

## **SLOW IDEAS – PART 2** (Published in Sandarbh issue-92)

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The most common approach to changing behavior is to say to people, “Please do X.” Please warm the newborn. Please wash your hands. Please follow through on the twenty-seven other childbirth practices that you’re not doing. This is what we say in the classroom, in instructional videos, and in public-service campaigns, and it works, but only up to a point.

Then, there’s the law-and-order approach: “You must do X.” We establish standards and regulations, and threaten to punish failures with fines, suspensions, the revocation of licenses. Punishment can work. Behavioral economists have even quantified how averse people are to penalties. In experimental games, they will often quit playing rather than risk facing negative consequences. And that is the problem with threatening to discipline birth attendants who are taking difficult-to-fill jobs under intensely trying conditions. They’ll quit.

The kinder version of “You must do X” is to offer incentives rather than penalties. Maybe we could pay birth attendants a bonus for every healthy child who makes it past a week of life. But then you think about how hard it would be to make a scheme like that work, especially in poor settings. You’d need a sophisticated tracking procedure, to make sure that people aren’t gaming the system, and complex statistical calculations, to take prior risks into account. There’s also the impossible question of how you split the reward among all the people involved. How much should the community health worker who provided the prenatal care get? The birth attendant who handled the first twelve hours of labor? The one who came on duty and handled the delivery? The doctor who was called in when things got complicated? The pharmacist who stocked the antibiotic that the child required?

Besides, neither penalties nor incentives achieve what we’re really after: a system and a culture where X is what people do, day in and day out, even when no one is watching. “You must” rewards mere compliance. Getting to “X is what we do” means establishing X as the norm. And that’s what we want: for skin-to-skin warming, hand washing, and all the other lifesaving practices of childbirth to be, quite simply, the norm.

To create new norms, you have to understand people’s existing norms and barriers to change. You have to understand what’s getting in their way. So what about just working with health-care workers, one by one, to do just that? With the BetterBirth Project, we wondered, in particular, what would happen if we hired a cadre of childbirth-improvement workers to visit birth attendants and hospital leaders, show them why and how to follow a checklist of essential practices, understand their difficulties and objections, and help them practice doing things differently. In essence, we’d give them mentors.

The experiment is just getting under way. The project has recruited only the first few of a hundred or so workers whom we are sending out to hospitals across six regions of Uttar Pradesh in a trial that will involve almost two hundred thousand births over two years. There’s no certainty that our approach will succeed. But it seemed worth trying.

Reactions that I’ve heard both abroad and at home have been interestingly divided. The most common objection is that, even if it works, this kind of one-on-one, on-site mentoring “isn’t scalable.” But that’s one thing it surely is. If the intervention saves as many mothers and newborns as we’re hoping—about a thousand lives in the course of a year at the target hospitals—then all that need be done is to hire and develop similar cadres of childbirth-improvement workers for other places around the country and potentially the world. To many people, that doesn’t sound like much of a solution. It would require broad mobilization, substantial expense, and perhaps even the development of a new profession. But, to combat the many antiseptic-like problems in the world, that’s

exactly what has worked. Think about the creation of anesthesiology: it meant doubling the number of doctors in every operation, and we went ahead and did so. To reduce illiteracy, countries, starting with our own, built schools, trained professional teachers, and made education free and compulsory for all children. To improve farming, governments have sent hundreds of thousands of agriculture extension agents to visit farmers across America and every corner of the world and teach them up-to-date methods for increasing their crop yields. Such programs have been extraordinarily effective. They have cut the global illiteracy rate from one in three adults in 1970 to one in six today, and helped give us a Green Revolution that saved more than a billion people from starvation.

In the era of the iPhone, Facebook, and Twitter, we've become enamored of ideas that spread as effortlessly as ether. We want frictionless, "turnkey" solutions to the major difficulties of the world—hunger, disease, poverty. We prefer instructional videos to teachers, drones to troops, incentives to institutions. People and institutions can feel messy and anachronistic. They introduce, as the engineers put it, uncontrolled variability.

But technology and incentive programs are not enough. "Diffusion is essentially a social process through which people talking to people spread an innovation," wrote Everett Rogers, the great scholar of how new ideas are communicated and spread. Mass media can introduce a new idea to people. But, Rogers showed, people follow the lead of other people they know and trust when they decide whether to take it up. Every change requires effort, and the decision to make that effort is a social process.

This is something that salespeople understand well. I once asked a pharmaceutical rep how he persuaded doctors—who are notoriously stubborn—to adopt a new medicine. Evidence is not remotely enough, he said, however strong a case you may have. You must also apply "the rule of seven touches." Personally "touch" the doctors seven times, and they will come to know you; if they know you, they might trust you; and, if they trust you, they will change. That's why he stocked doctors' closets with free drug samples in person. Then he could poke his head around the corner and ask, "So how did your daughter Debbie's soccer game go?" Eventually, this can become "Have you seen this study on our new drug? How about giving it a try?" As the rep had recognized, human interaction is the key force in overcoming resistance and speeding change.

