Human-centred design for tailoring immunization programmes

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Contents

About this guide

This document is intended to support human-centred and tailored strategies to reach under-vaccinated communities. It is designed to be:

People focused

The approach is focused on the people served by immunization programmes and services.

Community centered

It highlights the importance of their needs and perspective in the design and delivery of services to improve uptake of vaccines.

Broadly applicable

This tool can be applied to immunization across life stages and all public health campaigns.

Adaptable to new situations

The tool can be used to tailor programmes to accommodate new vaccines and emerging needs during emergencies.

User friendly

This tool can be used by anyone in the health and immunization system at a national or subnational level to engage communities in co-designing services that better serve their needs.

Acknowledgements

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The draft HCD-TIP approach was piloted as a workshop with the UNICEF East Asia and Pacific Regional Office, and the WHO regional offices for South-East Asia and the Western Pacific in June 2021. The workshops generated important lessons for improving the quality and use of the overall approach.

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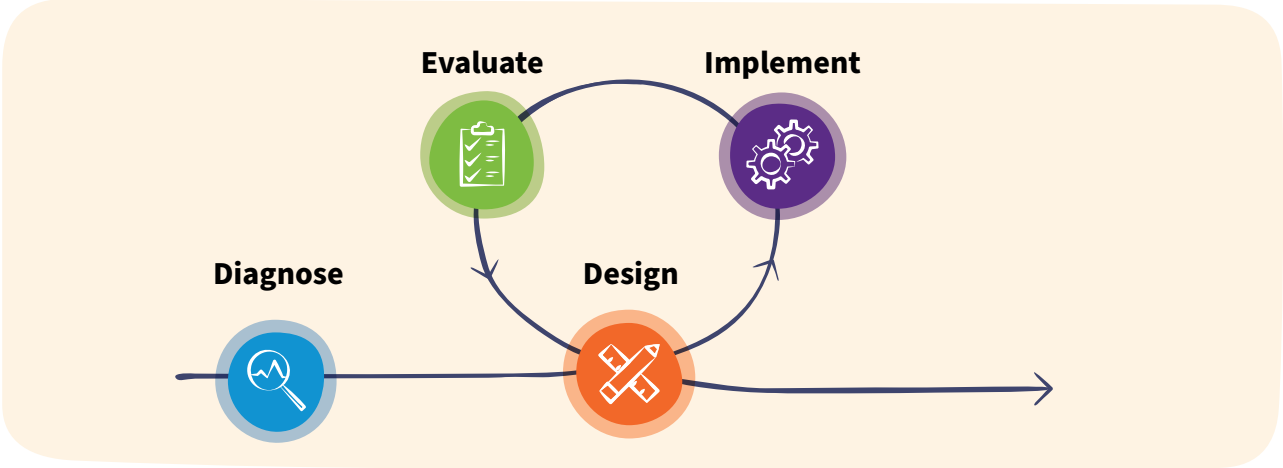
Introduction

Introducing a simplified approach to tailoring immunization programmes using human-centred design.

Vaccination saves millions of lives and promotes healthier, better educated and more prosperous communities. However, undervaccinated populations (including health workers) exist for a range of reasons: there may be geographic, social, socio-economic or political factors, or other barriers that hinder vaccination.

Programmes need to be responsive to understand and overcome these challenges to prevent disease outbreaks.

Fig. 1 **The HCD-TIP process cycle**



What is this guide?

This guide is designed to help anyone in the health and immunization system identify and address barriers or leverage drivers to immunization by locally co-designing and evaluating human-centred, tailored immunization programmes. In four stages, *Diagnose*, *Design*, *Implement* and *Evaluate*, this guide outlines a cyclic process to overcome hurdles to vaccination (Fig. 1). This guide can be used to tailor programmes for any priority group or vaccine across the life course.

The strength of the process is in the engagement of stakeholders, particularly end-users at each stage. It supports local ownership, transparency and accountability,

and enhances programmes' ability to **listen and learn** to better understand community perspectives.

This guide leverages UNICEF's Human Centred Design 4 Health[1] (HCD) and WHO's Tailoring Immunization Programmes[2] (TIP) to create a consolidated and simplified strategy for evidence-based co-design suited to low-resource settings: **HCD-TIP**.

How to use this guide

Users of this guide are encouraged to jump back and forth between stages, visiting material relevant to their needs. Use the HCD-TIP Evaluation Framework to track activities (inputs) at each stage and record materials generated (outputs) throughout the process.

Planning an HCD-TIP intervention

The HCD-TIP approach does not need to be time and resource intensive. Start this process today by taking these key steps:

1. **Establish** a core team of 2–3 people to drive the process.
2. **Engage** key stakeholders (e.g., immunization staff, end-users).
3. **Agree** on roles and approaches.

Introducing "Good Enough"

"Good enough" highlights critical and easy-to-take actions at each stage. "Good enough" does not mean second best. It means choosing a simple solution rather than a complicated one.

- Put **people first**: participatory and inclusive at the local level.
- Small group meetings (not big workshops!).
- **Keep costs low** by starting small before scaling up!
- Anyone can do it – start **today**!

[1] Human Centred Design 4 Health. New York: UNICEF (www.hcd4health.org).
[2] Tailoring Immunization Programmes. Copenhagen: World Health Organization Regional Office for Europe; 2019. Licence: CC BY-NC-SA 3.0 IGO.

Stage 1: **Diagnose**

The diagnose stage is about understanding the challenge by reviewing existing data, identifying and filling information gaps.

Fig. 2 **Steps towards diagnosing the challenge**

Start with the most important question: **What problem are we trying to address**? (e.g., undervaccination among urban poor). To answer this, we must gather and review information to understand:

The priority group we want to reach (end-users)

Their context: social relationships, health systems, etc.

The challenges they face.

Diagnose steps

Diagnose Step 1:

A team member should gather the relevant existing data (desk review) to synthesize in a short information summary (What do we know? What has been done before? What information is still needed?). Existing information can include behavioural and social data, coverage, supply, surveillance or other programme data.

Diagnose Step 2:

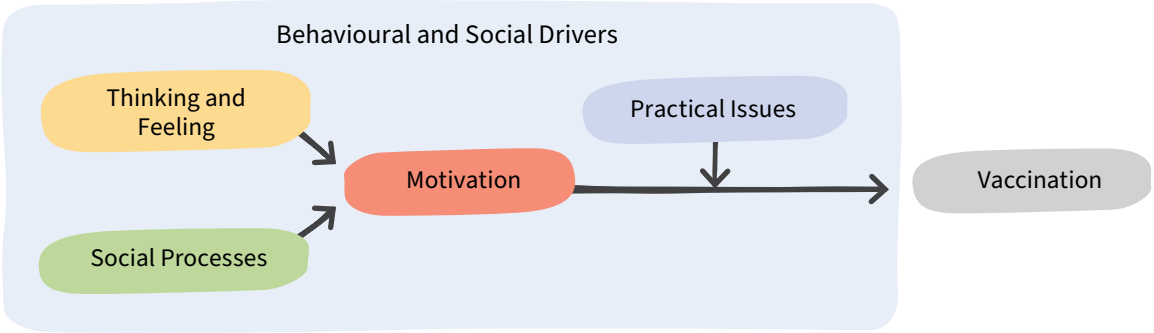
Bring stakeholders together to discuss the information summary and establish a shared understanding of challenges and possible opportunities. List and agree on which priority group we want to reach (the end-users we want to focus on).

Diagnose Step 3:

Using the information gathered, develop an end-user persona.
Develop user personas based on available data, not personal assumptions. We can better understand the types of barriers and drivers end-users face by sorting the information we have into the four domains that influence vaccination from the behavioural and social drivers (BeSD) framework: *thinking and feeling, social processes, motivation and practical issues* (Fig. 3).

Complete the HCD-TIP End-User Persona Template to summarize end-user insights:
- What does the end-user think and feel about vaccination?
- What practical issues stand in their way?
- How do social norms and relationships influence decisions about vaccination?

Fig. 3 **Steps towards diagnosing the challenge**



Are there significant information gaps?

If there are significant information gaps (e.g., key decision makers are unknown, or lack of insights into attitudes about vaccination, service availability and quality), consider filling these gaps with Diagnose Step 4 and 5 below.

This requires collecting new data (e.g., surveys, in-depth interviews, end-user studies and focus groups). To plan the research, answer these questions:

- **What do we still want to know, and who has this information?**
- **How will this information help us address undervaccination?**

4

Diagnose Step 4:

If needed, collect new data to fill information gaps. The BeSD Toolkit provides a structured way to collect and analyse data. BeSD surveys help identify trends and quantify the problem, and the BeSD *in-depth interview guides* allow a "deep dive" into specific issues.

Existing information or new data collected during the *Diagnose* stage can be a baseline to help track progress throughout implementation. This can be a useful reference point or "benchmark" to measure the impact of the intervention against. See Evaluate for more detail.

5

Diagnose Step 5:

If new data was collected, regroup stakeholders to discuss findings and correct or validate any assumptions made in the short information summary.

Outputs of Stage 1: Diagnose

- [ ] Clearly identify: Who are the end-users we want to reach and what problem are we trying to address?
- [ ] Short summary of relevant existing information.
- [ ] Completed HCD-TIP End-User Persona Template.
- [ ] If primary data collected: Summary of findings.
- [ ] In the HCD-TIP Evaluation Framework, list the activities conducted during this stage under Diagnose (column 1).

Good enough

It's important to challenge assumptions (go beyond what we think we know) to ensure an evidence-based approach. Draw information from a wide range of sources and check our assumptions with actual end-users through surveys or in-depth interviews.

Desk review and short information summary: Identify what was done, findings and recommendations from 2–3 relevant studies (comparable problem or end-users). Summarize these as bullet points in 1–2 pages.

Survey: Use the BeSD core indicators or a subset of the most relevant questions to assess factors influencing uptake across the four BeSD domains. Collect basic socio-demographic information for population segmentation (e.g., age, sex, education).

Qualitative interviews: Just 4–5 in-depth interviews can offer valuable insight. This is a chance to listen to the perspectives of the end-users we want to reach and other stakeholders.

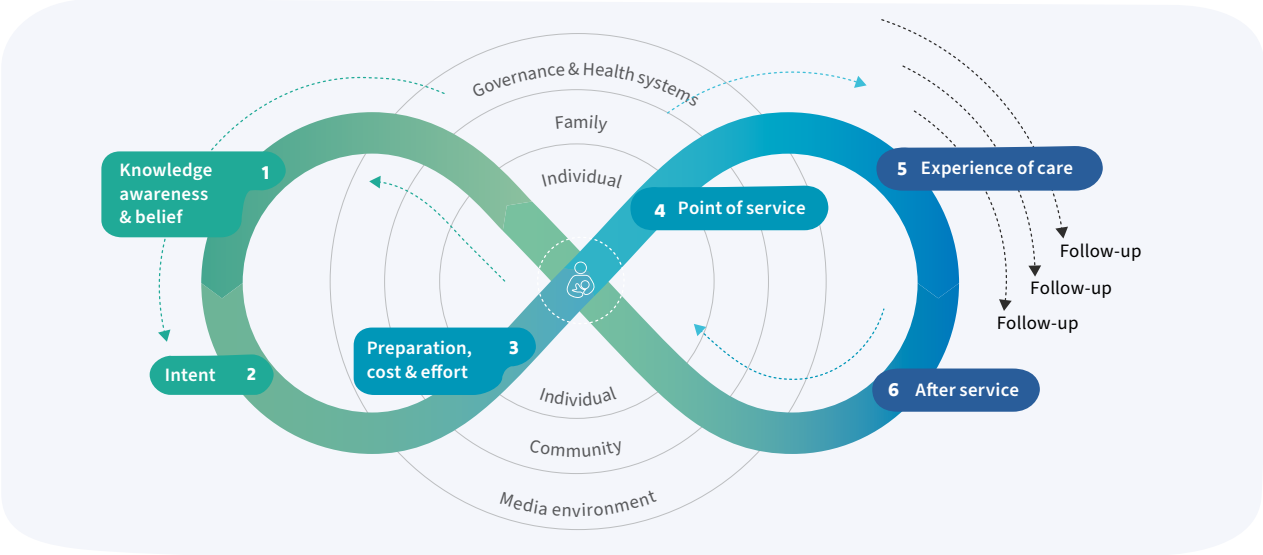
See the BeSD Toolkit for tools to support primary data collection.

Stage 2: **Design**

The design stage is about turning insights into solutions.

Bring together stakeholders to explore what we learned from the Diagnose stage. Next, agree on a design objective and design solutions to address the barriers to vaccination for our end-users. End-users must be included in the design process.

Fig. 4 **The Journey to Health and Immunization**



Source: UNICEF Human Centred Design 4 Health (https://www.hcd4health.org/resources)

Design steps

1

Design Step 1:

Map the end-user journey based on what we learned in Diagnose.
Using the Journey to Health and Immunization (Fig. 4), consider what we know about our end-users. Review the short information summary and list (map) each identified driver (enabler) or barrier under the relevant point along the journey.

2

Design Step 2:

Identify promising areas for intervention.

With the end-user journey in mind, ask: How might we address barriers to vaccination? How might we strengthen drivers of vaccination?

It is common to identify more than one barrier or driver during journey mapping. If needed, complete a quick Urgent vs Important Matrix to prioritize which barrier or driver to focus on for the intervention design (Fig. 5).

Finally, develop a design objective by completing the sentence:
"Our objective is for [end-user group] to change from [current behaviour] to [desired behaviour] by addressing [barrier] or by strengthening [driver]."

3

Design Step 3:

Generate intervention ideas to address our design objective.

Stay focused on the perspective of the end-users and how the ideas might support vaccination. Share ideas with the group and discuss potential advantages and disadvantages for each.

