

Paula Quatromoni

The Many Rewards of Healthy Eating

When lunch for middle school students consists of brownies, potato chips, and ice cream treats, it doesn't take a top-notch epidemiologist to see red flags for childhood obesity. But it does take solid research by an epidemiologist to determine whether a program to promote healthy food choices in middle school can bring about positive change in eating habits, and that's where Paula Quatromoni comes in. She started with a small study in her hometown of Medfield, Massachusetts, and found that even relatively affluent Caucasian youths eat too much pizza and too few vegetables and do not exercise enough.

Then Quatromoni discovered that a Charlestown produce distributor had recently introduced a healthy eating program called "imove" into about a dozen area middle schools to encourage students to choose more nutritious lunch meals in the school cafeteria. Imove meals are made with more vegetables, fruits, and whole grains and less salt, sugar, and fat. Quatromoni, an assistant professor of nutrition at BU Sargent College and an investigator on the world-renowned Framingham Heart Study, was awarded funding from the private Charles H. Hood Foundation to bring imove into middle-school communities serving racially diverse and economically disadvantaged children and to evaluate the program using a scientific research design.

"A lot of people are trying to do the right thing, from food service managers to physical education teachers," said Quatromoni.

"But we need to do research and collect

data to determine what strategies actually impact obesity risk."

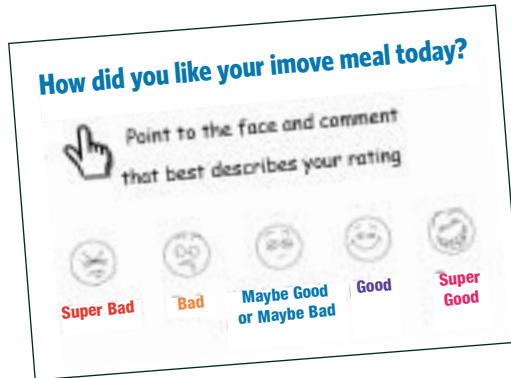
Quatromoni devised a study that surveys students on their eating patterns, examines their food purchases, and tracks their height and weight over a school year. The study is testing the effectiveness of Costa Fruit & Produce Company's imove program in four middle schools in Quincy and New Bedford. In each city, one school is receiving imove and one school is not, allowing for meaningful comparisons. Specifically, the research is testing whether students change their food-choice behavior in the presence of healthy alternative lunches, occasional promotions with free samples of fresh produce, and incentives in the form of raffle tickets for each imove meal purchased. Raffle prizes range from skateboards and basketballs to iPods and Red Sox tickets, with an annual grand prize of a mountain bike.

"It's really fun to see the students get so excited about why we are doing this," said Quatromoni. "They taste new foods and win cool stuff, and that makes the connection that healthy eating can be fun. When they receive positive reinforcement for trying something new, students build confidence that makes them open to trying again."

While the research is still under way, Quatromoni has seen for herself that the

program has introduced students to new flavors and acceptable new foods.

Every six weeks or so, Costa sponsors fresh produce displays with free samples in the imove schools. She heard one Quincy middle-schooler remark, "I've never tasted a fresh blueberry before," and, "I never knew there



was a fruit called 'ugli fruit!'" The research has been challenging for the same reasons that the schools were chosen—permission forms had to be translated into Vietnamese, Chinese, Portuguese, and Spanish.

"The schools don't always have what they need. This is really humbling work," she said.

To determine who is buying the imove meals, Quatromoni used grant funds to buy the school cafeterias sophisticated cash registers that require each student to punch in a four-digit code upon checkout that automatically records his or her lunch purchase.

The graduate students on the study helped school nurses measure and record the height and weight of each student. This data and general demographic information can then be combined with cafeteria food purchase records.

"That's how we can tell if we are reaching students who are most at risk, including overweight students, children from lower income families, and those of racial diversity," Quatromoni said.

The graduate students involved in the study also go around the cafeteria with clipboards and ask middle schoolers to pick from one of five cartoon facial expressions to match how they feel about the turkey tacos or hummus and raw veggies they just ate for lunch. The study hopes to also evaluate Costa's records of deliveries to the schools to see whether demand for salad components and other produce increases as students' habits change.

In each school, the study reaches from 500 to 1,300 students. Because of delays getting the cash register systems and staff training up and running in Quincy, data collection did not start until spring of 2008, requiring the study to extend into the next school year. In New Bedford, data collection was completed during the 2007-08 school year.

Over the course of the project, there will be up to eight graduate students involved, one of whom is a doctoral student in epidemiology at BU's School of Public Health (SPH) who is doing her dissertation work using these data. Also involved are SPH co-investigators Jonathan Howland from the Department of Social and Behavioral Sciences and AI Ozonoff from the Department of Biostatistics.

Ideally, this innovative study will be a catalyst to larger research initiatives addressing childhood obesity. Costa is already working in partnership with the Massachusetts Department of Public Health through a migrant program to offer healthy imove meals to more school districts. Quatromoni anticipates that the next phase of her research will combine the healthy eating alternatives with a physical education component for greater effects.

"Hopefully, this is the beginning of something bigger," she said.



Above: Assistant Professor of Nutrition Paula Quatromoni brings the imove program into middle-school communities.

Left: A student proudly holds up an iPod, her reward for healthy eating, Quatromoni interacts with children in a school cafeteria among the fresh fruit displays presented by Costa.

