



# HUMAN CENTRED DESIGN IMPLEMENTATION CASE STUDY ETHIOPIA



# APPLYING HUMAN CENTRED DESIGN (HCD) TO INCREASE VACCINATION RATES IN ZERO-DOSE COMMUNITIES:

## EXPERIENCE FROM ETHIOPIA



### 01 BACKGROUND

Ethiopia made remarkable progress towards achieving the Millennium Development Goals (MDGs) in general, and the maternal and child health-related goals of MDGs 4 and 5 in particular. Under-5 mortality has declined by 67 per cent since 1990, and the country has already met the MDG4 target before its deadline. These achievements were largely attributable to the implementation and scale-up of high-impact child interventions that focus on promotive, preventive and curative primary health-care services.<sup>1</sup>

Improvements in health outcomes have been positively influenced by the government's policy support for the Health Extension Programme, including the mobilization of the Women Development's Army. The health cadres, including Health Extension Workers (HEWs), have contributed to health promotion, disease prevention and community-based disease case management, which, in turn, has led to a reduction in morbidity and mortality.<sup>2</sup>

Despite the impressive progress, reaching full vaccination coverage remains a challenge. For example, approximately 60 per cent of children aged 12-23 months have completed their vaccinations.<sup>3</sup> Varying levels of caregiver education, cultural and religious differences result in wide

regional disparities, from 21 per cent in Afar to 73 per cent in Amara. Additionally, children from poorer households, rural Afar and Somali regions, households without maternal education, and those headed by women have lower vaccination rates.<sup>4</sup>

The disparity between actual and desired national immunization coverage is compounded by complex, multifaceted barriers, and challenges to implementation. However, there is high-level commitment, as demonstrated by the 2021 Health Sector Transformation Plan II, which targets "ensuring equitable access to and uptake of health care and addressing differences in health status or outcomes that exist in Ethiopia". The aim is to increase full vaccination coverage from 44 per cent to 75 per cent of children.<sup>5</sup>



<sup>1</sup> Federal Ministry of Health, 'State of Equity in the utilization of Maternal, Child and Reproductive Health in Ethiopia 2018', MOH, Addis Ababa, Ethiopia, 2018.

<sup>2</sup> Kantar, 'Determinant Analysis Study on Maternal, Newborn, Child and Adolescent Health Care Seeking in the Developing Regional States of Afar, Benishangul-Gumuz, Gambella and Somali', 2020.

<sup>3</sup> Ketema, D.B. et al., 'Full vaccination coverage among children aged 12-23 months in Ethiopia: a systematic review and meta-analysis', *BMC Public Health*, vol. 20, article 777, 2020, <<https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-020-08940-x>>, accessed 20 December 2022.

<sup>4</sup> Gewenigera, Anne, and Kaja M. Abbas, 'Childhood vaccination coverage and equity impact in Ethiopia by socioeconomic, geographic, maternal, and child characteristics', *Vaccine*, vol. 38, no. 20, 29 April 2020, pp. 3627-3638, <[www.ncbi.nlm.nih.gov/pmc/articles/PMC7171468/](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC7171468/)>, accessed 20 December 2022.

<sup>5</sup> Federal Ministry of Health, 'Health Sector Transformation Plan (2020/21-2024/25)', MOH, Addis Ababa, Ethiopia, 2021, <<https://fp2030.org/sites/default/files/HSTP-II.pdf>>, accessed 20 December 2022.

Reaching zero-dose children will be vital to meeting this target. Bridging the gap between current and anticipated vaccination rates will require new approaches to address old challenges. Conventional methods to identify solutions to increase vaccination rates by influencing social and behaviour change (SBC) will be inadequate. Against this backdrop, Human Centred Design (HCD) provides tools to focus on people and create tailored solutions to challenges based on local insights, resources and capabilities, especially in missed or underserved communities.

The HCD methodology provides an organized process for working directly with users – families, communities and service providers – and proposes solutions to effectively address challenges related to vaccine uptake and the response to and demand for vaccination and other health services.

In the context of zero-dose or under-immunized children, HCD enables the Government of Ethiopia, UNICEF, and other implementing partners to better understand people and what keeps them from seeking and/or supporting health services in their communities. Its introduction and roll-out across UNICEF-supported interventions in various countries allows implementers to perceive challenges from the perspective of the community and identify opportunities where previous solutions have failed.

