World Health Organization

A guide for conducting an Expanded Programme on Immunization (EPI) Review

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1 Immunization Practices Advisory Committe, http://www.who.int/immunization/programmes_systems/policies_strategies/ipac/en/

Abbreviations & acronyms

2YL	second year of life
AEFI	adverse event following immunization
AFP	actute flaccid paralysis
AFR	acute fever and rash
BD	birth dose
CDC	Centers for Disease Control and Prevention
CHAI	Clinton Health Access Initiative
cMYP	comprehensive multi-year plan
CRS	congenital rubella syndrome
CSO	civil society organization
DHIS2	district health information system, version 2
DHS	demographic and health survey
DPT3	diphtheria-tetanus-pertussis vaccine dose 3
ds	doses
EPI	Expanded Programme on Immunization
EQA	external quality assessment
EVM	effective vaccine management
EVMA	effective vaccine management assessment
FAQs	frequently asked questions
GAVI	GAVI Alliance
GVAP	Global Vaccine Action Plan
HCW	health-care worker
HepB	hepatitis B (vaccine)
HF	health facility
HMIS	health management information system
HPV	human papillomavirus (vaccine)
HR	human resources
HSS	health systems strengthening
IBD	inflammatory bowel disease
ICC	interagency coordinating committee
IIP	Immunization in Practice
ILI	influenza-like illness
IPV	inactivated polio vaccine
ISC	immunization supply chain
JANS	Joint Assessment of National Health Strategy and Plans
JE	Japanese encephalitis
JICA	Japan International Cooperation Agency
JRF	joint reporting form
KAP	knowledge, attitude and practice
MCH	maternal and child health
MCV	measles-containing vaccine
MICS	multi-indicator cluster sampling survey
MLM	Mid-Level Managers
MoE	Ministry of Education
MoH	Ministry of Health
MOV	missed opportunity for vaccination
MSD	measles second dose
MTEF	medium term expenditure framework
NGO	nongovernmental organization

NHA	national health accounts
NITAG	National Immunization Technical Advisory Group
NIP	National Immunization Programme
NT	neonatal tetanus
NVI	new vaccine introduction
PCV	pneumococcal conjugate vaccine
PHC	primary healthcare
PIE	post-introduction evaluation
PIRI	periodic intensification of routine immunization
REC	reaching every community (strategy)
RED	reaching every district (strategy)
RI	routine immunization
RV	rotavirus vaccine
SARA	service availability and readiness assessment
SARI	severe actute respiratory illness
STI	sexually transmitted infection
SWCR	strengths, weaknesses, conclusions and recommendations
TIP	Tailoring Immunization Programme (WHO)
ToRs	terms of reference
UNDP	United Nations Development Programme
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
VPD	vaccine-preventable disease
VVM	vaccine vial monitor
WHO	World Health Organization

Glossary of EPI Review terms

Align assessments (also referred to as "integrating assessments")

Refers to designing assessments so that they complement each other in timing, design, or technical content, to avoid duplication of effort. It can mean conducting assessments at the same time, e.g. they are fully integrated such as in a post-introduction evaluation (PIE) or a surveillance review, or partially integrated such as including data verification to field team tasks to contribute to a data systems review. It can also refer to designing one assessment so that it includes follow-up of recommendations contained in the other.

Comprehensive multi-year plan for immunization (cMYP)

A strategic plan for the national immunization programme, including situation analysis, objectives, strategies and activities, costing and financial analysis and monitoring and evaluation frameworks.

Concept note

Describes the EPI Review objectives, methods, timelines and human and financial resources required. The note is important for securing government approval and facilitating communication with stakeholders. The note is often updated after a desk review to reflect any new directions.

Core questions

In an effort to promote standards, facilitate a modular approach to designing field tools and minimize programme disruption by reducing the length of field tools, this document provides a set of core variables for each of the seven EPI Review topics (see *Annex 4*).

External determinants

Refers to those events or systems that are external to the immunization programme but which substantially affect (either positively or negatively) programme performance.

External participant

"External" in this context means external to government service or national immunization programme. It often refers to a participant representing an international organization or consultant from outside the country, especially when referring to the External Coordinator or Topic Leads.

Field-review stage of the EPI Review

This is the period of active data collection, observation and report-writing in the field.

