From insights to impact: Building confidence in routine childhood vaccines in India
This series of case studies offers a model for how organisations can collaborate to positively impact vaccine attitudes by applying data insights and testing and scaling online vaccine communication interventions. Published through a partnership between UNICEF, Meta, the Yale Institute for Global Health (YIGH) and The Public Good Projects (PGP), this case study offers lessons for using social media insights and tools to encourage vaccine confidence globally.

Vaccine decision-making is complex. The success of vaccine communication efforts depends on delivering the right information at the right times, to the right people and through the right channels and messengers. To build lasting confidence in vaccination, tailoring messages in ways that respond to specific community concerns is critical, as is regularly capturing contextual insights and trends around vaccination conversations to ensure that communications are relevant and responsive to community needs.

For nearly three years, UNICEF, Meta, YIGH and PGP have been exploring how to use targeted online communications to build vaccine confidence by identifying, designing, testing and measuring new ways to highlight the importance of vaccination. This year, we have shifted our focus from COVID-19 vaccination to routine childhood immunisation in eight countries – Argentina, Brazil, India, Indonesia, Nigeria, Pakistan, the Philippines and South Africa – to help build back vaccine demand amid the ongoing pandemic.
Our partnership

UNICEF works in over 190 countries and territories to protect and advance the rights of children. With its partners, UNICEF supplies vaccines for 45% of the world’s children. Together with governments, the private sector, nongovernmental organisations and other United Nations agencies, UNICEF engages communities, procures and distributes vaccines, keeps supplies safe and effective and helps ensure affordable vaccine access for even the hardest-to-reach families.

To this collaboration, UNICEF brings its global network of Country Offices, recognized public trust, expertise and experience in immunisation programming, leadership in vaccine demand generation and addressing vaccine hesitancy and context-specific questions to explore through iterative research and testing.

Currently, nearly 4 billion people around the world use Meta products monthly to connect with their communities.

Meta teams and tools enable UNICEF, Yale and PGP to scale tailored messaging to communities in need around the world. This is done by effectively tapping into publicly available platform insights on ways people are talking about vaccines, utilising media measurement tools to understand which messages are positively impacting perceptions and advising on media best practices.

YIGH brings together world-class schools of public health, medicine and nursing to address public health issues around the globe.

Drawing on vaccine acceptance theory and behaviour change communication expertise, the YIGH team collects and triangulates data and crafts messaging strategies grounded in both evidence and global messaging principles. In parallel, the team designs and executes rigorous evaluations to measure the real-world impact of communication interventions.

PGP is a public health nonprofit specialising in large-scale media monitoring programs and social behaviour change interventions.

PGP brings social media analysis and insights from online public conversations about vaccines to help bridge data gaps in timely and cost-effective ways.

Additionally, its creative team works closely with YIGH and UNICEF to transform these insights into compelling creative assets that complement local messaging strategies.
Our four-phase process: Influencing positive vaccine attitudes and behaviors

Generating insights
We aim to better understand the factors keeping parents from fully vaccinating their children, looking at access to vaccines and the attitudes that often determine their uptake.

Examining publicly available information online and offline, we triangulate data to identify key insights and intervention opportunities to inform messaging strategies.

Designing responsive messaging strategies
We co-design unique strategies to respond to data insights in close collaboration with UNICEF Country Offices. We leverage global vaccine messaging principles and behavioural science expertise to create compelling messages in both English and local languages.

Underpinned by additional research into the local media landscape, we lead campaign development through an iterative feedback process with Country Offices and partners to produce campaign assets that complement messaging approaches.

Testing and iterating
UNICEF deploys advertising campaigns across Meta platforms, grouping and testing different messaging strategies across different audiences, regions and languages.

To determine the best strategy for national campaigns, we use anonymized surveys called brand lift studies to assess and compare vaccine attitudes between groups that were (and were not) exposed to our campaigns.

Measuring impact
In contexts where routine vaccination coverage data is available, we assess the real-world impact of our communication efforts on vaccine behaviours and uptake.