This case study documents insights from applying HCD to increase vaccination rates in zero-dose communities and tackle COVID-19 behavioural challenges in Ethiopia. Specifically, it draws out insights into issues such as what HCD is and how it was rolled out, the context in which HCD was applied, the effect of HCD on practice, and lessons learned.

## Key terms used in this case study

### 1 Social and Behaviour Change (SBC)

a set of approaches that promote positive and measurable changes toward the fulfilment of children's rights.

### 2 Human Centred Design (HCD)

a problem-solving process that begins with understanding the human factors and context surrounding a challenge.

### 3 Behavioural Design

is a systematic understanding of how individuals think and how they make decisions with a view to ethically design positive behaviour desired by both the individual and society.

### 4 Rapid Inquiry (RI)

is used at the research phase of HCD. Its based on applying fast techniques to understand the many social, cultural, political and economic influences and motivations in a community.

### 5 Prototype

an inexpensive, scaled down versions of the proposed change/product. It's anything a person can look at and respond to.

### 6 Prototyping

is a tool along the HCD continuum which involves inviting the community to shape the idea's form and function. It assists designer know if generated ideas align with community values, motivations and existing habits.

### 7 Iteration

is a tool along HCD continuum which involves making a series of design versions to the prototype to learning and improvement.





## 02

# CONTEXT AND DESIGN APPROACH

Starting in February 2021, the Ethiopia's Ministry of Health (MOH, Regional Health Bureaus (RHBs) and Ethiopia Country Office commenced collaborative working to better understand local constraints and challenges that communities and community health workers are experiencing, to inform a tailored programme with a holistic approach to reduce hesitancy and dropout rates. Figure 1 illustrates vaccination coverage in 2021 for selected vaccines in Ethiopia where data are available.

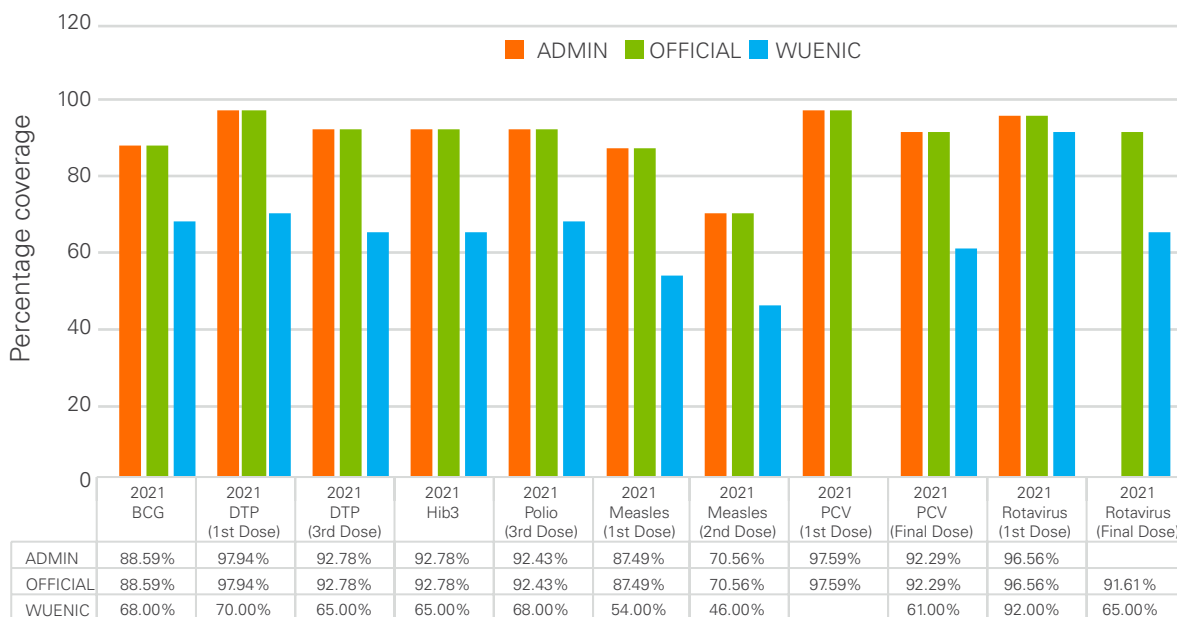
The HCD initiative aims to understand the factors influencing immunization, identify and overcome underlying barriers that stand in the way of growing

demand for immunization and equitable coverage, and combines diverse perspectives to facilitate ways to promote and create demand for immunization in the most vulnerable areas. The approach is being applied in selected peri-urban and rural communities in the regions of Oromia and Southern Nations, Nationalities and Peoples (SNNP), with a focus on routine immunization, as they have the highest number of zero-dose and under-immunized children. Rapid inquiry and prototype testing were also applied in Afar and Beningshangul Gumuz regions with a focus on the maternal and newborn child health (MNCH) referral network.