Follow-up stage of the EPI Review

This is a multi-year stage commencing with debriefing and report-writing, and extending to overseeing implementation through planning and review systems of the ministry of health (MoH).

Immunization system components (topics)

The seven immunization system components are linked to the health systems building blocks and are aligned with system components in cMYP guidance (see *Box 4*).

Integrating assessments (see "align assessments")

EPI Review (or Review)

Also referred to as an EPI Review. It is a systematic investigation of the strengths and weaknesses of the immunization programme, used to identify priority areas in order to improve programme performance and guide strategic planning process.

EPI Review Coordinators

The Review Coordinators can be a designated EPI staff person (National Coordinator), and an external consultant (External Coordinator). Review Coordinators report to the EPI Review Managers and are responsible for the preparation, implementation and final reporting of the Review. See *Box 14* for management context; *Annex 2* for ToRs.

EPI Review Field Team Leads

An external review participant who leads the field trip in an assigned geographical area, synthesizes findings, conclusions and recommendations and reports back at field and national levels. See *Box 14* for management context; *Annex 2* for ToRs.

EPI Review Managers

In-country immunization leaders (usually the EPI manager and WHO immunization officer) responsible for initiating, facilitating and overseeing all stages of the Review. See *Box 14* for management context.

EPI Review scope

The basic scope of an EPI Review includes assessing each of the seven immunization system components (see "Immunization system components"). However, the scope may be modified if one of the components has recently been assessed (scope decreased) or if other assessments will be integrated (scope increased).

EPI Review stages

The five EPI Review stages are: (1) concept development and desk review; (2) planning and preparation; (3) implementation; (4) synthesis and recommendations; (5) translation into action. See *Box 2*.

EPI Review topic

Topics can refer to: (1) one of the seven immunization components; (2) an assessment that is being integrated; (3) any other special area of emphasis such as external or health system factors. The purpose of delineating topics is to track technical areas and link them to experts who will be responsible for conclusions and recommendations for a given topic.

EPI Review Topic Leads

These are external review participants who have been nominated to lead a Review topic; this means being responsible for leading the synthesis of findings, conclusions and recommendations across national and all field teams. See *Box 14* for management context; *Annex 2* for ToRs.

Post-introduction evaluation (PIE)

Evaluation of the implementation and lessons learnt from recent new vaccine introductions.

Introduction

What is an EPI Review?

The purpose of the Review is to provide evidence for the programme's strategic directions and priority activities.

An EPI Review, also referred to as National Immunization Programme Review, is the comprehensive assessment of the strengths and weaknesses of an immunization programme at national, subnational and service-delivery levels. The purpose of the Review is to provide evidence for the programme's strategic directions and priority activities. With this in mind, an EPI Review should be conducted before the immunization programme's strategic planning cycle, such as the cMYP. Review findings are presented formally to the Ministry of Health (MoH), other relevant ministries, and often the country's interagency coordinating committee (ICC) for their responses and endorsement for incorporation into the next strategic plan.

There are many ways an EPI Review can be conducted. The purpose of these guidelines is to establish a benchmark against which deviations from the standard can be made explicit. For example, EPI Reviews include external technical experts to provide greater technical depth, promote impartiality and increase the visibility and credibility of the findings. If EPI Review teams are not led by external experts, this should be made clear in the Review reporting process. A second example follows from the fact that EPI Reviews are increasingly being integrated with other assessments; adapting the Review to meet other objectives is encouraged and would also be an element to highlight as a deviation from a standard Review.

Rationale and objectives of these guidelines

RATIONALE

An EPI Review serves as the foundation of a programme's strategic planning process and therefore should be of the highest quality and tailored to meet country needs. It should aim to have an impact on the quality and access of immunization services and contribute to the mobilization of resources for the programme.

Conducting a high-quality EPI Review has become challenging because of the increasing complexity and scope of immunization programmes. Additionally, there is a risk of Reviews being driven by external pressures and not sufficiently country-driven or valued. This is a result of the increasing number of global and local immunization partnerships, each of which may have different interests and ideas for gathering information. Lastly, if country engagement and preparation time are inadequate, an EPI Review may fail to address critical questions or provide relevant recommendations.