In 1968, *The Lancet* published the results of a modest trial of what is now regarded as among the most important medical advances of the twentieth century. It wasn't a new drug or vaccine or operation. It was basically a solution of sugar, salt, and water that you could make in your kitchen. The researchers gave the solution to victims of a cholera outbreak in Dhaka, the capital of what is now Bangladesh, and the results were striking.

Cholera is a violent and deadly diarrheal illness, caused by the bacterium *Vibrio cholera*, which the victim usually ingests from contaminated water. The bacteria secrete a toxin that triggers a rapid outpouring of fluid into the intestine. The body, which is sixty per cent water, becomes like a sponge being wrung out. The fluid pouring out is a cloudy white, likened to the runoff of washed rice. It produces projectile vomiting and explosive diarrhea. Children can lose a third of their body's water in less than twenty-four hours, a fatal volume. Drinking water to replace the fluid loss is ineffective, because the intestine won't absorb it. As a result, mortality commonly reached seventy per cent or higher. During the nineteenth century, cholera pandemics killed millions across Asia, Europe, Africa, and North America. The disease was dubbed the Blue Death because of the cyanotic blue-gray color of the skin from extreme dehydration.

In 1906, a partially effective treatment was found: intravenous fluid solutions reduced mortality to thirty per cent. Prevention was the most effective approach. Modern sewage and water treatment eliminated the disease in affluent countries. Globally, though, millions of children continued to die from diarrheal illness each year. Even if victims made it to a medical facility, the needles, plastic tubing, and litres of intravenous fluid required for treatment were expensive, in short supply, and dependent on medical workers who were themselves in short supply, especially in outbreaks that often produced thousands of victims.

Then, in the nineteen-sixties, scientists discovered that sugar helps the gut absorb fluid. Two American researchers, David Nalin and Richard Cash, were in Dhaka during a cholera outbreak. They decided to test the scientific findings, giving victims an oral rehydration solution containing sugar as well as salt. Many people doubted that victims could drink enough of it to restore their fluid losses, typically ten to twenty litres a day. So the researchers confined the Dhaka trial to twenty-nine patients. The subjects proved to have no trouble drinking enough to reduce or even eliminate the need for intravenous fluids, and none of them died.

Three years later, in 1971, an Indian physician named Dilip Mahalanabis was directing medical assistance at a West Bengal camp of three hundred and fifty thousand refugees from Bangladesh's war of independence when cholera struck. Intravenous-fluid supplies ran out. Mahalanabis instructed his team to try the Dhaka solution. Just 3.6 per cent died, an unprecedented reduction from the usual thirty per cent. The solution was actually better than intravenous fluids. If cholera victims were alert, able to drink, and supplied with enough of it, they could almost always save their own lives.

One might have expected people to clamor for the recipe after these results were publicized. Oral rehydration solution seems like ether: a miraculous fix for a vivid, immediate, and terrifying problem. But it wasn't like ether at all.

To understand why, you have to imagine having a child throwing up and pouring out diarrhea like you've never seen before. Making her drink seems only to provoke more vomiting. Chasing the emesis and the diarrhea seems both torturous and futile. Many people's natural inclination is to not feed the child anything.

Furthermore, why believe that this particular mixture of sugar and salt would be any different from water or anything else you might have tried? And it *is* particular. Throw the salt concentration off by a couple of teaspoons and the electrolyte imbalance could be dangerous. The child must also keep drinking the stuff even after she feels better, for as long as the diarrhea lasts, which is up to five days. Nurses routinely got these steps wrong. Why would villagers do any better?

A decade after the landmark findings, the idea remained stalled. Nothing much had changed. Diarrheal disease remained the world's biggest killer of children under the age of five.

In 1980, however, a Bangladeshi nonprofit organization called BRAC decided to try to get oral rehydration therapy adopted nationwide. The campaign required reaching a mostly illiterate population. The most recent public-health campaign—to teach family planning—had been deeply unpopular. The messages the campaign needed to spread were complicated.

Nonetheless, the campaign proved remarkably successful. A gem of a book published in Bangladesh, "A Simple Solution," tells the story. The organization didn't launch a mass-media campaign—only twenty per cent of the population had a radio, after all. It attacked the problem in a way that is routinely dismissed as impractical and inefficient: by going door to door, person by person, and just talking.

It started with a pilot project that set out to reach some sixty thousand women in six hundred villages. The logistics were daunting. Who, for instance, would do the teaching? How were those workers going to travel? How was their security to be assured? The BRAC leaders planned the best they could and then made adjustments on the fly.