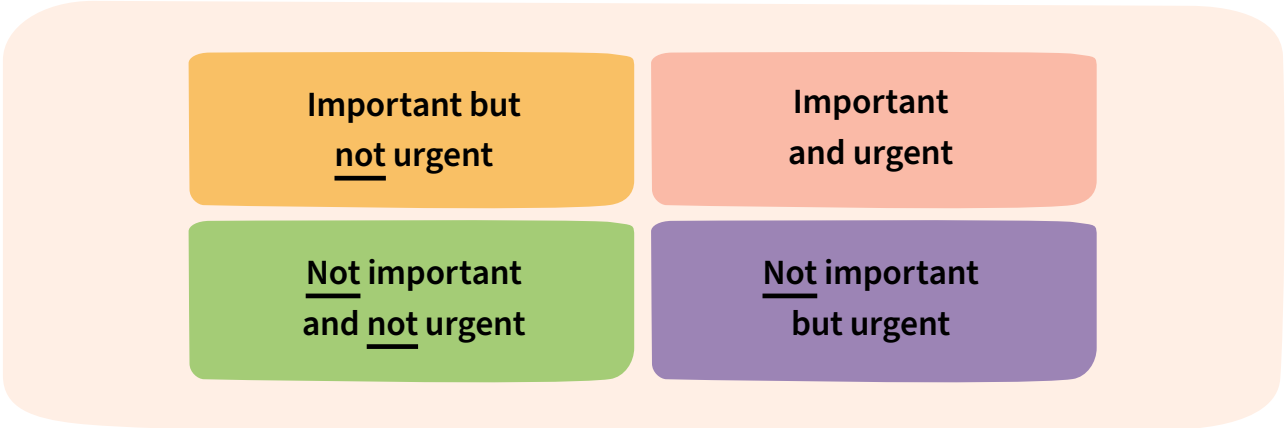
4

Design Step 4:

Select an intervention idea and create a prototype.

If needed, use the Urgent vs Important Matrix to help choose the best intervention idea. A prototype is a tangible form of our intervention idea. It can be a physical product, a quick drawing or a short description of the idea (e.g., changing vaccination session hours).

Fig. 5 **Urgent vs Important**



Outputs of Stage 2: Design

- [ ] Choose a priority barrier or driver for intervention and develop a design objective.
- [ ] Create a prototype of the chosen intervention idea to field test.
- [ ] In the HCD-TIP Evaluation Framework, list the activities conducted during this stage under Design (column 2).

Good enough

A good enough **prototype** is a rough draft or mock-up of the intervention using everyday materials (e.g., paper, pen, rubber bands). Some prototypes may be a description or simulation of the idea (e.g., vaccination communication script).

It doesn't need to be perfect because it's not final!

Stage 3: **Implement**

The implement stage is about planning and acting. Keep objectives and deliverables clear and monitor progress regularly.

This stage includes two key activities:

Field testing is the chance to *try out the prototype with end-users* to guide gradual improvements.

Implementation is the process of putting the intervention into *effect, usually over a longer time with a larger end-user group*, so that outputs and outcomes can be measured.

Implement steps

1 Implement Step 1:

Conduct a field test of the prototype with a small number of end-users to get rapid feedback.

Use the HCD-TIP Field Test Results Sheet to document how the field test went and guide improvements. If changes are made based on what we learned, field test the prototype again until the team is happy with the design.

2 Implement Step 2:

Once field testing is complete, as a team **develop a plan for implementation** using the HCD-TIP Implementation Planning Sheet.

Agree how the intervention will be implemented by answering the following questions:

1. What do we want to learn from implementation?
2. To check the intervention is working, what do we need to measure and how often (monitoring interval)?
3. How will indicator data be reported and how will we check the quality of the data?
4. How will we act on what we learn?

Implement Step 3:

Select indicators to measure the process and outcomes of the intervention. Indicators should be relevant to our design objective and implementation plan (see the HCD-TIP Evaluation Framework). Indicators can track changes in behaviours (what end-users do), attitudes (what end-users think) and outcomes (e.g., vaccine coverage).

Consider how often to track our indicators (monitoring interval). Short or mid-term indicators (monthly, quarterly) often focus on the process of implementation. Long-term indicators (bi-yearly, yearly) often focus on the outcomes of the intervention.

Adapt the HCD-TIP Implementation Monitoring Template for our intervention and chosen indicators; include baseline data, if available.

Implement Step 4:

Now we are ready to **implement our intervention** based on our implementation plan. As we implement, regularly complete and review the relevant sections of the HCD-TIP Implementation Monitoring Template. See Evaluate for more details.

Outputs of Stage 3: Implement

- [ ] Field test the prototype with end-users and complete the HCD-TIP Field Test Results Sheet.
- [ ] Complete the HCD-TIP Implementation Planning Sheet.
- [ ] Select indicators to measure process and outcomes.
- [ ] After each monitoring interval, update the HCD-TIP Implementation Monitoring Template.
- [ ] In the HCD-TIP Evaluation Framework list the activities conducted during this stage under Implement (column 3).

Good enough

A good enough **field test** is about **quality, not quantity**. **Start small, testing with just 2–3 end-users** to check that the prototype is understood and works to address the identified end-user needs.

Use feedback to make improvements, scaling up with each round to test the improved design.

