World Health Organization
REGIONAL OFFICE FOR Europe

TIP
Tailoring Immunization Programmes

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Abstract

Vaccination is an excellent health intervention, saving millions of lives and even more pain and suffering. It can reduce inequalities, increase access to health services in general and even reduce poverty.

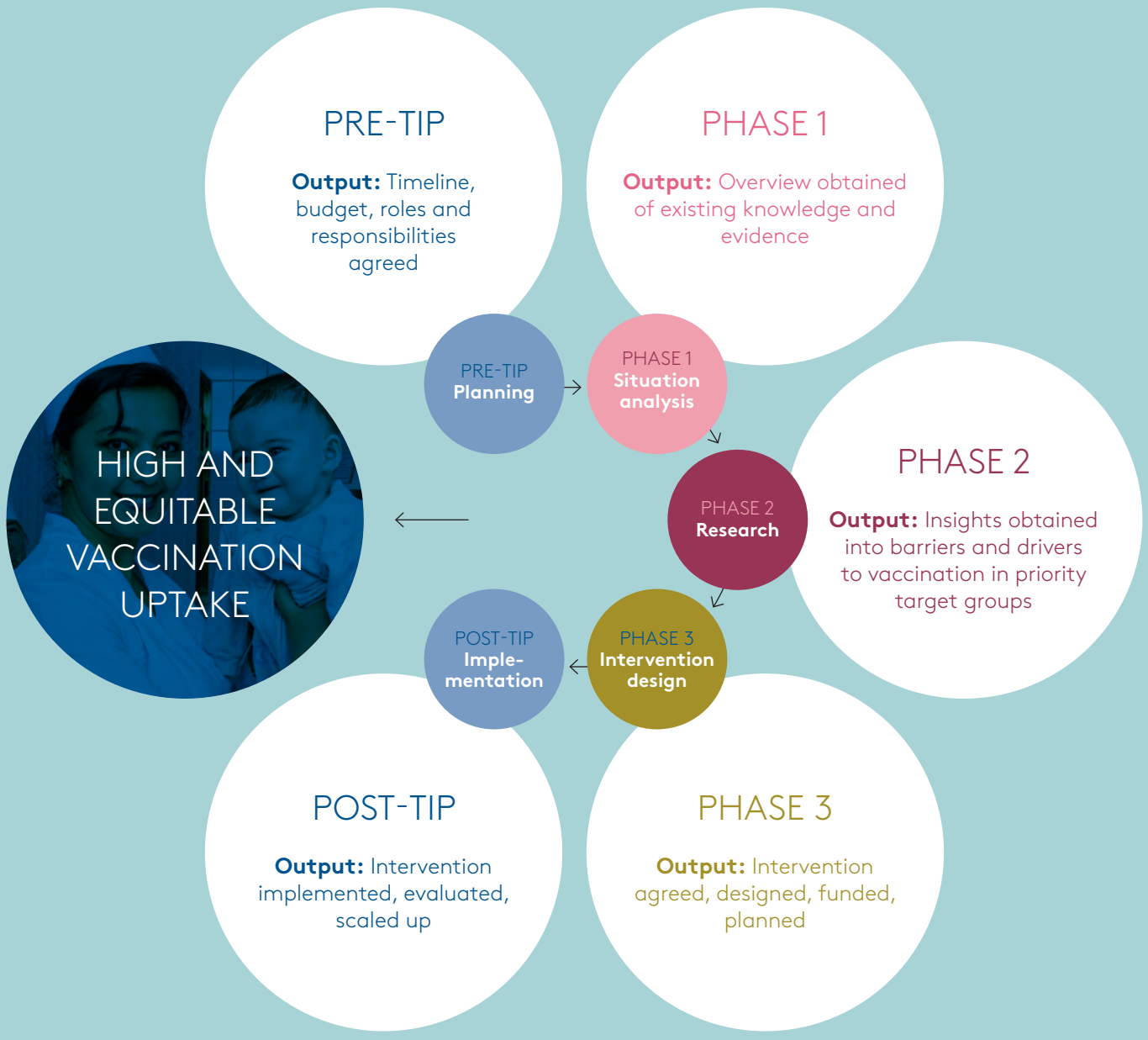
So why are many people not fully protected from vaccine-preventable diseases? There is no simple answer. People may find that their health worker does not provide the support they need. Some may find opening hours and the waiting time inconvenient; others may have concerns about vaccine safety, or do not trust the health authorities. Some may not have been properly informed about when and where to go for vaccination.

To achieve high and equitable vaccination uptake, it is necessary to understand the barriers to vaccination among the population groups with suboptimal coverage. **Then solutions can be designed which support, motivate and enable people to be vaccinated.** Solutions which ensure all population groups are vaccinated, regardless of their income, education, age, geography, ethnicity, religion or philosophical beliefs.

The Tailoring Immunization Programmes (TIP) approach was developed by the WHO Regional Office for Europe to support countries to do this. It is grounded in scientific evidence and country experience and aims to integrate people-centred research and behavioural insights into immunization programme planning and policy.

The TIP approach is founded on three main pillars: **1) six values and principles; 2) a theoretical model; and 3) a phased process with detailed exercises.** The phases and steps of a TIP process are described in detail in this document, supported by inspiration examples and exercises for TIP planning workshops.

TIP process


PRE-TIP
Output: Timeline, budget, roles and responsibilities agreed
PHASE 1
Output: Overview obtained of existing knowledge and evidence
PRE-TIP **Planning**
PHASE 1 **Situation analysis**
PHASE 2
Output: Insights obtained into barriers and drivers to vaccination in priority target groups
PHASE 2 **Research**
HIGH AND EQUITABLE VACCINATION UPTAKE
POST-TIP **Imple-mentation**
PHASE 3 **Intervention design**
POST-TIP
Output: Intervention implemented, evaluated, scaled up
PHASE 3
Output: Intervention agreed, designed, funded, planned

Contents

Acknowledgements

This document is a further development of the first TIP document published in 2013, with Robb Butler and Nathalie Likhite as key authors.

This document was developed by WHO Regional Office for Europe, by Katrine Bach Habersaat with contributions from Cath Jackson, who has been a key person in this further development of the TIP approach and its application in countries. Pernille Jorgensen, Siff Malue Nielsen, Anja Schreijer and Marie Louise Wright also contributed. Several workshops were conducted by this group and Julie Leask to discuss and agree on the main pillars of the TIP approach.

The document is grounded in evidence and country experience from its application in 12 countries within and outside the European Region during 2013–2019. Warm thanks go to the many people who have led the national TIP processes and have been instrumental in shaping the further development of the approach and advocating for its use.

The new TIP approach also follows the guidance and recommendations of an external review of the first TIP approach, conducted in 2017 by a team of global experts, including Victor Balaban, Eve Dubé, Benjamin Hickler, Everold Hosein, Julie Leask and Brent Wolff *(1)*.

The document has been reviewed by 11 peers, representing Member States, academia, colleagues in WHO and partner organizations: Lou Atkins, Cornelia Betsch, Eve Dubé, Benjamin Hickler, Cath Jackson, Ketevan Kandelaki, Catharina de Kat, Aida Kula, Julie Leask, Louise Letley, Lisa Menning and Anja Schreijer. Their contributions were invaluable and they deserve warm thanks.

Legend


Inspiration box


Task


TIP pillar


Patients/caregivers


Health workers

Navigation:
TIP PHASES overview

Acronyms

COM	Capability
	Opportunity
	Motivation
ECDC	European Centre for Disease Prevention and Control
EVAP	European Vaccine Action Plan
GPW	General Programme of Work
SDG	Sustainable Development Goals
TIP	Tailoring Immunization Programmes
UHC	universal health coverage
UNICEF	United Nations Children's Fund

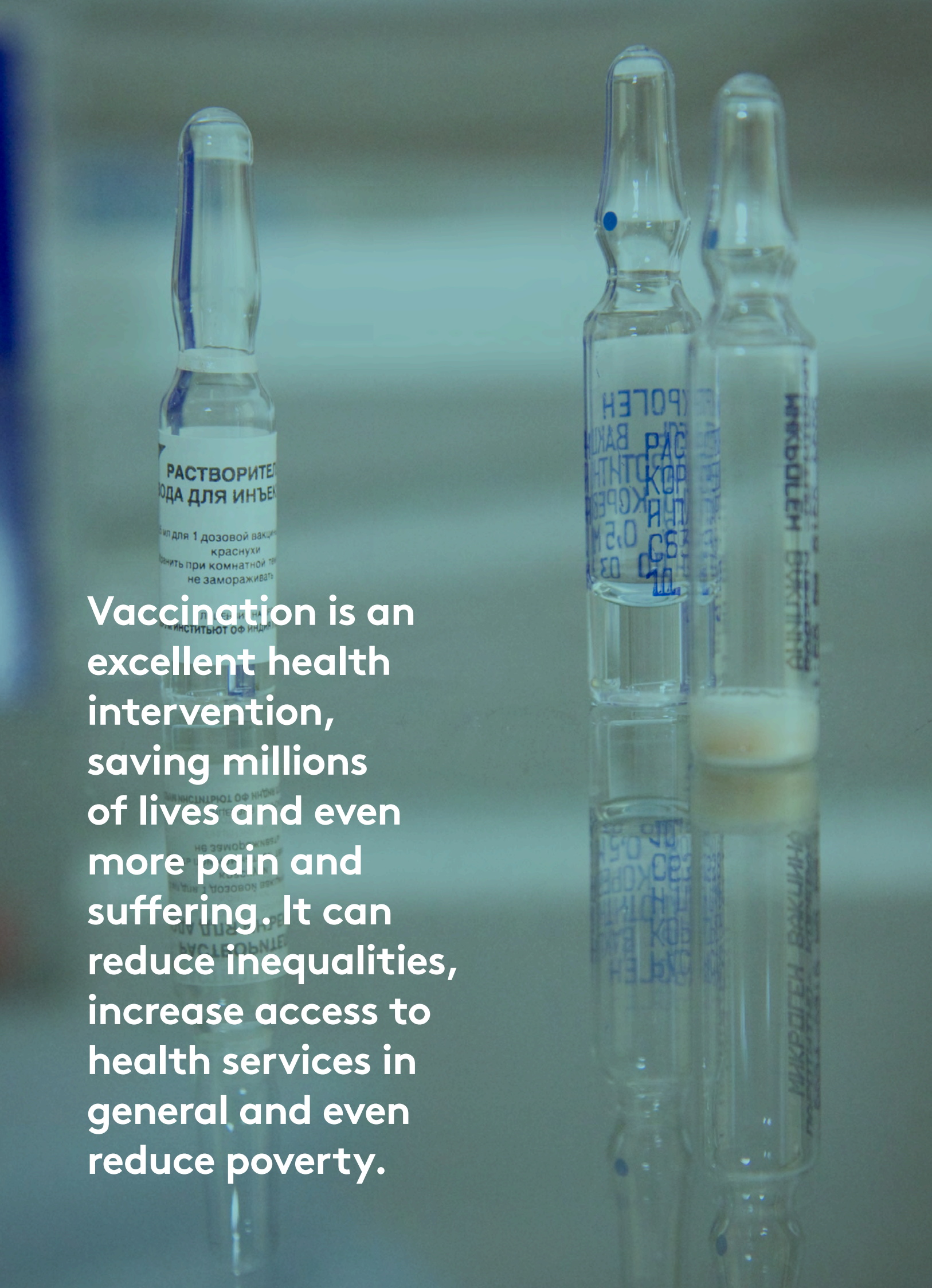
TIP: Tailoring Immunization Programmes

SECTION 1

Background

World Health Organization

REGIONAL OFFICE FOR Europe



Vaccination is an excellent health intervention, saving millions of lives and even more pain and suffering. It can reduce inequalities, increase access to health services in general and even reduce poverty.

SECTION 1

Background

Introduction

Vaccination is an excellent public health intervention: it saves millions of lives and even more from pain and suffering and absence from work and education *(2)*. It reduces the use of antibiotics *(3)*. It can reduce inequalities *(4)*. It can increase access to health services in general *(5)*, and it can even reduce poverty *(6)*.

Yet many people are not fully protected from vaccine-preventable diseases. Recurrent disease outbreaks are a reminder that this has not yet been achieved in the countries of the WHO European Region. Vaccination uptake at national or subnational levels does not always meet targets. Underserved and marginalized population groups exist who do not benefit from vaccination services to the same degree as the rest of the population.

Why is this? There is no simple answer. Some people forget. Some do not feel comfortable going to the health clinic. Some find opening hours and the waiting time inconvenient. Some have concerns about vaccine safety. Some do not trust their doctor or the health authorities. The list is long.

To achieve high and equitable vaccination uptake, it is necessary first to identify the barriers and drivers to vaccination for the specific population group being targeted (the factors which affect vaccination in a negative or positive way). This enables solutions to be designed: solutions which support, motivate and enable people to be vaccinated; solutions which make sure that all population groups are vaccinated, regardless of their income, education, age, geography, ethnicity, religion or philosophical beliefs.

To help countries to do this, WHO Regional Office for Europe has developed the Tailoring Immunization Programmes (TIP) approach. It provides stakeholders working in the field of immunization with proven tools to identify suboptimally vaccinated populations, determine barriers and drivers and design interventions, as outlined in Fig. 1.

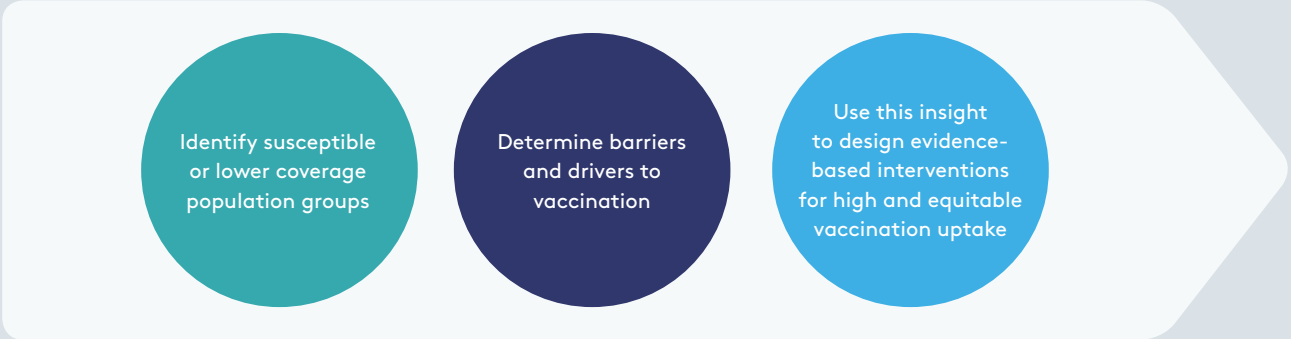
A TIP process is often initiated when:

- lower-than-target vaccination uptake or high susceptibility to vaccine-preventable diseases has been identified in specific population groups; and/or
- there is concern about declining uptake, nationally or in specific population groups or geographical areas.

To inform people wishing to implement a TIP process, this **Section 1** offers an introduction to:

- key immunization-related goals and plans and how the TIP approach relates to these; and
- the three pillars of the TIP approach
  - TIP values and principles
  - TIP theoretical model and pathway
  - TIP process.

Fig. 1. **Logic of the TIP approach**



To help implementers structure the TIP process, **Section 2** sets out a detailed description of the TIP process: phases and steps, including:

- exercises to help structure findings, guide discussions and suggest criteria for decisions;
- inspiration boxes and advice to inform and inspire TIP processes;
- links to other relevant guidance documents available.

Who is this document for?

This document offers inspiration and direction to stakeholders involved in a TIP process.

A TIP process is usually led and implemented by national (or subnational) health authorities, often the immunization programme. The programme can decide to implement all phases as recommended in this document, or to draw on the principles outlined in a more rapid process (see PRE-TIP planning).

Who can support countries in conducting a TIP process?

A TIP process is led by the country team initiating it. The WHO Regional Office for Europe can provide technical support to the initiation and implementation of a TIP process; for example to the situation analysis, stakeholder engagement activities, research studies and intervention design. Other partners may also be involved to support this work.

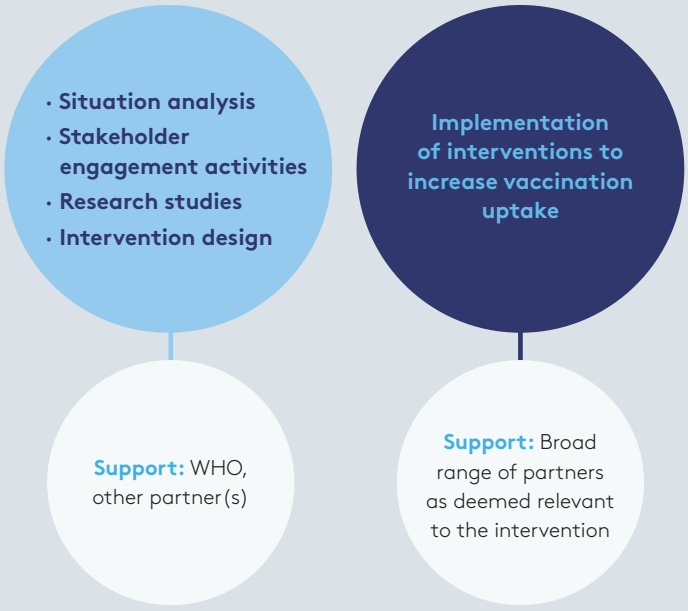
The subsequent process of implementing an intervention (with possible multiple activities) may take years. This process often engages a broader group of partners or supporters (Fig. 2).

GOOD TO KNOW

The TIP approach aims for high and equitable vaccination uptake. **Equitable vaccination uptake** is understood as achieving the same level of vaccination uptake across population groups, regardless of factors such as income, education, geography, ethnicity or integration in society.

Equitable vaccination uptake can be achieved through considering and addressing differences, inequities and structural disadvantages and through ensuring vaccination services are tailored to meet the needs of patients and caregivers. It does not mean treating all people the same.

Fig. 2. **Stakeholders supporting TIP processes**



Why TIP?

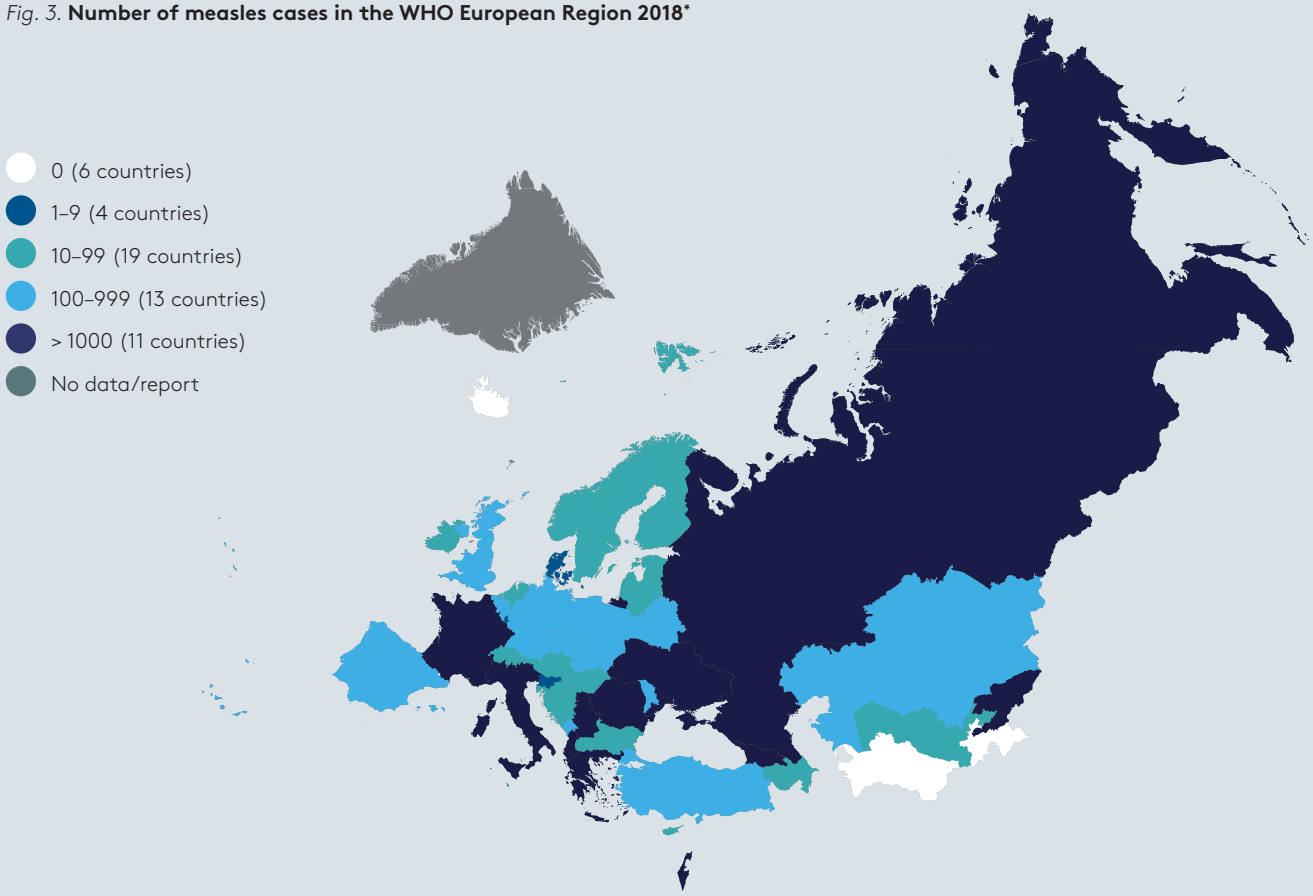
The WHO European Region overall has high vaccination uptake. However, rates at national or subnational levels are insufficient to ensure herd immunity* and control the spread of vaccine-preventable diseases (Fig. 3).

To ensure increasing, and more equitable vaccination uptake requires solutions which match the needs of the individuals and communities with low uptake. As the reasons for suboptimal uptake are complex and context-specific, effective and cost-effective solutions require full understanding of the problem, as well as tailored and multicomponent solutions *(7,8)*.

Social and behavioural insights studies and engagement of stakeholders can help in first understanding the problems and then designing immunization programme solutions tailored to the local barriers to vaccination.

* Herd immunity: When a sufficient proportion of a population is immune to infection, transmission is slowed or stopped and thereby the people in the community who are not immune are indirectly protected.

Fig. 3. **Number of measles cases in the WHO European Region 2018***



* Data source: Monthly aggregated and case-based data reported by Member States to WHO Regional Office for Europe directly or via European Centre for Disease Prevention and Control (ECDC) ECDC/TESSy. Data as of 28 March 2019.

Social and behavioural insights to understand barriers to vaccination

Making vaccination accessible, acceptable, convenient and attractive for people requires insights into both individual behavioural factors and the contextual, social and societal mechanisms which support the behaviour.

Insights from psychology show that often unconsciously, people use mental shortcuts to process information and make decisions. These mechanisms are helpful because they allow people to make quick decisions in a busy everyday life. But they can lead to biases in how people perceive risk, make decisions on vaccination and perceive health-related information *(9)*. Understanding these mental mechanisms and how they affect individual behaviours is needed when designing interventions for increased vaccination uptake (see also PHASE 3, Table 5).

Drawing on these insights, however, should not lead health authorities to focus only on the individual or to rely on *providing information* as the only way to influence vaccination behaviours. This tends to result in only minor, if any, changes in behaviour *(10)*. The assumption underpinning that practice is that if people have sufficient knowledge, or receive well-crafted messages, they will make the 'right' decision. This approach (often referred to as a 'cognitive deficit' approach *(11)*), assumes that knowledge leads to behaviour change.

This ignores other important influences on behaviour. Psychological science has shown that facilitating the vaccination behaviour directly (such as changing the encounter with the health worker) can have a greater impact on vaccination behaviours than trying to change how people think and feel about vaccination *(10)* (See also PHASE 3, Table 4). Systems factors such as policies, health service provision, cost and logistics thus are important for vaccination behaviours *(10,13,14)*.

Other context factors may also be important barriers to vaccination. Cultural, community and social support, norms and identity, including religious, educational or philosophical ones, shape vaccination attitudes and behaviours *(8,9,10,12)*.

Finally, social determinants of health, i.e. the circumstances in which people are born, grow up, live, learn, work and age affect vaccination. Research has shown that parental socioeconomic status, number of years in education and ethnicity affect vaccination behaviours *(5)*. Across the WHO European Region there are marginalized population groups that do not access vaccination services to the same degree as the rest of the population *(13)*. The way health systems are designed, operate and are financed can help resolve this inequity *(5)*.

The TIP approach covers the individual, social and societal perspectives and offers a conceptual framework and method to understand and describe the wide range of factors affecting vaccination uptake.

The vaccination encounter

The framework proposes that the encounter between the patient/caregiver and the health worker is a critical moment in vaccination decision-making *(16,17,18)*. Accordingly, it recommends investigating barriers and drivers to vaccination from the perspectives of both patients/caregivers and health workers.

GOOD TO KNOW

This document refers to the **patients/caregivers** as the broad category of people who receive vaccination or care for those who do.
This may include:

- person being vaccinated (adult, teenager or child)
- caregiver of person being vaccinated (parent, grandparent, carer)
- in some cases, the community targeted for vaccination.