They recruited teams of fourteen young women, a cook, and a male supervisor, figuring that the supervisor would protect them from others as they travelled, and the women's numbers would protect them from the supervisor. They travelled on foot, pitched camp near each village, fanned out door to door, and stayed until they had talked to women in every hut. They worked long days, six days a week. Each night after dinner, they held a meeting to discuss what went well and what didn't and to share ideas on how to do better. Leaders periodically debriefed them, as well.

The workers were only semi-literate, but they helped distill their sales script into seven easy-to-remember messages: for instance, severe diarrhea leads to death from dehydration; the signs of dehydration include dry tongue, sunken eyes, thirst, severe weakness, and reduced urination; the way to treat dehydration is to replace salt and water lost from the body, starting with the very first loose stool; a rehydration solution provides the most effective way to do this. BRAC's scientists had to figure out how the workers could teach the recipe for the solution. Villagers had no precise measuring implements—spoons were locally made in nonstandard sizes. The leaders considered issuing special measuring spoons with the recipe on the handle. But these would be costly; most people couldn't read the recipe; and how were the spoons to be replaced when lost? Eventually, the team hit upon using finger measures: a fistful of raw sugar plus a three-finger pinch of salt mixed in half a "seer" of water—a pint measure commonly used by villagers when buying milk and oil. Tests showed that mothers could make this with sufficient accuracy.

Initially, the workers taught up to twenty mothers per day. But monitors visiting the villages a few weeks later found that the quality of teaching suffered on this larger scale, so the workers were restricted to ten households a day. Then a new salary system was devised to pay each worker according to how many of the messages the mothers retained when the monitor followed up. The quality of teaching improved substantially. The field workers soon realized that having the mothers make the solution themselves was more effective than just showing them. The workers began looking for diarrhea cases when they arrived in a village, and treating them to show how effective and safe the remedy was. The scientists also investigated various questions that came up, such as whether clean water was required. (They found that, although boiled water was preferable, contaminated water was better than nothing.)

Early signs were promising. Mothers seemed to retain the key messages. Analysis of their sugar solutions showed that three-quarters made them properly, and just four in a thousand had potentially unsafe salt levels. So BRAC and the Bangladeshi government took the program nationwide. They hired, trained, and deployed thousands of workers region by region. The effort was, inevitably, imperfect. But, by going door to door through more than seventy-five thousand villages, they showed twelve million families how to save their children.

The program was stunningly successful. Use of oral rehydration therapy skyrocketed. The knowledge became self-propagating. The program had changed the norms.

Coaxing villagers to make the solution with their own hands and explain the messages in their own words, while a trainer observed and guided them, achieved far more than any public-service ad or instructional video could have done. Over time, the changes could be sustained with television and radio, and the growth of demand led to the development of a robust market for manufactured oral rehydration salt packets. Three decades later, national surveys have found that almost ninety per cent of children with severe diarrhea were given the solution. Child deaths from diarrhea plummeted more than eighty per cent between 1980 and 2005.

As other countries adopted Bangladesh's approach, global diarrheal deaths dropped from five million a year to two million, despite a fifty-per-cent increase in the world's population during the past three decades.

Nonetheless, only a third of children in the developing world receive oral rehydration therapy. Many countries tried to implement at arm's length, going "low touch," without sandals on the ground. As a recent study by the Gates Foundation and the University of Washington has documented, those countries have failed almost entirely. People talking to people is still how the world's standards change.

Surgeons finally did upgrade their antiseptic standards at the end of the nineteenth century. But, as is often the case with new ideas, the effort required deeper changes than anyone had anticipated. In their blood-slick, viscera-encrusted black coats, surgeons had seen themselves as warriors doing hemorrhagic battle with little more than their bare hands. A few pioneering Germans, however, seized on the idea of the surgeon as scientist.

They traded in their black coats for pristine laboratory whites, refashioned their operating rooms to achieve the exacting sterility of a bacteriological lab, and embraced anatomic precision over speed.

The key message to teach surgeons, it turned out, was not how to stop germs but how to think like a laboratory scientist. Young physicians from America and elsewhere who went to Germany to study with its surgical luminaries became fervent converts to their thinking and their standards. They returned as apostles not only for the use of antiseptic practice (to kill germs) but also for the much more exacting demands of aseptic practice (to prevent germs), such as wearing sterile gloves, gowns, hats, and masks. Proselytizing through their own students and colleagues, they finally spread the ideas worldwide.

In childbirth, we have only begun to accept that the critical practices aren't going to spread themselves. Simple "awareness" isn't going to solve anything. We need our sales force and our seven easy-to-remember messages. And in many places around the world the concerted, person-by-person effort of changing norms is under way.

