IBM tosses its chips into the fight against obesity

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Counting calories, tracking the effects of advertising and measuring the miles to the nearest fresh produce store may not seem like typical fields of study for scientists at IBM's Almaden Research Center in San Jose, which is better known for its pioneering work with disk drives and relational databases.

But the tech giant is launching a research effort to develop advanced computer modeling tools for studying complex public health issues. The effort, announced this week, intends to help government policymakers and health care providers find the most effective formula for applying scarce resources to get the best results.

The first target will be childhood obesity, a growing phenomenon that has been declared a national concern by first lady Michelle Obama. Experts say excess weight in childhood is linked to a host of expensive health problems in adulthood, including heart disease and diabetes.

Since 1970, the percentage of obese Americans has doubled to nearly 30 percent. This spike indicates that social and policy changes affecting how people live and what they consume have played a major role in the increase, but it has been tough to tease out which factors play the most important roles.

"The wisdom that comes down is 'Eat less and exercise more,'" said IBM Corp. scientist Paul Maglio. "Then it's a question of, 'Well, how do we create the sort of environment where people will actually do that?'

"In the end, there are a whole lot of complicated things involved, including education, access to transportation, availability of parks and proximity to retail stores and fast-food restaurants," he said.

Doctors and public health experts have already gathered enormous amounts of data on the links between obesity and socioeconomic or environmental factors. The Alameda County Public Health Department, for example, is among several departments around the nation tracking and addressing the disease disparities among neighborhoods.

But Ross Hammond, a public health expert at the Brookings Institution, said researchers are only beginning to develop statistical tools for studying the interplay between different factors and evaluating which are most important.

"Most research on obesity has looked at only one or two factors at a time. There's a real need for research that can try to synthesize data across different disciplines," including economics and urban planning as well as medicine and psychology, said Hammond, who spoke last week at a seminar sponsored by IBM.

Hammond is not involved in the IBM project, but is working on similar modeling research under the auspices of a partnership between several federal agencies and private groups.

Maglio, of IBM, said that the computer modeling platform could be used to assess why disparities in obesity rates exist between poorer and wealthier communities, with those living in low-income areas having higher rates.

The IBM effort involves a San Jose-based team of researchers that includes Maglio and Pat Selinger, a pioneering mathematician who decades ago helped create the first relational database program.

The goal, Selinger said, is to help answer the question: "If you have extra money to spend, would it be better to spend it on building another park, or having more physical education in schools, or improving school lunch programs?"

The research could also shed light on the effectiveness of food labeling or economic incentives for retailers to open grocery stores near public transit stops.

By 2011, Maglio's team wants to be working to combat the obesity crisis with other stakeholders, such as government agencies, to test the computer modeling platform in actual communities.

"I do think it has the potential to be revolutionary, for obesity in particular and lots of problems in general," Maglio said.

"The fact of the matter is the world we live in, it's always been complex," he said. "Actions here affect things there that you didn't think of beforehand. There are unintended consequences."

But growing mounds of data and ever-increasing computational modeling power means "we actually can begin to think things through before we take actions, so that we're not going to be faced with so many unintended consequences," Maglio said. "So in that sense, there is the potential for a revolution if we can pull it off."

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