Along with the need to improve the quality of EPI Reviews, there has been a growing need to align or integrate other assessments. The growing complexity of national immunization programmes has brought a wealth of country evaluation and assessment exercises. This has led to serious concerns regarding the amount of time national immunization managers must spend on conducting assessments, as well as the efficiency and added value of the various assessments. In line with global recommendations, the present guidelines aim to promote integration of EPI Reviews with other assessments, where feasible. Of note, it is no longer necessary to conduct post-new vaccine introduction evaluations (PIE) after each vaccine introduction unless the vaccine product, schedule, route of administration or strategy is significantly different from current practice. To facilitate integration and honing in on country priorities, these guidelines have been designed in a modular way by indexing tools and resources by topic.

OBJECTIVES OF THE GUIDELINES

This document provides guidance for conducting EPI Reviews, with the following three main objectives.

1. To set a benchmark for conducting quality EPI Reviews whereby scaling-back or enhancing can be described.
2. To share best practices in order to increase the efficiency and quality of Reviews, including through the integration of assessments as feasible.
3. To emphasize that EPI Reviews should be country-driven and part of a strategic planning process by which the findings provide evidence for strategic directions and priority activities.

WHO ARE THE GUIDELINES FOR?

This document is intended for use by individuals and teams responsible for planning and implementing an EPI Review. It includes EPI managers, programme staff, consultants, international advisers and partners. This guidance may also be useful background for those participating in an EPI Review.

Guiding principles

The EPI Review should be a MoH/EPI directed and owned activity to ensure recommendations are feasible and relevant to their programme.

The following principles inform these guidelines.

NATIONAL OWNERSHIP

The ownership of an EPI Review can be blurred at times because of the roles that various partners may play in supporting and participating in the Review. However, the country's immunization programme should initiate and facilitate this activity as part of their strategic planning process. National involvement with the Review is crucial, especially for EPI staff but also government officials and representatives of national nongovernmental bodies, including Interagency Coordinating Committees (ICC), National Immunization Technical Advisory Groups (NITAG), non-governmental organizations (NGOs), civil society organizations (CSOs) and academia. Even though findings may come from external reviewers, the recommendations should be developed jointly with national counterparts to ensure relevance, consistency and feasibility.

IMPACT-ORIENTED

The role that EPI Reviews have in stimulating programme impact, equity and innovation is emphasized throughout the document. One area in particular is detailing the need and approach for a thorough desk review, and following through with tailoring tools and developing actionable recommendations.

METHODS-ORIENTED

These guidelines focus on methods and approaches for conducting an EPI Review. Topic areas and core questions are provided but answers and technical elaborations are not covered here. Integration of programme assessments, when feasible, is also encouraged and relevant tools are provided or referenced.

FLEXIBLE

Flexibility refers to the extent to which the guidance can be adapted to the priorities and country context. The guidelines facilitate a modular approach to designing an EPI Review by providing a set of core questions for each system component (see *Box 4* and *Annex 4*). The core questions can be supplemented or enhanced depending on the Review objectives; examples of supplemental questions are provided in *Annex 5*. Alternatively, the emphasis on a system component can be reduced or deleted if a recent assessment has been completed in the topic area.

CONSISTENT WITH OTHER GUIDANCE DOCUMENTS

To promote links with recommendations for strategic planning, the immunization system components have been adopted in line with cMYP planning guidelines. The document also carefully considered existing resources on EPI Review methods from regional offices, and global guidance related to vaccine introduction and EPI assessments.

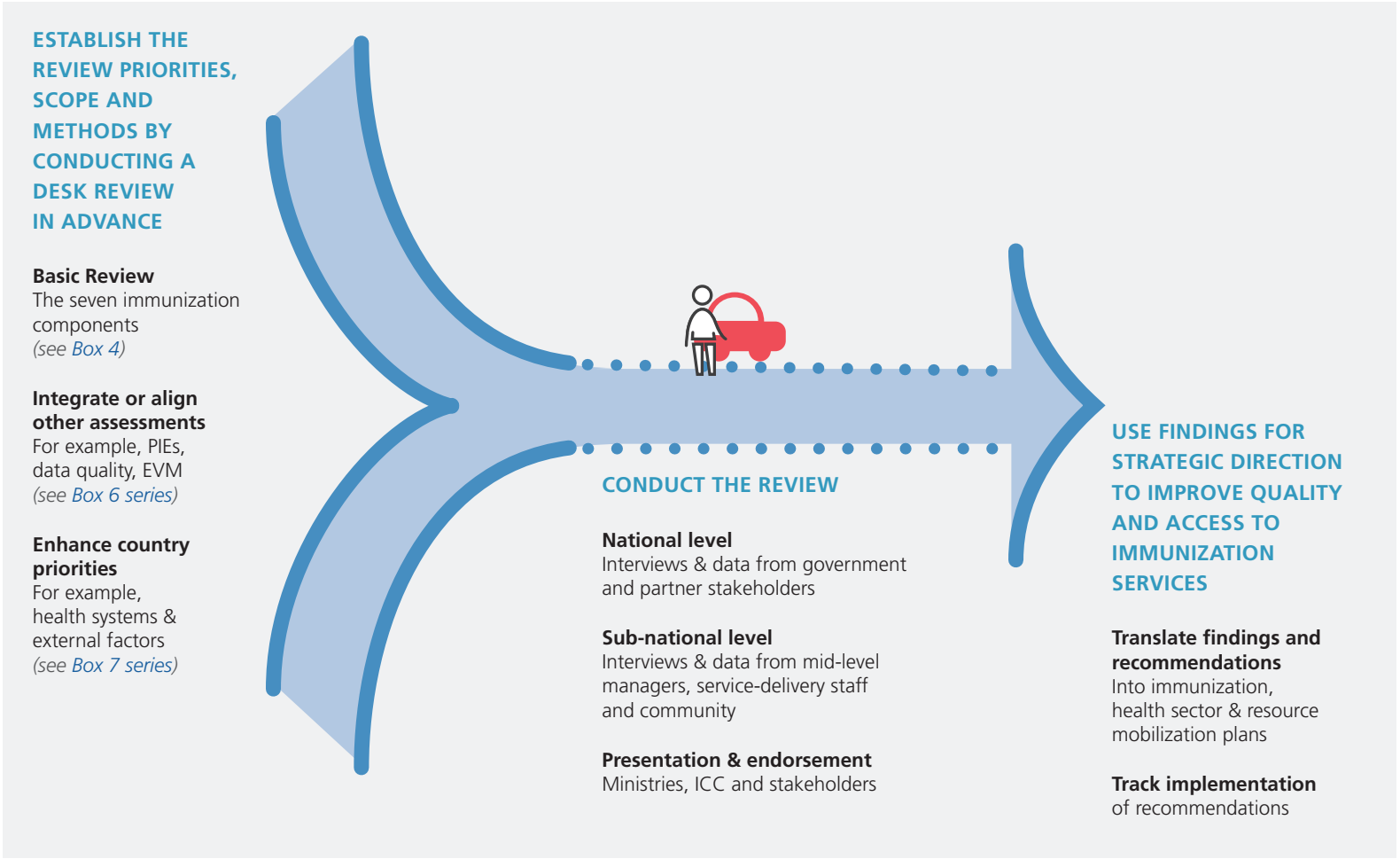
EPI Review framework

The EPI Review framework is based on establishing methods that will allow a team of reviewers to conduct a comprehensive assessment and provide recommendations for EPI strengthening (*Box 1*). Comprehensive not only refers to the breadth of topics covered, but also the depth, by visiting each administrative level from the national programme to service delivery and the community.

The content of the Review should focus on EPI priorities as well as reflect broader health sector directions. Related assessments should be integrated or aligned whenever possible for efficiency. These considerations will require substantial advanced preparation, in the form of a desk review, to ensure that the Review is tailored to meet EPI needs.

Lastly, recommendations alone will not lead to improvements; they must be feasible, fully endorsed, and incorporated in a country's strategic planning process in order to position them for action and to ensure financial sustainability.

BOX 1. EPI Review framework



EPI Review stages

These guidelines are presented according to five stages of an EPI Review: (1) concept development; (2) planning and preparation; (3) conducting the review; (4) synthesis and recommendations; (5) translation into action (see *Box 2*).

These five stages have been developed from existing regional guidance documents and years of experience from many EPI Reviews internationally.

For a more detailed account of Review activities, see *Box 3,* even though many of these activities have not yet been discussed. *Box 3* illustrates the Review timeline and can also be used as a checklist.

This timeline may be compressed if a smaller scale Review is envisioned; however, the time needed to conduct a desk review and draft of tools should not be underestimated as these are key factors to obtain a high-quality and relevant Review.

BOX 2. Five stages of an EPI Review

STAGE 1
Develop concept

A. Concept note **B.** Desk review **C.** Protocol and tool development

STAGE 2
Plan & prepare

A. Review management **B.** External participants **C.** Logistics **D.** Team training

STAGE 3
Conduct review

A. Best practices **B.** Data collection

STAGE 4
Synthesize & present findings

A. Synthesize findings & recommendations **B.** Presentations & reports

STAGE 5
Translate to action

A. Translate recommendations **B.** Follow-up recommendations **C.** Advocacy

BOX 3. EPI Review timeline and checklist

STAGE 1

6 months before

- ☐ Develop initial concept note
- ☐ Brief ICC, health sector body, cMYP leads
  Review Managers

5 months before

- ☐ Final concept note approval –dates & funds secured
- ☐ Identify Review Coordinators (external and national)
- ☐ Identify Desk Review Consultant, Desk Review specialists
  Review Managers

3–4 months before

- ☐ Conduct Desk Review with Leads (5–10 days)
- ☐ Finalize protocol and draft tools (5 days)
  Consultant or External Coordinator

STAGE 2

3 months before

- ☐ Invite partners to participate in the Review; inform ICC and partners of debriefing date
  Review Managers

2 months before

- ☐ Confirmation of partner participation
- ☐ Develop detailed checklist for team deployment
- ☐ Secure venues for training and debriefing meetings
- ☐ Inform sub-national offices of the Review as needed
  National Coordinator

3 weeks before

- ☐ External Coordinator begins in country
- ☐ Set up drop box with background documents
- ☐ Finalize ToRs and confirm Team Leads and Topic Leads
- ☐ Field test & finalize tools
  External Coordinator

2 weeks before

- ☐ Prepare training agenda, briefing package
- ☐ Finalize logistics and set appointments for national interviews
  Coordinators

Few days before

- ☐ **3 days:** face-to-face meeting of Topic Leads
  Coordinators & Topic Leads
- ☐ **2 days:** training (2 days)
  All participants
- ☐ **1 day:** print final tools & finalize database
  Coordinators

STAGE 3

Day 0-7

- ☐ Conduct Review
  All Review participants
- ☐ Create tables or charts of core variables to give to Topic Leads
  External Coordinator

STAGE 4

1 day after

- ☐ Field debriefing (including data analysis)
  Review teams
- ☐ Topic work groups session
  All; led by Topic Leads

2 days after

- ☐ Topic Lead presentations
  Topic Leads
- ☐ Synthesis of findings and recommendations
- ☐ Prepare the debriefing presentation
  All; led by Coordinators

3 days after

- ☐ Final ministry and partner debriefing
  All participants

1 week after

- ☐ Draft EPI report
  All; led by External Coordinator

1 month after

- ☐ Finalize EPI Review report and road map
  External Coordinator

STAGE 5

2 months after

- ☐ Participate in strategic planning
  EPI management and ICC

1 year after

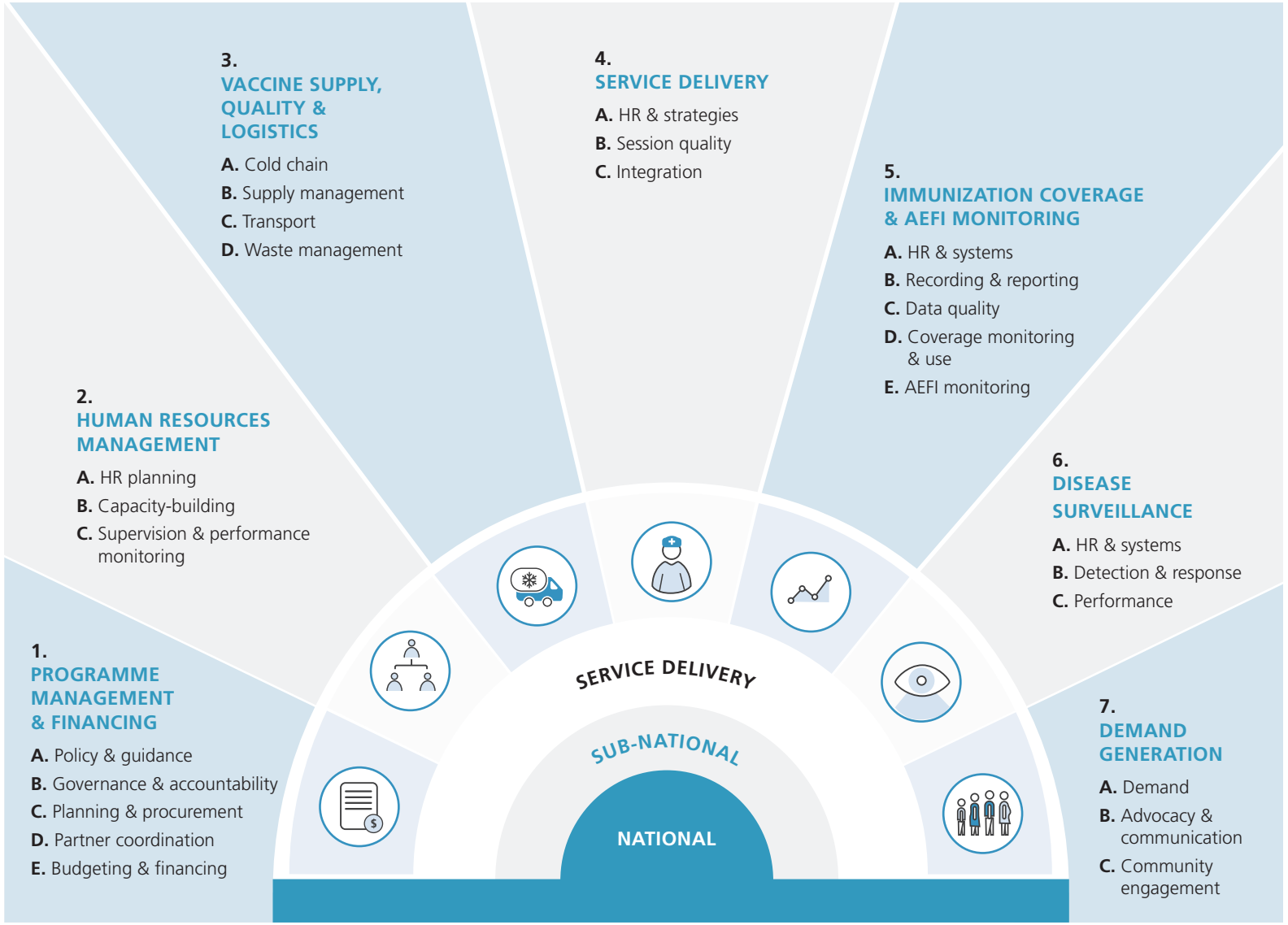
- ☐ Follow-up on implementation of EPI Review recommendations
  Coordinators

The seven basic EPI Review topics

An EPI Review should be a comprehensive assessment of all aspects of the programme along with enhancing lines of enquiry around the main issues that are affecting programme performance.

Box 4 provides an overview of the seven components and subcomponents that should be included in an EPI Review. However, if a recent assessment in a particular component area has been conducted and robust findings and recommendations have been provided, this area may be de-emphasized or modified so that the Review adheres to the recommendations.

BOX 4. The seven basic immunization topics of an EPI Review



Beyond the basics: aligning & integrating other assessments and enhancing country priorities

An EPI Review should be designed to align or integrate with other assessments, if feasible. The advantages of doing this include: less burden on the country; cost-savings; provides a more comprehensive picture; promotes consistency across assessments and strengthens advocacy efforts.

Integration, in this context, means to conduct the assessments at the same time with a harmonized strategy for data collection, analysis and dissemination of results. This will require modifying a basic EPI Review so that it meets the objectives and requirements of the other assessments. If full integration is not possible, assessments may be aligned to complement each other in timing, design, or technical content, in order to avoid duplication of effort or to use one assessment to follow up on recommendations contained in the other. *Box 5* gives examples of EPI Reviews with special topics; the *Box 6 series* outlines considerations when integrating other assessments with an EPI Review.

BOX 5. Examples of EPI Review special topics

Effective vaccine management scenario

An EVM assessment (EVMA) was recently conducted in the country. A desk review demonstrated issues of vaccine management at the middle level of management. The EPI Review plans to follow up on recommended activities. In another country, an EVMA is due and the EPI desk review can help determine how to best align or jointly conduct the EPI Review and EVMA (see *Annex 3B*).

