol, letter for store owners, iPad, etc.
- Communicate nature of the visit to store clerks/owners.
- Complete survey in the stores.
- Make sure each page is completed before exiting.
- Give survey to Data Support for review.
- Enter completed surveys into Qualtrics application on iPad.
- Connect iPad to Wi-Fi and upload the entered surveys.
- Log stores for which data collection was completed, surveys were uploaded, and surveys were physically submitted, in google xls of completed stores.

Data Support:
- Communicate nature of the visit to store clerks/owners.
- Review surveys for completion and accuracy.
- Help with selecting snacks for purchasing.
- Help Driver keep track of completed stores.

Driver:
- Choose 10-15 stores for auditing from the list of stores.
- Compile list of store IDs, names and addresses.
- Create a route with most efficient navigation.
- Log the stores that will be in route on google xls of completed stores day before.
- Provide transportation to Data Collector and Data Support between each store.
- Find replacements for closed stores.

The Driver tells the Data Collector the store ID, address and name of the corner store to be recorded on the top of the survey with the rater ID, date and start time. Then the Data Support and Data Collector exit the vehicle and observe the store from the outside to verify the name and address. If the store is the same address but a different name, the Data Collector notes a name change. If the store is not at the address, the team looks around the block and if the store is not found, it is replaced with a nearby corner store. Next, they analyze the window clings (see Figure 1), awning and other advertising for healthy food offerings and for whether the store accepts WIC and EBT. They enter the store to complete the survey.

Conclusion:
Given what we know in the field, it is crucial to use primary data collection as a tool in assessing whether changes to a store are indeed effective. Large datasets do not capture the nuances of smaller changes in this food environment, and sales data are difficult to obtain; many corner stores do not provide receipts for purchases.

The procedure of doing the store audits varied a little from store to store in length of time spent in store, method and difficulty level. An individualistic approach was necessary for each store because of the variation across store layout, size, specialization, cultural differences in products, presence or absence of store owner, store owner’s concerns, language barriers, being viewed as health inspectors or competitors etc. However, the process of primary data collection makes it easier to customize our interactions with each store as we see fit and this optimizes the amount of stores we can actually use for data collection.

After completing the audits in 300+ stores in Camden, Newark, New Brunswick and Trenton, researchers from Arizona State University conducted phone interviews on about 100 of the stores on the same day of the audits. We found that certain questions needed further clarification. For example; the ground meat question on the audit did not translate well to the telephone audit. We needed to go back into some stores to ask about inventory of ground meat in person because answers differed from the phone audits and the original audits.

Ultimately there were many barriers and facilitators to auditing the corner stores for the larger longitudinal social science. We have learned a lot through this process and have made transformative decisions that will affect the panel study.

References: