HARVARD T.H. CHAN | SCHOOL OF PUBLIC HEALTH
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CHOICES | Childhood Obesity Intervention Cost-Effectiveness Study

Making CHOICES in a Health Department: Case 1

Narrative for Students

A teaching case from the CHOICES Project at the Prevention Research Center on Nutrition and Physical Activity

Harvard T.H. Chan School of Public Health

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Making CHOICES in a Health Department: Case 1

Narrative for Students

"This is the ball?"

Not quite a soccer ball, or a beach ball, it was something soft and plastic that small hands could kick or throw or bounce off the head, and probably it wouldn't break windows, knock out teeth, or send a child away crying if it hit her in the face.

"Eighty-nine cents at Walmart. Cheaper if we buy hundreds online."

"So we give one to every kindergartener on the first day of the school. Now there are 25 little balls bouncing around the classroom. Or do they store them in cubbies? Where certainly they won't roll out and cause problems. This idea doesn't make a lot of sense to me."

It was one of the new proposals coming down from Healthy Starts, a program for kids with about a dozen small funders, and only minimal state dollars, that the state health agency was sending to county health officers for implementation. Gus Pacheco, who served in the role for Bird County, was expected to wade through the package of suggestions—among them, balls for kindergarteners; school gardens or vegetable patches; no video screens in rooms for young children in licensed child care programs. He was expected to use his small budget to implement one or more of these strategies across the county, with the aim of reducing childhood obesity rates that were among the worst in the United States.

"How do we know it even works—gets kids moving?"

Pacheco was talking to a new hire, a nurse educator named Sandra Richards who replied, "I just assumed if it came from Healthy Starts, it was tested somewhere. And worked."

"Well, it doesn't say. And even if it was, somewhere isn't here. Did it work in a place like ours—a county like Bird?"

Bird County, in the bottom corner of a poor Southern state, was 545,000 people, half rural, half urban, mainly African-American in the cities and white in the rural towns and communities. The urban population was either very young or tending old, centered in two cities thirty miles apart where there just weren't many jobs for the great middle in between. The rural population was no better off.

"The Healthy Starts material says we should pick those items we think will work for our local environment."

"You mean what you and I think best? Based on our knowledge and experience?"

Bouncing the ball off his head onto his palm, Pacheco saw it fly onto the table and knock over his pencil-holder. "You're new in this job, Sandra, and thank God we have you. I think you're going to find we don't have a lot of guidance in many of the things we need to do."

In the end, tormented by the idea of thousands of balls bouncing around Bird County, Pacheco and his team, including Richards and a chronic disease program director whose salary was paid in part by the state health agency, decided against the balls. "We'll get Bird moving some other way," he said. The chronic disease specialist, Michele Martinez, had been making the case that promotion, outreach, and education were the best use of Healthy Starts dollars, accomplished by commissioning and printing materials for posters and distribution, and visiting schools, church and private early care programs to encourage kids to eat fruits and vegetables and get lots of physical activity; and turn off the damn screens when possible. But nothing was definite yet.

In six months' time the county would report on its progress up the chain to the Board of Health, and from there to the funders that requested it, which not all of them did. Three months later, Richards tapped links on the website of one patron, a local foundation not 50 miles away, and saw a line about "funding programs in our own Bird County using evidence-based research to promote physical activity among young children," and thought, we haven't shown anything yet. She meant to mention it to Pacheco and Martinez, but along with them she was boarding a flight to Boston in three hours, and the thought just flew out of her head.

How the Boston trip came about was something of a surprise, an exercise of influence Gus Pacheco didn't know he had. What seemed to be another grant application on childhood obesity research crossed his desk; he'd sent it on to an official in state government who did early childhood education; then the forms came back to him partially filled out with a state health agency cover memo signed by an associate commissioner instructing Pacheco, as program lead, to complete and submit for a September deadline.

It wasn't really a grant application, though. Only when the materials came back to him did Pacheco fully realize the Harvard sponsor offered, instead, a "learning collaborative" that was not just focused on childhood obesity but also cost effectiveness. This had excited Martinez, the chronic disease specialist.

"This is what I have been asking for. Which interventions work, measured by how each dollar invested produces changes in child health outcomes and future health care costs. If we do this, we'll really have something to show people at Healthy Starts."

That night Pacheco studied two articles in his file about the Harvard project, named CHOICES, one for academics and practitioners published in *Health Affairs,* the other for a huge general readership in *The New York Times*.[1] In both articles, a number of interventions for tackling childhood obesity—just the kinds of programs Healthy Starts was kicking off around his state—were considered, with three projected to save even more money in future health care costs than they cost to implement.

The Harvard project offered four slots for state or local health agencies that would benefit from training, site visits, technical consultations and access to CHOICES experts, plus a grant for health agency staff to participate in all the

[1] Three Interventions that Reduce Childhood Obesity Are Projected to Save More Than They Cost to Implement. Gortmaker SL, Claire Wang Y, Long MW, Giles CM, Ward ZJ, Barrett JL, Kenney EL, Sonneville KR, Afzal AS, Resch SC, Cradock AL. *Health Affairs*, 34, no. 11 (2015):1304-1311. "Prudent Ways to Fight Childhood Obesity" New York Times. June 22, 2015, https://well.blogs.nytimes.com/2015/06/22/seeking-efficient-paths-to-slimmer-children/

sessions, host meetings, and seek local partners. In return, the health agency participants supplied their own expertise and data to the Harvard researchers who had huge datasets to run through their computer and crunch into cost effectiveness projections.

Pacheco did as he was asked. Four months later, the Bird County team was flying north for the two-day kickoff session in Cambridge, Massachusetts.

There was snow in Harvard Square the late-January morning the kickoff session began, but the temperature rose throughout the day and, by 5 p.m. when the session broke up, a good part of it had turned to slush. But still the Bird County team was cold. “How do people live up here?” Martinez asked.

Bird County, in the South, was never cold. And the people who lived there didn’t look or sound like the people they saw around them now. When they fell to talking amongst themselves during two days in Cambridge, the participants (who also included teams from a major Midwestern city, a Great Plains state and a large metropolitan county) typically conversed about details of population and implementation. What kinds of preschools or day care centers did they have, who ran them, how many kids attended and what kinds of foods and beverages were they served? What options did communities have for setting policies or putting in place programs to help kids be more physically active during the day? Apart from the Great Plains group, whose main priority was gathering data on the health impact of a potential sugary-drink tax to share with state legislators, most of the participants seemed interested in the most endearing of subjects, children at play.

In Cambridge, the health agency teams heard three words over and over: cost, effect, reach. Each time, they realized that they hadn’t thought enough about any one of them, simple as they sounded. One popular idea with the visiting teams was using school recess time to promote physical activity, which included purchasing new playground equipment and training the adults overseeing recess to

offer structured activities for the kids.[2] In that case, you could say the equipment cost a certain amount—say, 500 dollars—per school, and multiply it by the number of schools in your area. But there would be costs, too, for the staff time to promote the project across the county; draw up a handout or infographic that would explain their purpose (and would there be a publication for parents?); print them by the thousand; and report back the findings.

And whose "staff time" was it exactly—who would pay for it? Maybe it was easy to multiple 500 dollars by 29 county schools, but the Bird County trio of Pacheco, Richard and Martinez would not be the only individuals devoting working time to the project, nor even the only staff in a number of county offices. There would be teachers, paraprofessionals and even parent volunteers who helped monitor recess that could be helping to implement, for instance, and it seemed like the calculations could get very complicated.

During the two days, the teams were presented with a "menu" of 30 childhood obesity programs they could work on—a range of activities that included promoting physical activity, reducing the time kids spent in front of a screen, and taxing sugary drinks. That menu had disappointed one group in particular, from a large Midwestern city whose mayor had made a major push during his re-election campaign to create community gardens in all the middle schools, saying the benefits would include better health.

"He's said kids who participate in school gardening programs are healthier—their BMI is lower."

"From our reviews of the literature, no one's published a study showing those gardens improve kid's weight," the Harvard researcher replied. "We haven't found evidence for it."

[2] Using cost-effectiveness analysis to prioritize policy and programmatic approaches to physical activity promotion and obesity prevention in childhood. Cradock AL, Barrett JL, Kenney EL, Giles CM, Ward ZJ, Long MW, Resch SC, Pipito AA, Wei ER, Gortmaker SL. *Prev Med*. 2017 Feb;95 Suppl:S17-S27.

"People in City Hall are going to be really put out if we come back and say we can't test this one out."

"We know this school garden initiative has attracted a lot of interest. But we really do need a quantifiable effect to be able to say that an intervention can reduce kids' risk for gaining weight."

"What can we tell the Mayor's people?"

When they returned home, the team could tell them that no well-designed studies existed to show school or community gardens prevented excess weight gain. "Without the right study, there just isn't a number we can use to show how much the gardens actually impact child weight."

All this the Bird County team watched with interest. Balls for small children, they happened to notice, was not on the list. When Pacheco mentioned it to the CHOICES principal investigator during a coffee break, he said, "Let me guess—there's no study."

"Well there could be a study or a report," the researcher replied. "It didn't come out of nowhere, after all. But maybe that report just found that kids liked the balls, or teachers could find a way to store them without disrupting class. But there's no study we know that shows that if you roll out of a program like that, kids will have more physical activity during the day and that activity is a result of the program. You have to have the right pre- and post-study design with a control group and accurate measures. Without those things—well, that's when the list of interventions with good evidence for effectiveness starts to dry up."

Martinez' original idea for the Healthy Starts allocation, that it be spent on a health promotion campaign of posters and written materials highlighting nutrition and physical activity for young children in preschools, was shown during the session to be a little off-point. It sounded effective, it was probably better than nothing, but just on its own you'd never know if they made the slightest difference. At the airport for the flight home, she mused aloud. "It's not about spending our budgeted dollars on promoting things just because we think they *could* work. It's about spending on an intervention that we *know* works."

Balls for young kids, for instance, would be cheaper than playground equipment. But it wasn't much different from printing lots of posters and handouts—you were just guessing. Since the main goal was to get kids of all ages moving in school, and the Active Recess intervention had been demonstrated to do this, by choosing it they could make progress.

*

"Ruth, we're stuck." Richards was on the phone to her contact at CHOICES. "We're stressed out by the site visit. And Gus' leaving hasn't helped."

"Gus? Gus Pacheco?"

"You hadn't heard?"

She hadn't.

There was often turnover in public health agencies, it never seemed to come at an opportune moment, and often it was plain mysterious. Someone had been transferred internally; someone stayed where she was but her portfolio changed; sometimes it was budget time, and somebody was laid off. At least once in Ruth's experience a person had been fired for clashing with her agency head. In Pacheco's case, it was none of these things.

"He retired. He's sixty years old; he's been here a long time. He has a baby grandson. You know what I think it was? I'm going to say the image of those bouncing balls and little kids, and visiting preschools and child care programs. He just wanted to spend time with his own little one."

Ruth had to think quickly about what the collaborative would be like without Pacheco. It might not have happened; Bird County probably wouldn't have been chosen, without the groundwork he'd laid over his years in the health office. A lot of the paperwork and data that had been part of the team's CHOICES application had his name on it.

"Is it just you and Michele now?" Ruth asked, meaning Martinez, who wasn't even full-time with the county office.

"There'll be a program manager and graduate intern at the site visit when you come. We're told someone new will be hired. But for now, it's me. I'm the new Gus Pacheco."

Such was the world of public health, Ruth thought. No one got rich in the field; the complexities could seem intractable. But, in her experience, someone good often stepped up, too.

"Where do you think you'd like to be by Thanksgiving when the collaborative ends? Remember, we're trying to get to a place where you can share your results with decision makers and partners."

"Goodness," Richards replied. "It would be nice to know which of these three is the best—sorry, I mean, *effective*—way to spend our Healthy Starts dollars. It would be nice to have buy-in from the partners. It would be nice to have real momentum, to feel ready to go, even if the funding cuts out. It would be nice if word got around the county and everyone was excited for this."

"That's all totally normal and to be expected," Ruth replied. "So let's set ourselves up for that."

The site visit was one month afterward. It was scheduled to run four hours, and be held in the meeting room of Melville Public Library, the busiest branch in the county system. Fifty chairs had been arranged in five rows, headed by two long tables at the front of the room. At the back were bowls of fruit and two baskets of plastic water bottles. It was a meeting with many invitations sent to interested parties like Bird County educators, health workers and city and county officials, but at the same time it was a working session between the visiting CHOICES staff from Boston and the Bird County health team, which included some others who hadn't been at the kick-off in Cambridge back in January. While there was time for questions and suggestions, the agenda was very clearly designed to get to an end goal of finalizing, from the list of 30, a couple interventions to work on this year, and the next steps for data collection and design formulation that each choice would entail.

