

Social Incentives for Childhood Immunization in Sierra Leone



Can a subtle form of social influence get more parents to fully vaccinate their children? In Sierra Leone, where immunization is valued, but not fully adhered to, researchers worked with the Ministry of Health and Sanitation and IPA to test the impact on immunization rates of highly visible bracelets for children, signaling whether and to what extent children had completed their immunization schedules. The study found that bracelets signaling all immunizations had been completed increased timely and complete vaccination by 14 percentage points, at a cost of roughly US\$1 per child.

Policy Issue

Childhood immunization is one of the most cost-effective ways of reducing child mortality.¹ Over the past decade, remarkable progress has been made in increasing the availability and reliability of immunization services and the number of children getting vaccinated by age one has risen.² Despite an improvement in initial vaccination rates, many children in low-income countries are not completing the first-year series of vaccinations.³

In settings where families value immunization, but also fail to get their children fully vaccinated, a simple form of social signaling may motivate caregivers to complete their children's vaccination schedules. This research investigates this question in a context where parents are viewed by their peers as good parents for vaccinating their children. The research introduces a novel, yet simple form of social influence—a bracelet—which makes a child's immunization status visible, and investigates its impact on childhood immunization rates. It also tests whether impacts are driven by reputational concerns or by other factors.

Social signaling has several potential advantages over other policy options: by motivating families to go to clinics, it allows health care workers to stay at central clinics where they can see more patients, rather than being dispatched to remote areas; it is also more affordable and simpler to implement than providing families with financial or material incentives to vaccinate their children.

Evaluation Context

Sierra Leone has one of the highest rates of infant mortality in the world with under-five mortality at 156 per 1,000 live births.^{4,5} The



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COUNTRY

Sierra Leone

PARTNERS

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PROGRAM AREA

Health

TOPICS

Access to Healthcare, Behavioral Design, Immunization, Incentives, Maternal & Child Health

TIMELINE

2016-2018

Government of Sierra Leone, together with development partners is heavily investing in strengthening health services. However, there is a shortage of information on cost-effective ways to do this in a state with weak capacity.

This study took place in four out of the country's fourteen districts: Kambia, Bombali, Tonkolili and Western Area Rural as districts, which have among the highest dropout and lowest full immunization rates. In these districts, less than 60 percent of children completed all routine immunizations.⁶ However, there were strong social norms surrounding the importance of vaccination, with 83 percent of communities at baseline believing that parents who failed to vaccinate their children were doing so out of negligence.

Details of the Intervention

Researchers worked with IPA to rigorously evaluate the impact of social incentives, in the form of colored bracelets, on childhood immunization. The design enabled researchers to test both the effectiveness of the bracelets and to understand if behavior change was driven by social signaling concerns, or other factors such as learning.

Researchers randomly assigned 120 government clinics into four different groups. In program clinics, government health workers gave colored bracelets to children under the age of 15 months when they came for routine immunizations. Clinics were randomly assigned to one of the following groups:

1. **One color, uninformative bracelet:** Every child in this group received a yellow or green bracelet when they came for the first vaccine visit. Caregivers could choose their preferred color. The bracelet was exchanged for a bracelet of the same color at the 4th and 5th vaccine visit. It was not possible to tell whether a child had progressed past the first vaccine visit or completed the immunization schedule. (30 clinics)
2. **Two color, "Signal at 4" bracelet:** Every child in this group received a yellow bracelet when they came for the first vaccine visit. The bracelet was exchanged for a green bracelet if the child came on time for the 4th vaccine visit. It was therefore possible to tell whether a child had progressed to the 4th vaccine visit and completed these visits on time. (30 clinics)
3. **Two color, "Signal at 5" bracelet:** Every child received a yellow bracelet when coming for the first vaccine visit. The bracelet was exchanged for a green bracelet if the child came on time for the 5th vaccine visit. It was therefore possible to tell whether a child had come for all vaccine visits and completed the schedule on time. (30 clinics)
4. **Pure comparison group:** No bracelets were given for immunization. It was not possible to tell whether a child had received any or all vaccinations. (30 clinics)

This design enabled the researchers to identify whether any effects were being driven by social influence, or by something else—that is, the bracelets could serve as a reminder to vaccinate or help others learn about vaccinations, or be valued as jewelry for a child for example.

Researchers measured impacts on timely and complete immunization, caregivers' knowledge about immunization, their understanding of the bracelets and beliefs about other children's immunization status. Data on immunization visits was collected through survey data and from administrative records throughout the program.

IPA visited clinics regularly to monitor the program implementation, check the internal consistency of records, and digitize the administrative data.

Results and Policy Lessons

Overall, the evaluation found that bracelets can increase timely and complete vaccination by up to 14 percentage points and at a cost of roughly US\$1 (\$0.88) per child.⁷ The bracelet that signaled all five immunizations had been completed and on time was by far the most effective.

Caregiver knowledge: In groups that received the signaling bracelets, the intervention increased how informed people were about children's immunizations in their community (increases of 15 and 18 percent, respectively). Parents used signals to learn about the number of vaccines that other children received and updated their beliefs conditional on the bracelet color observed. The uninformative bracelets did not increase how informed people were in spite of similar rates of bracelet retention and visibility, suggesting parents accurately understood what the different bracelets signaled.

Immunization completion: The Signal at 5 bracelet led to significant and large increases of 11 percentage points for vaccine four, and 14 percentage points for vaccine five, compared to the comparison group. Impacts remain large and statistically significant (8 percentage points) when comparing it to the uninformative bracelet, providing evidence that parents valued the bracelets as signals. Moreover, impacts persisted for children born 12 months after the launch of the evaluation.

The Signal at 4 bracelets did not lead to a notable increase in immunization completion. This finding raises the question of why the Signal at 5 bracelet worked, while the Signal at 4 bracelet did not, since both signals were equal in terms of increasing the visibility of vaccinations. Survey data shows that individuals assigned a higher importance to vaccine five than vaccine four, considering the fourth vaccine as the least important among the five vaccinations. This result suggests that for signals to be effective, they need to be both informative about others' actions and linked to actions that are sufficiently valued by communities.

In addition to the increases in completion of the last two vaccines, the Signal at 5 bracelet also led to increases in the share of children that received the third vaccine (7 percentage points) and the second vaccine (4 percentage points). Altogether this intervention increased the average total number of vaccines completed from 4.0 to 4.4 (out of 5) compared to the comparison group.

See IPA's Juliette Finetti explain randomized controlled trials and the study design here:

And click the link [here](#) to see an animated explanation of the study's working paper, created by Econimate (please note that the below hyperlinked video will take you to a separate YouTube page to view the video).

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Sources

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[7] The cost covers how much it costs to produce and procure the bracelets and assumes regular district field officers would be responsible for monitoring. If factoring in the cost of training of health workers, community sensitization, and monitoring by additional program staff, the estimated cost is approximately \$2 per child.