This document refers to **health workers** as the broad category of people which patients/cargivers meet at the health facility.
This may include:

- nurses, midwives, nursing assistants
- paediatricians, family doctors, medical specialists
- clinic managers, front desk staff, other staff at health facility.

Equitable vaccination uptake

TIP processes aim for not just high but also equitable vaccination uptake, and aiming for equity in vaccination is a key principle of the TIP approach. This is because people from lower socioeconomic backgrounds have been found to be disproportionately affected by vaccine-preventable disease and vaccination has the potential to reduce this inequality *(4,6)*. The public health benefits of this go beyond vaccination: equitable immunization policies generate wider health, social, political and economic benefits, and immunization can improve coverage of other health interventions, benefiting many, including the most vulnerable *(5)*. In fact, vaccination could have an important impact in reducing poverty *(6)*.

Health equity involves everyone being able to achieve their full health potential regardless of social position or other socially determined circumstances. In the TIP approach, identification of underserved and marginalized populations that are susceptible to vaccine-preventable diseases is a key factor in the situation analysis. How social determinants may create barriers for vaccination is considered in the research. Implications for equity in vaccination are considered in the selection of target groups and design of interventions.

TIP processes also contribute to strengthening the health literacy of patients/caregivers. Health literacy is defined as cognitive and social skills which determine the motivation and ability of individuals to gain access to, understand and use information in ways which promote and maintain good health *(19)*. People need to be empowered to claim their right to, and use, the health services offered. They need to be supported to access services as well as with clear, appropriate and accessible information *(20)*. TIP research studies help health authorities understand how this can best be done.

Global, regional and national goals and strategies

Ambitious global health goals have been set to ensure healthy lives and well-being for all at all ages. Many of these goals depend on people engaging in recommended health behaviours – such as vaccination. This means that people's health behaviours are not just their own responsibility. They are also the responsibility of authorities. To reach health goals, health authorities have a critical task in making recommended behaviours possible, acceptable, convenient and attractive for people.

The TIP approach builds on the principles of global, regional and national plans and strategies. Implementing TIP processes means contributing to their achievement.

Sustainable Development Goals

In 2015, 17 Sustainable Development Goals (SDG) with 169 targets were endorsed by all Member States of the United Nations. The ambitious plan of action proposed by these goals aimed to leave no one behind and targeted development in three dimensions: economic, social and environmental. By promoting high and equitable vaccination uptake, TIP processes contribute to the achievement of no less than 14 out of the 17 Goals.*

WHO General Programme of Work

The values and principles of the TIP approach are in line with the strategic priorities of WHO's 13th General Programme of Work (GPW). The GPW aims to achieve universal health coverage (UHC) and promote healthier populations. UHC means that all individuals and communities receive the health services they need without suffering financial hardship. UHC enables everyone to access services of high quality, including vaccination, which address the most significant causes of disease and death. Like the TIP approach, GPW is also based on the principles of equity and a people-centred and evidence-based approach.

* WHO Regional Office for Europe (2019): www.euro.who.int/SDG. See also www.gavi.org/about/ghd/sdg/.

Regional and national goals

The TIP approach builds on WHO's European health policy framework, Health 2020, which aims to improve the health and well-being of all citizens within the European Region. Like the TIP approach, Health 2020 promotes people-centred and evidence-informed approaches (priority area 3).

The European Vaccine Action Plan (EVAP) identifies *equitable extension of vaccination services* and *individuals understanding and demanding vaccination* as two objectives for all Member States in the Region (Objectives 2 and 3).* EVAP defines tailored and innovative strategies as the means to reach these objectives, and points to the TIP approach as a tool to reach vaccination coverage targets (Goal 4).

* Resolution EUR/RC64/R5, Regional Committee for Europe 64th session September 2014.

Lastly, the focus of the TIP approach on health goals suggests that any national TIP process is guided by national strategies and plans and contributes to national health goals.

The three pillars of the TIP approach

There are three key pillars of the TIP approach:

- values and principles
- theoretical model and framework
- process with phases and steps.

TIP pillar one: Values and principles

The TIP approach has six underpinning values and principles (Fig. 4).

Fig. 4. **TIP values and principles**

People-centred

The driving premise of the TIP approach is that to make vaccination a possible, desirable and positive experience for patients and caregivers, health authorities need to engage with and listen to them – and respond to their needs and shape policies, vaccination services and communications accordingly. Understanding the perspectives of patients/caregivers and health workers guides investment and interventions and allows immunization programmes to tailor their services, strategies and investment to their perspectives and needs.

Equity

Ensuring equitable vaccination uptake across population groups and focusing on underserved and marginalized population groups are core principles of the TIP approach. The equity perspective is considered at each stage of the TIP process: situation analysis, prioritizing target groups, research and development of interventions. Because of its comprehensive approach, TIP is particularly relevant for working with communities with complex and multifactoral challenges, for example those with limited resources, opportunities, health literacy and health access (see also pages 7–8).

Participatory

The collective knowledge of stakeholders with expertise and experience, such as health workers, community/patient/caregiver representatives, decision-makers, academics and other experts, informs the TIP process and promotes ownership and shared responsibility. Convening a group of stakeholders who do not usually engage in structured conversation around vaccination can be valuable and lead to new insights for both the participants and the organizers. Different levels of stakeholder engagement are ensured through, for example, consultation via workshops, in-depth interviews and ad hoc working groups.

Understanding the perspectives of patients/caregivers and health workers allows immunization programmes to tailor their services, strategies and investment to their perspectives and needs.

Health goals

TIP processes are guided by, and help attain, national and global health goals. Reaching ambitious goals for immunization uptake and equity requires certain behaviours, on the side of both the patient/caregiver and the health worker. The TIP approach helps health authorities identify how to enable, support and motivate such behaviours, helping them to reach their goals. The focus on monitoring and evaluation helps to assess if the gooals were met.

Evidence

The TIP approach is rooted in scientific evidence, drawing on medical anthropology, psychology, sociology, communication and social science. TIP process involves analysis of national, regional and global data as well as proven (qualitative, quantitative, mixed) research methods to obtain context-specific data and insights. Interventions aiming to increase vaccination uptake are guided by evidence, and not by assumptions or business-as-usual. Monitoring and evaluation allows to assess to which extent interventions are successful as well as further refinement.

Comprehensive

Many factors can affect vaccination behaviours and there are therefore many potential interventions. The TIP theoretical model offers a comprehensive approach where the analysis is broad at the outset and becomes increasingly focused. A TIP process may lead to interventions at different levels that aim to enable, support and motivate vaccination – for example, relating to legislation, service provision, access, health worker behaviours, information provision, community norms, etc.

TIP pillar two: Theoretical model and framework

The TIP approach is underpinned by evidence from behavioural science, which aims to define and understand which factors are necessary for behaviours to take place, and which factors increase the probability that a behaviour willl occur (drivers) or decrease robability (barriers).

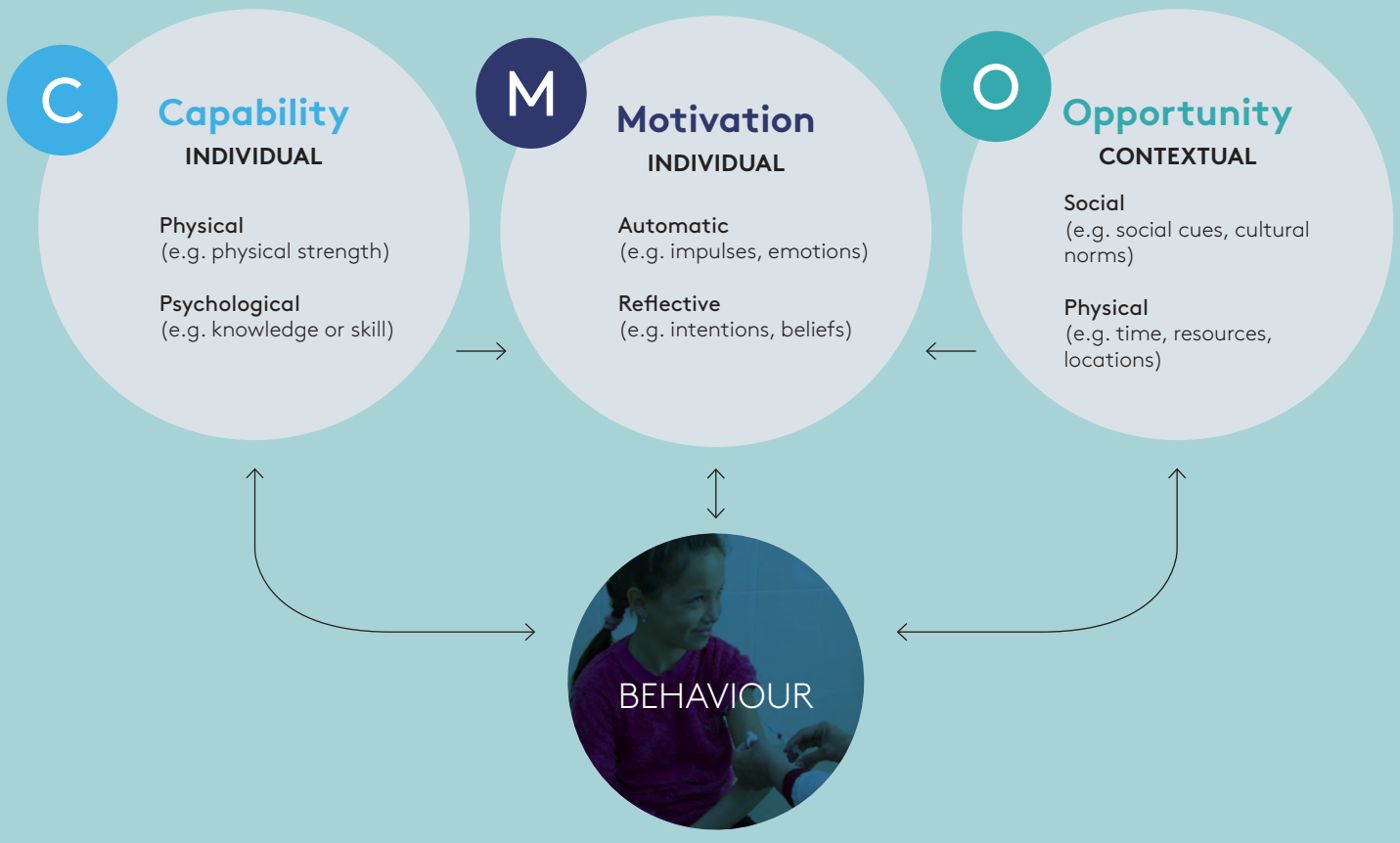
The theoretical model and framework used in the TIP approach is based on the COM-B model and the Behaviour Change Wheel framework *(21)*, developed by a team of researchers drawing on 19 frameworks of behaviour change.* This model and framework have been adapted and simplified to fit vaccination and TIP processes.

The COM-B model was chosen because it takes a comprehensive approach through focusing on a broad range of individual and contextual issues affecting health behaviours.

At the centre of the model are three overall factors, capability, opportunity and motivation (COM) that need to be in place for any health behaviour (B) to occur. Capability and motivation relate to the individual; opportunity relates to the context. The factors interact: capability and opportunity both influence motivation; and all three factors influence behaviour. Conversely, behaviour influences all three factors. Each of the three factors has two subcomponents (Fig. 5).

* One of the 19 frameworks was the PSI behaviour change model which was used in the original TIP Guide (2013).

Fig. 5. **The COM-B factors** *(21)*



The COM-B model was originally developed for any behaviour in any setting and is adapted in this document for vaccination behaviours.

Adaptation of COM-B model for TIP

The COM-B model was originally developed for any behaviour in any setting and is adapted in this document for vaccination behaviours. These behaviours can be on the part of the patients/caregivers or health workers.

The relevance of the COM-B model for vaccination is supported by evidence on the determinants of vaccination behaviour.

- Individual **capability**, such as knowledge, skills or surplus energy, can be important factors in vaccination behaviours *(14,22)*.
- Many studies have shown that individual **motivating** factors, such as risk perception, confidence, concerns and worry, influence vaccination behaviours *(10)*.
- For the **opportunity** factors, evidence shows that social processes and norms shape vaccination behaviours *(10,12)*, and that physical factors such as policies, systems, cost and logistics are important determinants for vaccination behaviours *(10,14,15)*.

However, some adaptation to the model was necessary, based on the results of testing in countries. The two subcategories for motivation (automatic and reflective) and the two subcategories for capability (psychological and physical) are closely interlinked for vaccination. Distinguishing between them in the analysis and in the design of interventions in experience is not critical, so it was decided not to divide capability and motivation into subcategories.

For opportunity the situation is different. Physical opportunity has proved to be important. Vaccination, more than some health behaviours (such as physical exercise, healthy diet, smoking cessation), relies on physical opportunity in the form of a well-functioning vaccination service delivery system and appropriate legislation, vaccination supply, qualified staff and sufficient financial resources in the health system. Social opportunity (in the form of social, community and cultural support, values and norms) is easily distinguishable from physical opportunity and is also a critical factor for vaccination behaviours.

The TIP adaptation of the COM-B model, therefore

- considers capability as one factor directed by both psychological and physical mechanisms;
- considers motivation as one factor directed by both automatic and reflective mechanisms;
- considers opportunity as one factor with two distinct subcategories: physical and social (Fig. 6).

In the TIP approach, the dimensions under the three factors could act as either **drivers** or **barriers** to vaccination.

Elaborating on the theoretical model specifically for vaccination, Tables 1 and 2 list possible issues to explore for each of the factors.

Fig. 6. **The COM-B Model adapted to vaccination**

Table 1. **Elaboration of the theoretical model: possible issues for patients/caregivers***

C

Capability

Possible issues to explore for **patients/caregivers**

Knowledge	Do they have practical knowledge of the "who, what, when, where" in relation to vaccination? Do they know that vaccination protects against serious diseases, and which ones? How good is their knowledge of different vaccine-preventable diseases and the risk related to these? How good is their knowledge of the risks and benefits related to vaccines? Do they know that several doses may be required to achieve protection? Do they know about herd immunity? Are they aware of possible current outbreaks or prevalence of vaccine-preventable diseases? Are they misinformed about vaccines, vaccine safety? What is their knowledge of contraindications – any misperceptions?
Skills and trust in own skills	Do they understand the language in which information is provided (literacy)? Do they understand risk as numbers, percentages or probabilities (numeracy)? Are they able to plan vaccination? Do they have faith in their own ability to plan for and attend vaccination appointments?
Resilience, stamina, will power, surplus energy	Do they have the stamina and willpower to follow through on intentions and plans to be vaccinated? Do they have the surplus energy to be vaccinated, e.g. when faced with poverty, life crisis, hardship?
Physical fitness and ability	Do they have a contraindication to vaccination? Are they physically able to book and attend vaccination? Note: Barriers relating to physical access to health services (e.g. lack of transportation opportunities, social support or access for wheelchair users) are generally considered opportunity barriers

* The table lists possible topics to explore. It is not an interview guide. It can be used as inspiration when developing research protocols and interview guides.

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Table continued →

Opportunity
PHYSICAL

Possible issues to explore for **patients/caregivers**

Access to, affordability of and availability of vaccination services	What is their experience of how easy and safe it is to travel to service locations? What is their experience with the direct and indirect costs related to vaccination? Are vaccines available? Have they experienced vaccine shortages? Do they suspect that they might arrive to find that either the necessary vaccine and/or health staff will not be there?
Convenience, appeal and appropriateness of vaccination services	What are their perceptions of the days and hours of vaccination services? Do they experience competing responsibilities during available service hours? What do they think about the convenience of the service, e.g. waiting time, ease of booking? How comfortable are the health facilities (e.g. waiting areas, child-friendly, breastfeeding area, etc.)? Are service waiting times and opening hours convenient? How do they perceive vaccination providers and other staff in health facilities – competent, welcoming, respectful, or not? Are vaccination services provided in a (culturally) appropriate way?
Rights, regulation and legislation	Are vaccination services delivered in a nondiscriminatory way? What rights and responsibilities/requirements do they have according to national laws? Is vaccination secured through appropriate and effective laws, rules, regulations, structures? Is vaccination mandatory? Do they have free and equal access to vaccination? What is required – e.g. identity card, vaccination card, address in approved area? Does everybody have access to this? Do they have to sign a consent from? Are they comfortable with this?
Structural efficiency	Are effective systems in place to monitor un- and undervaccinated children? Are effective call and reminder systems in place? Are they being implemented properly? Are vaccinators and other health workers properly trained (e.g. with regard to vaccine safety, contraindications, effective communication with patients/caregivers)?
Availability of information	Is official/trustworthy information about vaccination available to all? Where? Is the official information on vaccination tailored to different audiences (e.g. press, public, health workers)? Has the official information about vaccination been tested for ease of understanding and user-friendliness? Do health workers clearly explain what they need to know in a language they understand?

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Table continued →

Opportunity

SOCIAL

Possible issues to explore for **patients/caregivers**

Social and cultural demands and support	Are they members of/affiliated with a group or community which actively encourages or discourages vaccination (religious, online, philosophical)? Do their community leaders (religious, political, social) encourage/discourage vaccination? Do vaccinators and other health workers promote vaccination and provide the appropriate and necessary support for vaccination? Do their peers and family members have expectations that they vaccinate and actively encourage/discourage vaccination? What are the social consequences of and reactions to vaccination/non-vaccination? Is their community respected by health workers and the health system?
Social and cultural cues, norms and values	Is vaccination a social norm and expectation in their community? Is non-vaccination accepted by their peers? Is vaccination accepted by their peers? Do their peers vaccinate? Do they think their peers vaccinate? Is vaccination a topic of debate in their community?

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Table continued ⟶

M

Motivation

Possible issues to explore for **patients/caregivers**

Attitudes, perceptions and risk assessment	Do they believe that they are at risk of catching a vaccine-preventable disease? Do they consider vaccine-preventable diseases to be serious or life threatening? What is their perception of the use of financial incentives/payment schemes for health workers? How do they perceive vaccine effectiveness? How do they perceive sickness and health, a healthy lifestyle, body and soul, and how does vaccination fit with this?
Intentions	Have they made a decision (intention) to be fully vaccinated according to the recommended schedule? Do they intend to be fully vaccinated, or to be vaccinated with only selected vaccines? Do they intend to be vaccinated on time or with a delay?
Values and beliefs	Does vaccinating or not vaccinating represent a positive value for them? For example, is it important for being a good caregiver? Do their attitudes and values about disease and prevention agree with vaccination? Is alternative medicine in line with their values and world view? What beliefs (e.g. religious or lifestyle-related) influence their vaccination intentions and behaviours?
Emotions, impulses and feelings	What emotions or impulses affect their feelings and assessments of risk (of vaccination, of disease)? How does this affect their vaccination decisions and behaviours? What emotions influence their vaccination decisions and behaviours? Do they fear or are they concerned about vaccine safety? Do they fear or are they concerned about vaccine-preventable diseases? Do they fear or are they concerned about combination vaccines or multiple injections at the same visit? Do they find vaccination (planning, implementing) to be stressful, burdensome, or easy?
Confidence and trust	Do they trust health workers? Do they trust health authorities? Do they trust the established quality assurance mechanisms for vaccines? Do they trust science, scientists and scientific medicine?

Table 2. **Elaboration of the theoretical model: possible issues for health workers***

C

Capability

Possible issues to explore for **health workers**

Knowledge	Do they have the necessary knowledge and education about vaccines, including vaccine safety, contraindications, vaccine effectiveness and efficacy, adverse events following immunization? Do they have the necessary knowledge of vaccine-preventable diseases and their related risks? Do they have the knowledge that will enable them to reach out to vulnerable groups or specific minority groups? Do they know how to tailor their communication to different caregiver positions on vaccination (e.g. accepting, hesitant, refusing)? Do they have knowledge of national vaccination law and regulation, guidelines/protocols? Do they have a good understanding of and insight into the complex reasons why some people or communities do not vaccinate? Do they have adequate knowledge and understanding of vaccination coverage?
Skills and trust in own skills	Do they have the skills to talk to and work with vulnerable groups? Do they have the skills to communicate with vaccine patients/caregivers about vaccination? Do they feel confident in their own skills to tailor their communication to the person they are facing? Do they have the skills to manage adverse events following immunization? Do they know pain mitigation measures? Do they feel confident in their own knowledge and skills relating to vaccination, vaccines and vaccine-preventable disease (e.g. vaccine safety, contraindications, adverse events following immunization)?
Resilience, stamina, will power, surplus energy	Do they have the resilience to work under difficult conditions? Do they have the resilience to continue to engage with patient/caregiver groups they deem challenging, e.g. patients/caregivers declining vaccination or specific minority groups?
Physical fitness and ability	Are they physically fit to work under the conditions that are offered to them? Do they have the physical skills related to administering the vaccine correctly?

* The table lists possible topics to explore. It is not an interview guide. It can be used as inspiration when developing research protocols and interview guides.

Continued on the next page →

Table continued

O

Opportunity

PHYSICAL

Possible issues to explore for **health workers**

Convenience, appeal and appropriateness of vaccination	Do they experience competing priorities or stress during the work day? Are their working hours and clinic opening hours appropriate? Are their general work conditions appropriate, in their view? Do they consider their pay to be fair, and their job description to be appropriate? Do they perform outreach vaccination? How and where, and are time and resources sufficient for this? Are there enough health workers to meet the needs at the health facility where they work? Are the physical surroundings appropriate and supportive of them in doing their job: talking to people, providing advice, vaccinating? Do they have sufficient time to vaccinate and talk to their patients?
Rights, regulation and legislation	To what extent are they responsible for ensuring enforcement of vaccination law and regulation? Is vaccination of health workers mandatory, and are they comfortable with this? Do they have experience with introducing new vaccination mandates or regulations for health workers?
Structural efficiency	Are there reliable systems in place to monitor vaccination and detect missed vaccinations among patients? Is vaccine supply sustainable and sufficient? Are there reliable systems in place to recall and remind caregivers about vaccination? Are there reliable systems in place to record vaccination consent and refusal?
Availability of information	Is official/trustworthy information about vaccination available to them? Is the official information on vaccination tailored to different audiences (e.g. press, public, health workers)? Have information materials for health workers been tested before use? Do they feel that they receive information on vaccination in a format and language which match their needs?

Continued on the next page

Do health workers feel supported by their patients? Do they feel supported by the local community? Do they feel supported by their peers, and are there any peer support mechanisms in place? Do they feel supported by the local and national government and health authorities?

Table continued

Opportunity

SOCIAL

Possible issues to explore for **health workers**

Social, cultural and professional demands and support	What demands are they faced with from patients/caregivers? What is their perception of the demands they are faced with related to vaccination? Are they supported by management? Do they benefit from supportive supervision? Are they supported by their patients? Are they supported by the local community? Are they supported by their peers, and are there any peer support mechanisms in place? Are they supported by the local and national government and health authorities? Are they confident that they are protected by the system if something goes wrong related to vaccination?
Social and cultural cues, norms and values	Do their peers and managers actively encourage vaccination? Are they members of/affiliated with a group or community which actively encourages or discourages vaccination? What are the social consequences of and reactions to vaccination/nonvaccination? Are they affected by the media/social media coverage on vaccination? Who are their role models, and who do they respect and trust when it comes to vaccination?

Continued on the next page

Table continued ⟶

M

Motivation

Possible issues to explore for **health workers**

Attitudes, perceptions and risk assessment	Do they believe patients/caregivers should decide about vaccination for their own children – or that health authorities should decide? How do they see their own role in terms of providing advice or convincing their patients to be vaccinated? How do they feel about herd immunity and individual responsibility to protect the community? How do they perceive the communities and individuals they serve, e.g. specific minority groups? What are their perceptions related to risk of disease and risk of adverse events following immunization? Note: Perceptions that relate to the effectiveness and safety of vaccines are generally perceived to be a capability factor (knowledge-related) for health workers
Intentions	Do they intend to vaccinate all children according to the schedule?
Values and beliefs	Is vaccinating or not vaccinating a positive value for them? For example, is it important for being a good health worker? Do their attitudes and values about disease and prevention agree with vaccination? Is alternative medicine in line with their values and world view? What beliefs (e.g. religion or lifestyle-related) influence their vaccination intentions and behaviours? How do they perceive sickness and health, a healthy lifestyle, body and soul, and how does vaccination fit with this? Is it a criterion of success for them if they achieve high vaccination rates in their health facility?
Emotions, impulses and feelings	What emotions influence their vaccination decisions and behaviours? Do they find vaccination sessions to be stressful, burdensome, or easy? What motivates them in relation to their job and vaccinating patients? Are they proud of their job? Are they afraid of the consequences if something goes wrong, and does this affect their work? What are their thoughts and feelings relating to adverse events following immunization? Are they afraid of being blamed for real or perceived adverse events following immunization?
Confidence and trust	Do they trust their management? Do they trust the health authorities? Do they trust established quality assurance mechanisms for vaccines? Do they have confidence in science, scientists and scientific medicine?

