Using human-centred design for behavioural insights to reach more zero-dose children

Human-centred design (HCD) is a behavioural insight approach with two essential components: **understanding** (research and insights) and **designing** (co-creating solutions). HCD places caregivers, such as family members, at the centre of immunisation strategies by mapping their complete journey from vaccine awareness through series completion.

Understanding: research and deep insights In the understanding phase, programmes examine what motivates families, the barriers they encounter and the influences on their vaccination decisions. Through immersive research and community observation, HCD uncovers nuanced realities that traditional surveys often miss such as geographic isolation, cultural beliefs that conflict with health messaging, mistrust stemming from past experiences, and competing household priorities.

This deep empathy work maps every touchpoint in the caregiver journey – from hearing about vaccines to navigating registration, transportation, wait times, health worker interactions and follow-up appointments. By identifying where caregivers encounter friction or exclusion, programmes address real barriers rather than assumed ones.

Designing: co-creating contextual solutions The design phase transforms insights into action by co-creating solutions with caregivers, trusted leaders and health workers. Rather than imposing top-down programmes, HCD involves communities throughout solution development, generating contextually appropriate innovations such as mobile clinics aligned with market days, peer education through trusted networks, simplified processes for low-literacy populations, or evening hours for working caregivers.

Rapid prototyping tests small-scale interventions with real users, refining approaches through feedback cycles. This collaborative process builds community ownership, creates local champions and validates solutions before scaling. By combining rigorous research into caregiver journeys with participatory design, HCD creates immunisation strategies that address the root causes of zero-dose status, when infants have not received the first dose of diphtheria, tetanus and pertussis-containing vaccine (DTP1) by the end of their first year of life. This leads to more acceptable, sustainable and effective interventions.

Characteristics of human-centred design

Aspect	Description
Empathy-driven	Starts with understanding people's lived experiences, challenges, values and aspirations
Collaborative	Involves the specific ecosystem in defining problems and co-designing solutions
Iterative	Involves cycles of prototyping, feedback and refinement with community input
Context-specific	Addresses real local needs within social, cultural and environmental context
Solution-oriented	Creates actionable, feasible and desirable outcomes that can be adopted and maintained
Trust-building	With co-created solutions people feel respected, heard and empowered
Equity-focused	Centres on marginalised groups' experiences and actively counters systemic biases in decision-making
Innovation-enabling	Community insights challenge assumptions and enable creative, adaptable solutions

Human-centred design journey for zero-dose communities

A systematic approach to understanding and addressing barriers to childhood immunisation

EMPATHISE 2-3 months

- Conduct community dialogue with caregivers
- Interview trusted leaders
- Map communication networks
- Identify cultural beliefs
- Observe daily routines/movement patterns

DEFINE 3-4 weeks

- Synthesise insights
- Create zero-dose family personas
- Define caregiver barriers
- Prioritise community challenges

IDEATE 3-4 weeks

- Facilitate co-design sessions
- Leverage trusted community assets and networks
- Generate solutions

PROTOTYPE 1-2 months

- Test solutions rapidly
- Gather community feedback
- Refine and iterate
- Assess feasibility

IMPLEMENT 6-12 months

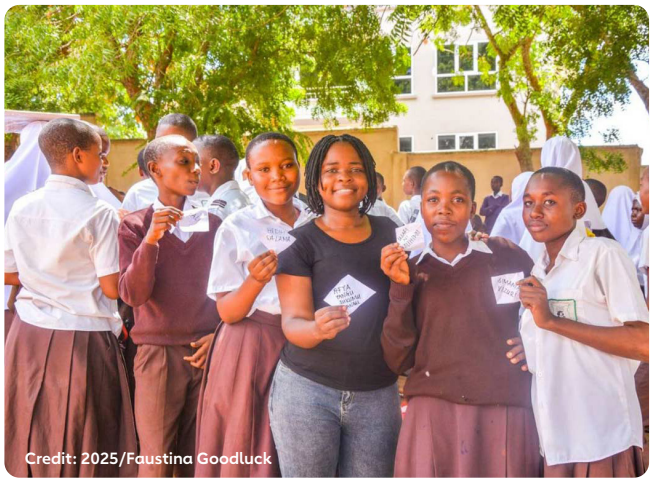
- Roll out interventions
- Train and strengthen capacity
- Monitor and adjust
- Evaluate impact
- Actively engage communities