Fifty chairs had been set out, because fifty invitations had gone out, and 33 had been accepted; when the meeting began nearly 20 minutes behind schedule, 27 were occupied.

"There's a whole team that isn't here," Richards whispered to Ruth.

"Do they matter—" Ruth was on the verge of saying, then stopped herself. In public health, all teams mattered.

"The district education team. Also we're missing Dr. Yang and Dr. Miguel."

The doctors Yang and Miguel were an interesting case. Both pediatricians in a community health center that served low-income families, they were also published researchers who had impressed Dr. Abbott, the state health commissioner, with a slew of ideas for clinical strategies on children's health. The second item on the site visit agenda had been almost entirely their idea. It involved tweaking electronic medical records systems to alert primary care providers during a regular care visit for an obese child, to help the provider talk with the families about obesity and offer community resources for healthy eating and physical activity. The duo thought this kind of intensive work with a high-risk population might actually prove cost-effective, despite being more expensive.[3] This wasn't going to cost the same as playground equipment for active PE or recess, or water fountains, or the bouncing balls from Walmart.

"Reach will be difficult, too," Ruth had said when the proposal came up. "It's not like it's every kid in every grade in a school, or every five-year-old in the county. It's kids at a certain BMI threshold who need screening to be identified, with willing families who can make their appointments and follow up on referrals to community resources."

Just then, Miguel and Yang—a husband-and-wife duo—arrived. But still there was no district education team.

"We'll just have to begin," Ruth said, and began by introducing the CHOICES senior researchers, then herself. Then the local team, namely Richards and Martinez, took over.

The first slide they flashed on the screen was of a small child holding a red ball, with both hands, high in the air. "I want to begin with something we're not going to do, something from the cutting-room floor. Give every kid a little ball like this on his first day at school, so the child—and the family!—are always moving

[3] Sharifi M, Franz C, Horan CM, Giles CM, Long MW, Ward ZJ, Resch SC, Marshall R, Gortmaker SL, Taveras EM. Cost-Effectiveness of a Clinical Childhood Obesity Intervention. Pediatrics. 2017 Nov;140(5).

around. Sounds good, but there's no evidence it keeps little kids healthy." Turning to a pony-tailed older man in the back of the room, with a baby in a stroller, Richards said to him with a broad smile, "Gus, this is for you."

The retired Gus Pacheco took a bow. But the next slide was already up: a photo of a school playground with some tired old swings in use and lots of kids with nothing to do; and next to it, an illustration of a playground with new portable equipment and children clambering everywhere.

It all seemed to go so quickly. That night the CHOICES team was on a flight back to Boston. Two interventions had been discussed in four hours earlier that day; while each discussion had been fruitful, each one had revealed a problem. The absent district education team meant the Active Recess option had received little input on an implementation strategy that would work across the county's schools: all the factors that would go into cost, effect and reach. On the second proposal, while Drs. Miguel and Yang spoke, the empty seats at the back of the room began to be filled up with white-coated health workers who appeared to be their colleagues, giving the sense of a great momentum and enthusiasm for what might end up being one of the more expensive proposals considered—one that might well be worth doing; but wasn't going to reach the same large numbers across the county as the school-based interventions. When the doctors sat down, they received an ovation that seemed like an acclamation. "Has this one just been decided for us?" Richards whispered to Martinez.

"Ruth?" Martinez asked. "Ruth?"

But Ruth just raised her eyebrows.

Richards and Martinez had to admit it wasn't clear what would happen next. Were they even close to where they should be? They took heart from words from a participant on the most recent CHOICES collaborative whom Ruth had invited to the site visit, a big-city social worker.

"We felt more confident during the second site visit than the first," she told the Bird County team. "We were too hung up on implementation and we learned to

re-adjust. What we've had is all these conversations with our partners, we've got the CHOICES data, we think people are on board, and we're waiting for the right moment. What we chose to work on may not be feasible, in the end, but alternatives are being explored. It's a game of inches."

That had been good to hear, but now Bird County had to make some decisions—with two promising strategies emerging from their collaboration with the CHOICES team, but limited bandwidth of the county agency team for the actual implementation work, it wasn't at all obvious how to move forward.