



## INCENTIVES FOR IMMUNIZATION

Small incentives for parents, coupled with reliable services at convenient mobile clinics, increased full immunization rates sixfold. This approach was twice as cost-effective as improving service reliability without incentives.



**I**mmunization is often claimed to be one of the most cost-effective ways to improve child survival in developing countries. Immunization rates have increased almost 20 percent over the last two decades: According to WHO, in 2009, eight out of ten children worldwide under the age of one were vaccinated with three doses of diphtheria-tetanus-pertussis.

However, pockets of low coverage remain. About 23 million infants worldwide are still not reached by routine immunization services, and 70 percent of these children live in ten countries, with more than half in India and Nigeria (WHO 2010).

What explains low take-up when vaccines are usually provided for free? Is it cultural resistance? Is it unreliable immunization service due to chronic absenteeism among health workers? Or is it procrastination? What can be done to increase take up of immunization?

J-PAL affiliates Abhijit Banerjee, Esther Duflo, and Rachel Glennerster, together with Dhruva Kothari, evaluated a program in rural India that increased the reliability of immunization services by holding well-publicized immunization camps in villages and also providing a small incentive to encourage parents to attend.

- **When offered convenient and reliable services via monthly, advertised camps in the villages, 78 percent of children got at least one immunization, but many parents failed to come back for the full vaccination package.** Even with this high dropout, full immunization tripled from 6 percent to 18 percent when parents could count on convenient immunization camps, instead of unpredictably closed health clinics.
- **An incentive as small as a bag of lentils for each visit, and a set of plates at the last visit, increased full immunization rates sixfold relative to the comparison group.** The incentive encouraged families to return multiple times for the full vaccination package and was effective at overcoming small inconveniences and a tendency to procrastinate.
- **Providing small incentives, in addition to improving the reliability of services, cost half as much per fully immunized child as providing reliable services alone.** Because village immunization camps that handed out lentils as an incentive were busier than those without incentives, the cost per child fully immunized was halved in camps that offered incentives.
- **Many parents do not appear to have strong objections to immunization.** The incentives offered were very small and unlikely to have overcome any great cultural or ideological objections parents had to immunization. More likely, receiving the lentils offset the small inconvenience of having to take a child to the clinic to be immunized. Many parents are probably more indifferent than hostile to immunization.

# EVALUATION

**I**ndia has an extensive public health system: The average household is within two kilometers of the nearest clinic. Yet a survey in Udaipur, India revealed that 45 percent of auxiliary nurse midwives (ANMs) were absent from their clinic on any given day, which meant these facilities were often closed. These same nurses are responsible for distributing vaccines, which are provided for free by the Indian government. The basic package requires at least five visits to a health facility and includes immunization against BCG, DPT, polio, and measles. A child must receive the entire package to be fully protected against these diseases, as some vaccines require multiple doses to ensure adequate protection.

J-PAL affiliates partnered with Seva Mandir, an NGO that works in Udaipur, to evaluate a program to increase immunizations. The 134 villages in the study were randomly assigned into three groups: 30 received immunization camps, 30 received immunization camps and incentives, and 74 villages served as a comparison group.

**Immunization Camps:** A mobile immunization team conducted monthly immunization camps in each village. Camps were generally held from 11 a.m. to 2 p.m. on a fixed date of the month. A social worker who lived in each village informed mothers of the camp and educated them on the benefits of immunization. At the first immunization, every child was given an official immunization card.

**Immunization Camps with Incentives:** In addition to the immunization camps described above, this intervention also offered parents a 1 kilogram bag of lentils per immunization administered, and a set of plates after their child was fully immunized. The value of the lentils was about Rs. 40 (just under US \$1), equivalent to about three-quarters of a day's average wage in the area.



The presence of a nurse and assistant at the camp was documented by a photo with a time and date stamp. Ninety-five percent of the total camps planned were conducted.