SCALE Ongoing

- Refine service models
- Expand to new areas
- Integrate into policy
- Share knowledge broadly

Three-tiered Vaccine Advocacy (VaxAd) in Ilala District, United Republic of Tanzania

Challenge: In the United Republic of Tanzania's Ilala District, despite good national coverage, 27% of children were unvaccinated, the highest rate in the Dar es Salaam region. UNICEF applied HCD methodology through field research with mothers, health workers and community leaders to understand the underlying barriers. The HCD process revealed unexpected insights: all neighbourhoods used one overwhelmed health centre, community health workers (CHWs) felt disconnected and lacked coordination tools ("we're just aimlessly going through houses"), and vaccination information failed to reach religious leaders who lived and worked in communities.



▲ **Faustina Goodluck surrounded by students during one of her outreach programmes. Goodluck educates communities on preventable diseases and advocates for better nutrition. For more information see Gavi's VaccinesWork.**

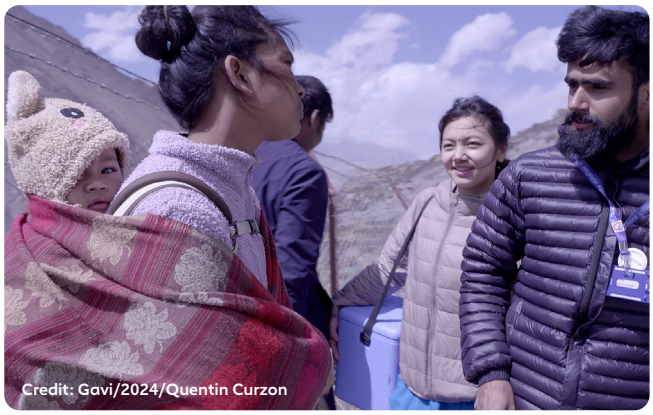
Solution: Through the HCD participatory approach, including journey mapping exercises and rapid inquiry interviews, the team co-created the Three-tiered Vaccine Advocacy (VaxAd) system with the community. This cascading mobilisation strategy addressed each identified barrier: District Commissioners became vaccination champions, existing administrative structures carried messages, and the programme provided CHWs with standardised tools while pairing them with vaccinators for coordinated house-to-house visits.

Impact: Results exceeded all expectations: teams vaccinated 2,000 zero-dose children within ten days, and over four months, the programme reached 10,280 children, 239% of the original target. Government officials immediately endorsed the approach, with one noting, "This is so easy, we'll just do it," demonstrating how HCD's community-centred methodology transforms entrenched challenges into implementable solutions.

Using human-centred design to reach zero-dose children in Nepal

Challenge: Despite 91% national DTP3 coverage, Nepal struggled to reach 50,000 zero-dose children concentrated amongst migrants and marginalised communities. Traditional approaches failed to address complex barriers, including caregiver discrimination by health workers, limited decision-making power amongst women, language barriers and inconvenient service delivery times. Conventional methods proved inadequate for understanding why vulnerable families, particularly in urban slums and remote areas, consistently missed vaccinations despite available health services.

Solution: The Government of Nepal, with UNICEF and partners including Kathmandu University's Behavioural Science Centre, applied HCD methodology across multiple provinces, through rapid inquiry techniques including community mapping, transect or observational walks and 'journey to health' analysis. Teams engaged directly with caregivers, health workers and community influencers. Rather than assuming barriers, HCD tools uncovered root causes by examining the entire vaccination experience from awareness through follow-up care. This participatory approach enabled stakeholders to co-design contextually relevant solutions that address gender dynamics, service accessibility and communication gaps specific to each community.



▲ **Watch the film Health Heroes of the Himalayas on VaccinesWork.**

Impact: HCD revealed critical insights that traditional surveys missed, including the decisive role of men in vaccination decisions and the specific challenges migrants face navigating unfamiliar health systems. Programme designers used these findings to create tailored interventions: dedicated service days for Dalit communities, recruitment of community health volunteers from marginalised groups, engagement of religious leaders as messengers and workplace vaccination campaigns. The approach successfully identified ten previously missed zero-dose children in one community alone, demonstrating HCD's transformative power in creating community-driven solutions for immunisation equity.

This product was produced by the Zero-Dose Story Generation Consortium, led by Sabin Vaccine Institute. Sabin is a leading advocate for expanding vaccine access and uptake globally, advancing vaccine research and development, and amplifying vaccine knowledge and innovation.

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