Stage 4: **Evaluate**

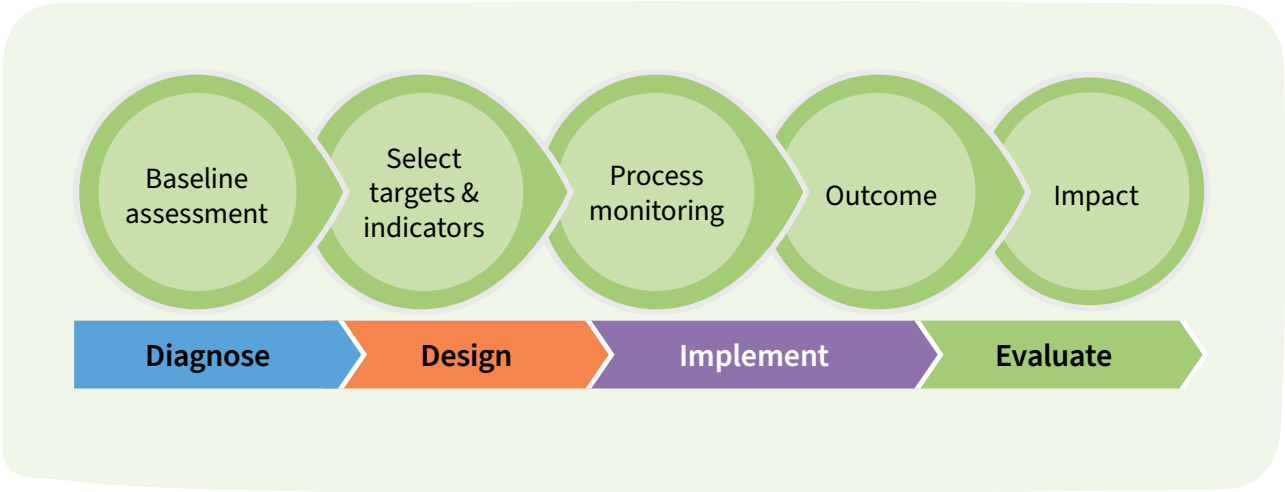
The evaluate stage is about checking that the intervention is achieving the set goals.

The HCD-TIP stages align with traditional monitoring and evaluation frameworks (Fig. 6). We have already taken important steps for evaluation at every stage (see the HCD-TIP Evaluation Framework).

In a continuous learning cycle (Design, Implement, Evaluate), we repeatedly assess user needs and intervention effectiveness to improve over time.

Evaluation is done at the end of each monitoring interval and a final evaluation is completed at the end of the project.

Fig. 6 **Monitoring and evaluation throughout an HCD-TIP process**



Evaluation steps

1

Evaluate Step 1:

At each monitoring interval, input and review updated indicator data on the HCD-TIP Implementation Monitoring Template and compare with baseline and prior monitoring periods.

Take note of any data reporting or data quality issues.

Evaluate Step 2:

Bring the team and stakeholders together to review indicator data alongside the problem and design objective.

Check: Are we making progress towards our objective? Does our indicator data reflect the outcomes we want to see?

Evaluate Step 3:

Agree on improvements for the next monitoring cycle:

- If an indicator is not useful to show how the intervention is working, we may need to adapt the indicator.
- We may also adapt data collection processes to improve data quality.
- Adaptations should be made with caution to maintain comparability of data over time.

If this is the final evaluation: **Discuss the lessons** learned and complete the HCD-TIP Evaluation Wrap-up Sheet.

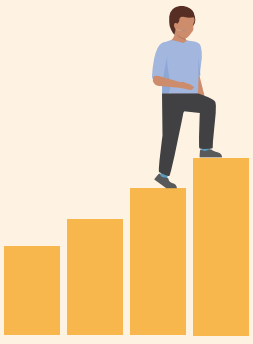
Outputs of Stage 4: Evaluate

- [ ] Review indicators in the HCD-TIP Implementation Monitoring Template to see if we are making progress
- [ ] In the HCD-TIP Evaluation Framework, list the activities conducted as part of this stage under Evaluate (column 4).
- [ ] When the project is finished, complete the HCD-TIP Evaluation Wrap-up Sheet.

Good enough

A good enough evaluation focuses on lessons learned and recommendations for the future.

What do we want people to know about the process, and what advice would we give them if they were to try to do the same?



Wrapping up

We have completed an HCD-TIP process to close immunization gaps. *What's next?*

Document the project, outcomes and lessons learned to serve as an important reference for future planning and advocacy. Reflect on the project activities and materials generated, as summarized in the HCD-TIP Evaluation Framework.

Convene a stakeholder workshop, including end-users, to discuss the conclusions, recommendations and potential for scale-up of the intervention. Documentation may serve as a useful tool for stakeholders and have the potential to benefit future collaborations.

Good enough

Use the **materials generated** to document the project. Answer the following questions:

PROBLEM STATEMENT
Who were the end-users we wanted to reach? **What** was identified as the main barrier to uptake? Who was involved in the process?

METHODS
How was the barrier or driver identified? **What** was done to address the barrier or strengthen the driver? **Describe** the intervention and how it was created and implemented. **How**, **where** and **with whom** was it implemented?

FINDINGS
What results did the intervention achieve?

CONCLUSION AND DISCUSSION
What are the outcomes of the project?
What did we learn from the process?
What could be improved or done differently next time?