Using robust study designs, including randomised controlled trials, we compare vaccination rates in test and control sites to understand the impact of our messaging campaign.
PHASE 1: Generating insights from publicly available online and offline data sources

Step 1: Foundational literature review

Understanding how India is working to keep children safe through vaccination, and how these efforts have been affected by the pandemic, served as our jumping off point for this work.

We began with a literature review to identify the context-specific barriers and enablers of vaccine uptake. India has made significant progress over the past two decades in increasing routine immunisation coverage. According to the literature, between 2005 and 2015, gaps in overall vaccination coverage were reduced by 33% (Panda et al., 2020). By 2016, the proportion of unimmunized or “zero-dose” children in India was estimated at 10.1%, or 2.9 million children (Johri et al., 2021). Yet notable regional disparities exist, with the majority of these zero-dose children concentrated within just eight states.

As it has in much of the world, COVID-19 has interrupted India’s immunisation progress, disproportionately impacting less-resourced, vulnerable populations. Since the COVID-19 pandemic began, WHO and UNICEF reported declines in childhood immunisation between 2019 and 2020, noting drops in BCG vaccine coverage (from 92% to 85%), DTP-1 coverage (from 94% to 87%, the benchmark for zero-dose) and third-dose polio coverage (from 90% to 85%, though no significant decline was seen for the first dose). India continues to be home to the largest number of un- and underimmunized children in the world and faces coverage barriers that are multi-level and complex.

At a structural level, multiple access barriers make vaccination more challenging for those living in rural areas as well as densely populated urban slums. These include opportunity costs (i.e., loss in wages incurred due to long-distance travel to health facilities), gaps in access to skilled health professionals and clinics (in rural areas) and vaccine stock-outs (e.g., of maternal tetanus vaccines). Demographic and socio-behavioural factors introduce additional barriers at individual, family and community levels. Birth order and sex of children, literacy and education levels of parents (particularly of mothers), low caste and low economic status are among determinants for lower vaccination. Lack of family support and living in minority religious communities were also found to correlate with lower vaccination rates, as did low information access (which created knowledge gaps around the importance and timing of routine vaccinations and the risks posed by vaccine-preventable diseases).

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1 Uttar Pradesh (29.2%), Bihar (12.0%), Maharashtra (11.2%), Rajasthan (8.0%), Madhya Pradesh (6.2%), Gujarat (5.5%), Assam (4.2%) and Karnataka (3.9%) https://www.sciencedirect.com/science/article/abs/pii/S221339841930418X
2 https://data.unicef.org/topic/child-health/imunization/
The research also highlighted key enablers of vaccination. Proximity to health centres, increased frequency of antenatal and postnatal visits and availability of birth and health certificates were found to encourage vaccination at the structural level. Higher literacy and education levels of parents, higher economic status and increased exposure to mass media (increasing general access to information) were identified as key demographic and socio-behavioural drivers.

**Step 2: Insights from public posts on social media**

Understanding how people are talking about vaccinations within and across communities is critical to developing messages and campaigns that have the power to change real-world attitudes and behaviours. Analysing publicly available social media posts about vaccines can help us do just that, complementing traditional research with real-time “snapshots” of public sentiment on a given topic. As the next step in our process, we aggregated and analysed publicly available posts about vaccines on high-traffic social media platforms (Facebook, Twitter, online video sites, news sites and blogs) in both Hindi and English over the last three to 12 months.3

Findings revealed the overall volume of public Facebook posts on vaccine-preventable diseases (VPDs) to be comparatively low against other topics, with hepatitis ranking as the highest-volume topic among VPDs. Looking at public Facebook conversations about vaccination specifically, we discovered that the vast majority of posts received positive engagement (in the form of “likes” or “love” reactions), suggesting positive public sentiment around routine vaccination. These posts were shared widely by a range of institutions and individuals, including governments, UNICEF, medical institutions, doctors, politicians and homeopathic advisors.

In parallel, we examined the 100 posts about childhood vaccines that received the most engagement across multiple platforms (Twitter, news sites and blogs). Of these, 95% were pro-vaccine. Among these posts, conversations focused largely on polio, referencing the success of past vaccination drives and current efforts to vaccinate children. Conversations not centred around polio largely celebrated India’s ability to develop vaccines domestically against a variety of diseases.