In Oromia and SNNP, the objective of this initiative is to learn a new approach to identify and solve care-seeking challenges that prevent utilization of MNCH services, including Expanded Program on Immunization (EPI) services and care for sick children. In Afar and Beningshangul Gumuz, HCD will focus on exploring barriers and facilitators in MNCH referral networks and test the usability of existing referral vouchers.

In addition to tackling zero dose challenge, HCD has been used in other areas of health behaviour change. For example, in the face of the COVID-19 pandemic, it has been used to explore solutions to promote acceptance of the COVID-19 vaccine among health workers.

**Figure 1. Vaccination coverage for selected vaccines, 2021**



Source: World Health Organization, 'Immunization dashboard: Reported cases of vaccine-preventable diseases (VPDs) globally', <<https://immunizationdata.who.int/listing.html>>, accessed 20 December 2022.

The introduction and use of HCD in Ethiopia has involved developing a critical mass of HCD expertise through a training of trainers (ToT) approach for national/federal-level counterparts, including from MOH, RHBs and members of the national Communication Technical Working Group for immunization demand. This was followed up with subnational-level capacity development targeting SBC and EPI officers at the subnational level. Zonal-level training for SBC/EPI officers has been provided on a needs basis as identified by the stakeholders involved.

Following the formal capacity-building MOH, RHBs and UNICEF Ethiopia have continued the work to enhance the prototype ideas, taking them into the community for further testing, feedback and continuous monitoring.

This case study focuses on the effects of HCD's introduction and its early implementation, with a specific emphasis on its use in regard to zero-dose maternal and child health (MNCH) and COVID-19 contexts. It does not examine the immunization outcomes from these interventions, as a more comprehensive evaluation method needs to be established for that purpose.







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## HCD OUTCOMES

### 3.1 Enhanced/improved understanding and practice of the HCD concept and framework

As HCD is a novel approach to tackling the zero-dose/low immunization coverage challenge in Ethiopia, it was necessary to develop a critical mass of expertise in the theoretical principles and practice of HCD. Up to 348 counterparts from the national/federal, subnational, and zonal levels took part in five days of facilitated HCD master ToT capacity-building. Trained cadres from MOH, RHBs, the national Communication Technical Working Group for immunization demand, SBC and EPI officers now have appropriate foundational skills and practice in HCD.



“The training was new for all of us; however, I found that it is very crucial training to address our recurring demand-side problems of immunization and other health services if we implement it as planned.”  
– HCD training participant, Jimma zone<sup>6</sup>

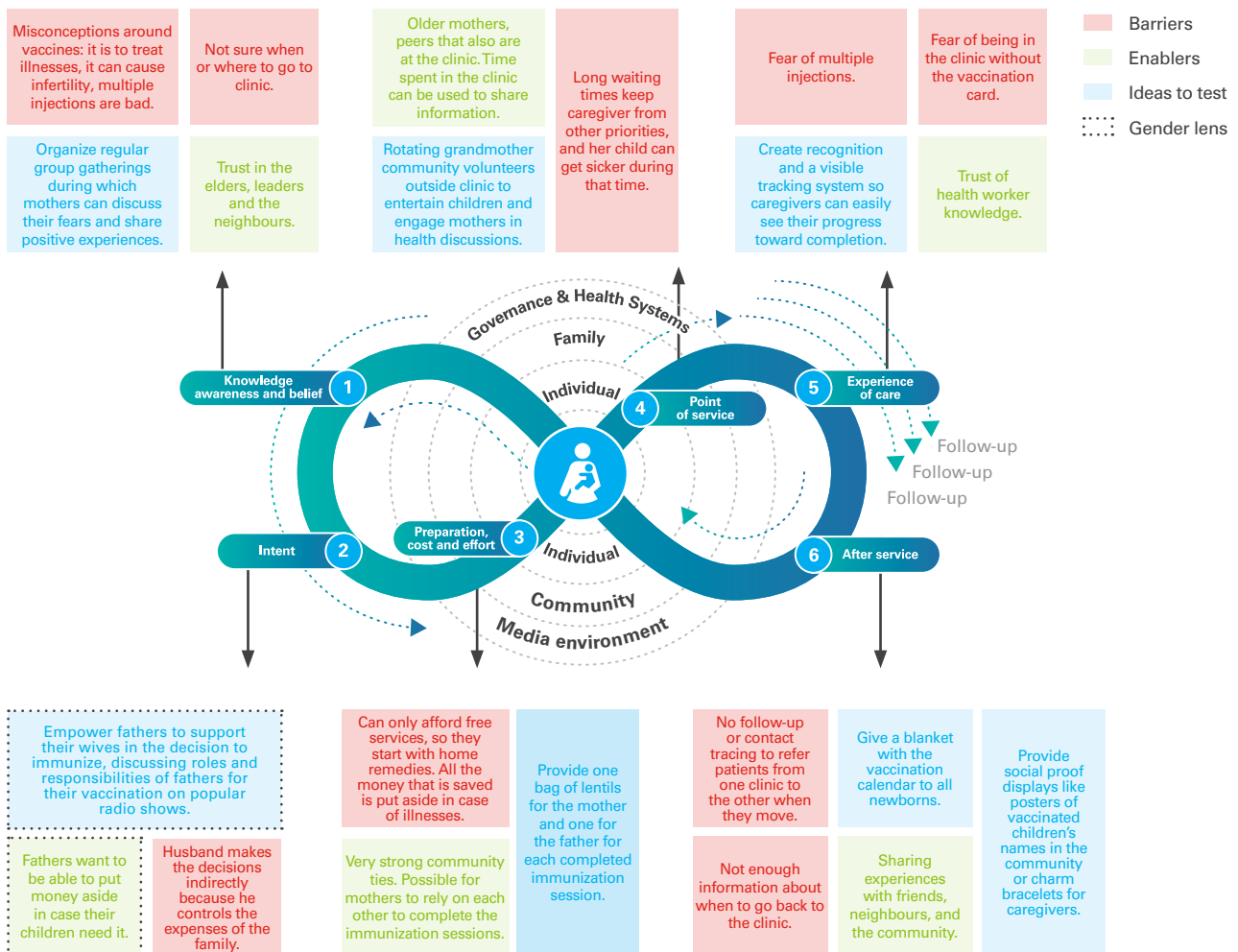
The design of the ToT balances the practice and application of HCD for health service demand generation by complementing classroom/theoretical concepts with field work to promote hands-on learning and reflection. The training and practice used a mix of methods to offer an interactive way of using different learning methods, including interactive discussions, different small group activities, question and answer sessions, data analysis, etc. This unique approach encourages significant meaningful practice and the generation of solutions which can be enhanced after the training. For example, in Oromia, the training generated seven initial ideas targeting real issues in the target communities (see Figure 2). The ideas have been the subject of ongoing refinement since the training.

### 3.2 Contextually relevant solutions through microplanning and co-creation with communities and health service providers

One of several key features and strengths of HCD is the approach of addressing SBC solutions together, led by the communities and health service providers whose behaviour the intervention seeks to change. Central to this approach is the analysis of barriers and opportunities by tracing the journey the affected populations and/or health-care workers follow, also known as the ‘journey to health’.

The ‘journey to health’ framing is a systematic framework to unpack vaccine demand and supply factors. It considers the six domains of visiting and returning to a health facility, to identify barriers and enablers and start developing ideas for contextually relevant solutions. Figure 2 summarizes the Journey to health application in Oromia.

**Figure 2: Journey to health application in Oromia**



Applying the 'journey to health' framework, the following contextually relevant solutions have been identified through HCD for further development through prototyping, iteration and feedback with communities:

## Reframing immunization as important preventive medicine instead of an optional curative treatment

**Issue/problem:** Caregivers, spouses and other influential members of the community assumed vaccines are curative, given to cure illness. People wait to fall sick before seeking treatment. Health service waiting times are associated with a loss of productivity, and there is no functional referral system for when people relocate.

**Solution:** Understanding that fellow mothers and matriarchs are a source of trusted information for caregivers, creating a space for community dialogue sessions allows mothers to ask questions and benefit from the experience of others who have vaccinated their children.

**Results/impact:** 178 health extension workers were trained on facilitation skills for community dialogue around immunization, and dialogue sessions with community members were conducted in 70 kebeles in 28 zones and towns. About 2,000 community members participated in the community dialogue sessions at *kebele* level.