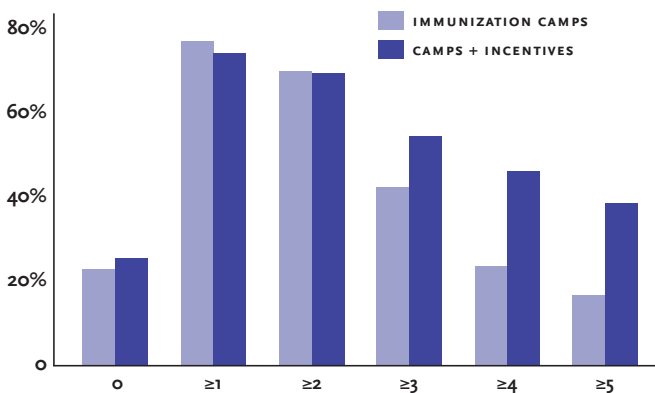
## Featured Evaluation:

Banerjee, Abhijit V., Esther Duflo, Rachel Glennerster, and Dhruva Kothari. 2010. "Improving Immunisation Coverage in Rural India: A Clustered Randomised Controlled Evaluation of Immunisation Campaigns with and without Incentives." *BMJ* 340:c2220.

# RESULTS

Reliable camps increased the number of children getting at least one immunization to nearly 80 percent, but many did not come back to complete the full package. Many children tended to drop out after the second shot (Figure 1). Overall, though, full immunization rates increased from 6 percent in comparison villages to 18 percent in villages with reliable camps but no incentives (Figure 2).

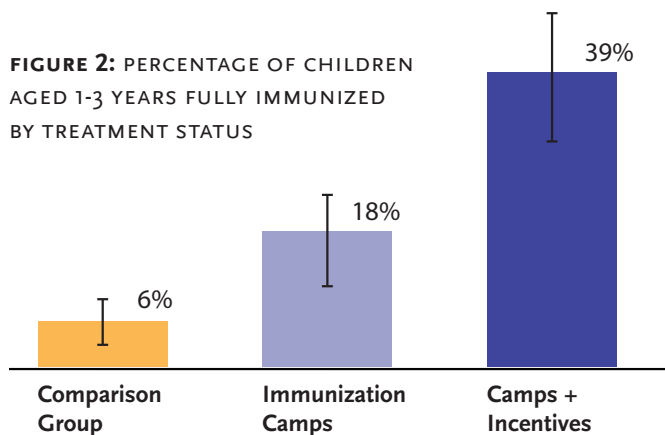
**FIGURE 1: NUMBER OF IMMUNIZATIONS RECEIVED BY CHILDREN AGED 1-3 YEARS**



Giving parents an incentive each time their child received an immunization reduced the number of children dropping out after two to three immunizations. As Figure 1 shows, the two interventions were about equally effective in getting parents to bring their children in for the first one or two visits. The incentives increased the number of children who kept coming back and completed the full course.

Overall, the incentives increased full immunization rates to 39 percent, a sixfold increase over comparison villages (Figure 2). In the villages with incentives, over half of the children who received at least one injection completed the full immunization course, compared to 23 percent in the villages with camps only.

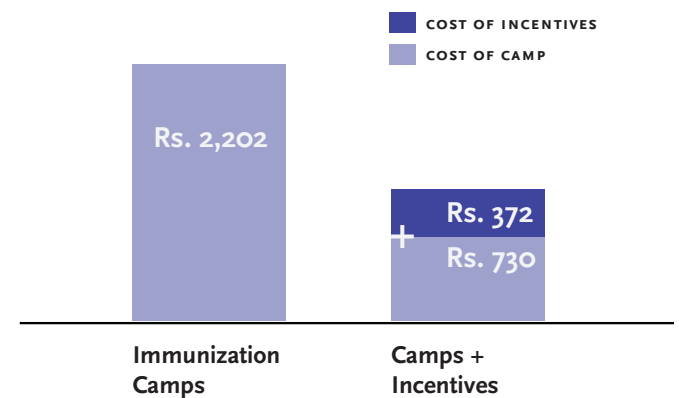
**FIGURE 2: PERCENTAGE OF CHILDREN AGED 1-3 YEARS FULLY IMMUNIZED BY TREATMENT STATUS**