I recently asked BetterBirth workers in India whether they'd yet seen a birth attendant change what she does. Yes, they said, but they've found that it takes a while. They begin by providing a day of classroom training for birth attendants and hospital leaders in the checklist of practices to be followed. Then they visit them on site to observe as they try to apply the lessons.

Sister Seema Yadav, a twenty-four-year-old, round-faced nurse three years out of school, was one of the trainers. (Nurses are called "sisters" in India, a carryover from the British usage.) Her first assignment was to follow a thirty-year-old nurse with vastly more experience than she had. Watching the nurse take a woman through labor and delivery, she saw how little of the training had been absorbed. The room had not been disinfected; blood from a previous birth remained in a bucket. When the woman came in—moaning, contractions speeding up—the nurse didn't check her vital signs. She didn't wash her hands. She prepared no emergency supplies. After delivery, she checked the newborn's temperature with her hand, not a thermometer. Instead of warming the baby against the mother's skin, she handed the newborn to the relatives.

When Sister Seema pointed out the discrepancy between the teaching and the practice, the nurse was put out. She gave many reasons that steps were missed—there was no time, they were swamped with deliveries, there was seldom a thermometer at hand, the cleaners never did their job. Sister Seema—a cheerful, bubbly, fast talker—took her to the cleaner on duty and together they explained why cleaning the rooms between deliveries was so important. They went to the medical officer in charge and asked for a thermometer to be supplied. At her second and third visits, disinfection seemed more consistent. A thermometer had been found in a storage closet. But the nurse still hadn't changed much of her own routine.

By the fourth or fifth visit, their conversations had shifted. They shared cups of chai and began talking about why you must wash hands even if you wear gloves (because of holes in the gloves and the tendency to touch equipment without them on), and why checking blood pressure matters (because hypertension is a sign of eclampsia, which, when untreated, is a common cause of death among pregnant women). They learned a bit about each other, too. Both turned out to have one child—Sister Seema a four-year-old boy, the nurse an eight-year-old girl. The nurse lived in the capital, a two-hour bus ride away. She was divorced, living with her mother, and struggled with the commute. She'd been frustrated not to find a hospital posting in the city. She worked for days at a stretch, sleeping on a cot when she got a break. Sister Seema commiserated, and shared her own hopes for her family and her future. With time, it became clearer to the nurse that Sister Seema was there only to help and to learn from the experience herself. They even exchanged mobile-phone numbers and spoke between visits. When Sister Seema didn't have the answer to a question, she made sure she got one.

Soon, she said, the nurse began to change. After several visits, she was taking temperatures and blood pressures properly, washing her hands, giving the necessary medications—almost everything. Sister Seema saw it with her own eyes.

She'd had to move on to another pilot site after that, however. And although the project is tracking the outcomes of mothers and newborns, it will be a while before we have enough numbers to know if a difference has been made. So I got the nurse's phone number and, with a translator to help with the Hindi, I gave her a call.

It had been four months since Sister Seema's visit ended. I asked her whether she'd made any changes. Lots, she said.

"What was the most difficult one?" I asked.

"Washing hands," she said. "I have to do it so many times!"

"What was the easiest?"

"Taking the vital signs properly." Before, she said, "we did it haphazardly." Afterward, "everything became much more systematic."

She said that she had eventually begun to see the effects. Bleeding after delivery was reduced. She recognized problems earlier. She rescued a baby who wasn't breathing. She diagnosed eclampsia in a mother and treated it. You could hear her pride as she told her stories.

Many of the changes took practice for her, she said. She had to learn, for instance, how to have all the critical supplies—blood-pressure cuff, thermometer, soap, clean gloves, baby respiratory mask, medications—lined up and ready for when she needed them; how to fit the use of them into her routine; how to convince mothers and their relatives that the best thing for a child was to be bundled against the mother's skin. But, step by step, Sister Seema had helped her to do it. "She showed me how to get things done practically," the nurse said.

"Why did you listen to her?" I asked. "She had only a fraction of your experience."

In the beginning, she didn't, the nurse admitted. "The first day she came, I felt the workload on my head was increasing." From the second time, however, the nurse began feeling better about the visits. She even began looking forward to them.

"Why?" I asked.

All the nurse could think to say was "She was nice."

"She was nice?"

"She smiled a lot."

"That was it?"

"It wasn't like talking to someone who was trying to find mistakes," she said. "It was like talking to a friend."

That, I think, was the answer. Since then, the nurse had developed her own way of explaining why newborns needed to be warmed skin to skin. She said that she now tells families, "Inside the uterus, the baby is very warm. So when the baby comes out it should be kept very warm. The mother's skin does this."

I hadn't been sure if she was just telling me what I wanted to hear. But when I heard her explain how she'd put her own words to what she'd learned, I knew that the ideas had spread. "Do the families listen?" I asked.

"Sometimes they don't," she said. "Usually, they do."