## Development of the referral system in Afar and Benishangul Gumuz

**Issue/problem:** Although strengthening the MNCH referral system and capacitating health facilities to provide referral care are the major interventions needed to reduce morbidity and mortality, little is known about the complex challenges of the referral system. Therefore, a rapid inquiry was conducted to identify opportunities, the essential referral pathways that are working or not working, gaps and mechanisms to address these challenges, and to test the referral vouchers for possible adaptation and contextualization.

**Solution:** Testing the existing referral vouchers and the referral system for further adaptation and contextualization

**Results/impact:** Data collection is under way.

### 3.3 Enhanced community engagement

The implementation and roll-out of HCD have increased genuine community participation, all made possible through the rapid inquiry, prototyping and feedback, piloting and scale components of the approach. Instead of gleaned generic patterns, as would be the case through traditional research, rapid inquiry has allowed communities to share ideas, which has enabled UNICEF and partners to better understand their conditions and experiences.

Emerging findings have therefore been relevant to their specific community, which in turn has improved trust, interest, and engagement in addressing the barriers to the issues concerned. Figure 3 shows community insights from the HCD process, while Table 1 summarizes some of the ways in which communities where HCD has been applied have been engaged to date.

**Figure 3: Community insights generated through rapid inquiry**





Table 1 summarizes some of the ways in which communities where HCD has been applied have been engaged to date.

**Table 1. Demonstration of enhanced community engagement through rapid inquiry**

Community visited	Community members consulted	Issues identified with communities	Starting ideas/ proposed intervention design informed by issues
Adama town, Oromia	<ul style="list-style-type: none"> <li>• Mothers/caregivers</li> <li>• Fathers/male partners</li> <li>• Community leaders</li> <li>• Health-care workers</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of information/awareness on types of vaccine and immunization schedule (when to go back for follow-up doses)</li> <li>• Misconceptions, rumours and negative perceptions</li> <li>• Lack of compassionate and respectful care by some health-care providers</li> <li>• Gender/role imbalance in decision-making</li> <li>• Preference of home remedies over modern medicine when perceived severity of illness is less</li> <li>• Poor coordination of outreach programmes/ vaccination campaigns and a lack of collaboration between stakeholders</li> <li>• Lack of a system to trace vaccine defaulters and lack of an effective vaccination appointment reminder system apart from vaccination cards (e.g., SMS)</li> </ul>	Community dialogue session immediately after health workers' training on facilitation skills
Hadiya zone, SNNP	<ul style="list-style-type: none"> <li>• Mothers/caregivers</li> <li>• Fathers/male partners</li> <li>• Community leaders</li> <li>• Health-care workers</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of information/awareness on types of vaccine and immunization schedule (when to go back for follow-up doses)</li> <li>• Lack of support from husband and gender/role imbalance in decision-making</li> <li>• Fear of side effects of vaccination and injections</li> <li>• Low literacy level (e.g., most mothers unable to read appointment dates from vaccination cards)</li> <li>• Stock-outs of vaccines, drugs and supplies</li> <li>• Poor information delivery system</li> <li>• Inadequate counselling of mothers</li> <li>• HEWs failed to make home visits to remind about vaccination</li> <li>• For health workers, shift of emphasis to COVID-19 over routine activities</li> <li>• Inadequate on-the-job training for health-care providers and poor motivation of health workers</li> <li>• Poor coordination of outreach programmes/ vaccination campaigns</li> <li>• Lack of a system to trace vaccine defaulters and lack of an effective vaccination appointment reminder system apart from vaccination cards</li> <li>• Shortage of active health workers, incentives and motivational factors for health-care providers</li> <li>• Poor community mobilization and sensitization</li> <li>• Scattered population settlement</li> </ul>	Ideation sessions pending and currently prioritized for early 2023. This will enable prototype ideas/ interventions to surface.