Annex 1 HCD-TIP Evaluation Framework

Use this framework throughout the HCD-TIP process to track progress at each stage and record activities conducted (inputs) and materials generated (outputs). As we complete each stage, we should be able to answer the questions on the bottom row.

HCD-TIP stages	Diagnose	Design	Implement	Evaluate
Objective	Understand the barriers and drivers to vaccination for the priority group (end-users)	Identify possible solutions to address the problem and develop a prototype	Test and adapt our prototype to better serve end-user needs and implement our intervention	Monitor indicators, assess whether the intervention worked and reflect on what we learned
Activities (inputs)	**Example:** • Group review of summary report • Qualitative interviews with health workers	**Example:** • Journey mapping of drivers and barriers with health workers • Prioritization exercise to agree on intervention • Prototype of new home-based record design	**Example:** • Testing of new home-based records • Group discussion of end-user feedback and design improvements • Intervention planning meeting	**Example:** • Review indicator quality • Group discussion of intervention impact based on indicators measured and recorded in HCD-TIP Implementation Monitoring Template
Materials generated (outputs)	• Information summary • HCD-TIP End-User Persona Template • Primary data (if collected) • Urgent vs Important Matrix	• User journey maps • Design objective • Prototype	• HCD-TIP Field Test Results Sheet • HCD-TIP Implementation Planning Sheet • HCD-TIP Implementation Monitoring Template	• HCD-TIP Implementation Monitoring Template • HCD-TIP Evaluation Wrap-up Sheet
Questions answered	Who is the priority group we want to reach? (end-user) What problem are we trying to address? What is the end-user behaviour before the intervention?	What is our design objective?	What did we learn from field testing the prototype? What changes did we make along the way, and why? What were our short-/medium- and long-term indicators?	What did the indicator data show? Did we achieve our design objective? What lessons did we learn?

Annex 2 HCD-TIP End-User Persona Template

An end-user persona represents the end-users (priority group) we want to reach. Personas help us understand the needs, values, aspirations, abilities, limitations and personality traits of end-users. With the core team and stakeholders, fill in the fields below to develop a realistic end-user persona. If there is more than one type of end-user we want to reach, develop a persona for each end-user group.

8 End-user persona

Background
Who is this person? What do they do?
Where do they live and who do they live with? What aspects of their lives might influence their health behaviours?

Current behaviour → Desired behaviour

Thinking and Feeling
In their daily life, what does this person spend their time worrying about or celebrating?

How do they feel about vaccination? What kinds of questions or concerns might they have?

Motivation
What are their needs and wants? What motivates them? What might encourage them to seek vaccination? What frustrates them?

Social Processes
Consider relationships within their community. Who does this person trust? Who do they not trust?

Who are they responsible for, and who do they depend on? What is their relationship with the health clinic and staff?

Practical Issues
What does their typical day look like? How do they divide their time? Do they travel between places, and how?

What barriers or limitations might they encounter? What is their experience with vaccination and the health clinic more generally?