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3 The analysis of Facebook posts was done in March 2022 on posts published in the previous three months. The insights only speak to trends in that timeframe.
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Step 3: Country information

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From this content, we noted the following key trends:

**Over-indexing men on posts across all topics:**
In India, men tend to post more than women, representing 78% of discussions, on average, across topics. Within vaccine-related discussions, men were found to be overrepresented in Hindi discussions around measles and polio but relatively under-represented in these discussions in English.

**National momentum and collectivism:**
Collectivism was often used to advocate for and communicate around childhood vaccination, including posts around National Vaccination Day and the successful national eradication of polio.

**Stories of healthcare workers providing remote care:**
Posts were found celebrating healthcare workers going to remote locations to ensure all children are vaccinated. One such post, depicting a healthcare worker standing with her daughter in a river carrying vaccines, went viral, suggesting healthcare workers may be effectively used as messengers within future campaigns.

Three campaigns stood out for their ability to positively shift people's self-reported attitudes on COVID-19 vaccination, and they mirrored trends found through our more recent social media analysis.
CASE STUDY: INDIA

Using different messengers to promote vaccines

The campaign above promoted vaccination using different messengers, including faith leaders, peers and parents. In previous brand lift studies, assets that were most effective at shifting attitudes towards vaccine importance featured the father doctor with his family and healthcare worker hero (above), signalling the value of these messengers. Further, the asset featuring children also significantly lifted importance. Faith leader and healthcare worker hero stories also significantly improved trust in vaccine content from UNICEF.

Promoting vaccines through national pride

The national pride messages promoted social cohesion and led to statistically significant lift in key questions, including likelihood of advising a friend to get vaccinated, and endorsed social approval for vaccines.

Using testimonials and messengers

This campaign featured healthcare workers and everyday people vowing to do their part to protect themselves while protecting others by getting the vaccine.
PHASE 2: Developing responsive messaging strategies

Next, we identified behavioural insights for strategic messaging based on our insights collected during the first phase. We looked for opportunity areas that respond to real community perspectives and concerns and are strongly backed by evidence. Using this criteria, we identified **five messaging strategies in India**:

- **Amplify social responsibility and connectedness alongside national pride narratives.**

- **Reinforce the social norm of vaccination, given the pro-vaccine conversation in the majority.**

- **Prioritise fathers** as messengers and target audiences in vaccine messaging campaigns.

- **Leverage healthcare worker heroes as messengers.**

- **Target audiences in low immunisation coverage areas** to encourage vaccine uptake where it is most urgently needed with pragmatic information about how to catch up children with missed doses and information about vaccination cards.

In close collaboration with UNICEF India colleagues, we worked to build out these approaches against key design considerations of **audience (who)**, **messages (what)** and **messenger and tone (how)**.
Who
Identifying the right audience
Determining which attitudes or behaviours we want to influence through our campaigns helped us decide who to target with our messages. In India, with a campaign goal of encouraging vaccine uptake among zero-dose populations, the need to engage parents and caregivers in under-immunised communities was clear. For each of our campaigns, we accordingly targeted audiences ages 21 to 44 in India’s six lowest immunisation coverage regions – Bihar, Rajasthan, Madhya Pradesh, Uttar Pradesh and the cities of New Delhi and Mumbai – against a national campaign.

What
Crafting compelling messages
Next, we developed sets of key messages that addressed the strategic behaviour change levers identified through our insights generation process: social norming, social responsibility and national pride – among others – as illustrated below:
In this example, we frame childhood vaccination as the national social norm that it is, appealing to parents through a direct call to action to include their children among the majority protected by vaccination.

Here, we incorporate several powerful behaviour change levers at once: appealing to a sense of social responsibility (to both community and country) and implicitly linking vaccination to national progress (and pride). We also seek to emphasise the “care” value by speaking to a parent’s innate desire to protect their children before concluding this message with an urgent call to action and an efficacy-focused hashtag (#VaccinesWork).

In this example, we make a clear appeal to national pride, positioning India with an opportunity to become a global leader on vaccination. We end with a call to action and a signal on the importance of completing all required routine vaccinations on time.