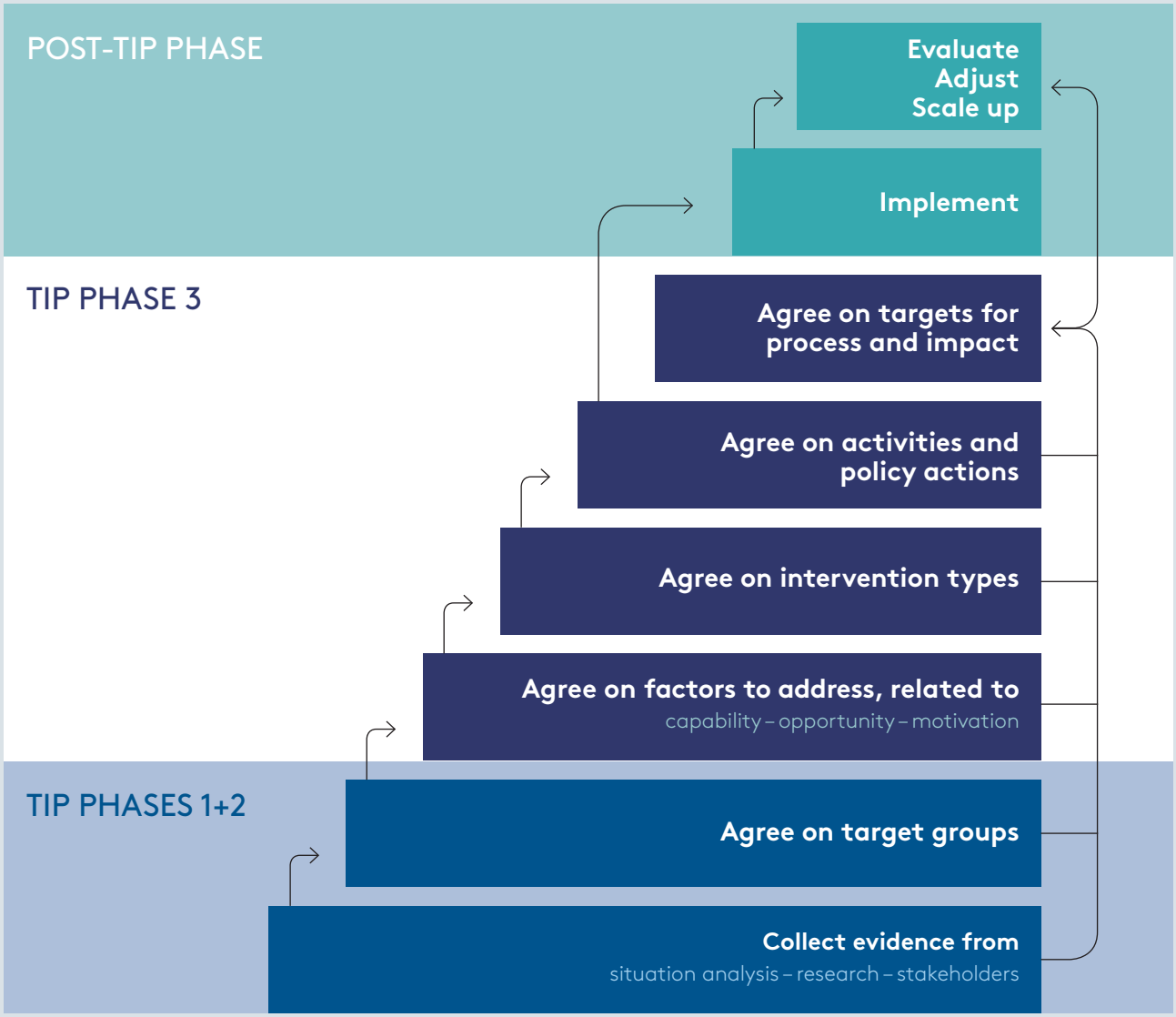
The pathway for developing an intervention

Early experiences with the TIP approach showed that it was not always easy to go from research findings to intervention design *(1)*. A framework was needed to help TIP implementers go from one step to the next while building logically on the outcomes of previous steps.

The framework for the COM-B model (the Behaviour Change Wheel *(21)*) offers such a pathway. Here, each step of a process (exploring > understanding > developing an intervention) logically builds on the previous step. To help this process, it offers a set of exercises.

This framework and the exercises have been adapted for the TIP approach. The TIP pathway is shown in Fig. 7. The adapted exercises are presented in Section 2 as part of the TIP stepwise guidance.

Fig. 7. **TIP pathway for developing an intervention***



* Adapted from Michie et al (2014), The Behaviour Change Wheel *(21)*.

TIP pillar three: Process with phases and steps

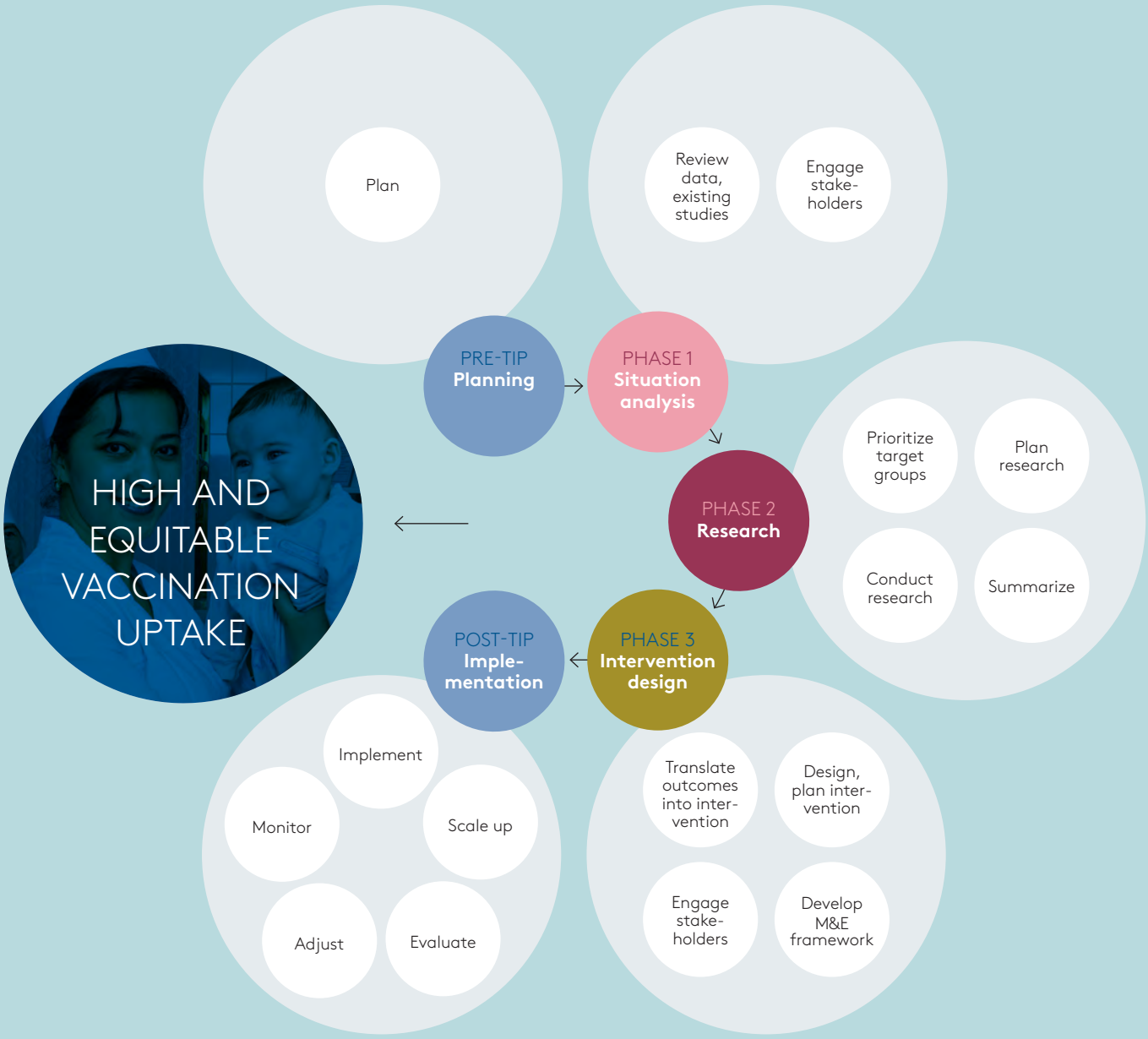
This document suggests a phased approach for TIP processes (Fig. 8). Each phase includes several steps.

It is important to note that **the steps are not numbered**, as they may not always take place in the same sequence and may not be clearly separated. The process is iterative, and often the TIP implementers may jump back and forth between the steps in one phase before proceeding to the next phase.

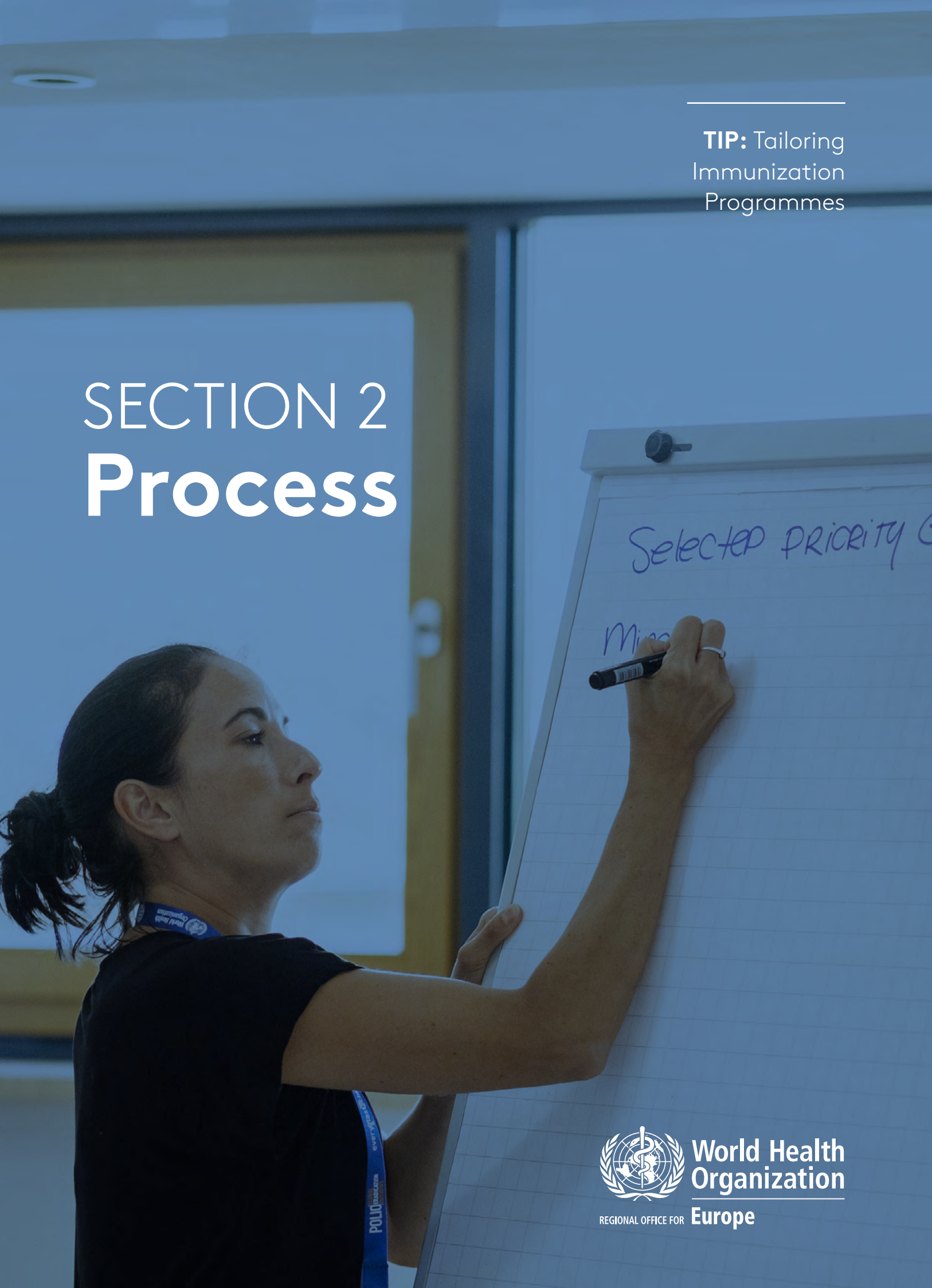
The phases and steps are described in detail in Section 2. The description includes:

- examples and inspiration boxes
- exercises for TIP Core Group meetings and stakeholder workshops (coloured pages)
- references to other resources to draw on.

Fig. 8. **TIP process**



This document suggests a phased approach for TIP projects. Each phase includes several steps. The phases and steps are described in detail in the following section. The description includes examples and inspiration, exercises for TIP Core Group meetings and stakeholder workshops as well as references to more resources and guidance.



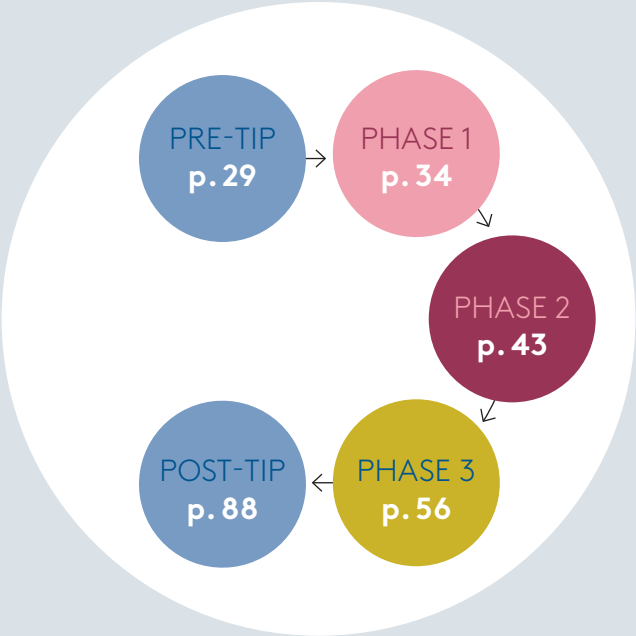
TIP: Tailoring Immunization Programmes

SECTION 2
Process

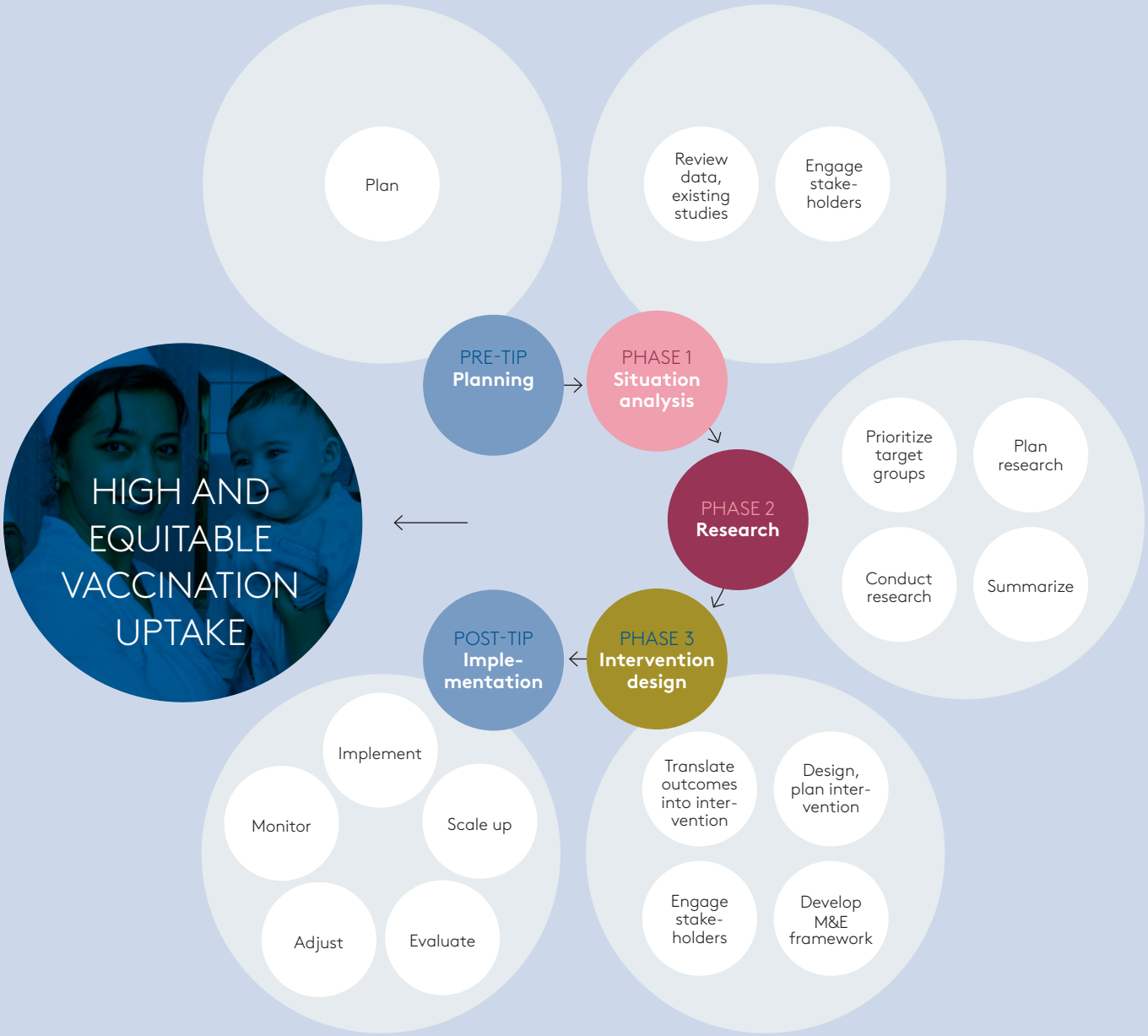
World Health Organization
REGIONAL OFFICE FOR Europe

SECTION 2

Process



Overview of TIP PHASES and steps



PRE-TIP

Planning

STEP

Plan

Output: Timeline, budget, roles and responsibilities agreed

Objectives

- To confirm if this is the right approach and right time and if the necessary resources and time are available for a TIP process
- To preliminarily agree on a timeline, budget, roles and responsibilities for PHASES 1, 2 and 3

Approaches used

- Meetings and internal discussion
- Documentation of process through initiation of progress report

Resources required

For a TIP process to be successful, implementers must ensure that there are

- political/management will and support;
- funding available for stakeholder events and research studies;
- funding available to implement interventions (alternatively, that resources can be mobilized for interventions); and
- competent and dedicated people to lead and carry out the process.

A preparation phase is necessary to discuss and agree whether the TIP is the right approach to use, whether the timing is right and whether the necessary human and financial resources are in place.

Time needed for a TIP process

The time needed will depend on the people available. The three TIP PHASES can take up to one year (or even longer) when the people involved are doing the work in addition to their other tasks. With dedicated human resources, the process can be shorter. PHASE 2, Research is often the most time consuming phase.

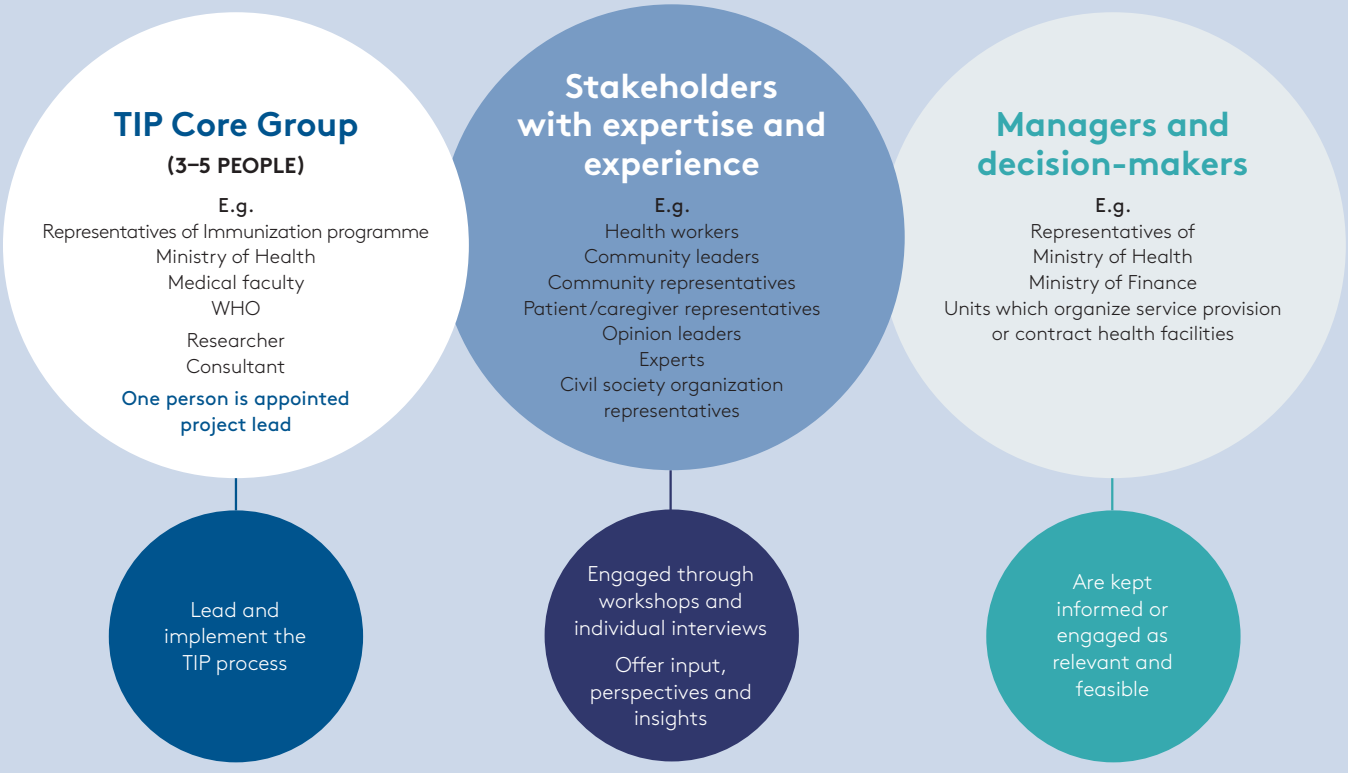
The POST-TIP PHASE, implementing, evaluating, adjusting and scaling up the activities may take years, depending on the type of activities.

Rapid TIP process

With dedicated human resources, a rapid TIP process can be conducted within a month. Each phase could be completed within one week, provided that

- for PHASE 1: at least two people work full time, and data are made available;

Fig. 9. **Suggested approach to engaging key stakeholders**



- for PHASE 2: at least two people work full time, and research studies are planned in advance or can be organized at very short notice, or research studies have already been completed; and
- for PHASE 3: at least two people work full time.

Organization

Usually, the TIP process is organized by a TIP Core Group which engages other stakeholders at different stages in the process (Fig. 9). A project lead should be appointed to coordinate the process.

Stakeholders

A suggested approach to engaging key stakeholders is presented in Fig. 9. Who the relevant stakeholders are, and how to best engage them, depends on the context. Some will be actively engaged in the TIP Core Group, some will only be consulted via workshops or interviews. Inspiration box 1 provides some ideas on which stakeholders to consult and engage.

Inspiration box 1.

SUGGESTED STAKEHOLDERS TO CONSULT AND ENGAGE

Relevant stakeholders include those with **expertise and experience** within the following areas:

Area of expertise	Potential stakeholders
Vaccination	experts researchers opinion leaders
National immunization programme	Ministry of Health district health authorities national health institutes/institutions
Vaccination service provision	health workers medical faculties professional associations
The targeted community	community representatives and leaders local organizations (e.g. community charity organizations or other nongovernmental organizations) local institutions local health workers experts with specific knowledge of the community
Research methods and approaches	researchers private or university-based research institute staff in Ministry of Health or health promotion unit
Other potentially relevant areas stakeholders	Ministry of Education/Poverty/Children/Social Affairs national and international organizations

Budget

The cost of a TIP process depends on the context. When assessing whether the necessary financial resources are available, the TIP Core Group needs to consider:

- the TIP process itself
- the future and ongoing implementation of an intervention.

Funding mechanisms for an intervention, evaluation and scale-up may include:

- increased budget obtained through budget negotiations
- sustained budget, but with reallocation, e.g. change of how services are delivered
- joint funding with other ministries
- external donor resources.

Inspiration box 2 offers an overview of potential budget line items that can be used for planning a TIP process.

Inspiration box 2.

COSTS RELATED TO A TIP PROCESS

The budget for a TIP process may include the following line items:

Item	Costs
TIP Core Group fees	if appropriate/necessary: fees for 3–5 people for a period of one year or more
TIP Core Group meetings (5–10 meetings with 3–6 people)	venue, catering transportation translation printing documents
Stakeholder workshops (2–3 workshops with 10–30 people)	venue, catering transportation translation printing documents
Research (one or more studies)	researcher (research company) and data analyst fees costs related to implementation of studies, such as • focus groups/interviews: venue, catering, transportation, transcription, translation, participant fees • questionnaire study: printing, distribution, collection • report printing, translation, distribution • and more, depending on scope and type of research study
Advocacy	printing, distribution of materials dissemination of results open access fees for journals
Implementation of the intervention – activities, evaluation and scale-up	costs related to activities such as • changes to health services • development of new training curricula • development, production and distribution of materials • education of health workers • and much more costs related to evaluation and scale-up

The progress report as a tool

The ongoing development and progress of the TIP process should be documented. This is done through continuously adding to a TIP progress report. Following each step of the process, the project lead summarizes decisions, actions and conclusions in the TIP progress report.