Community visited	Community members consulted	Issues identified with communities	Starting ideas/ proposed intervention design informed by issues
Asayita, Afar	<ul style="list-style-type: none"> <li>• Pregnant women, mothers with labour complications, lactating mothers</li> <li>• Husbands, mothers-in-law</li> <li>• Traditional healers, traditional birth attendants</li> <li>• Health Development Army (HDA)</li> <li>• Clan leaders, religious leaders</li> <li>• HEWs, ambulance drivers</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of referral slips from community to health-care providers</li> <li>• Non-standardized referral slips and non-harmonized procedures</li> <li>• Weak HDA structure</li> <li>• Unnecessary referral</li> <li>• Reluctance of providers to implement referral standard operating procedures</li> <li>• Primary health care unit (PHCU) structures are not functional to support referral</li> <li>• Shortage of ambulances</li> <li>• Long distances to facilities</li> <li>• Poor road infrastructure</li> <li>• High cost of transportation</li> <li>• Lack of professional escort to accompany patients/clients</li> </ul>	As focus for these two regions was to identify the issues concerning the referral system and vouchers, the solution was to conduct further advocacy with RHBs for the modification of the referral system and the existing voucher.
Assosa, Benishangul Gumuz	<ul style="list-style-type: none"> <li>• Pregnant women, mothers with labour complications, lactating mothers</li> <li>• Husbands, mothers-in-law</li> <li>• Traditional healers, traditional birth attendants</li> <li>• HDA</li> <li>• Clan leaders, religious leaders</li> <li>• HEWs, ambulance drivers</li> </ul>	<ul style="list-style-type: none"> <li>• Poor management of patients/clients during transportation</li> <li>• Limited capacity of HDAs to identify pregnant women, deliver mothers with complications and treat sick children in the community</li> <li>• Suboptimal clinical and referral protocol skills of some health-care providers at health facilities</li> <li>• Poor incentive and motivation schemes for HDAs</li> <li>• Absence of pre-referral communication between facilities</li> <li>• Lack of feedback on referral</li> <li>• Lack of a responsible body (liaison officer) to coordinate overall referral activities at health-centre level</li> <li>• Lack of trust among clients/patients</li> <li>• Mistreatment and lack of compassionate and respectful care from health workers</li> <li>• Clients' competing priorities</li> <li>• Complete denial of home delivery by health workers and HEWs</li> <li>• Shortages of equipment and supplies (beds, ultrasound machines, etc.)</li> <li>• Facilities' low state of readiness to receive referrals</li> <li>• Unattractive and overcrowded service environment</li> <li>• Lack of maternity waiting rooms</li> <li>• Natural disasters such as flooding (health centres flooded by the Awash River in Afar)</li> </ul>	

### 3.4 Enhanced participation of front-line health workers in designing innovative health solutions

The Ethiopia country team has been able to apply HCD in various primary healthcare contexts, not just in the generation of solutions for zero-dose communities. During the COVID-19 pandemic, HCD was used to engage frontline health workers in solutions generation.

A 2020 study on 403 healthcare workers in Ethiopia found that 38.5 per cent declined the COVID-19 vaccine. Another cross-sectional study in 2021 with 1,314 healthcare workers from five teaching hospitals showed that 25.5 per cent wouldn't take the vaccine and 20.2 per cent were unwilling to recommend it to others. This highlights a high degree of vaccine hesitancy among a key population that can impact vaccine uptake.

MOH, RHBs and UNICEF used HCD's rapid inquiry and ideation tools to engage healthcare workers, including physicians, nurses, and pharmacists, to generate solutions to promote acceptance of the

COVID-19 vaccine among the healthcare workforce. Health-care workers identified the following solutions, which are now being implemented:

- Provide face-to-face training for health workers, including HEWs, on COVID-19 vaccination, including scientific data on the vaccines, the benefits of vaccination and scientific evidence on vaccine effectiveness and efficacy.
- Hold forum or panel discussions with health workers in which they have an opportunity to express their concerns and ask technical questions. In addition to the forum/discussion panel, it is also recommended to create a safe space where health workers can express their concerns and ask questions.
- Provide health workers with timely and up-to-date information on the vaccines through different communication platforms.
- Share the experiences of higher-level officials, senior physicians, religious leaders and influencers receiving the COVID-19 vaccination across different media.
- At the health facility level, consult with health-care workers, acknowledge their reasoning, try to understand their refusal and encourage them to make an informed decision about vaccination.







### 3.5 Institutionalization of HCD

The application of HCD has been highlighted in the Full Portfolio Plan (2023–2025). UNICEF is also having a discussion with other civil society organizations about developing a standardized package for the application of HCD in Ethiopia.

### 3.6 Catalysing new funding

The HCD approach has been applied in other immunization-related initiatives funded by other parties. For example:

- The Korea International Cooperation Agency (KOICA) grant will apply HCD in: (1) demand promotion for care-seeking practices; and (2) the development and prototyping of a referral system in Afar and Benishangul

Gumuz. Staff from Emory University have already received HCD skills training from the ToT sessions described earlier.