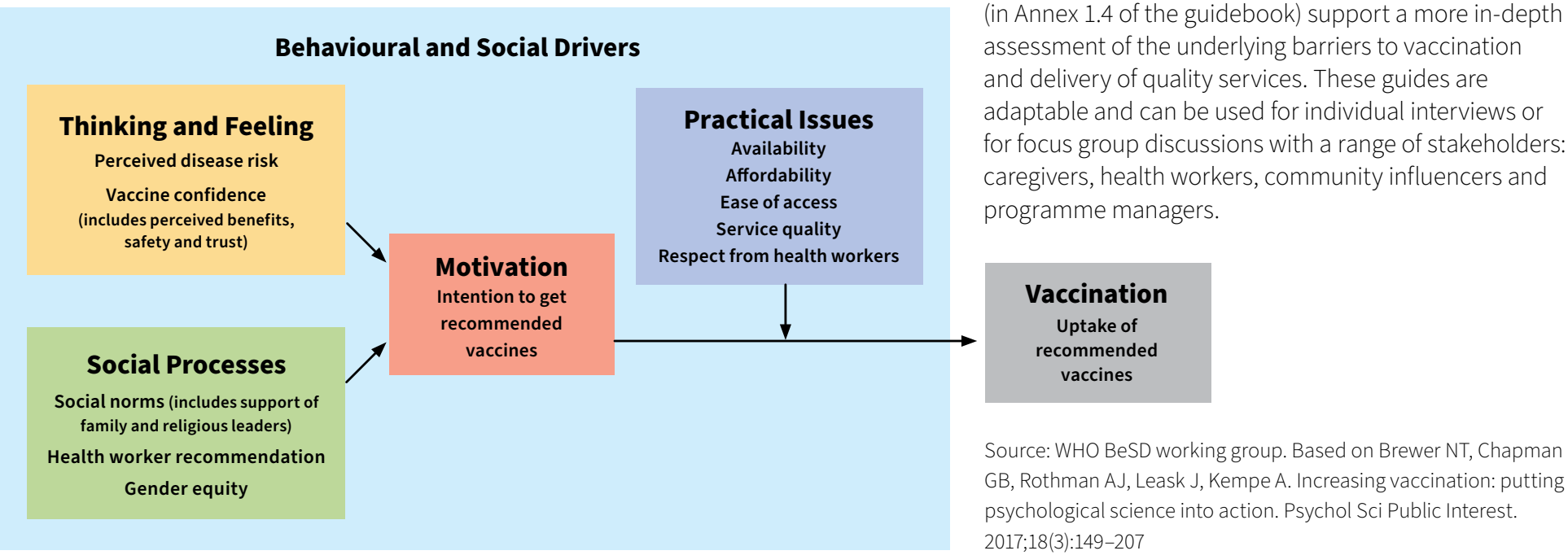
Annex 3 BeSD Toolkit

To support an assessment of the behavioural and social drivers and barriers to immunization, the BeSD toolkit provides a range of surveys and interview guides for different end-user groups (caregivers, health workers, etc.). The tools follow the BeSD framework for factors that influence vaccination uptake. These tools offer a useful starting point for data collection.

Behavioural and social drivers of vaccination: tools and practical guidance for achieving high uptake describes how to use the BeSD tools and contains tools for measuring what influences uptake of both childhood vaccines and COVID-19 vaccines for adults and health workers. The BeSD tools and guidebook are available at https://www.who.int/teams/immunization-vaccines-and-biologicals/essential-programme-on-immunization/demand.

The childhood vaccination survey (in Annex 1.2 of the guidebook) is for parents and caregivers of children under 5 years old. The core items guide a selection of minimum survey questions to ask, with further support for monitoring these insights over time.

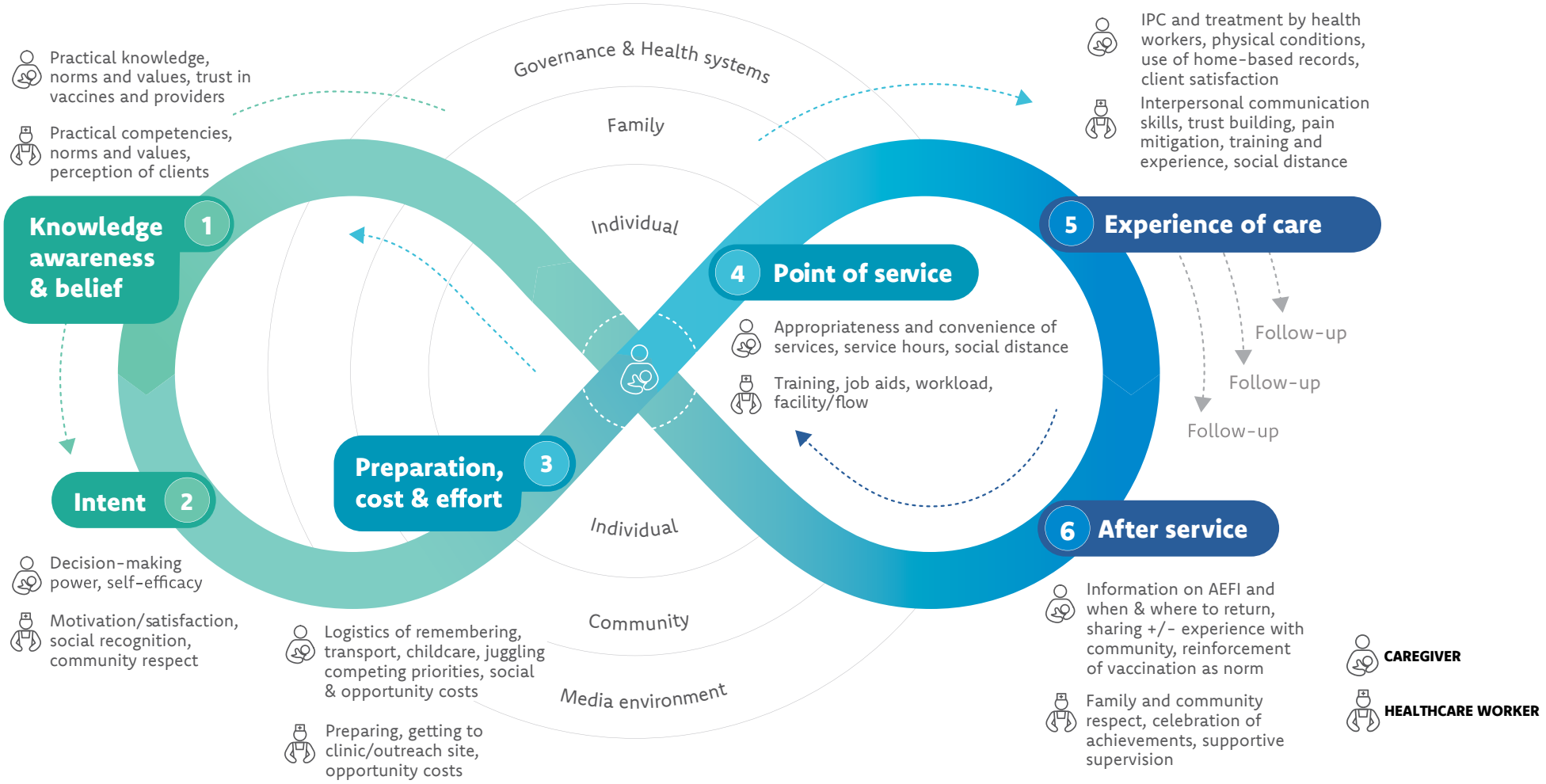
The childhood vaccination in-depth interview guides (in Annex 1.4 of the guidebook) support a more in-depth assessment of the underlying barriers to vaccination and delivery of quality services. These guides are adaptable and can be used for individual interviews or for focus group discussions with a range of stakeholders: caregivers, health workers, community influencers and programme managers.