The progress report is a working document that develops as the TIP process progresses. It may include the sections outlined in Inspiration box 3.

The TIP progresss report allows to continuously document and track decisions, actions and conclusions.

Inspiration box 3.

SUGGESTED CONTENTS OF A TIP PROGRESS REPORT

Background
Brief overview of TIP approach
Aims of TIP

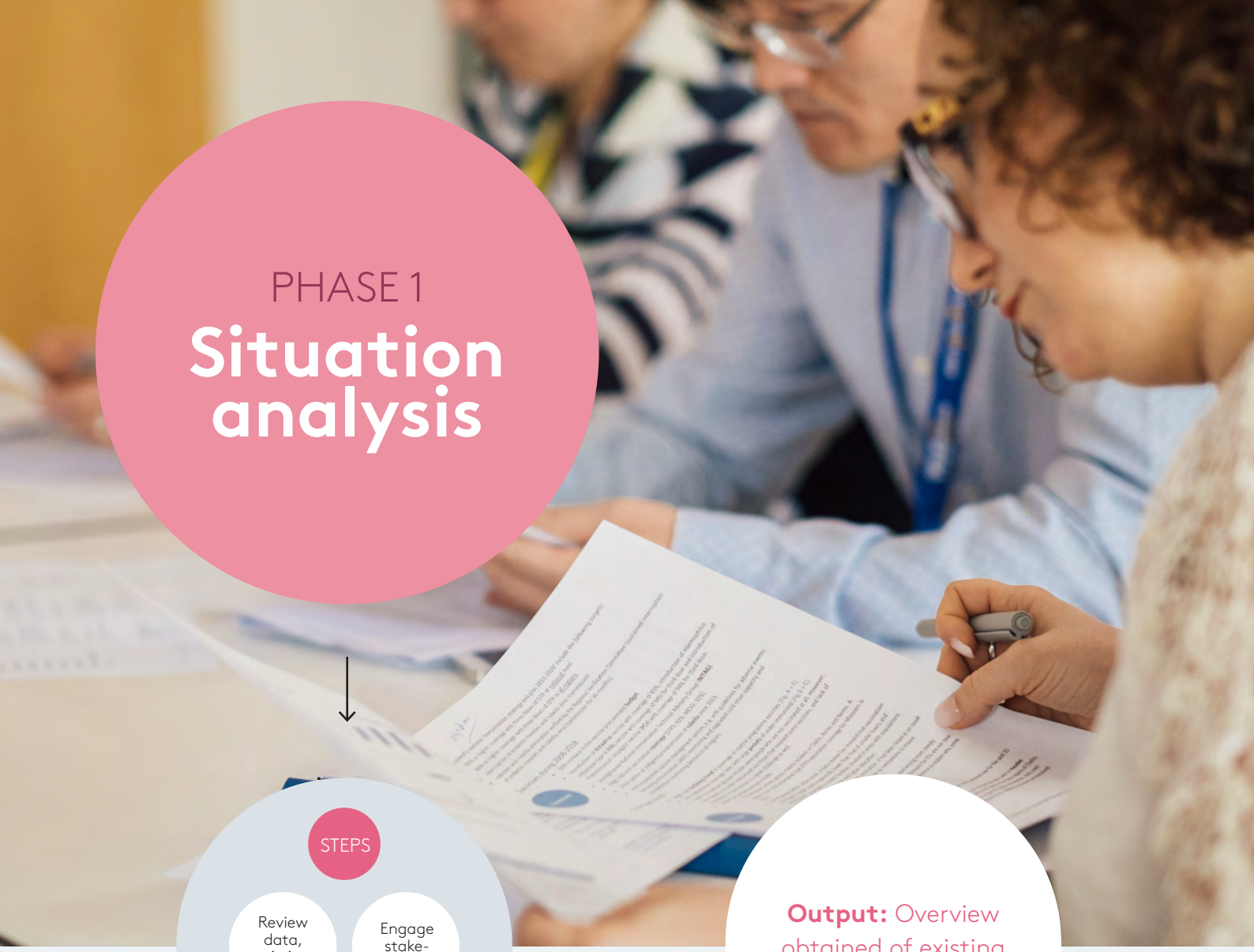
PHASE 1: Situation analysis
- Review of existing data, studies and literature
- Consultation with stakeholders
- Prioritization and planning research

PHASE 2: Research
- Studies conducted: aims, target groups, research questions, methods, findings

PHASE 3: Intervention design
- Intervention and how it links with the findings of PHASES 1 and 2
- Design and planning an intervention
- Consultation with stakeholders
- Planning the monitoring and evaluation framework

POST-TIP: Implementation, evaluation, adjustment, scale-up
- Implementation of planned activities and policy actions
- Monitoring
- Evaluation
- Adjustment of activities and policy actions
- Scale-up

TIP Core Group members
TIP Timeline
TIP Budget
References



PHASE 1

Situation analysis

STEPS

Review data, existing studies

Engage stake-holders

Output: Overview obtained of existing knowledge and evidence

Objectives

- To obtain an overview of existing evidence regarding vaccination in the country and in specific population groups
- To obtain stakeholder input and support

Working methods

- TIP Core Group meetings
- Desk review and analysis of data and existing studies
- Stakeholder workshop(s) or interviews
- Documentation of process through updating of progress report

Planning of PHASE 1

The time required for PHASE 1 depends on the data and knowledge already available. A suggested process may be planned as follows.

Month 1:
Review of data and existing studies, reports and literature

Month 2:

Day 1: TIP Core Group meeting to discuss data collected and plan stakeholder workshop

Days 2–3: Stakeholder workshop and/or interviews

Days 3–4: TIP Core Group meeting to plan research (PHASE 2 below)

Step: Review data and existing studies

Objective

The objective of this step is to review existing information to preliminarily identify key issues.

Working methods

The TIP process builds on the knowledge and evidence already available. Understanding and analysing the situation helps the TIP Core Group to make decisions about the next steps of the process.

The situation analysis can be conducted by the project lead or a consultant with specific expertise. The process involves desk research to gather relevant data and other information and develop a situation analysis report. A statistician or data analyst can be engaged to help process data. A student or intern can be engaged to collect and review reports.

Vaccination coverage data should be analysed to reveal possible geographical and sociodemographic patterns. If vaccination coverage is reported to be low in one geographical area, it is recommended that the area receive increased attention. Surveillance data for vaccine-preventable diseases may indicate areas or populations with low coverage or high susceptibility to vaccine-preventable diseases. The age profile of a measles outbreak might reveal gaps in coverage among adults or young adults, or an outbreak may reveal higher susceptibility in a certain minority group.

Special consideration should be given to how social determinants such as income, education or ethnicity constitute barriers to vaccination among some populations. Marginalized and underserved populations might be offered the same vaccination services as the majority population, but have difficulties accessing or utilizing them. Vaccination data are often limited to indicating which geographical areas have low or high coverage, and not which specific population groups are not fully vaccinated. For this reason, it is recommended that other information sources be explored to understand possible social determinants and identify the characteristics of individuals and communities that are susceptible to disease and/or have low vaccination uptake. Inspiration box 4 lists possible sources of information.

A summary of the following is recommended:

- general issues and challenges related to the immunization programme and service delivery which may affect vaccination uptake (Inspiration box 5 offers examples for inspiration);
- description of population groups with suboptimal vaccination uptake (Inspiration box 6 offers different variables to consider for grouping); and
- evidence and/or assumptions regarding the barriers and drivers to vaccination among population groups with low coverage – structured by capability, physical opportunity, social opportunity and motivation.

Outputs

The outputs of this step are as follows:

- situation analysis report, including:
  - summary of data and conclusions
  - possible issues and challenges to address
  - possible population groups to focus on
  - for each population group, possible barriers and drivers to vaccination related to capability, physical opportunity, social opportunity and motivation
  - gaps in knowledge (opportunities for research studies)
- situation analysis summary as a Powerpoint presentation for use at stakeholder workshop(s)
- updated progress report.

To focus on equity and allow segmentation of population groups, it is recommended that data are broken down by characteristics such as income and education.

GOOD TO KNOW

This document refers to 'barriers and drivers to vaccination' defined as the following.

Vaccination is understood as the behaviours that are necessary for successful vaccination (positive, supportive, conducive behaviours). These behaviours could be on the side of patients/caregivers, health workers or others such as health clinic managers or staff, national experts or policy and decision makers.

Barriers decrease the probability that these behaviours are performed.

Drivers increase the probability that these behaviours are performed.

Inspiration box 4.

REVIEW OF DATA AND EXISTING STUDIES – SOURCES OF INFORMATION

Types and sources of information and data
The following data and information sources can be reviewed to analyse the situation:

- vaccine-preventable disease surveillance data
- disease outbreak surveillance data
- data on the use of medicines and vaccines
- health service utilization data
- population health data
- lifestyle data and reports
- population health surveys, analysis and studies
- data from the Global Health Observatory
- Multiple Indicators Cluster Surveys
- demographic and health surveys
- surveys, strategies, action plans related to the health area or relevant population groups
- equity analyses
- strategies and action plans for vaccination and for relevant population groups
- legislation related to the health area and relevant population groups
- reports and evaluations of previous initiatives conducted for vaccination or relevant population groups
- reports, recommendations and assessments from national and international organizations related to the health area or relevant population groups
- media coverage related to vaccination or relevant population groups
- social media coverage related to vaccination or relevant population groups
- peer-reviewed academic publications related to vaccination or relevant population groups (summarized in a literature review)

Data analysis
To focus on equity and allow segmentation of population groups, it is recommended that data are broken down by characteristics such as the following:

- socioeconomic factors, including income and education
- cultural factors such as ethnicity, nationality or religion
- location: geographical areas
- location: urban/rural

Inspiration box 5.

EXAMPLES OF POSSIBLE ISSUES AND CHALLENGES

When analysing data and available evidence in studies and reports, overall issues and challenges should be summarized. Examples are listed below.

Vaccines and vaccine-preventable diseases

- Immunization coverage (some or all vaccines) is suboptimal at national/subnational level.
- Immunization coverage, timeliness, completeness is suboptimal in specific population or age groups.
- Transmission and outbreaks of diseases are occurring or increasing.

Other factors to explore in a TIP research study

Capability factors

- Health workers are assumed to have suboptimal knowledge or concerns about vaccination.
- Patients/caregivers are assumed to have low knowledge or concerns about vaccination.

Social opportunity factors

- Specific communities are reported to be against vaccination.
- Health workers do not offer the support, information or encouragement needed for patients/caregivers to vaccinate.

Physical opportunity factors

- Past immunization communication activities on vaccination have not had the desired outcome.
- Vaccination consultations are short with limited time to interact with patients/caregivers.
- There are health staff shortages and/or high turnover of staff.
- Political prioritization of vaccination is suboptimal.
- Financial resources are limited.
- Vaccine supply is suboptimal.

Motivation factors

- Population trust in vaccine safety or in health authorities is assumed to be low.
- Historical vaccine safety scares or events are assumed to have had negative impact on perceptions about vaccine safety.

Not all of the issues and challenges identified can be further tested or explored in the TIP research; however, they should all be included in the situation analysis.

GOOD TO KNOW

The WHO *Equity in Immunization. A handbook for addressing inequities in immunization* offers guidance on how data can be analysed to uncover inequalities in vaccination uptake. It includes a catalogue of data analysis tools and methods.

The document is available here: www.euro.who.int/equity.

The WHO *Handbook on health inequality monitoring* provides guidance on the analysis of data to measure health inequality. The WHO *Monitoring health inequality: illustration of fundamental concepts* provides examples of how data and inequality may be presented.

The documents are available here: www.who.int/gho/health_equity/handbook/en/.

Inspiration box 6.

VARIABLES TO CONSIDER IN SEGMENTING POPULATION GROUPS

When analysing data, population groups can be grouped and segmented using different variables, such as:

- **vaccination status** (grouped by fully, fully delayed, partly, drop-out, no vaccination)
- **socioeconomic factors** (grouped by social group, income, education, employment, family size)
- **geography** (grouped by district, district size, rural/urban, population density, climate)
- **community/cultural factors** (grouped by culture, religion, politics, community, lifestyle)
- **vaccination position** (grouped by acceptant, hesitant, refusing; intention to change, readiness to change).

The available evidence may not allow population groups to be segmented by all or any of these categories at this early stage. TIP research may help to do this at a later stage.

GOOD TO KNOW

National data are usually used. If relevant, two databases can be consulted for data on vaccination and vaccine-preventable diseases in the WHO European Region:

- WHO data and statistics:
  www.who.int/immunization/monitoring_surveillance/data/en/
  The site compiles data derived from official reports by WHO Member States submitted annually through the WHO/United Nations Children's Fund (UNICEF) joint reporting process. Information is summarized for national, regional and global level.

- ECDC European Surveillance System (TESSy):
  https://ecdc.europa.eu/en/publications-data/european-surveillance-system-tessy
  Users of the site can be granted access to data on communicable diseases in European Union/European Economic Area (EU/EEA) countries, including the gender, age, date of onset, mode of transmission, complications and outcomes for each case.

GOOD TO KNOW

The ECDC publication *Let's talk about hesitancy. Enhancing confidence in vaccination and uptake. Practical guide for public health programme managers and communicators* identifies common issues which underlie vaccination hesitancy. It can be used as a source of inspiration in the situation analysis. The document provides practical evidence-based and peer-reviewed advice for public health programme managers and communicators involved with immunization services.

The document is available here: https://ecdc.europa.eu/sites/portal/files/media/en/publications/Publications/lets-talk-about-hesitancy-vaccination-guide.pdf.

GOOD TO KNOW

The UNICEF *How to facilitate Power Point* (a Powerpoint module developed as part of their human-centred approach guidance) offers good advice to anyone organizing and facilitating a stakeholder workshop. The module offers advice on how to guide the conversation and keep it going, how to document the conversation, and how to deal with facilitation challenges.

The module is available here: http://bit.ly/How-to-facilitate.

Step: Engage stakeholders

Objectives

The objectives of this step are to utilize stakeholders' expertise and experience to inform the prioritization and planning, as well as to strengthen their ownership and support of the TIP process.

Working methods

Engaging stakeholders is a core value of the TIP approach. How stakeholders are best engaged depends on the context and the stakeholder. It is suggested that stakeholder workshops are conducted in this phase.

Workshops can include the following agenda points:

- a presentation to introduce the TIP approach and local process, including the COM-B factors (see page 13)
- a presentation of the conclusions of the situation analysis, including population groups with known/assumed suboptimal vaccination coverage and potential reasons for this (challenges to address)
- other relevant presentations, for example related to studies previously conducted or reports with relevant conclusions;
- group work with exercise (Exercise 1)
- plenary discussion
- other interaction to explore and discuss findings, seek input, involve and consult invited stakeholders.

Exercise 1 can be used in the stakeholder workshop as a starting point for discussions. Stakeholders may be divided into smaller groups which each discuss barriers/drivers for one selected population group. The input from stakeholders can be further discussed by the TIP Core Group after the workshop. Conclusions can be summarized in the TIP progress report.

See Inspiration box 1 on page 31 for guidance on relevant stakeholders.

Outputs

The outputs of this step are as follows:

- stakeholder workshop conclusions as an input to segmentation of target groups, prioritization and planning (next step)
- updated progress report.

Exercise 1 Map population groups with low uptake and their possible barriers and drivers to vaccination

Objectives

The objectives of this exercise are:

- to map evidence and assumptions regarding population groups with low coverage and/or high susceptibility to vaccine-preventable diseases
- to map evidence and assumptions regarding barriers and drivers to vaccination in these groups.

The steps of the exercise

1. List population groups with suboptimal vaccination uptake

- List and discuss the population groups which you believe/know have low uptake.
- Are challenges related to nonvaccination, delayed vaccination, drop-out?
- What characterizes these groups? Can they be grouped according to:
  - socioeconomic factors (social group, income, education, employment, family size)?
  - geography (district, district size, rural/urban, population density, climate)?
  - community-cultural factors (culture, religion, politics, community, lifestyle)?
  - vaccination position (acceptant, hesitant, refusing; intention/readiness to change)?
- Are your answers assumptions or evidence-based?
- Do you know enough – what are your knowledge gaps?
- What would you like to know more about?
- To save time, this part of the exercise may be prepared before the workshop and then presented and discussed with the stakeholders.

2. Map potential barriers and drivers to vaccination

- First, discuss which behaviors (of patients/caregivers, health workers, others) are needed for high and equitable vaccination uptake in the population group, and whether these behaviours are being performed.
- To do this, visualize the encounter between the patient/caregiver, health worker and health system. Discuss each step of the "caregiver journey" for vaccination (see below).
- This helps you understand where behaviours need to be further explored in the TIP process.
- Now map the possible barriers and drivers to vaccination of the identified population groups.
- Develop a conceptual map (see Exercise fig. 1.1) with the possible barriers/drivers. Prepare one map per population group (see below).
- Explore all COM factors for each population group. Note down if limited information exists for one COM factor.

It is recommended to work in groups. Each group works with one population group. Draw on your expertise and experience and on the situation analysis.

GOOD TO KNOW

A conceptual map is an overview of barriers and drivers to vaccination, structured by the key factors of the TIP theoretical model: Capability, Physical Opportunity, Social Opportunity and Motivation *(21)*.

GOOD TO KNOW

The UNICEF *Demand for Health Services Field Guide* includes an introduction to the vaccination "caregiver journey" (pages 60-61). The caregiver journey illustration can be printed out and handed out to workshop participants.

The document is available here:
http://bit.ly/HCD-field-guide

Exercise fig. 1.1. **Example conceptual map of barriers to vaccination from Kyrgyzstan: TIP process related to internal migrant caregivers**

C

Capability

- There is low awareness of the need to unregister from previous health facility and bring Form 063 (medical record) to new health facility.
- Some caregivers have low knowledge about vaccination, where to go for vaccination and the need to keep the vaccination card.
- There is a misperception that vaccines are only needed during outbreaks.
- There are misperceptions about vaccine safety and contraindications.

O

Opportunity

Physical

- Registration change processes are complex – a well-established system has not been expanded to meet needs related to migration.
- Many do not have an official "propiska" residence permit, meaning they cannot register with the local health facility.
- One third are not registered with their local health facility.
- Migrants receive fewer reminders/notifications than the general population.
- There is a perception of a long waiting time in health facilities.
- Migrants receive fewer home visits from health workers than the general population.
- There is a shortage of health workers/high turnover in health facilities – monitoring families who move frequently needs resourcing.

Social

- Health workers are perceived to have insufficient information on vaccination.
- It is reported that health workers can be disrespectful and less tolerant of migrants.
- For some the key trusted source of vaccination information is friends and family.
- The well-functioning systems of community engagement have not been expanded to meet the needs of new settlements.
- There has been an increase in anti-vaccination communication on the television, internet, social media – but the internet is a source of information on vaccination only for a few.

M

Motivation

- Some caregivers have concerns/misperceptions about vaccination:
  - Side effects are the most common concern.
  - Healthy lifestyles are more effective than vaccination.
  - Vaccines are given too early.
  - Vaccines have a negative impact on children's immune systems.
  - People distrust vaccine produced outside Europe.
  - Immunization free of charge increases distrust in the quality of vaccines.
- Patients/caregivers are afraid of questioning the system or asserting their rights.

PHASE 2

Research

Output: Insights obtained into barriers and drivers to vaccination in priority target groups

Objectives

- To prioritize target groups
- To plan and conduct one or more research studies

Working methods

- TIP Core Group meetings
- Research studies
- Documentation of process through updating of progress report

Planning of phase 2

The time required for PHASE 2 depends on the research study/studies conducted. A suggested plan for the process could be as follows.

Month 1:

- TIP Core Group meeting to:
  - prioritize between target groups
  - plan research (can be conducted straight after stakeholder workshop, see PHASE 1).
- Developing research protocol(s)
- Applying for ethical approval

Months 2–12:

- Conducting study/studies
- Preparing research reports and summary of conclusions
- Preparing paper for publication in peer reviewed journal, if relevant

Step: Prioritize target groups

Objectives

The objectives of this step are to consolidate the input from the situation analysis and stakeholder consultation and use this to prioritize between target groups.

Working methods

Organizing a one- or two-day TIP Core Group planning meeting is recommended to consolidate input from PHASE 1. As part of this, Exercise 2 can help to make a final decision regarding priority target groups.

Inspiration box 6 (page 38) offers inspiration for possible target groups among patients/caregivers.

The TIP approach proposes that the encounter between the patient/caregiver and the health worker is a critical moment in vaccination decision-making. Accordingly, it is recommended that barriers and drivers to vaccination from the perspectives of both the selected target group(s) and the health workers serving them should be investigated, if resources are available. However, which segment of patients/caregivers and health workers needs to be prioritized.

Outputs

The output of this step is:

- updated progress report with identification of priority target groups.

Exercise 2
Prioritize target groups

Objectives

The objectives of this exercise are:

- to select the target group(s) which will be further explored through research
- to agree which research questions are relevant for the target group(s).

The steps of the exercise

1. Select one or two target groups for research

- List the population groups with suboptimal vaccination coverage identified in PHASE 1.
- Discuss and agree which one or two population group(s) should be prioritized. Use Exercise table 2.1.

- Use the following criteria.

  a. Impact

  – How much of an impact could addressing this population group have on the risk of outbreaks?

  – How much of an impact could addressing this population group have on equity and health access in your country?

  b. Likelihood of change

  – How likely is it that behaviours related to vaccination in this group can be changed?

  – Are there opportunities to focus on subgroups among them where change is more likely?

  – Are there any particular obstacles to consider?

c. Spillover effects

- Could targeting this group with activities related to vaccination have a positive impact on other health issues for the group?
- Could targeting this group have a positive impact on general vaccination coverage?

- Use colour coding or score them from 1 (low) to 5 (high).
- Use the situation analysis to suppport your discussions.
- Consider working in small groups and then come together to discuss your ratings and agree which target group(s) to select.

2. Agree on your research questions

- Create an overview of your analysis so far:
  - overview of the behaviours (of patients/ caregivers, health workers and others) which are necessary for successful vaccination of the selected target group(s)
  - knowledge about barriers and drivers to vaccination in the selected target group(s)
  - assumptions about barriers and drivers to vaccination in the selected target group(s)
  - knowledge gaps regarding barriers and drivers to vaccination in the selected target group(s).
- Discuss and agree which behaviours you would like to explore further and which questions you would like an answer to regarding barriers and drivers to vaccination in the target group(s).

Exercise table 2.1. **Select your target group(s)**

Potential target group for research	a. Impact	b. Opportunities to change	c. Spillover

Selected target group(s) for research

Building on the discussions regarding research target group(s), the TIP Core Group should now agree on a focus for the research and develop a research protocol.

Step: Plan research

Objectives

The objectives of this step are to agree on a focus for the research study/studies and develop research protocol(s).

Working methods

The TIP Core Group should now agree on a focus for the research.

The research is used to identify the barriers and drivers to vaccination in the selected target group(s), structured by the COM factors. This can be done by exploring the behaviors which are needed for high and equitable vaccination uptake. The possible barriers and drivers and the knowledge gaps that were identified in the previous steps should be further explored.

A research protocol should be developed. Guidance questions include the following.

- What are the overall questions to which answers are required? These should cover capability, social opportunity, physical opportunity and motivation.
- Which kind of quantitative, qualitative or mixed study design is useful to answer these questions?
- Which members of the target group(s) will be targeted, how many and where, and how will they be recruited?
- Who will conduct the research and what will be their roles and responsibilities?
- Who will develop the data collection tools, such as questionnaires?
- How will the data be analysed?
- What is the timeline?
- What is the budget?
- Where should ethical approval be sought?

Fig. 6 and Tables 1 and 2 (pages 13–21) elaborate on the COM factors and can be used to inform the development of research questions.

Inspiration box 7 provides guidance on the contents of a research protocol.

Inspiration box 8 offers guidance on obtaining ethical approval.

Inspiration box 9 presents an overview of different types of studies which may be conducted.

Several good guidance documents exist on how to conduct research studies on vaccination (see page 52). If there is limited experience with behavioural insights research in the TIP Core Group, it is recommended to seek support from a local university, research agency and/or partners such as WHO or UNICEF. If time and resources are limited, the TIP Core Group may decide to conduct a rapid study, building on a few structured discussions and interviews.

Outputs

The outputs of this step are as follows:

- research protocol(s), including time plan and budget
- ethical approval
- alternative outcomes: decision to revisit situation analysis or to go straight to PHASE 3 because sufficient knowledge and evidence is already in place
- updated progress report.

Inspiration box 7.

CONTENTS OF THE RESEARCH PROTOCOL

The research protocol is an essential part of the research project. It is a detailed description of how the research will be conducted and should be used as a handbook for the research team to ensure adherence to the methods.

The following sections should be included in a research protocol for a quantitative, qualitative or mixed methods study. The detail in each section will vary depending on the type of research.