Providing incentives, in addition to improving the supply of services, halved the cost of fully immunizing a child. The camps with incentives were busier than those without incentives, making more efficient use of the nurses' time. Since more than twice as many children were fully vaccinated in camps with incentives, each nurse attending such camps vaccinated more children, reducing the cost per shot.

In a camp with incentives, the cost to Seva Mandir of fully immunizing a child, including the cost of the incentives, was US \$27.94 (Rs. 1,102) compared to US \$55.83 (Rs. 2,202) in the camps without incentives.

**FIGURE 3: COSTS PER FULLY IMMUNIZED CHILD**



Parents do not appear to have strong objections to immunization. Cultural resistance is often identified as a cause of low immunization rates. However, when vaccines were provided in reliable camps along with basic information about their benefits, more than three-fourths of the children received at least one vaccine. Parents seem willing to start the immunization process even without incentives, which implies that resistance to immunization is not very strong.

Similarly, a study in Malawi found that very small rewards drastically increased the number of participants who were willing to travel to learn their HIV status after being tested—another case where cultural resistance could plausibly be a barrier (see J-PAL Briefcase, “Know Your Status”). In both cases, the incentives offered were not large enough to pressure people to do something to which they strongly objected.

# POLICY LESSONS



**Improving nurse attendance and providing reliable immunization services are the first step to solving the problem.** Addressing high levels of absenteeism among health staff could improve uptake of preventive care. Unpredictably closed clinics exacerbate people's tendency to procrastinate, since traveling to the clinic on a given day may not pay off.

J-PAL's Policy Bulletin, "Showing Up is the First Step," summarizes evidence on incentivizing service provider attendance, including the camera monitoring strategy also used in this evaluation.

**Incentives as small as a bag of lentils improved immunization rates, possibly because they helped parents overcome procrastination.** Taking a child to get immunized is inconvenient for parents. This hassle elicits the natural inclination to procrastinate, but tiny incentives may be especially helpful in cases like this when benefits are delayed, or when people may not fully understand the benefits. This tendency has been documented in both developed and developing countries (see J-PAL Briefcase, "A Well-Timed Nudge").

**We cannot assume that information and supply of health services will be enough.** Even with education by a social worker and high-quality, free, and reliable immunization services available at the parents' doorstep, without incentives, eight out of ten children remained without full immunization.

Even in the context of developed countries, where many people are informed about the benefits of vaccination, the decision to vaccinate children is not left to the parent. In the United States, for example, children must receive certain immunizations to attend public school, unless their parents specifically request exemption.

**Small incentives can substantially change behavior at a low cost.** Incentives can effectively turn an inconvenient task into a worthwhile activity, dramatically increasing uptake of a service. Even though incentives represent a cost they were more than offset by more efficient use of nurse time, so that the cost of immunization per child fell.



**About J-PAL** The Abdul Latif Jameel Poverty Action Lab (J-PAL) is a network of affiliated professors around the world who are united by their use of Randomized Evaluations (REs) to answer questions critical to poverty alleviation. J-PAL's mission is to reduce poverty by ensuring that policy is based on scientific evidence.

[www.povertyactionlab.org](http://www.povertyactionlab.org)

**J-PAL GLOBAL**  
Massachusetts Institute  
of Technology  
USA

**J-PAL AFRICA**  
University of  
Cape Town  
South Africa

**J-PAL EUROPE**  
Paris School of  
Economics  
France

**J-PAL LATIN AMERICA**  
Pontificia Universidad  
Católica de Chile  
Chile

**J-PAL SOUTH ASIA**  
Institute for Financial  
Management and Research  
India