Source: WHO BeSD working group. Based on Brewer NT, Chapman GB, Rothman AJ, Leask J, Kempe A. Increasing vaccination: putting psychological science into action. Psychol Sci Public Interest. 2017;18(3):149–207

Annex 4 The Journey to Health and Immunization

The journey below includes examples of the different types of barriers and drivers (enablers) that may affect health workers and caregivers. Use the journey to map barriers and drivers for our end-users. HCD resources are available at: https://www.hcd4health.org/resources.



Source: UNICEF Journey to Health and Immunization, ESARO Network Meeting 2019

Annex 5 Urgent vs. Important Matrix

This template can be used to prioritize which barriers to address or drivers to strengthen. This could also be used to help decide which intervention idea to take forward for implementation.

Important but not urgent	**Important and urgent**
Not important and not urgent	**Not important but urgent**

Annex 6 HCD-TIP Field Test Results Sheet

Use this field test results sheet as part of the implement phase to rapidly assess and address elements of the intervention prototype that can be improved to better serve our design objective.

Date of field test:

Intervention name:

Where was the intervention prototype field tested?

Who was the intervention prototype field tested with?

How did the field test go?

What did we learn?

What can be improved?

Annex 7 HCD-TIP Implementation Planning Sheet

Before fully implementing our intervention, answer the questions below to help improve clarity and accountability for the implementation plan.

What do we want to learn from implementing our intervention?		How will we measure our progress and how often? (e.g., monitoring)		*Responsible person(s):*
Where, when and with whom will we implement our intervention?		How will we check the quality of our data?		*Responsible person(s):*
To check our intervention is working, what do we need to measure? *		What will we do with the information we learn?		*Responsible person(s):*

*Consider both short/mid-term and long-term indicators of progress; think about how we will track and use these measures.

Annex 8 HCD-TIP Implementation Monitoring Template

Indicators for implementation should be monitored at regular intervals (e.g., every month/quarter/year). Adapt this template to include short-/mid-term indicators (process focused) and long-term indicators (outcome focused) specific to our intervention. The green section must be completed before implementation begins; the blue section should be completed at pre-set monitoring intervals throughout intervention (including notes on data quality).

Fill in intervention details and name of indicators before implementation

Intervention name:	**Who? (end user):**	**Where?**	**When?**

Short-/mid-term indicators – monitoring interval: (example: monthly/quarterly)

	Y1 Q1	Y1 Q2	Y1 Q3	Y1 Q4	Y2 Q1	Y2 Q2	Y2 Q3	Y2 Q4
Indicator 1 (Example: # facilities intervention is implemented)								
Indicator 2 (Example: # HCWs trained)								
Indicator 3 (Example: % caregivers report acceptability of intervention								
Data reporting and quality notes:								
Agreed improvements for next monitoring cycle:								

Long-term indicators – monitoring interval: (example: bi-yearly/yearly)

	Baseline	Y1	Y2
Indicator 1 (Example: % satisfied with care)			
Indicator 2 (Example: % vaccine coverage)			
Indicator 3 (Example: # deaths from vaccine-preventable diseases)			
Data reporting and quality notes:			
Agreed improvements for next monitoring cycle:			

Annex 9 HCD-TIP Evaluation Wrap-up Sheet

At the end of an HCD-TIP process, when we will no longer conduct further cycles of Design, Implement, Evaluate, complete this HCD-TIP Evaluation Wrap-up Sheet. As part of the final evaluation, the team and stakeholders should consider what we learned from the process.

Intervention name:	**Intervention implemented from:** (dd/mm/yyyy) **to:**
Priority group (end-users):	**Design objective:**

What outcome or impact did our intervention have for end-users?

What lessons did we learn about the intervention **design**?

How did we improve the intervention **design** over time?

What do we recommend to **improve** the intervention **design** in the future?

What lessons did we learn about the **monitoring indicators** and **data quality**?

What lessons did we learn about the intervention **implementation process**?

How did we improve the **implementation process** over time?

What do we recommend to **improve** the **implementation process** in the future?

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