- General information – title of research project, version and date of protocol, name and contact details of funder, sponsor and lead researcher
- Background and rationale – a statement of the problem that is the basis for the TIP process, existing knowledge, gaps in knowledge and reasons for doing the research
- Research questions, aims and objectives – the overall questions or aims of the research, and specific objectives for addressing these
- Study design – the overall study design, for example a longitudinal, qualitative, face-to-face interview study; the theoretical model that is being used (TIP adaptation of COM-B)
- Study setting, participants and recruitment – where the study will be conducted, where and how research participants will be recruited, inclusion and exclusion criteria, how participants will be informed about the study, and how informed consent will be collected (participant information sheet and consent form to be included as appendices)
- Data collection – the content of the data collection tools (e.g. interview topic guide, postal questionnaire), how they will be developed or if existing validated tools will be used, pilot testing and final administration (data collection tools to be included as appendices)
- Data analysis – the planned quantitative (statistical) or qualitative analysis; for a mixed methods study, a description of how the quantitative and qualitative data will be synthesized
- Data management – where the data will be stored, who will see the data, how data will be transferred, how confidentiality will be ensured; how national regulations on data management will be met
- Ethical and other approvals – which ethics committee will review the research, other necessary approvals
- Dissemination – reports, papers that will be produced, including a short summary for the participants
- Timeline – clear deadlines for each step of the research project
- References
- Appendices (participant information sheet, consent form, data collection tools).

Inspiration box 8.

ETHICAL APPROVAL

Depending on the rules and standards of the country in which the research takes place, and on the nature of the study, ethical approval should be sought from an independent ethical committee.

Ethical approval is usually required for publishing study findings in a peer-reviewed journal.

Research can be conducted according to the standards outlined in two key documents:

- the Declaration of Helsinki* developed by the World Medical Association as a statement of ethical principles to provide guidance to physicians and other participants in medical research involving human subjects
- the EU General Data Protection Regulation (GDPR) 2016/679,** which aims to regulate the processing of personal data and the free movement of such data.

Ethical approval is initiated to ensure that the rights of any individual person taking part, as well as their dignity, rights, safety and well-being, are considered above all else.

The contents of an application for ethical approval depend on the requirements of the individual ethical committee.

For TIP research, the following types of information are often required:

- the aims and objectives of the study
- the study design and methods, including possible statistical methods and method of analysis
- the number of and methods used to recruit participants, including how they will be identified (inclusion and exclusion criteria) and approached
- how consent will be obtained from participants, possible incentives or reimbursement of expenses
- how data will be used, including how and where data will be transferred and stored
- processes to ensure anonymity and confidentiality
- details on the dissemination of the findings
- details on all stakeholders involved in the study and their roles.

Ethical approval usually cannot be granted retrospectively.

In some countries, an ethical committee does not exist for social science or qualitative research. In such cases an ad hoc committee should be established for the purpose of reviewing and approving the TIP study proposed.

* www.who.int/bulletin/archives/79(4)373.pdf
** https://eur-lex.europa.eu/eli/reg/2016/679/oj

Inspiration box 9.

DIFFERENT TYPES OF RESEARCH STUDIES

Information can be collected using qualitative, quantitative or a mixed study design, depending on the type of information needed to answer your research question, and the type of research data that already exists on the topic. The TIP theoretical model (Fig. 6, page 13) can be applied to any of the methods to collect data on the influences on vaccination behaviours.

The strengths and limitations of qualitative and quantitative research methods are summarized in Table 3.

Table 3. **Strengths and limitations of qualitative and quantitative research**

Qualitative	Quantitative
Strengths	
Can provide in-depth understanding of people's concerns, needs and personal experiences, and how and why they behave in certain ways	Useful for examining the frequency of a behaviour and the factors that influence it
Valuable for describing complex phenomena	Can test hypotheses and assess cause-and-effect relationships
Data generated can be rich in detail	Can produce generalizable findings if study is well designed and the sample is representative of the target population
Useful for generating hypothesis to be tested in quantitative studies	Can provide a comparison of base- and end-line data to assess effect of interventions
Limitations	
Difficult to generalize results to a wider population	Not suitable to uncover complexity of people's experience, perceptions and knowledge
The time required for data collection, analysis and interpretation can be lengthy	Requires larger number of participants

Qualitative research

Qualitative research is conducted to gain an understanding of a target group's points of view and experiences. It can explore the reasons why people make certain choices and adopt specific behaviours and give insights into what the target group knows and does not know, their fears and worries, hopes and desires, as well as more complex issues, for example those related to access to or accessibility of vaccination. Qualitative methods provide rich, in-depth information on the barriers and drivers to vaccination.

Popular qualitative research methods are focus group discussions, individual in-depth interviews and observation studies.

Focus group discussions

A focus group discussion is a moderated conversation with a group of people from the same target group. It is used to gain insight into their knowledge, perceptions, beliefs, attitudes and experiences about a certain topic. Focus group discussions are especially useful for identifying social norms, and can reveal both agreement and differences of opinion about a relevant topic.

Continued on the next page

Box continued

DIFFERENT TYPES OF RESEARCH STUDIES

Participants may be stimulated by the presence of others to share and exchange opinions and concerns, including myths, rumours or stories that may be circulating in the community. About 5–12 participants are usually involved in a focus group discussion.

Individual in-depth interviews

In an individual in-depth interview, a moderator has a one-on-one conversation with one person, usually face-to-face but sometimes over the telephone or the internet. Individual interviews are particularly useful where the participant has special knowledge or a unique point of view, where the topic is sensitive, and the participant may not feel comfortable speaking openly in a group, or when it is difficult to bring a larger group together.

Observation studies

Observation research is a type of research in which a researcher observes ongoing behaviour. It is a social research technique that involves watching and recording people in a natural setting. Observation designs are particularly relevant when it is important to understand how people talk and act in an everyday context. Observation data are often combined with interviews where the participant is asked to discuss their observed behaviour. Observation enriches data collected in interviews and overcomes potential limitations of poor recall and the desire in interviewees to present themselves well. In a TIP process, observations might take place in a health facility. To limit the influence of the observer on the behaviours of those observed, observation is best conducted over a longer period of time, and the training of observers and developing clear guidelines for recording the observations are crucial.

Quantitative research

Quantitative research is based on structured collection and analysis of numerical data rather than textual data as in qualitative studies. Quantitative methods can provide information on the frequency of certain behaviours, beliefs and knowledge. Using different statistical tests, quantitative research methods can determine if the findings are likely to be real or due to chance. If data are collected from a representative sample, it is possible to generalize the results to a larger population. Quantitative research is appropriate when a) the nature of barriers or drivers to vaccination uptake are clearly defined and measurable; b) it is desirable to understand which barriers or drivers are most common (and if these vary in different population groups); and c) data need to be compared over time (that is, a longitudinal study), for example to measure the effectiveness of an intervention.

Surveys

Surveys are a common quantitative method for gathering data on knowledge, perceptions and other barriers and drivers to vaccination. They present a relatively easy way of collecting information from a large number of people in a short time. Data are collected through standardized questionnaires with predefined, usually closed-ended, questions. Questionnaires can be administered face-to-face or by telephone, or survey participants can be invited to complete the questions on paper or electronically.

Continued on the next page

Box continued

DIFFERENT TYPES OF RESEARCH STUDIES

Self-completed written or internet/email-based questionnaires are cheaper than surveys administered face-to-face or by telephone.

It is important that questionnaires are pretested to identify any problems that may lead to biased answers. As it is not practical to collect information from the whole population of interest, surveys are usually distributed to a sample of the population, the size of which will depend on the cost and resources available. To generalize the results from a survey to the population of interest, the sample should be representative of the specific population. Random and systematic methods (probability sampling) to identify participants help to achieve this. In some cases, non-probability sampling, such as purposive, convenience and snowball samples, may be preferred if it is desired to focus on very specific population groups. However, this type of sampling is likely prone to bias.

Where possible, it is recommended that scales be used which have been tested for validity, for example in terms of:

- construct: do the questions actually measure what we think they do?
- predictive: how are the scores of the scale related to actual uptake?
- concurrent: do the questions predict the vaccination status of the individuals who answered the scale?

Specifically for vaccine hesitancy, several scales have been developed and tested. The perfect scale is yet to be designed but an overview of available scales is available online *(23)*.

Mixed methods

If resources are available, it is advantageous to conduct both qualitative and quantitative research, as the combination of different methods (triangulating) means that both breadth (quantitative) and depth (qualitative) of information are captured, increasing confidence in the research findings. Qualitative and quantitative research can be carried out at the same time or in sequence. Examples of sequential studies include using qualitative interview data to inform the development of a quantitative survey questionnaire – or using qualitative interviews to further explore interesting or unexpected findings from a quantitative survey.

Action research

Some TIP Core Groups decide to go straight to implementing interventions. The testing and evaluation of the intervention then become their research study – called action research. This approach is particularly relevant if the situation analysis provides sufficient information to start designing interventions, and is based on research studies already conducted before the TIP process. This type of study may include any of the above-mentioned types of research methods, for example focus group discussions to evaluate information products produced or observation studies to evaluate the impact of trainings.

Step: Conduct research

Objectives

The objectives of this step are to obtain insights into barriers and drivers to vaccination in the selected target groups.

Working methods

Qualitative, quantitative, mixed-method studies or action research studies are carried out as determined by the TIP Core Group in the previous step.

Outputs

The outputs of this step are as follows:

- research reports with
  - a description of and comparison between the selected population groups explored in the research study; and
  - identification of barriers and drivers to vaccination, structured according to capability, physical opportunity, social opportunity and motivation (COM factors), for each population group.
- updated progress report.

Step: Summarize research findings to agree on focus

Objectives

The objectives of this step are to summarize research findings related to the selected research target groups and their barriers/drivers to vaccination and to prioritize between them.

Working methods

The target groups should be described based on the research findings. The barriers and drivers to vaccination for each target group should be summarized, structured by the COM factors.

Sometimes, the research reveals new subgroups of importance. To present all subgroups, personas or profiles can be developed (see Inspiration box 10).

If several relevant target groups have been identified through the research, the TIP Core Group can use Exercise 2 above to prioritize between them and select the target group(s) for the intervention.

GOOD TO KNOW

The WHO *Field guide to qualitative research for new vaccine introduction* describes the steps of planning and conducting focus groups and in-depth interviews. The guide was developed for new vaccine introduction, but the general guidance is the same for any study. The Field guide is highly recommended for anyone with limited experience of conducting qualitative research.

The document is available here: www.euro.who.int/newvaccines.

The document A *guide for exploring health worker/caregiver interactions on immunization* describes, in a clear and simple way, the details of carrying out a qualitative study of health workers' knowledge, attitudes and practices (KAP), with a particular focus on their interactions with caregivers and infants. The guide was developed primarily for district health management teams and any people or organizations they may work with to carry out the study. The guide was developed by USAID (United States Agency for International Development), UNICEF, John Snow, Inc. and WHO.

The guide is available here: www.who.int/immunization/programmes_systems/HW_KAP_2018_final_draft_June2018.docx?ua=1.

UNICEF's *Conducting Field Research* (Powerpoint module developed as part of their human-centred approach guidance) offers an introduction to conducting interviews and observations at community level and how these can be planned and reported.

The module is available here: http://bit.ly/facilitation-guide-pt2.

Outputs

The outputs of this step are as follows:

- a summary of research findings structured by target group (for each group, their barriers and drivers to vaccination should be structured by the COM factors)
- if relevant, profiles or personas (see Inspiration box 10 and Fig. 9) for each target group
- if several relevant target groups were identified, prioritization of target groups for interventions
- updated progress report.

GOOD TO KNOW

UNICEF's *Sharing & synthesizing research* (Powerpoint module developed as part of their human-centred approach guidance) suggests ways to analyse and present research findings.

The module is available here: **http://bit.ly/facilitation-guide-pt3.**

Inspiration box 10.

PERSONAS OR PROFILES OF TARGET GROUPS

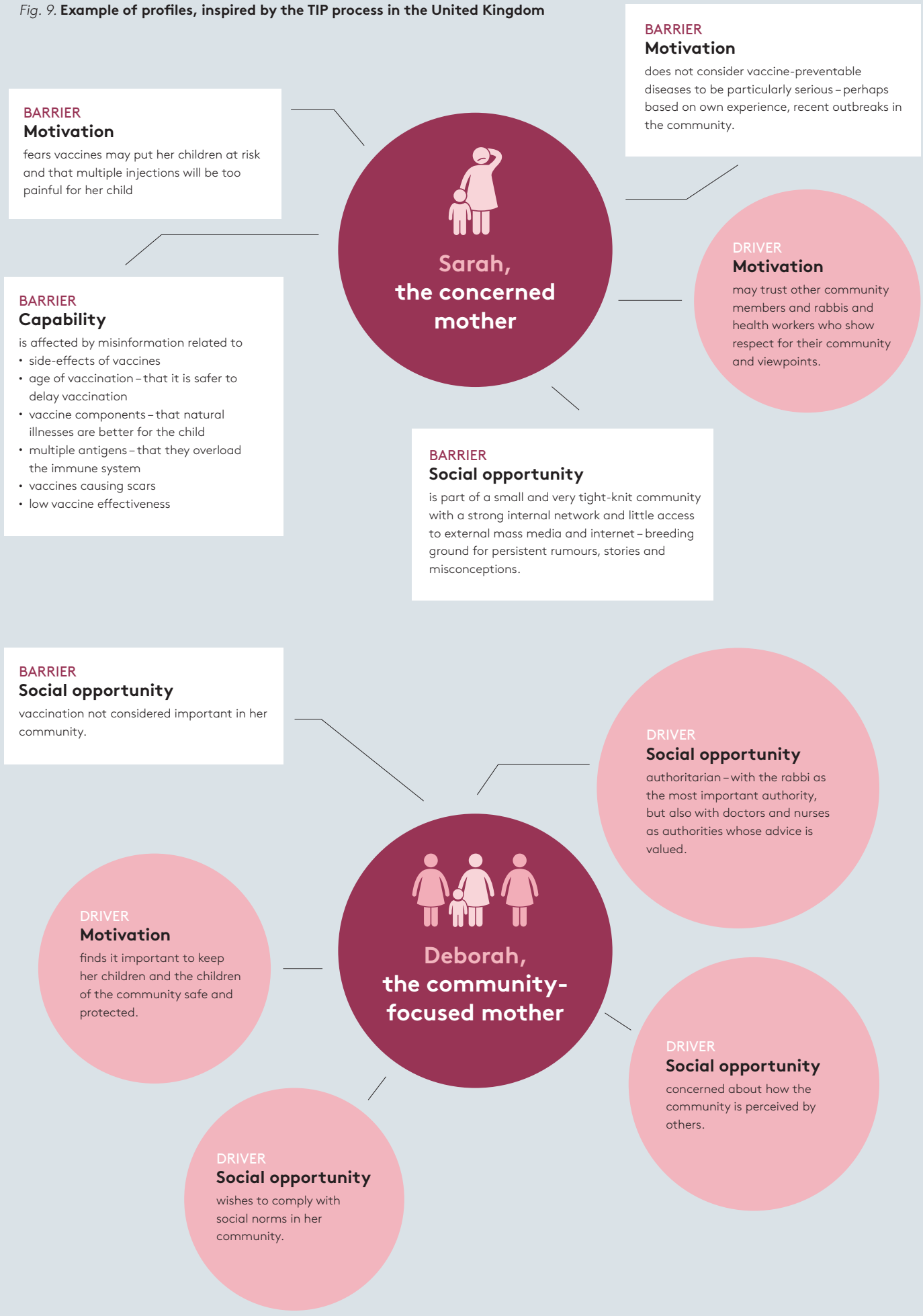
To summarize findings and present them in a manner more easily understood, subgroups of the target group can be presented as personas, that is an average person in each subgroup. The persona can be given a name and other characteristics such as age, number of children, education, geographical location, type of housing, beliefs, interests and more. For each persona, their barriers and drivers to vaccination are described. If the members of the target group being explored largely share the same characteristics, more simple profiles can be developed to describe different positions and barriers and drivers to vaccination (Fig. 9).

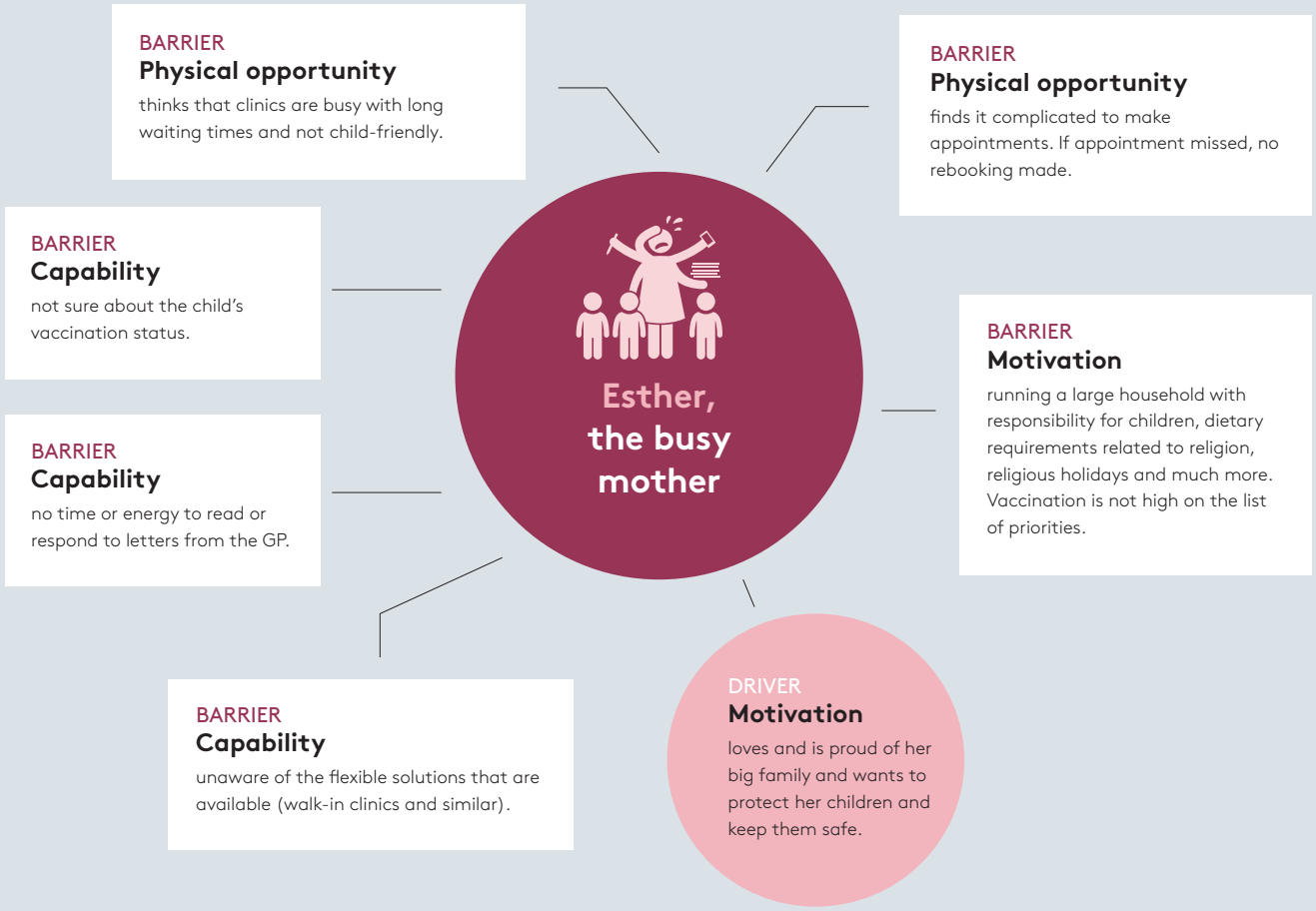
GOOD TO KNOW

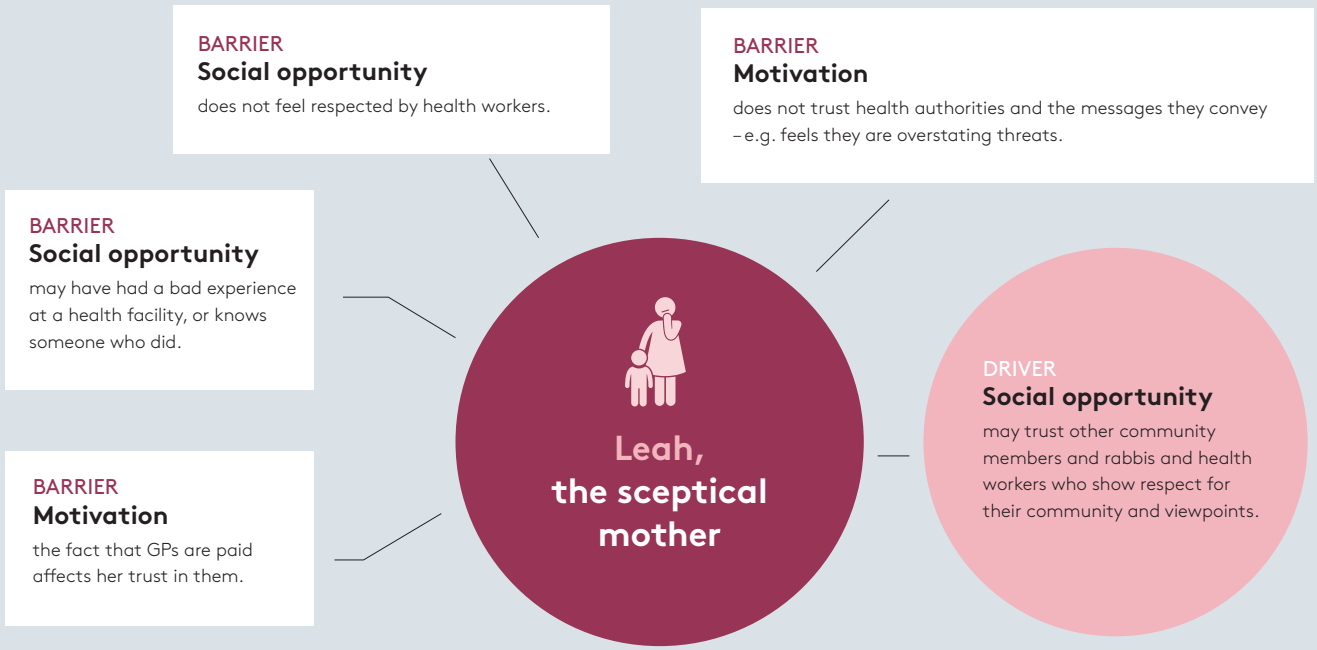
The UNICEF *Facilitation guide* (Powerpoint module developed as part of their human-centred approach guidance) includes guidance on developing and describing personas (slides 28–34).

The module is available here: **http://bit.ly/facilitation-guide-pt1.**

Fig. 9. **Example of profiles, inspired by the TIP process in the United Kingdom**




BARRIER
Physical opportunity
thinks that clinics are busy with long waiting times and not child-friendly.
BARRIER
Physical opportunity
finds it complicated to make appointments. If appointment missed, no rebooking made.
BARRIER
Capability
not sure about the child's vaccination status.
BARRIER
Motivation
running a large household with responsibility for children, dietary requirements related to religion, religious holidays and much more. Vaccination is not high on the list of priorities.
Esther, the busy mother
BARRIER
Capability
no time or energy to read or respond to letters from the GP.
DRIVER
Motivation
loves and is proud of her big family and wants to protect her children and keep them safe.
BARRIER
Capability
unaware of the flexible solutions that are available (walk-in clinics and similar).


BARRIER
Social opportunity
does not feel respected by health workers.
BARRIER
Motivation
does not trust health authorities and the messages they convey – e.g. feels they are overstating threats.
BARRIER
Social opportunity
may have had a bad experience at a health facility, or knows someone who did.
Leah, the sceptical mother
DRIVER
Social opportunity
may trust other community members and rabbis and health workers who show respect for their community and viewpoints.
BARRIER
Motivation
the fact that GPs are paid affects her trust in them.

PHASE 3

Intervention design

Output: Intervention agreed, designed, funded, planned

Objectives

- To design and plan an intervention
- To develop a monitoring and evaluation framework
- To consult stakeholders to obtain their input and support

Working methods

- TIP Core Group meetings
- Stakeholder workshop
- Documentation of process through updating of progress report

Planning of PHASE 3

Most of PHASE 3 can be carried out in one week.

Day 1–2: TIP Core Group meeting to translate outcomes from PHASES 1 and 2 into a suggested intervention

Day 3: Stakeholder workshop to present outcomes of PHASES 1 and 2 and get feedback on the suggested intervention

Days 4–5: TIP Core Group meetings to refine the intervention based on input obtained from stakeholders and develop monitoring and evaluation framework

Weeks 2–4: The project lead or consultant

- writes the intervention plan, including the activities and policy actions, timeline, budget and other details;
- writes the monitoring and evaluation framework;
- updates the progress report.