- The work funded by ACT-A on COVID-19 vaccine hesitancy among health workers: A blend of HCD tools (ideation, prototyping) were combined with a qualitative assessment of behavioural and social drivers of vaccination to inform this initiative.
- Advocacy to include HCD in the Full Portfolio Plan and as part of the zero-dose agenda is under way.

### 3.7 Immunization uptake

Ethiopia is considering an appropriate and robust mechanism to measure immunization uptake in interventions informed by HCD.

# 04

## WHAT HAS CHANGED IN ETHIOPIA?

The application of HCD, including the immunization journey mapping, is now one of the core approaches for demand promotion interventions under the Full Portfolio Plan (2022–2025). Other regions, such as Amhara, have learned from the experience in Oromia and have now asked UNICEF to provide support on HCD. For the Ministry of Health, RHB and UNICEF Ethiopia, HCD is being adopted as one of the main approaches to address issues such as COVID-19 vaccine hesitancy among internally displaced persons, refugees and urban youth communities.







# 05

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## CHALLENGES

Ensuring buy-in and commitment from the counterpart is crucial. The introduction of HCD (as a new approach) initially faced reluctance. However, taking a blended approach of classroom teaching and practical application has been invaluable in unlocking the interest. Furthermore, explaining the approach in terminology with which stakeholders are familiar, and demonstrating the process and approaches on a small scale helped gain their buy-in.

- Training must be used as an entry point for gaining buy-in from MOH and RHBs on the use of HCD. For instance, to apply HCD in one community, we need to train regional and zonal officials first.
- During the ideation phase, only familiar interventions were suggested by the participants. Innovative or new suggestions are still limited. Upcoming sessions might be improved if the facilitator can share some examples of innovative interventions.



# 06

## LESSONS LEARNED

One of the strengths of HCD lies in putting communities and health service providers at the centre of the approach. Focusing on and understanding motivations and needs and applying the 'journey to health' framing provides rich insights to develop solutions that resonate with communities. However, to develop solutions that make a difference, an investment in time and the openness to use evidence to adjust the initial design are needed. The greatest strength of the approach is its flexibility and ability to allow programme teams to identify the most suitable/relevant phase to apply in a given context.

HCD can help us think outside the box and offer us ways to test our ideas early and cost-effectively. It is vitally important to start small and showcase results to gain more support from key decision makers at national and subnational level, and well as internally in UNICEF, on the utility of the approach.

The provision of high-level introductory sessions helps further implementation. Stakeholders may initially see it as another participatory design process like other tried and often failed approaches from the past. Therefore, taking training as an entry point while conducting rapid inquiry and ideation helps win hearts and minds about the unique offering of HCD.

Developing champions and early adopters is essential for creating or triggering demand for HCD. Among other things, the role of the champion is to share their experience with other teams/regions, especially during review meetings showcasing the benefits of the methodology in addressing the zero-dose or immunization challenge faced by the community.

HCD helps identify valuable insights for tackling the immunization challenge. For example, a main insight from the communities visited was the perception of vaccines as curative rather than preventive. Consequently, communities wait until they fall sick before going for vaccination. This insight has informed the Federal Government of Ethiopia, UNICEF and partners to make the following adjustments to messages or approaches to change this perception:

- Instead of one-way messages, we focus more on community dialogues.
- Messages for the community dialogue sessions are crafted around the idea that prevention is better than cure, and vaccines can prevent deadly diseases – some of which are not even curable.
- It is important to create a community-level space where caregivers can raise their concerns and have their questions addressed.

# 07

## FUTURE PLANS

The Ministry of Health in partnership with UNICEF intends to continue using HCD as an approach to address zero-dose or under-immunized children in Ethiopia. The following plans will be pursued to that end:

- Monitor the initiatives where HCD has been used to inform design, to understand the nature and scale of results being achieved. Explore with stakeholders their interest in embedding implementation research; where it exists, apply implementation research to help improve the implementation of these initiatives.
- Application of HCD is one of the key activities in the Gavi Full Portfolio Plan (2022–2025).
- Utilize HCD to explore and tackle the multifaceted ways in which gender intersects with socio-economic, geographic, and cultural factors, to facilitate children's access to vaccines in zero-dose or missed communities.

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