“Most parents in India agree that vaccinating children is important. Join them by making sure your child receives all recommended vaccinations according to schedule.”

“India is a world leader in making vaccines. Let’s make India the leader in taking vaccines and protecting our children from dangerous diseases like polio and measles. Bring your child to the nearest vaccination centre to make sure they are up to date. #VaccinesWork”

“The more parents vaccinate their children, the more protected we are as a community and as a nation. Protect your child by getting them vaccinated today. #VaccinesWork #LongLifeForAll”

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How
Selecting the right messenger(s)
Learning from past campaigns, we prominently featured healthcare workers as our messenger for other campaign assets, in addition to parents with their children:

Creating campaign tone
All our assets relied on a casual, engaging tone and peer-to-peer communication style, using a local photo library provided by the Country Office team and building a colour palette based on local key visual cues. We used a creative design process including visual research to develop assets for India by examining local art and popular media for shapes, colours and patterns to be incorporated into our designs.

All 17 assets we developed together were branded by UNICEF and deployed at the same time within state- and city-level campaigns.
PHASE 3: Testing and iterating

Measuring the impact of interventions on real-world attitudes and behaviours helps uncover what is (and is not) working. We designed a five-question survey on Facebook (the brand lift study, or BLS) to test our interventions and assess the difference in specific vaccine attitudes between test and control groups.

These five questions were designed to uncover the memorability of the campaign and its influence on attitudes about vaccination:

- Do you remember seeing a post about routine immunisation from UNICEF online or on a mobile device over the past two days?
- When you think of most people in your community, how much would they approve of children getting vaccination against diseases like polio and measles?
- How much do you agree with the statement: “Parents have the ability to protect their child from diseases like polio and measles through vaccination.”?
- How likely are you to advise a close friend or relative to get his or her child vaccinated?
- How important is it for parents to get their children vaccinated against preventable diseases like polio or measles?

We then launched two rounds of testing. In the first round, we tested the communication campaign “social cohesion and national pride” versus “social norming”, which ran for four weeks in August 2022. In the second round, we tested the campaigns “vaccination card” and “prioritising fathers”, which ran for four weeks in September 2022. In both rounds, we ran the campaigns in the following high-priority regions: Bihar, Madhya Pradesh, Rajasthan and Uttar Pradesh, as well as the urban areas of New Delhi, Mumbai (Hindi) and Mumbai (Marathi) versus the rest of the country. By setting up separate tests in each of these areas, we generated region-specific results on the success of the campaigns.

Campaign results

Together, these four campaigns reached a combined total of more than 277 million people in India across both rounds. More than 3.4 million people clicked through to the landing page, highlighting a widespread demand for additional information on vaccination. In Bihar, this demand seemed to be highest, reflected in the click-through-rate (CTR) of 2.41%. For most, more than 80% of respondents reported that most people in their communities would approve of childhood vaccines, demonstrating strong social approval for vaccination.
On the ad level, we saw that ads featuring pictures of children with their parent(s) reached the highest number of users in all areas. We also saw that national pride ads with an illustration of the Indian flag consistently generated high reach, impressions and clicks.

Highest scoring ads (i.e., ads with the highest reach, impressions and clicks across campaigns)

- Social cohesion and national pride
- Social norms
- Vaccination card
- Prioritising fathers