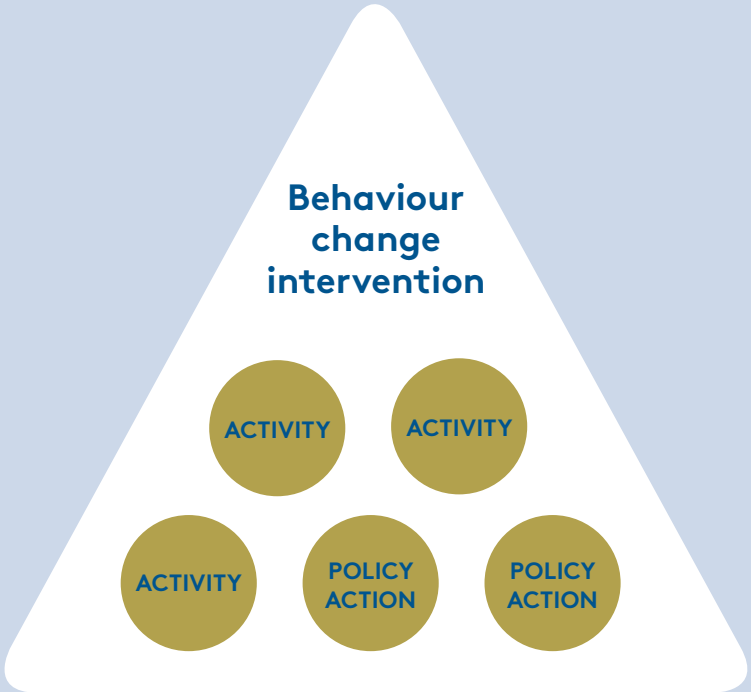
GOOD TO KNOW

The TIP approach distinguishes between the overall intervention and its two underlying components: activities and policy actions (Fig. 10):

An **intervention** is an overall effort to ensure high and equitable vaccination uptake. It can consist of a number of activities and policy actions.

- **Activities** can be small or large scale; together activities are conducted to achieve the overall aim of the intervention. Activities can be trainings, service delivery improvements, change in laws or guidance, information products or many other things.
- A **policy action** is an action, often initiated by authorities, which is undertaken to support, enable or enact the activities and the intervention as a whole. As an example, if the activity is to introduce a new vaccination recall and reminder system, regulations may need to be amended to make sure all vaccination providers are required to use it.

Fig. 10. **The intervention and its components**



GOOD TO KNOW

For an overview of the steps of PHASE 3, and how they relate to each other, refer to Fig. 7 (page 22), Pathway to develop an intervention.

Step: Translate outcomes of PHASES 1 and 2 into an intervention

Objectives

The objectives of this step are, based on the outcomes of PHASES 1 and 2, to identify a possible intervention comprising activities and policy actions.

Working methods

Organizing a one- or two-day TIP Core Group meeting is suggested, to translate the outcomes from PHASES 1 and 2 (data review, stakeholder consultation and TIP research) into an intervention. Exercises 3–7 can help the TIP Core Group to do this. Each exercise builds on the outcome of the previous exercise.

In addition to the exercises, Inspiration boxes 11 and 12 give ideas for possible activities to increase vaccination uptake. They also include references to further reading.

TIP implementers are advised to read through all exercises and inspiration boxes before beginning this step.

Outputs

The outputs of this step are as follows:

- overview of the relationship between the overall goal, the COM factors, the intervention types, the activities and the policy actions (Fig. 11)
- Powerpoint presentation for stakeholder workshop and other advocacy activities showing:
  - overview of the TIP process so far, and the proposed next steps
  - outcomes of PHASES 1 and 2: results of the data review, stakeholder input, TIP research findings
  - suggested intervention, with activities and policy actions and linked with the outcomes of PHASES 1 and 2 (what, for whom and why)
  - possibly a rough budget estimate
  - questions and topics for stakeholders.
- updated progress report.

Fig. 11. **Overview of outcomes of exercises 3–7 with and without example text**

Goal	**Selected barriers to address** (exercise 3)	**Selected intervention types** (exercise 4)	**Selected activities** (exercises 5 & 6)	**Selected policy actions** (exercise 7)
Overall goal	Capability			
	Opportunity (physical)			
	Opportunity (social)			
	Motivation			

Goal	**Selected barriers to address**	**Selected intervention types**	**Selected activities**	**Selected policy actions**
90% of children vaccinated with DTP3 on time in all low-performing health clinics	Capability: Low knowledge of vaccine safety among health workers	Training Information	Training, job aids and supportive supervision for health workers	Change in curriculum for medical students
	Opportunity (physical): Ineffective and unstructured recall and reminder systems	Training	Training of clinic managers in new standards for vaccination calls and reminders	New national standards and guidelines for vaccination recall and reminders
	Motivation: Health workers overworked and stressed	Environmental restructuring	Updated standards for working conditions, pay, job descriptions	N/A

Exercise 3 Selecting barriers to target in the intervention

Objectives

The objectives of this exercise are:

- to prioritize between identified barriers to vaccination in your priority target group(s)
- to agree on a few barriers that you wish to address with your intervention.

The steps of the exercise

1. Screen barriers and prioritize them

In your research report you have identified the COM barriers and drivers to vaccination for your priority target group(s).

- Select the barriers that you agree
  - have an important **impact** on vaccination coverage or equity and
  - can realistically be **overcome**.
- Do this for each of your priority target groups. It is likely there will be some overlap and consistency across groups (e.g. dissatisfaction with information to caregivers may coincide with low knowledge among health workers).
- This step is supposed to be a quick screening. In-depth discussions should be saved for the next step.
- Be precise and avoid very broad categories (for example, "knowledge" could be divided into the various areas where knowledge is low).
- If you do not agree in the group, it is better to keep the barrier on the list at this stage. Select a maximum of 10 barriers.
- Any barrier that you do not select at this stage will no longer be considered for this TIP process.

2. Discuss selected barriers in depth and rank them

- First, for each barrier, discuss **need/urgency**: how important/urgent is it to address this barrier?
  - Rank the barriers in order from the most important/urgent (5) to the least important/urgent (1).
- Next discuss each barrier in terms of **feasibility**: how realistic is it to overcome this barrier?
  - Rank the barriers in order from the most feasible (5) to the least feasible (1).

3. Use your ranking to select which barriers to address

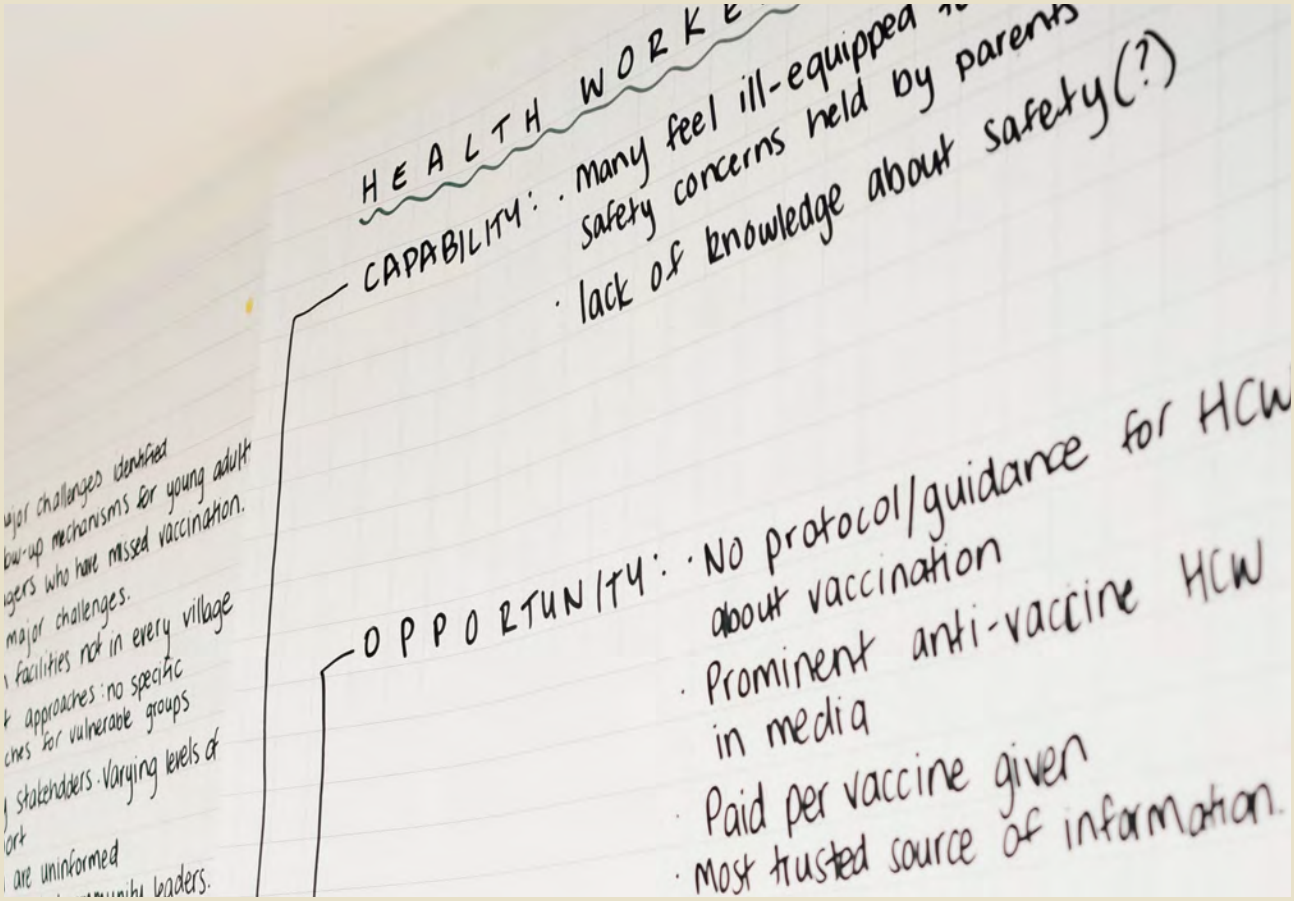
- Select up to three barriers. How many barriers you select will depend on the resources that you have available for your intervention. If you decide later that three is too many/too few, you can return to this exercise to reduce/increase the number.
- Write down which COM factors your three barriers are associated with.

Exercise 4 **Identify potential intervention types for your selected barriers**

Objectives

The objectives of this exercise are:

- to get acquainted with possible overall intervention types
- to identify the intervention types that are relevant for the selected barriers.



GOOD TO KNOW

An **intervention type** is a broad category of activities that aim to change behaviour. An intervention type can be applied at the individual, group or population level. It can also address more than one COM factor. Your intervention will use one or more intervention types.

The steps of the exercise

1. Review possible intervention types

- Take a look at Exercise table 4.1 to see the full range of possible intervention types that you can use. Take time to read this through.

Exercise table 4.1. **List of intervention types, with definitions and examples**
(targeting health workers to have their flu vaccination)

Intervention type	**Definition** *(21)*	EXAMPLES OF ACTIVITIES
Information (education)	Increasing knowledge or understanding	Poster campaign on risks and symptoms of flu Facts on safety and effectiveness of vaccines provided on employee payslips Leaflets containing information on infection control measures
Persuasion	Using communication to induce positive or negative feelings or stimulate action	Poster campaign using loss/gain framing messaging to influence feelings and action: e.g. "How would you feel if your family became sick because you didn't get your free flu vaccine?"
Incentivization	Creating an expectation of a reward	Incentives can be modest, such as free movie tickets or meal tokens Additional annual leave or small salary increment (which could move into coercion depending on size of incentive)
Coercion	Creating an expectation of punishment or cost	Flu vaccination of health workers becomes mandatory under law Vaccination specified as part of health worker employment contract Health care organizations implement strict requirements for staff to be vaccinated Health workers who are not vaccinated against flu are required to wear a mask during influenza season Unvaccinated workers are moved away from areas where their status may have high impact, e.g. intensive care or haematology units
Training	Imparting skills	Providing training to vaccinators on how to communicate with health workers about flu vaccination
Restriction	Using rules to reduce the opportunity to engage in the target behaviour	Enforce policy for unvaccinated health workers to wear face masks to protect patients
Environmental restructuring	Changing the physical or social context	Provide flexible opportunities for the flu vaccine to be delivered at place of work Messaging prompts and visible information posters to highlight vaccine availability SMS, reminder letters to health workers to have their flu vaccine Managers provide encouragement to have the flu vaccination
Modelling	Providing an example for people to aspire to or imitate	Identify key influencers amongst health workers and use them as ambassadors to promote having the flu vaccination

2. Link your selected barriers with intervention types

In Exercise 3 you selected the barriers (and associated COM factors) that you want to target. This step will help you decide how you can address them.

- Use Exercise table 4.2 to identify which intervention types are recommended for the COM factor(s) which are associated with your selected barriers.
- The boxes marked ● represent the recommended intervention types for each COM factor. For example, if you have identified a "capability" barrier, recommended intervention types are "information" or "training".
- Complete Exercise table 4.3 with your selected barriers (and associated COM factors) and the recommended intervention types.

Exercise table 4.2. **Matrix of links between COM factors and intervention types** *(21)*

Intervention type	COM factor			
	Capability	Physical opportunity	Social opportunity	Motivation
Information/ Education	●			●
Persuasion				●
Incentivization				●
Coercion				●
Training	●	●		●
Restriction		●	●	
Environmental restructuring		●	●	●
Modelling			●	●

Exercise Table 4.3. **Overview of barriers with COM factors and intervention types**

Barrier	COM factor	Recommended intervention types for this COM factor

Exercise 5 Consider possible activities within the intervention

Objective

The objective of this exercise is

- to initiate discussions about the possible activities related to your intervention types. These initial discussions about activities will make it possible for you to prioritize.

The steps of the exercise

1. For each barrier, brainstorm activities

- Identify activities relevant to the intervention types selected in Exercise 4. You may have some additional activities that you want to include.
- There are lots of examples of activities in Exercise table 4.1 (page 62) and Inspiration boxes 11 and 12 (pages 68–78).
- Think freely at this stage. Nobody is allowed to say, "that is not possible". These are initial discussions.

2. Discuss content and delivery

- For each activity, use the following questions to prompt your thinking.
  - What is the content of the activity?
  - When will the activity be delivered?
  - Where will the activity be delivered?
  - Who will deliver the activity?
- Answer these questions for each activity. Think freely at this stage.
- As part of the exercise, revisit the **drivers** to vaccination in your target group, which were identified in PHASES 1 and 2. These are important indications of approaches, strategies or messages which can be used in your intervention.
  - For example, if trust in nurses is identified as a driver for caregivers, activities should build on this trust. Perhaps there is a need to educate nurses; perhaps nurses can take up more tasks related to vaccination; perhaps nurses need to be involved in any information or education activity with caregivers.
- Consider working in small groups and then come together to discuss your ideas.

Exercise 6 **Prioritize and select activities**

Objectives

The objectives of this exercise are:

- to discuss your activities using six criteria
- to prioritize between and select a few activities.

The steps of the exercise

1. Rate each activity

- Rate each of the activities you identified in Exercise 5, using the following criteria. Score them from low (1) to high (5).
  - Is it **affordable**? Can it be delivered to the target group within budget?
  - Is it **practicable**? Can it be delivered to the target group?
  - Is it **effective**? How much of an impact could it realistically have?
  - Is it **equity-focused**? How much of an impact on equity could it have?
  - Is it **cost-effective**? How well does it work compared to cost?
  - Is it **acceptable**? How appropriate is it for different stakeholders?
- For all six criteria, you may decide that you need more information to do this exercise – for example, you may need to talk to some key stakeholders about feasibility or look at the literature on effectiveness/cost-effectiveness.
- Consider working in small groups and then come together to discuss your ratings and agree which activities to select.
- If you have more than one target group, e.g. caregivers, health workers, you need to repeat this exercise for each group.

2. Prioritize between activities

- Complete Exercise table 6.1 with your ratings.
- Score them from low (1) to high (5).
- Discuss and agree on a few activities which you consider to be affordable, practicable, effective, cost-effective, equity-focused and acceptable. How many activities you select will depend on the resources that you have available.
- Depending on the context some criteria may be more important than others, e.g. you may decide to weight scores in favour of equity.
- The activities can address more than one barrier.

Exercise table 6.1. **Prioritizing activities**

Activities from Exercise 5	Affordable	Practicable	Effective	Equity-focused	Cost-effective	Acceptable

Selected activities:

Exercise 7 Consider how policy can support the activities

Objectives

The objective of this exercise is

- to identify relevant policy actions to support the activities.

The steps of the exercise

1. Review possible policy actions

- Take a look at Exercise table 7.1 to see the full range of possible policy actions that you can use. Take some time to read this through.

GOOD TO KNOW

A **policy action** is an action, often initiated by authorities, which supports and enacts the activities and the intervention as a whole. Note, activities can also be related to policy; however, this exercise is merely to check if policy actions need to be initiated to support and enable your activities/intervention. As an example, you may need to change regulations to introduce a new vaccination recall and reminder system.

Exercise table 7.1. **Definitions and examples of policy actions**

Policy actions	Definition *(21)*	EXAMPLES
Guidelines	Creating documents that recommend or mandate practice (this includes all changes to service provision)	Guidelines on antenatal care (vaccination during pregnancy) Guidelines for health workers on addressing hesitant patients/caregivers
Fiscal measures	Using the tax system to reduce or increase the financial cost	Changing how health workers are taxed as an incentive
Regulation	Establishing rules or principles of behaviour or practice	Standard Operations Procedure for monitoring undervaccinated patients Uniform mechanisms for call/recall Regulation to incentivize health workers to invest more time/education in immunization
Legislation	Making or changing laws	Different forms of vaccination mandates: e.g. mandatory vaccination check at school entry Changing the structure of the programme: centralization, decentralization Offering guidance to vaccine patients/caregivers or introducing mandatory consent forms
Environmental/social planning	Designing and/or controlling the physical or social environment	Offering vaccination in new environments outside of the routine immunization system: e.g. pharmacies, town halls or sports events, school-based vaccination
Service provision	Adding new services to existing service delivery	Offering caregivers/patients information and education, training events, workshops, seminars at health facility Self-consent for teenagers Electronic consent processes

2. Link your selected activities with policy actions

- Go through your selected activities and discuss if any of the policy actions could be essential or helpful to support each activity.
- Identify the stakeholders you need to work with to make this possible.
- To create an overview of your activities with selected policy actions, complete Exercise table 7.2.

Exercise table 7.2. **Overview of activities and policy actions**

Activity	Supportive policy actions	Details (how and which stakeholders)

Inspiration box 11.

POSSIBLE ACTIVITIES

To inspire TIP intervention planning, Table 4 gives an overview of potential activities. The overview builds on currently available evidence and insights from various fields of research and implementation, including psychology, medical anthropology, sociology, social science and communication. Not all suggested activities have yet been sufficiently tested to be deemed best practice.

A few reviews of literature on vaccine acceptance and demand have been conducted to assess the effectiveness of various strategies to reduce hesitancy or increase trust and uptake *(7,8,10,24,25,26)*. Some key points from these are as follows.

- Interventions with **several activities** seem to be more effective than single-activity interventions. Particularly for marginalized and underserved communities, complex and locally designed interventions can be effective in reducing inequalities.
- Documented effective strategies for increasing vaccination uptake include those which **facilitate opportunities to vaccinate**, through making vaccination the easy, convenient and default behaviour and the obvious choice, and where face-to-face interaction between the vaccine patient/caregiver and the health worker provides reassurance, builds trust and offers the right information.
- Interventions focusing on **social processes**, such as those related to social norms or altruism are a promising field, but also one that requires more evidence to confirm its impact.
- To be effective, it is recommended that interventions are based on a **theoretical model**, empirical data and situation analysis and a planning framework, such as TIP.

Caveats

- From the literature on vaccine hesitancy and demand it is **not possible to highlight one** or a few specific activities that are the most effective in increasing vaccination uptake.
- At the individual level, many experimental studies (some promising) have been conducted to assess how specific types of messages affect **people's perceptions and intentions** to be vaccinated. However, there is a lack of large-scale implementation to fully document any impact of these.
- Many traditional **information and educational** tools – such as fact sheets or posters – have been shown to lack effectiveness and have no or little impact on vaccine hesitancy, or even entail a risk of reinforcing hesitancy.
- Evidence shows that communicating about the **risk of diseases** can change risk perceptions, but often does not have the intended effect on intentions to be vaccinated.
- Trying to **correct misperceptions** about vaccination can have the opposite effect, that is it may reinforce the misperception in the person receiving the information.

The activities listed in Table 4 should be approached with these caveats in mind. National or local TIP activities can be inspired by the table suggestions but should always build on the insights from the research studies conducted.

Continued on the next page →

Box continued

POSSIBLE ACTIVITIES

Table 4. **Inspiration list of possible interventions, activities and policy actions related to COM factors**

C

Capability

Recommended
Information, Training

Not recommended
Persuasion, Incentivization, Coercion, Restriction, Environmental restructuring, Modelling. See **Exercise table 4.2**

Intervention type	Definition	Possible activities and policy actions
Information	Increasing knowledge or understanding	Tailored information campaigns, debate or training events for caregivers or specific communities, available from a variety of locations *(27)*, and prepared based on insights from TIP research Home-based childhood vaccination records *(28)* Health workers providing face-to-face clear, balanced information about vaccination risks and benefits and the childhood vaccination schedule *(26,27)* Health workers providing (face-to-face) information tailored to the person's position on vaccination (accepting, hesitant, refusing) *(25,27,29)* Trained home visiting nurses providing tailored information to caregivers *(30)* Job aids for health workers *(7,24)* Clear guidelines for health workers Health worker training to increase knowledge on vaccines, vaccine-preventable diseases, contraindications *(7,24)*
Training	Imparting skills	School education for children, building critical thinking skills and health literacy Health worker training in pain mitigation measures *(31,32)* Health worker training building in supporting and communicating with caregivers, providing relevant and appropriate information *(29)* Supportive supervision for health workers *(33,34)*

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Box continued →

POSSIBLE ACTIVITIES

Opportunity

PHYSICAL

Recommended
Training, Restriction, Environmental restructuring

Not recommended
Information, Persuasion, Incentivization, Coercion, Modelling. See **Exercise table 4.2**

Intervention type	Definition	Possible activities and policy actions
Training	**Imparting skills**	• Health facility managers trained to provide supportive supervision *(33,34)*
Restriction	**Using rules**	• Mandatory vaccination for childhood vaccines – can range from limited to strict enforcement *(35,36,37)* • Mandatory use of monitoring systems to detect missed vaccinations • Mandatory use of vaccination call and reminder within set time limits of missed vaccination in health facilities • Mandatory vaccination of health workers *(38,39)*
Environmental restructuring	**Changing the physical context**	• Adequate time for vaccination consultations • Enhanced convenience of vaccination services, e.g. related to opening hours, drop-in options, location, waiting time, booking, outreach • Welcoming, comfortable and child-friendly waiting areas and vaccination rooms • Structured, well functioning systems to monitor and detect un- and undervaccinated *(40)* • Structured, well functioning recall and reminder systems *(8,22)* • Minimal (in)direct cost for those being vaccinated *(41)* • Reduced vaccine stock-outs • Restructuring, e.g. increased involvement of nurses or other staff in various tasks • Increase in health staff, e.g. in areas with deprived populations • Legislation to remove barriers or increase equity, e.g. strengthening the rights of marginalized, mobile, migrant or unregistered populations to access vaccination • Reduced missed opportunities for vaccination by integration of vaccination with other (health) services, e.g. home visits or child well-being visits • Supportive work conditions for health workers, including fair pay and adequate job descriptions • Job aids supporting health workers' interaction with caregivers *(7,24)* • Home-based childhood vaccination records *(28)*

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Box continued

POSSIBLE ACTIVITIES

Recommended
Restriction, Environmental restructuring, Modelling

Not recommended
Information, Persuasion, Incentivization, Coercion, Training. See **Exercise table 4.2**

Opportunity
SOCIAL

Intervention type	Definition	Possible activities and policy actions
Restriction	**Using rules**	• Vaccination checks at school entry *(71)* • Other types of mandates for vaccination, restricting social interaction in case of nonvaccination *(36)*
Environmental restructuring	**Changing the social context**	• Enhanced opportunities for health workers to support caregivers, enhance trust and foster vaccine acceptance, by making sure health workers: possess necessary scientific knowledge; recommend vaccines; offer satisfactory answers to people's questions; are not condescending or hurried; treat people as individuals *(27)* • Health workers trained in using appropriate approaches and choice architecture (e.g. motivational interviewing and clear health worker recommendation) *(16,29,42,43)* • Guidance on how health workers talk to patients about vaccination • Health cards with tick boxes for vaccination *(28)* • Strengthened health worker routines; e.g. routine check of vaccination status at all visits; routine monitoring of and follow-up with unvaccinated patients *(44)* • An enabling environment for health workers with management and collegial support, supportive supervision, overall health systems support • Engaging health workers as champions, encouraging colleagues to vaccinate • Opinion leaders and influencers engaged to promote vaccination (medical specialists, home visiting nurses, teachers, community leaders, journalists, members of parliament, other)
Modelling	**Providing an example to imitate**	• Health workers demonstrating their vaccination behaviours and using this to promote good vaccination practice among themselves • Health workers setting an example (e.g. confirm they have vaccinated themselves/their children) to their patients *(10,16)* • Community peers demonstrating their vaccination behaviours and using this to promote good vaccination practice in the community • Community leaders setting an example (e.g. confirm they have vaccinated themselves/their children) to their peers

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Box continued

POSSIBLE ACTIVITIES

M

Motivation

Recommended
Information, Persuasion, Incentivization, Coercion, Training, Environmental restructuring, Modelling

Not recommended
Restriction.
See **Exercise table 4.2**

Intervention type	Definition	Possible activities and policy actions
Information	Increasing knowledge or understanding	• Simple, user-friendly presentation of vaccination schedule • Evidence-based decision aid for supporting the informed vaccination decision *(29)* • Supporting self-affirmation through identity-based campaigns *(45)* informed by TIP research • Health workers providing face-to-face clear, balanced information about vaccination risks and benefits and the childhood vaccination schedule *(26,27)* • Health workers providing (face-to-face) information tailored to the person's position on vaccination (accepting, hesitant, refusing) *(25,27,29)*
Persuasion	Communicate feelings	• Testing emotional messages before use to avoid negative emotional reactions or backfire effects where a negative perception to vaccination is reinforced *(46)* • Avoiding strong language when explaining there is no or little risk *(47)* • Communicating herd immunity (vaccination means protecting more than just the person vaccinated) *(48)* • Talking about risk which people understand and can relate to (e.g. sepsis, influenza), and less about risk which is difficult to relate to *(49)* • Emphasizing social norms that vaccination is normal, the right thing to do and socially responsible *(50)* • Speaking to the worldviews of the patient/caregiver, respecting them and exploring how vaccination could fit into these *(51)*
Incentivization	Expectation of a reward	• Incentives for children/adolescents *(8)* or caregivers *(52)* • Incentives for vaccinators, e.g. reimbursement for health workers who vaccinate *(53)* or reduced taxes *(36)*
Coercion	Punishment or cost	• Appealing to the possible anticipated regret of not vaccinating, if case child gets sick *(10)*

Continued on the next page

Box continued

POSSIBLE ACTIVITIES

M

Motivation

Recommended
Information, Persuasion, Incentivization, Coercion, Training, Environmental restructuring, Modelling

Not recommended
Restriction.
See **Exercise table 4.2**

Intervention type	Definition	Possible activities and policy actions
Training	Imparting skills	• Increasing health worker confidence, and reducing fear of vaccine safety events, through increased knowledge and enhanced opportunities for professional training and education
Environmental restructuring	Physical or social context	• Using reminders, saying that other people around them vaccinate, to indicate social expectations of vaccination • Using school entry checks to indicate social expectations of vaccination *(71)* • Creating an enabling and motivating environment for health workers and patients/caregivers in health facilities, based on insights from local TIP research
Modelling	Providing an example to imitate	• Engaging peers or opinion leaders to affect individual norms and values and feelings regarding vaccination – for patients/caregivers and for health workers • Developing or engaging in existing social media platforms or apps where behaviours are shared or compared with that of friends

Emphasizing social norms that vaccination is normal, the right thing to do and socially responsible may increase motivation.

Inspiration box 12.

PSYCHOLOGICAL FACTORS AFFECTING INDIVIDUAL CAPABILITY AND MOTIVATION.

At the individual level, capability and motivation to be vaccinated are affected by a range of conscious and unconscious factors. Psychological research has revealed that health behaviours are affected by so-called heuristics *(54,55,56)*. These are (often unconscious) mental shortcuts which affect decisions and perceptions about vaccination. They also affect how communication and interventions related to vaccination are received and perceived. Some common heuristics are introduced in Table 5.

Some advice is also included on how these mechanisms can be taken into account when planning interventions. This advice refers to interventions that are relevant for capability and motivation, including information, persuasion, incentivization, coercion, training, modelling and environmental restructuring.

Table 5. **Behavioural concepts from psychological research** *(46,54–67)*

In short	Heuristic (mental short-cuts)	What this means	What we can learn from this	When developing an intervention, consider...
Humans prefer simple choices	Cognitive dissonance and information overload	Conflicting information and opinions, too many choices and too much information are stressful and make it difficult to make decisions and change behaviours. A short myth is easier to remember than an explanation about why it is not true.	Less may be more	Focus on presenting solutions and avoid too much complexity, choices and background information. • A vaccination schedule which is easy to grasp at a first glance • Evidence-based decision aid for supporting the informed vaccination decision
Humans prefer the status quo	Default effect	We are more likely to accept behaviours that are presented to us as a default, rather than an open choice.	Set the default wisely	Consider: how is vaccination presented – as a choice or as a given? Can it be changed? Can it be reframed? • Sending out prescheduled vaccination dates to patients with the option to change or cancel • Considering vaccination the default / mandatory for all, with complex opting out opportunities • Doctors referring to vaccination as the standard (presumptive approach) • Health cards with tick boxes for vaccination

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Box continued

PSYCHOLOGICAL FACTORS AFFECTING INDIVIDUAL CAPABILITY AND MOTIVATION

In short	Heuristic (mental short-cuts)	What this means	What we can learn from this	When developing an intervention, consider...
Humans are influenced by their peers	Descriptive norm	The behaviour of our peers affects our own behaviour. We look to others to define what is acceptable and desirable.	Talk about what relevant others do	Utilize the power of communities – e.g. defined by geography, culture, age, gender, socioeconomic status, education, profession, religion, beliefs, opinions, interests (including online). • Community advocates/leaders engaged and trained to promote healthy behaviours • Apps or social media platforms where behaviours are shared or compared with that of friends
	Social comparison	We compare ourselves with the people that we identify with and we want to do as well as they do – or better.	Talk about what relevant others do	Utilize the power of communities – e.g. defined by geography, culture, age, gender, socioeconomic status, education, profession, religion, beliefs, opinions, interests (incl. online). • Sharing of opinions, goals and behaviours on social media • Opportunities to demonstrate behaviours: "I vaccinate"
Human nature is conservative	Anchoring Adjustment	Once something has been anchored in our perception in a certain way, we filter new information according to this anchor.	Be the one who sets the anchor	Set the anchor and influence the filter that is used for new information. • Ensuring public debate, liaising with opinion-leading stakeholders and building public understanding and even demand before launching new laws (e.g. mandatory vaccination) or new health service structures (e.g. by nurses instead of doctors; services in new places) • Making the baby's first vaccination experience a good one. Evidence shows this shapes the mother's attitude towards vaccination
	Confirmation bias	We tend to trust the information which is in line with what we already believe, and we look for information which confirms this.	People believe in what they already believe to be true	Anticipate potential information needs and offer information that matches what people look for. • Listening to people's concerns and communicating in a transparent way about risk • Offering risk, danger as search terms when writing about the safety of vaccines – because this is what people look for

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Box continued

PSYCHOLOGICAL FACTORS AFFECTING INDIVIDUAL CAPABILITY AND MOTIVATION

In short	Heuristic (mental short-cuts)	What this means	What we can learn from this	When developing an intervention, consider...
	Worldview backfire effect	When we hear information that contradicts our worldview, paradoxically this can strengthen our worldview.	Try to open the door	Value people's worldview. • Supporting self-affirmation before presenting potentially contradicting information, e.g. campaign that addresses alternative parents with slogans like "I use cloth nappies, eat vegan – and immunize" • Using different framing – e.g. when valuing nature is important, state that vaccines support the natural immune system by training it with vaccines (instead of injecting chemical substances)
Feelings are often stronger than thoughts	Availability heuristic	Humans tend to make decisions based on intuition and judge the likelihood of events by the ease with which they come to our mind. Side effects may feel more likely than the disease as we can picture them more easily in our mind.	What comes to mind easily is not always right	Provide examples that are easy to imagine. • Explaining that vaccine-preventable diseases can have follow-up consequences like increased risk for sepsis or heart disease
	Affect heuristic	Emotions often have a stronger impact on behaviour than knowledge.	Use the context to affect thinking and feeling	Use research and testing with target groups to learn more about which triggers create positive and negative emotions. • Using emotional messages to attract attention and interest • Using guidelines for stress and pain relief in vaccination procedures to create a positive experience
	Priming effect	Our behaviours are influenced by (often unconscious) triggers that create certain thoughts or emotions.	Use the context to affect thinking and feeling	Use research and testing with target groups to learn more about which triggers create positive and negative thoughts and emotions. • Considering health clinics' furniture, decoration and sound (playing/ not playing music and what kind), and health personnel clothing as possible triggers affecting behaviours

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Box continued

PSYCHOLOGICAL FACTORS AFFECTING INDIVIDUAL CAPABILITY AND MOTIVATION

In short	Heuristic (mental short-cuts)	What this means	What we can learn from this	When developing an intervention, consider...
Presentation makes a difference	Loss aversion Safety effect Framing effect	In risk assessment, humans tend to be more concerned about avoiding losses than obtaining gains. Loss framing can increase awareness. It can also elicit strong emotional reactions such as anger, leading people to show the opposite behaviour – especially in those not in favour of vaccination.	Choose your words wisely	Be careful and test your messages thoroughly with your selected audiences. Your message – especially messages which relate to risk – may have the opposite effect to what you envisaged.
	Negativity bias	We tend to give more attention to negative information (there is a risk) than to positive information (there is no risk). We find negative information more trustworthy than positive information.	Be aware that we have a special awareness for risk	Understand that negative messages from opponents (e.g. against vaccination) can be perceived as trustworthy. • Avoiding strong language when explaining there is no or little risk
Habits are powerful	Substitution effect	Habits are powerful mechanisms which can be utilized proactively.	Utilize habits	Explore ways to utilize already established habits and structures. • Including vaccination follow-up in other health-related events • vaccination status at visits • Strengthening habits of secretaries/ nurses to routinely monitor and follow up on unvaccinated patients
The right time and place makes a difference	Prompt effect	Being prompted at the right time and place increases our likelihood of changing behaviours.	Prompt the decision at the right place and time	Utilize the times and places where people are open to change and ready to act. • Strong recommendations from the doctor • Reminders and recalls sent out by doctors • Educating women about vaccination during pregnancy • Connecting prompts to external events (e.g. "put vaccination on your back-to-school list and schedule your family's flu vaccination by October!") • Prompting behaviour at places or at times where people are ready to act and can demonstrate the behaviour prompted (e.g. vaccination) – at the doctor's, pharmacist, workplace

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Box continued →

PSYCHOLOGICAL FACTORS AFFECTING INDIVIDUAL CAPABILITY AND MOTIVATION

In short	Heuristic (mental short-cuts)	What this means	What we can learn from this	When developing an intervention, consider...
Contracts bind us	Commitment contracts	We feel bound by commitment, especially if it is written, or if failing has a consequence.	Commit people to vaccination	Find ways to ensure commitment from target groups, with concrete planning of actions. • Setting individual health goals in a contract or an app • Collecting a deposit that is only returned when a certain goal is reached • Including a consequence/penalty for not living up to agreed actions • Agreeing on, and writing down, next vaccination appointment at any vaccination visit
Humans are social animals	Reciprocity	When we know that we can protect others with our vaccination and that they protect us, too, we are more inclined to vaccinate.	Communicate the social benefit	Activate the social motivation for getting vaccinated. • Explaining that those who cannot vaccinate because they are too young, old or ill rely on those who can to protect them through their vaccinations • Explaining how everybody can protect (unborn) babies, their family, their community, their society
Incentives shape behaviour	Rewards or punishments	When we are rewarded for a behaviour we will be more likely to do it again. When we are punished, we tend to stop the behaviour.	Use incentives	Consider appropriate ways to use rewards for vaccination or repercussions for nonvaccination. • Congratulating and thanking patients who contribute to herd immunity • When goals are reached (e.g. vaccination targets), rewarding the groups that reached the target • Using visible rewards to motivate others who observe the rewards • Reducing costs – financial costs and practical barriers • Vaccine mandates, e.g. school-entry checks
What feels familiar is right	Familiarity backfire effect	We assume that something is correct when we have heard it repeatedly. Myths that are corrected in ways that repeat them last even longer in our minds.	Don't repeat myths	Give a positive key message. • Avoiding repeating the myth when you want to correct it • Using facts • Using simple explanations – your message needs to be as simple and easily understood as the myth
Knowing or intending – are not doing	Implementation intentions	Although the intention to vaccinate should, theoretically, lead to vaccination, it often doesn't. Writing down actions, time and place, increases the likelihood that we follow through on intentions.	Bridge the gap	Create a connection between certain points in time and the behaviour. • Writing specific plans about when and how one will carry out an action (e.g. vaccination) • Scheduling appointments for the next vaccination when leaving the doctor

Step: Engage stakeholders and advocate for the intervention

Objectives

The objectives of this step are to utilize stakeholders' expertise and experience to refine the intervention; and strengthen their ownership of and support to the TIP intervention.

Working methods

How stakeholders are best engaged, and how advocacy is best conducted, depends on the context and the stakeholders. It is suggested that one or more half-day stakeholder workshops are conducted, which should include:

- a presentation to introduce the process so far, including the outcomes of the data review, stakeholder input and research studies
- a presentation of the suggested intervention (activities and policy actions)
- plenary discussion.

It is also suggested that managers and decision-makers should be approached, as appropriate and feasible, to present the suggested intervention and to obtain their support.

For guidance on who the relevant stakeholders may be, refer to Inspiration box 1 on page 31.

Outputs

The outputs of this step are as follows:

- input from stakeholders, including managers and decision-makers
- refined intervention (activities/policy actions) based on feedback from stakeholders
- updated progress report.

Advocacy should be implemented at all stages in the process from this stage onwards.

Step: Design and plan intervention in detail

Objectives

The objective of this step is to plan the intervention in detail, including its activities and policy actions.

Working methods

A good project plan is necessary for successful implementation and outcome of the intervention. It is also required to secure internal or external funding, if not in place.

It is suggested that a one-day meeting with the TIP Core Group is organized, to adjust, refine and plan the intervention in detail, based on the feedback from stakeholders. The planning includes details regarding activities, policy actions, budget, timeline, roles and responsibilities.

Inspiration box 13 offers guidance regarding the intervention plan.

The long-term sustainability of the intervention needs to be considered early in the process. Inspiration box 14 provides some guidance for discussion on this subject.

Following the TIP Core Group meeting the project lead or consultant will work for 1–3 weeks to write the project plan which has been agreed upon.

Outputs

The outputs of this step are as follows:

- detailed project plan for the intervention
- updated progress report.

GOOD TO KNOW

The UNICEF *Prototyping, Testing Ideas & Improvement (Powerpoint module* developed as part of their human-centred approach guidance) offers additional ideas for developing activities, including exercises which could be conducted in a TIP Core Group meeting or a stakeholder workshop.

The module is available here: **http://bit.ly/facilitation-guide-pt4.**

The ECDC *Catalogue of interventions addressing vaccine hesitancy* offers a collection of interventions to measure and address vaccine hesitancy, and showcases examples of practices that can be adapted according to national and local needs and strategies.

The catalogue is available here: **https://ecdc.europa.eu/sites/portal/files/documents/Catalogue-interventions-vaccine-hesitancy.pdf.**

Inspiration box 13.

INTERVENTION PLAN

The contents and format of the intervention plan depend on the context and the intervention.

Some key elements to include are:

- introduction and background (summary of findings from PHASE 1, PHASE 2 and PHASE 3)
- aims and objectives of the intervention
- target group(s), clearly defined and segmented per activity/policy action
- overall presentation of the intervention: intervention types, activities and policy actions
- detailed description of each activity and policy action: scope, purpose, timing, location, roles, responsibilities at all levels
- detailed description of each policy action: scope, purpose, timing, location, roles, responsibilities at all levels
- sustainability mechanisms (Inspiration box 14)
- monitoring and evaluation framework (see next step)
- budget, broken down per activity
- timeline with milestones.

A summary table can be developed as shown in Table 6.

Table 6. **Example summary table**

Activity or policy action	Scope	Target group(s)	Timing	Location	Roles and responsibilities	Budget	Monitoring and evaluation targets
Intervention type:							
Intervention type:							

Inspiration box 14.

SUSTAINABILITY AND SCALE-UP

Consider the following in a discussion on the short- and long-term sustainability of the planned intervention and its activities and policy actions.

Human resources:
- Are the necessary human resources available in the short and long term?
- Is the necessary expertise and capacity available in the short and long term?
- Are the roles and responsibilities clear? Are they clear if the project is scaled up to additional target groups or additional geographical areas?
- Do any external support opportunities exist, such as volunteers or staff from local or nongovernmental organizations?

Financial resources:
- Is sustainable funding of this activity realistic in the short and long term?
- What funding sources exist (internal and external donors)?
- Could a budget increase be obtained through budget negotiations?
- Could resources be reallocated, so that other activities are scaled down?
- Are there opportunities for joint funding with other institutions/programmes/ministries?

Supporting systems and processes
- Are there any existing health system structures or processes to support sustainability?

Content resources:
- Are there any existing tools (training programmes, information materials, guidelines, standard operating procedures, project descriptions) that could be used, so that it is not necessary to develop new ones from scratch? Consider, for example, other countries or other health programmes.
- Do similar projects exist in other countries or other institutions which could be adapted for vaccination, or where resources are available?

Political will:
- Is the necessary political and management support in place to ensure long-term sustainability?
- How can advocacy activities ensure political and management support? How can partners (WHO or other international organizations, local opinion leaders, community leaders, others) help advocate for the intervention?

Step: Develop monitoring and evaluation framework

Objective

The objective of this step is to develop a monitoring and evaluation framework for the intervention.

Working methods

As illustrated in Fig. 7 (page 22) the monitoring and evaluation framework is developed based on all of the previous steps of the TIP process. The monitoring and evaluation framework helps implementers to assess whether the intervention was a success and the reasons behind. It also highlights opportunities to adjust, improve and scale up. In addition, it allows impact and cost-effectiveness to be documented and shared this with decision-makers and other stakeholders.

The framework defines the data to be collected and when, where and how this is done. The core of the framework is a set of indicators and targets which are used to analyse:
- the implementation of the intervention, its quality and acceptability (process)
- the intermediate and long-term impact of the intervention (impact).

In addition, the framework includes information about how, when and where these targets are measured. An overview of this information is displayed in a logic model (Table 7).

It is suggested that the TIP Core Group meeting organized for PHASE 3 should be used to agree on these indicators and targets. Exercise 8 can be used to guide discussions.

The monitoring and evaluation framework can then be written up by the project lead or a consultant and added to the intervention plan (see Inspiration box 13).

Inspiration box 15 lists the components of a monitoring and evaluation framework.

Inspiration box 16 offers guidance on process.

Inspiration box 17 offers guidance on impact.

Outputs

The outputs of this step are as follows:

- a detailed monitoring and evaluation framework (Inspiration box 15) – to be added to the intervention plan
- updated progress report.

GOOD TO KNOW

Indicators are the type of data or information used to measure change.

- **Process** indicators help you to understand how your intervention works, or why it does not work, the quality of your intervention implementation and its acceptability among targeted stakeholders (Inspiration box 16).
- **Impact** indicators help to show if your intervention has had the desired output (intermediate impact in terms of reduced barriers) and outcome (long-term impact in terms of increased and more equitable vaccination uptake) (Inspiration box 17).

Targets are the specific increases/decreases aimed for in the data used.

Inspiration box 15.

COMPONENTS OF A MONITORING AND EVALUATION FRAMEWORK

A monitoring and evaluation framework can include the following.

- A logic model (Table 7), including:
  - process indicators and targets – related to the activities and policy actions
  - intermediate impact indicators and targets – related to capability, physical opportunity, social opportunity and motivation factors for each target group
  - long-term impact and equity indicators and targets – related to the TIP goal of high and equitable vaccination uptake.
- Baseline data (data on the situation before the intervention to compare with after the intervention)
- Guidance on how the process is monitored and evaluated, how data are obtained, when and by whom
- Guidance on how the impact is monitored and evaluated, how data are obtained, when and by whom
- Context, risks and possible confounding factors that need to be taken into account (confounding factors are external factors outside of your control which may affect the success of your intervention in a negative or positive way)
- Guidance on how economic factors are monitored and evaluated to help assess if the intervention is cost-effective
- Special considerations for equity
- Special considerations for 'doing no harm': how can you assess whether the intervention had any unintended negative impacts?

Table 7. **Example of logic model for the monitoring and evaluation framework**

	Process					Impact: intermediate	Impact: long-term
Related to	Activity: **Training of health workers**			Activity: **In-clinic consultative sessions by national experts**		COM factor identified as barrier: **Capability** (low knowledge among health workers)	TIP goal: **Increasing vaccination coverage in 50 low-coverage clinics serving vulnerable communities**
Indicators	Number of cascade trainings conducted	Number of trainings conducted in low-coverage clinics	Number of quality measures on checklist approved by observer	Number of consultative sessions conducted	Score in evaluation form	Percentage of correct responses in questionnaires	MCV2 uptake per clinic
Baseline	N/A	N/A	N/A	N/A	N/A	Average of 53% correct answers in test group before intervention	Average of 65% MCV2 coverage in 50 clinics
Targets	≥5 cascade trainings conducted	≥50 trainings conducted in low-coverage clinics	≥90% of quality measures on checklist approved for each training observed	≥5 consultative sessions conducted in each low-performing clinic	≥75% of participants satisfied/ very satisfied with overall quality of consultative session	≥90% correct responses from 90% of people targeted	≥85% MCV2 uptake in 50 clinics
Data sources	Training registration lists	Training registration lists	Quality observation checklist, conducted for 10% of trainings	Reporting from national experts	Evaluation form distributed to all participants after each consultative session	Online questionnaire for all health workers in all low-performing clinics	Monthly reporting from clinics
Data collection	Registration lists sent to project coordinator	Registration lists sent to project coordinator	Quality check lists sent to project coordinator	Reports sent to project coordinator	Evaluation forms sent to project coordinator	Obligatory participation by all health workers in 50 clinics	Reports shared with project coordinator
Timing	At end of each training	At end of each training	At end of each training	At end of each consultative session	At end of each consultative session	At end of intervention	Monthly from 1 month before intervention to 1 year after intervention.

Inspiration box 16.

PROCESS

Process monitoring and evaluation may focus on:
- quantity of activities implemented (were activities implemented, on time, as agreed?)
- reach of activities (were the intended number of people (in the target group) reached?)
- acceptability of activities (were the people engaged satisfied?)
- quality of activities (was it well implemented, according to objective quality criteria?)
- external factors affecting implementation (what were the barriers and drivers to implementation?).

Data collection methods can be quantitative or qualitative:
- registration list or form
- participant evaluation form
- observation with checklist, e.g. checking for quality, level of participation, participant response and engagement
- stakeholder interviews, survey or workshop
- implementer interviews or reports
- participant interviews.

It is relevant to also monitor and document contextual factors which may affect the implementation and the impact of the intervention. This will help to understand if any possible change, success or failure was due to the intervention itself, or to external factors. Contextual factors may include other activities implemented in parallel, legislative changes, political or societal changes, structural changes or other.

Inspiration box 17.

IMPACT

For impact evaluation, the data monitored and collected should document any change related to:
- the barriers identified, relating to capability, social/physical opportunity or motivation (intermediate impact)
- the overall goal set for the TIP process, relating to high and equitable vaccination uptake (long-term impact).

To do this, a baseline (documentation of the situation before the intervention) should be established to compare with the situation after the intervention.

Data collection methods are often quantitative but can also be qualitative.

To assess the intermediate impact on barriers to vaccination (capability, social opportunity, physical opportunity, motivation), data may include:
- participant surveys, questionnaires, tests
- participant interviews.

To assess the long-term impact on vaccination uptake and equity, data may include:
- vaccination monitoring data
- outbreak surveillance data
- data reported from health facility.

Exercise 8 Select process and impact targets and indicators

Objective

The objective of this exercise is

- to select process indicators/targets and impact indicators/targets (intermediate, long-term) for your intervention.

The steps of the exercise

1. Select process indicators and targets (for your activities and policy actions)

- First agree on your indicators. Which indicators are relevant for your activities/policy actions depend on the nature of these.
- At a minimum, select indicators which will help to measure whether the activities/policy actions were conducted and reached the intended target group.
- If resources are available, it may be relevant to add more indicators (for some or all activities/policy actions) which will help to measure:
  - the quality of the activities
  - the acceptability of the activities for those targeted
  - the contextual factors affecting implementation.
- Then agree on your targets: the change you wish to see for each indicator.
- Finally, discuss how you will collect the data that will allow you to monitor and evaluate the process, who will do it and when.
- Find inspiration in Exercise table 8.1 and Inspiration box 16.

Exercise table 8.1. **Examples of process indicators and targets**

Related to	Activity: **Training of health workers**			Activity: **In-clinic consultative sessions by national experts**	
Indicators	Number of trainings	Number of participants trained	Number of quality measures approved per training	Number of consultative sessions conducted	Score in evaluation form
Targets	≥10 trainings conducted	≥50 participants trained in each training	≥90% of quality measures approved for each training observed	≥5 consultative sessions conducted in each low-performing clinic	≥75% of participants satisfied/very satisfied with overall quality of consultative session
Data sources	Training registration lists	Training registration lists	Observer with checklist, observing 50% of trainings	Reporting from national experts	Evaluation form
Data collection	Registration lists sent to project coordinator	Registration lists sent to project coordinator	Quality check lists sent to project coordinator	Reports sent to project coordinator	Evaluation forms sent to project coordinator
Timing	At end of each training	At end of each training	At end of each training	At end of each consultative session	At end of each consultative session

2. Select intermediate impact indicators and targets

- **First agree on your indicators.**
- Intermediate indicators allow you to explore whether any change has occurred relating to the barriers identified (capability, social opportunity, physical opportunity, motivation).
- They provide some information on the impact of your intervention much sooner than you can assess impact on vaccination coverage or equity.
- For example, if knowledge of vaccine safety (capability) was identified as a key barrier, you can assess whether this knowledge has improved in the intermediate term.
- At a minimum select one indicator for each of the selected barriers.
- If feasible, a baseline can be included.
- **Then agree on your targets**: the change you wish to see for each indicator.
- Finally, discuss how you will collect the data that will allow you to evaluate the change, who will do it and when.
- Find inspiration in Exercise table 8.2 and Inspiration box 17.