The table below shows the overview of where the campaigns generated lift. Campaign 3 scored high on recall in several regions and had strong lift on the question whether people would advise close friends or relatives to get their children vaccinated. Campaign 4 also had strong recall in many regions. The Marathi campaign in Mumbai stood out, as the baseline was lower than the other campaigns on the question whether someone would advise a friend or relative to get their children vaccinated. This could indicate a need for more information on childhood immunisation.
<table>
<thead>
<tr>
<th>BLS questions</th>
<th>Campaign 1 Social cohesion and national pride</th>
<th>Campaign 2 Social norming</th>
<th>Campaign 3 Vaccination card</th>
<th>Campaign 4 Prioritising fathers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you remember seeing a post about routine immunisation from UNICEF online or on a mobile device over the past two days?</td>
<td>+6.7* Mumbai (M) +4.3* New Delhi +1.9^ Rajasthan +2.2^ Uttar Pradesh +2.3* Bihar</td>
<td>+6.4* Rajasthan +3.6* Mumbai +2.2^ Bihar</td>
<td>+4.3* Rajasthan +2.8* New Delhi +4.2* Uttar Pradesh +1.8^ Mumbai (H) +2.5^ Mumbai (M)</td>
<td>+3.1* Madhya Pradesh +3.4* Rajasthan +2.7* New Delhi +5.6* Bihar +5.4* Mumbai (H)</td>
</tr>
<tr>
<td>How important is it for parents to get their children vaccinated against preventable diseases, like polio or measles?</td>
<td>+1.9* Rajasthan +2.1* Mumbai (M)</td>
<td>+1.8* Madhya Pradesh +1.9* Uttar Pradesh +1.1* Rajasthan +1.4^ Bihar</td>
<td>+2.8* New Delhi</td>
<td>+2.1* Mumbai (H)</td>
</tr>
<tr>
<td>How much do you agree with this statement: “I have the ability to protect my child from diseases like polio and measles through vaccination.”?</td>
<td>+2.6* Mumbai (M) +2.8* National +1.8* Madhya Pradesh +1.6^ Bihar</td>
<td>+2.1* Uttar Pradesh +1.9* National +1.2* Rajasthan</td>
<td></td>
<td>+1.5^ National +1.5^ Mumbai (M)</td>
</tr>
<tr>
<td>How likely are you to advise a close friend or relative who has a child to get him or her vaccinated?</td>
<td>+2.1* Rajasthan +1.3^ Mumbai (H)</td>
<td>+2.2* National +1.5^ Bihar</td>
<td>+2.4* New Delhi +2.3* Uttar Pradesh +2.2* Bihar +1.6* Rajasthan +1.3^ Mumbai (M)</td>
<td>+1.6^ New Delhi +1.3^ Mumbai (H)</td>
</tr>
<tr>
<td>When you think of most people in your community, how much would they approve of children getting vaccines against diseases like polio and measles?</td>
<td>+1.4^ Bihar</td>
<td></td>
<td>+1.3^ Madhya Pradesh +1.7^ Rajasthan +1.3^ Uttar Pradesh +1.6^ Mumbai (H) +1.4^ Mumbai (M)</td>
<td>+1.2 Madhya Pradesh +1.7* Mumbai (H) +2.2^ Uttar Pradesh</td>
</tr>
</tbody>
</table>

*90% or higher chance of lift
^80% or higher chance of lift
(H) = Hindi, (M) = Marathi
PHASE 4: Recommendations

The choice to vaccinate remains influenced by many different factors: environmental, social, behavioural and personal. To help UNICEF India and its core partners continue to promote routine vaccination, we recommend:

- **Incorporating the vaccination card to encourage timely and complete vaccination:** Based on the results of the two rounds of testing, we propose featuring the national vaccination card in campaign assets in most high-priority regions across India (apart from Madhya Pradesh). This campaign performed well and likely indicates a need for basic information in high-priority regions.

- **Featuring parents and children together to encourage vaccination:** We also suggest depicting children with their parents, especially fathers, based on these assets’ high performance within our campaign testing.

- **Using local languages:** Particularly in Mumbai, we recommend developing campaigns in both Marathi and Hindi. Hindi, rather than English – although an official language – was used exclusively for all campaigns in other regions given higher engagement with this content from past campaigns.

- **Highlighting positive social norms:** Our social norming campaign performed the best of our tested messaging strategies in Madhya Pradesh and the rest of the country (excluding high-priority regions). Here, we proposed to continue using social norming messages and to test effectiveness of these messages versus those promoting social cohesion and national pride (Campaign 1) and prioritising fathers as vaccination decision-makers (Campaign 4).

The biggest learning from our work was the value of regional testing, as different campaign strategies performed strongly in different regions and had differential lift based on location. This provides a strong direction for context-specific assets and themes to be used in subsequent campaigns at the state and city level. Interestingly, however, the ads within campaigns that performed highest on ad metrics were fairly consistent across regions, even if the campaigns themselves did not generate lift within that region. This provides a clear signal on which assets and creative elements to retain for future campaigns.