Exercise table 8.2. **Examples of intermediate impact indicator and target: Training of health workers**

Impact: Intermediate	
Related to	Barrier: **Low knowledge among health workers in low-coverage clinics** (capability)
Indicator	Percentage of correct responses in questionnaires
Baseline	Average of 53% correct answers in test group before intervention
Target	≥90% correct responses from 90% of health workers targeted in the intervention
Data source	Online questionnaire for all health workers targeted in the intervention
Data collection	Online questionnaires analysed by project coordinator
Timing	After first round of trainings

3. Select long-term impact and equity indicators and targets

- **First agree on your indicators.**
- Long-term impact indicators allow you to see if you have achieved your overall TIP goal. Often the overall goal relates to increasing vaccination coverage and/or equity.
- It may take several years to see changes in vaccination coverage; and it will be influenced by other things that are happening, not just your intervention.
- To build in an assessment of equity, discuss which social determinants of health you could measure.
- At a minimum select one indicator for the long-term impact.
- A baseline should also be included.
- **Then agree on your targets**: the change you wish to see for each indicator.
- Finally, discuss how you will collect the data that will allow you to evaluate the change, who will do it and when.
- Find inspiration in Exercise table 8.3 and Inspiration box 17.

Exercise table 8.3. **Examples of long-term impact and equity indicator and target: Multicomponent intervention**

Impact: Long-term	
Related to	TIP goal: **Increasing vaccination coverage in 200 low-coverage clinics serving vulnerable communities**
Indicator	MCV2 uptake per clinic
Baseline	MCV2 coverage in 200 clinics range from 58% to 74%
Target	≥85% MCV2 uptake in 200 clinics
Data source	Monthly reporting from clinics
Data collection	Analysis of data from the national vaccination data reporting system
Timing	Monthly from 1 month before intervention to 1 year after intervention

4. Consider conducting an economic evaluation

- An economic evaluation helps to document if the intervention provided value for money. This might help secure long-term funding to sustain the intervention.
- An economic evaluation compares the cost of delivering the intervention with the costs saved.
  - For example, the cost of an intervention may include the cost of developing training modules; delivering trainings; designing, producing, distributing printed and online materials; paying for trainers and other staff; and more.
  - The saved costs may include disease treatments and hospitalizations; quality-adjusted life year burden on the population related to a disease outbreak; and more.
- A range of frameworks exist which can guide TIP Core Groups in planning an economic evaluation of their intervention *(68–70)*.

POST-TIP
Implementation

Output: Intervention implemented, evaluated, scaled up

Objectives

- To implement, monitor, evaluate, refine and, if relevant, scale up the intervention

Working methods

- Implementation as per the intervention plan
- Monitoring as per the monitoring and evaluation framework
- Evaluation as per the monitoring and evaluation framework
- Intervention refinement
- Project scale-up, if relevant

Planning of POST-TIP phase

The POST-TIP phase is where the implementation of the planned intervention takes place with its activities and policy actions. How this is done, and how long it takes, depends on the project plan and cannot be described in full detail below. The process may take years and, if it proves successful, should be continued for the future. A suggested process may be planned as follows.

Year 1: Implementation with ongoing monitoring
Year 2: Evaluation and adjustment
Years 3–?: Continued implementation, monitoring, evaluation and scale-up

The POST-TIP phase is where the implementation of the planned intervention takes place with its activities and policy actions.

Step: Implement

Objectives

The objective of this step is to implement the planned activities and policy actions of your intervention.

Working methods

The intervention – with its activities and policy actions – should be implemented as outlined in the intervention plan.

Outputs

The outputs of this step are the outputs described in the intervention plan.

Step: Monitor

Objectives

The objective of this step is to obtain evidence regarding the extent to which the activities and policy actions have been implemented, their quality and their impact.

Working methods

Monitoring can be done regularly throughout the implementation process. The project lead or a consultant collects and analyses the data outlined in the monitoring and evaluation framework. These data may relate to the quantity of activities (how many activities), their reach (how many people, how many people in the target group), the quality of activities (satisfaction and acceptability among target groups or objective quality criteria) and the impact (data related to barriers, vaccination uptake and equity).

Outputs

- The output of this step is data which can be analyzed and used for evaluation.

Step: Evaluate

Objectives

The objective of this step is to understand whether your intervention has had an impact and why/why not.

Working methods

Evaluation is often done at the end of the intervention. An intermediate evaluation can be added, as well as an evaluation at some time after the intervention. The project lead or a consultant analyses the data collected as part of the monitoring. These data should document or explore changes in the barriers identified (capability, opportunity, motivation) and in vaccination uptake and equity.

Outputs

The output of this step is a report based on the monitoring and evaluation framework. It should include:

- an analysis of the data collected
- conclusions regarding the impact of the intervention, its effectiveness and cost-effectiveness
- recommendations regarding opportunities for continuation and scale-up.

Step: Adjust

Objectives

The objective of this step is to adjust activities and policy actions based on the evaluation.

Working methods

It is recommended that a TIP Core Group meeting is organized to discuss the monitoring and evaluation conclusions and recommendations. A stakeholder workshop can also be considered as an opportunity to discuss the monitoring and evaluation and possible adjustment of the activities and policy actions.

How activities and policy actions are adjusted depends on the success of the intervention and on the conclusions and recommendations of the monitoring and evaluation.

Based on these meetings/workshops, the project lead or a consultant revises the intervention plan.

Outputs

The output of this step is a revised intervention plan and adjusted activities and policy actions.

Step: Scale up

Objectives

The objective of this step is to scale up successful elements of the intervention, for example to include additional target groups or additional geographical areas. As the intervention was based on insights relating to a specific target group, implementers should think carefully about its relevance to other target groups before introducing it.

Working methods

Organizing a TIP Core Group meeting is recommended, to discuss the evaluation recommendations and a possible scale-up of the intervention. A stakeholder workshop can also be considered.

How activities and policy actions are scaled up depends on the success of the intervention and on the recommendations of the evaluation.

Based on the meeting and workshop, the project lead or a consultant revises the intervention plan or develops a new intervention plan for the additional target groups or geographical places proposed.

Outputs

The output of this step can be an intervention plan for activities and policy actions in additional places (for example, nationwide) or with additional target groups.

The objective of this step is to scale up successful elements of the intervention, for example to include additional target groups or additional geographical areas.

References*

1. Dubé E, Leask J, Wolff B, Hickler B, Balaban V, Hosein E et al. The WHO Tailoring Immunization Programmes (TIP) approach: review of implementation to date. Vaccine. 2018;36(11):1509–15.
2. Andre FE, Booy R, Bock HL, Clemens J, Datta SK, John TJ et al. Vaccination greatly reduces disease, disability, death and inequity worldwide. Bull World Health Organ. 2008;86(2):140–6. doi:10.2471/BLT.07.040089.
3. Jansen KU, Anderson KS. The role of vaccines in fighting antimicrobial resistance (AMR). Hum Vaccin Immunother. 2018;14(9):2142–9. doi:10.1080/21645515.2018.1476814.
4. Cameron RL, Kavanagh K, Cameron Watt D, Robertson C, Cuschieri K, Ahmed S et al. The impact of bivalent HPV vaccine on cervical intraepithelial neoplasia by deprivation in Scotland: reducing the gap. J Epidemiol Community Health. 2017;71(1):954–60. doi:10.1136/jech-2017–209113.
5. Boyce T, Gudorf A, de Kat C, Muscat M, Butler R, Bach Habersaat K. Towards equity in immunisation. Euro Surveill. 2019;24(2):1800204. doi:10.2807/1560–7917.ES.2019.24.2.1800204.
6. Riumallo-Herl C, Chang AY, Clark S, Constenla D, Clark A, Brenzel L et al. Poverty reduction and equity benefits of introducing or scaling up measles, rotavirus and pneumococcal vaccine in low-income and middle-income countries: a modelling study. BMJ Glob Health. 2017;3(2):000613. doi:10.1136/bmjgh-2017–000613.
7. Dubé E, Gagnon D, MacDonald NE, SAGE Working Group on Vaccine Hesitancy. Strategies intended to address vaccine hesitancy: review of published reviews. Vaccine. 2015;33(34):4191–4203. doi:10.1016/j.vaccine.2015.04.041.
8. Crocker-Buque T, Edelstein M, Mounier-Jack S. Interventions to reduce inequalities in vaccine uptake in children and adolescents aged <19 years: a systematic review. J Epidemiol Community Health. 2017;71(1):87–97. doi:10.1136/jech-2016–207572.
9. Vaccination and trust. How concerns arise and the role of communication in mitigating crises. Copenhagen: WHO Regional Office for Europe; 2017 (www.euro.who.int/vaccinetrust).
10. 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. doi:10.1177/1529100618760521.
11. Layton D, Jenkins E, Macgill S, Davey A. Inarticulate science? Perspectives on the public understanding of science and some implications for science education. Driffield, UK: Studies in Education Ltd.; 1993.
12. Sobo EJ. Social cultivation of vaccine refusal and delay among Waldorf (Steiner) school parents. Med Anthropol Q. 2015;29(3):381–99. doi:10.1111/maq.12214.
13. Jama A, Ali M, Lindstrand A, Butler R, Kulane A. Perspectives on the measles, mumps and rubella vaccination among Somali mothers in Stockholm. Int J Environ Res Public Health. 2018;15(11):2428. doi:10.3390/ijerph15112428.
14. Ventola CL. Immunization in the United States: recommendations, barriers, and measures to improve compliance. Part 1: Childhood vaccinations. PT. 2016;41(7):426–36.
15. Temoka E. Becoming a vaccine champion: evidence-based interventions to address the challenges of vaccination. South Dakota Medicine: The Journal of the South Dakota State Medical Association. 2013;(Spec. No.):68–72.
16. Leask J, Kinnersley P, Jackson C, Cheater F, Bedford H, Rowles G. Communicating with parents about vaccination: a framework for health professionals. BMC Pediatr. 2012;12:154. doi:10.1186/1471–2431–12–154.
17. Cooper LZ, Larson HJ, Katz SL. Protecting public trust in immunization. Pediatrics. 2008;122(1):149–53. doi:10.1542/peds.2008–0987.
18. Schmitt H-J, Booy R, Aston R, Van Damme P, Schumacher RF, Campins M. How to optimise the coverage rate of infant and adult immunisations in Europe. BMC Med. 2007;5:11. doi:10.1186/1741–7015–5–11.
19. World Health Organization. Health literacy and behavior 2015. (www.who.int/healthpromotion/conferences/7gchp/track2/en/).
20. Rudd RE. The evolving concept of health literacy: new directions for health literacy studies. Journal of Communication in Healthcare. 2015;8(1):7–9. doi:10.1179/1753806815Z.000000000105.
21. Michie S, Atkins L, West R. The Behaviour Change Wheel. A guide to designing interventions. London: Silverback Publishing; 2014.
22. Jacobson Vann JC, Jacobson RM, Coyne-Beasley T, Asafu-Adjei JK, Szilagyi PG. et al, Patient reminder and recall interventions to improve immunization rates. Cochrane Database Syst Rev. 2018 Jan 18;1: CD003941. doi:10.1002/14651858.CD003941.pub3.
23. Betsch C, Schmid P, Heinemeier D, Kom L, Holtmann C, Bohm R. et al. Beyond confidence. Development of a measure assessing the 5C psychological antecedents of vaccination. PLoS One 2018 Dec 7;13(12):e0208601. Doi:10.1371/journal.pone.0208601.
24. Vaccination. In: The community guide [website]. Atlanta, GA: Community Preventive Service Task Force; no date (www.thecommunityguide.org/topic/vaccination).
25. Kaufman J, Ryan R, Walsh L, Horey D, Leask J, Robinson P et al. Face-to-face interventions for informing or educating parents about early childhood vaccination. Cochrane Database Syst Rev. 2018;5:CD010038. doi:10.1002/14651858.CD010038.pub3.
26. Lukusa LA, Ndze VN, Mbeye NM, Wiysonge CS. A systematic review and meta-analysis of the effects of educating parents on the benefits and schedules of childhood vaccinations in low and middle-income countries. Hum Vaccin Immunother. 2018;14(8):2058–68. doi:10.1080/21645515.2018.
27. Ames HMR, Glenton C, Lewin S. Parents' and informal caregivers' views and experiences of communication about routine childhood vaccination: a synthesis of qualitative evidence. Cochrane Database Syst Rev. 2017;2:CD011787. doi:10.1002/14651858.CD011787.pub2.
28. Magwood O, Kpadé V, Afza R, Oraka C, McWhirter J, Oliver S et al. Understanding women's, caregivers', and providers' experiences with home-based records: a systematic review of qualitative studies. PLoS One. 2018;13(10):e0204966. doi:10.1371/journal.pone.0204966.
29. Berry NJ, Danchin M, Trevena L, Witteman HO, Kinnersley P, Snelling T et al. Sharing knowledge about immunisation (SKAI): an exploration of parents' communication needs to inform development of a clinical communication support intervention. Vaccine. 2018;36(44):6480–90. doi:10.1016/j.vaccine.2017. See also www.talkingaboutimmunisation.org.au.
30. Vaccination programs: home visits to increase vaccination rates. In: The Community Guide [website]. Atlanta, GA: Community Preventive Service Task Force; 2016 (www.thecommunityguide.org/findings/vaccination-programs-home-visits-increase-vaccination-rates).
31. Taddio A, McMurtry CM, Shah V, Riddell RP, Chambers CT, Noel M et al. Reducing pain during vaccine injections: clinical practice guideline. CMAJ. 2015;187(13):975–82. doi:10.1503/cmaj.150391.
32. Reducing pain at the time of vaccination: WHO Position Paper – September 2015. Weekly epidemiological record. 2015;90(39):505–16 (www.who.int/immunization/policy/position_papers/reducing_pain_vaccination/en/).
33. Children's Vaccine Program at PATH. Guidelines for implementing supportive supervision: a step-by-step guide with tools to support immunization. Seattle: PATH; 2003 (https://vaccineresources.org/files/Guidelines_for_Supportive_Supervision.pdf).
34. Djibuti M, Gotsadze G, Zoidze A, Mataradze G, Esmail LC, Kohler JC. The role of supportive supervision on immunization program outcome – a randomized field trial from Georgia. BMC Int Health Hum Rights. 2009;9(Suppl 1):S11. doi:10.1186/1472–698X–9–S1–S11.

* References accessed on 1 October 2019.

35. Lee C, Robinson JL. Systematic review of the effect of immunization mandates on uptake of routine childhood immunizations. Journal of Infection. 2016;72:659–66. doi:10.1016/j.jinf.2016.04.002.
36. MacDonald NE, Harmon S, Dubé E, Steenbeek A, Crowcroft N, Opel DJ et al. Mandatory infant & childhood immunization: rationales, issues and knowledge gaps. Vaccine. 2018; 36(39):5811–18. doi:10.1016/j.vaccine.2018.08.042.
37. Vaccination programs: requirements for child care, school, and college attendance. In: The Community Guide [website]. Atlanta, GA: Community Preventive Service Task Force; no date (www.thecommunityguide.org/findings/vaccination-programs-requirements-child-care-school-and-college-attendance).
38. Maltezou HC, Theodoridou K, Ledda C, Rapisarda V, Theodoridou M. Vaccination of healthcare workers: is mandatory vaccination needed? Expert Rev Vaccines. 2019;18(1):5–13. doi:10.1080/14760584.2019.1552141.
39. Lytras T, Kopsachilis F, Mouratidou E, Papamichail D, Bonovas S. Interventions to increase seasonal influenza vaccine coverage in healthcare workers: a systematic review and meta-regression analysis. Hum Vaccin Immunother. 2016;12(3):671–81. doi:10.1080/21645515.2015.
40. Vaccination programs: immunization information systems. In: The Community Guide [website]. Atlanta, GA: 2010 (www.thecommunityguide.org/findings/vaccination-programs-immunization-information-systems).
41. Vaccination programs: reducing client out-of-pocket costs. In: The Community Guide [website]. Atlanta, GA: 2014 (www.thecommunityguide.org/findings/vaccination-programs-reducing-client-out-pocket-costs).
42. Miller WR, Rose GS. Toward a theory of motivational interviewing. Am Psychol. 2009;64(6): 527–37. doi:10.1037/a0016830.
43. Opel DJ, Heritage J, Taylor JA, Mangione-Smith R, Salas HS, DeVere V. The architecture of provider-parent vaccine discussions at health supervision visits. Pediatrics. 2013;132(6):1037–46. doi:10.1542/peds.2013–2037.
44. Vaccination programs: provider reminders. In: The Community Guide [website]. Atlanta, GA: 2015 (www.thecommunityguide.org/findings/vaccination-programs-provider-reminders).
45. Attwell K, Freeman M. I immunise: an evaluation of a values-based campaign to change attitudes and beliefs. Vaccine. 2015;33(46):6235–40. doi:10.1016/j.vaccine.2015.09.092.
46. Lewandowsky S, Ecker UK, Seifert CM, Schwarz N, Cook J. Misinformation and Its correction: continued influence and successful debiasing. Psychol Sci Public Interest. 2012;13(3):106–31. doi:10.1177/1529100612451018.
47. Betsch C, Sachse K. Debunking vaccination myths: strong risk negations can increase perceived vaccination risks. Health Psychol. 2013;32(2):146–55. doi:10.1037/a0027387
48. Betsch C, Böhm R, Korn L, Holtmann CBA. On the benefits of explaining herd immunity in vaccine advocacy. Nature Human Behaviour. 2017;1: 0056. doi:10.1038/s41562–017–0056.
49. Stehr P, Heinemeier D, Rossmann C. Evidenzbasierte Gesundheitskommunikation. Edition 2018,ISBN print: 978–3–8487–5024–5,ISBN online: 978–3–8452–9196–3, https://doi.org/10.5771/9783845291963.
50. Oraby T, Thampi V, Bauch CT. The influence of social norms on the dynamics of vaccinating behaviour for paediatric infectious diseases. Proc Biol Sci. 2014;281(1780):20133172. doi:10.1098/rspb.2013.3172.
51. Hornsey MJ, Fielding KS. Attitude roots and Jiu Jitsu persuasion: understanding and overcoming the motivated rejection of science. Am Psychol. 2017;72(5):459–73. doi: 10.1037/a0040437.
52. Vaccination Programs: Client or Family Incentive Rewards. In: The Community Guide [website]. Atlanta, GA: 2015 (www.thecommunityguide.org/findings/vaccination-programs-client-or-family-incentive-rewards).
53. Crocker-Buque T, Mounier-Jack S. Vaccination in England: a review of why business as usual is not enough to maintain coverage. BMC Public Health. 2018;18:1351. doi:10.1186/s12889–018–6228–5.
54. Kahneman D, Tversky A. Choices, values, and frames. Am Psychol. 1984;39(4):341–50.
55. Slovic P. Perception of risk: reflections on the psychometric paradigm. In: Krimsky S, Golding D, editors. Social theories of risk. Westport, CT: Praeger; 1992:117–52.
56. Slovic P. Perceived risk, trust, and democracy. Risk Anal. 1993;13(6):675– 82. doi:10.1111/j.1539–6924.1993. tb01329.
57. Sørensen K, Van den Broucke S, Fullam J, Doyle G, Pelikan J, Slonska Z et al. Health literacy and public health: a systematic review and integration of definitions and models. BMC Public Health. 2012;12(1):80. doi:10.1186/1471–2458–12–80.
58. Dickert S, Västfjäll D, Mauro R, Slovic P. The feeling of risk: implications for risk perception and communication. In: Cho H, Reimer T, McComas KA, editors. The Sage handbook of risk communication. Los Angeles: Sage; 2015:41–55. doi:10.4135/9781483387918.n7.
59. Kahneman D, Tversky A. Judgment under uncertainty: heuristics and biases. Science. 1974;185(4157):1124–31.
60. Kahneman D. Thinking, fast and slow, first edition. New York: Farrar, Straus and Giroux; 2011.
61. Kasperson JX, Kasperson RE, Pidgeon N, Slovic P. The social amplification of risk: assessing fifteen years of research and theory. In: Pidgeon N, Kasperson RE, Slovic P, editors. The social amplification of risk. Cambridge: Cambridge University Press; 2003:13–46.
62. Kasperson RE, Renn O, Slovic P, Brown HS, Emel J, Goble R et al. The social amplification of risk: a conceptual framework. Risk Anal. 1988;8(2):177–87. doi:10.1111/j.1539–6924.1988.tb01168.x.
63. Siegrist M, Cvetkovich G. Better negative than positive? Evidence of a bias for negative information about possible health dangers. Risk Anal. 2001;21(1):199–206.
64. Sjöberg L, Moen B, Rundmo T. Explaining risk perception. An evaluation of the psychometric paradigm in risk perception research. Trondheim: Norwegian University of Science and Technology; 2004 (www.svt.ntnu.no/psy/Torbjorn.Rundmo/Psychometric_paradigm.pdf).
65. Slovic P, Peters E. Risk perception and affect. Curr Dir Psychol Sci. 2006;15(6):322–5. doi:10.1111/j.1467–8721.2006.00461.x.
66. Parsons JE, Newby KV, French DP. Do interventions containing risk messages increase risk appraisal and the subsequent vaccination intentions and uptake? A systematic review and meta-analysis. British Journal of Health Psychology. 2018;23(4):1084–1106. doi:10.1111/bjhp.2018.23.issue-4.
67. Penta MA, Baban A. Message framing in vaccine communication: a systematic review of published literature. Health Commun. 2018;33(3):299–314. doi:10.1080/10410236.2016.1266574.
68. Edwards RT, Charles JM, Lloyd-Williams H. Public health economics: a systematic review of guidance for the economic evaluation of public health interventions and discussion of key methodological issues. BMC Pub Health. 2013;13:1001. doi:10.1186/1471–2458–13–1001.
69. Weatherly H, Drummond M, Claxton K, Cookson R, Ferguson B, Godfrey C et al. Methods for assessing the cost-effectiveness of public health interventions: key challenges and recommendations. Health Policy. 2009;93(2–3):85–92. doi.10.1016/j.healthpol.2009.07.012.
70. Squires H, Chilcott J, Akehurst R, Burr J, Kelly MP. A framework for developing the structure of public health economic models. Value Health. 2016;19(5):588–601. doi: 10.1016/j.jval.2016.02.011.
71. Weekly Epidemiological Record, 28 April 2017, vol. 92, 17, page 222.

Annex 1. List of tools and resources

Explore these tools and resources to learn more about vaccine demand and acceptance, hesitancy and trust, health workers and vaccine patients/caregivers, amongst other things.

Title	Organization	Link
A guide for exploring health worker/caregiver interactions on immunization	USAID, UNICEF, John Snow, Inc. and WHO	English: www.who.int/immunization/programmes_systems/HW_KAP_2018_final_draft_June2018.docx?ua=1 French: www.who.int/immunization/programmes_systems/HW_KAP_2018_final_draft_June2018-FR.docx?ua=1
Best practice guidance: How to respond to vocal vaccine deniers in public	WHO	www.euro.who.int/vaccinedeniers
Demand for Health Services Field Guide	UNICEF	http://bit.ly/HCD-field-guide
Demand for Health Services Workbook	UNICEF	http://bit.ly/HCD_workbook
Field guide to qualitative research for new vaccine introduction	WHO	www.euro.who.int/newvaccines
Immunization advocacy library	WHO	www.euro.who.int/immunization-advocacy-library
Let's talk about hesitancy. Practical guide for public health programme managers and communicators	ECDC	https://ecdc.europa.eu/sites/portal/files/media/en/publications/Publications/lets-talk-about-hesitancy-vaccination-guide.pdf
Let's talk about protection: enhancing childhood vaccination uptake	ECDC	https://ecdc.europa.eu/en/publications-data/lets-talk-about-protection-enhancing-childhood-vaccination-uptake
Methods & Exercises • How to Facilitate • Human-centred design Overview, Objective Statement, Assumptions • Conducting Field Research • Sharing & Synthesizing Research • Prototyping, Testing Ideas & Improvement	UNICEF	www.unicef.org/innovation/hcd
Programming guidance – Demand generation	GAVI	www.gavi.org/library/gavi-documents/guidelines-and-forms/programming-guidance---demand-generation/
Talking about immunisation	SKAI	www.talkingaboutimmunisation.org.au/
Vaccination and trust: How concerns arise and the role of communication in mitigating crises	WHO	www.euro.who.int/vaccinetrust
Community Preventive Service Task Force. Guide to community services (The Community Guide). Vaccination.	US Government	www.thecommunityguide.org/topic/vaccination
Vaccine hesitancy among healthcare workers and their patients in Europe	ECDC	https://ecdc.europa.eu/sites/portal/files/media/en/publications/Publications/vaccine-hesitancy-among-healthcare-workers.pdf
Vaccine safety communication library – guidance documents	WHO	www.euro.who.int/vaccinetrust
Workbook – Advocacy for sustainable funding of immunization programmes	WHO	www.euro.who.int/immunization-advocacy-library

The WHO Regional Office for Europe

The World Health Organization (WHO) is a specialized agency of the United Nations created in 1948 with the primary responsibility for international health matters and public health. The WHO Regional Office for Europe is one of six regional offices throughout the world, each with its own programme geared to the particular health conditions of the countries it serves.

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World Health Organization
Regional Office for Europe

UN City, Marmorvej 51, DK-2100 Copenhagen Ø, Denmark
Tel.: +45 45 33 70 00 Fax: +45 45 33 70 01
Email: eurocontact@who.int
Website: www.euro.who.int