Gaps between survey and administratively reported data

A DHS survey showed a 14% gap between DPT3 coverage from the survey and administrative data. Programme managers are raising concerns with data collection and reporting systems, while others point to inaccurate population denominators and high population mobility. The EPI Review methods have been enhanced so that field teams systematically assess if data recording and reporting practices at the service-delivery level are contributing to this discrepancy.

Human resource capability for surveillance

The country has recently emerged from a sustained period of instability, with very high rates of emigration of health workers and managers. Health indicators demonstrate low performance for surveillance for measles and low reporting of neonatal deaths. EPI management reports very poor knowledge among health workers on surveillance. In view of these challenges, the EPI manager would like the Review to focus on surveillance, aiming to identify recommendations for addressing anticipated surveillance gaps.

Human resources management scenario

Recent health system decentralization has resulted in changes to the numbers, distribution and motivation of health staff, particularly in remote areas, and this is directly affecting immunization coverage and equity. With this in mind, an EPI Review objective was added to pay special attention to human resources management and service delivery quality, as well as to recommend strategies for improved human resources management and motivation to enhance immunization services.

Urbanization and equity scenario

A desk review has confirmed significant migration from rural areas to mainly poor urban settlements. Small-scale surveys indicate lower coverage rates in these areas. In addition, population denominators are unclear in these settings due to high private sector utilization and unregistered migrant populations. The MoH would like the EPI Review to help identify strategies to increase access to underserved populations. This may include collecting information on social influences and influential communication channels, as these can be dramatically different from those in a rural context.

Vaccine hesitancy scenario

In the last two years, hepatitis B birth-dose coverage has dramatically declined following national media coverage of infant deaths linked to vaccination. Despite an international investigation concluding no direct link between the vaccine and the infant deaths, both parents and health providers resist the vaccine. In response, the EPI Review will examine determinants of vaccine hesitancy as well as the responsiveness of current AEFI systems, with a view to identify activities and resources needed to strengthen AEFI response and risk communication, and to increase the demand for hepatitis B birth dose.

BOX 6.A Integrating or aligning assessments

New vaccine post-introduction evaluations (PIEs)

Background and objectives

The objective of a PIE is to evaluate the impact of adding a new vaccine to the existing immunization system in a country. In the past, it was recommended that PIEs take place 6–12 months after vaccine introduction. They are intended to assess the extent to which the vaccine introduction was successful or not, the challenges related to its implementation and the measures (if any) that need to be taken in order to improve introduction efforts (in relation to management, supply chain, data monitoring, etc.). With the growing burden on countries to conduct assessments and the growing experience that countries have in adding new vaccines, it is now recommended that if a country or ICC deems a PIE to be necessary, it should ideally be combined with the comprehensive EPI Review. There may be circumstances in which it is preferable to conduct a PIE soon after introduction of the vaccine and not wait for an EPI Review, such as when a new vaccine formulation or delivery strategy is involved. For example, hepatitis B birth dose, measles second dose and human papillomavirus (HPV) may all merit a PIE since they are scheduled outside of the traditional infant EPI schedule and may not be adopted as easily. The following are considerations for an integrated Review.

Impact on planning

The desk review will need to cover the vaccine introduction activities, including training and vaccine handling and storage issues. The lines of enquiry of the review should assess whether the new vaccine introduction plans had any important gaps and whether activities were implemented according to the plans at both national and subnational levels. For example, if there is concern about vaccine acceptance, impact on cold storage space, health-care worker knowledge, or adverse events following immunization (AEFIs), then related queries should be integrated into the review. If needed, an expert in the new vaccine should be made available to assist with the desk review and provide input to the development of the review tools and training of the review participants.

Impact on sites to visit

Countries have been integrating PIEs with EPI Reviews for some time because of the similar methods and lines of enquiry; however, some modifications may be required. For example, at the national level, there may be different stakeholders or partners who should be interviewed specifically regarding the new vaccine. At field level, the sites to be visited should generally be the same as for an EPI Review – regional health offices, district health offices, health facilities and immunization sessions. However, there may be additional sites to visit if the vaccine has a special target age, such as visiting schools if the vaccine is administered to school-aged children.

Impact on data collection in the field

Much of the core information collected during an EPI Review is the same as that to be collected for a PIE. *Annex 4* provides a checklist of core vaccine -specific questions to consider, adding to the EPI Review questionnaires at each level of enquiry (national, regional, district, service delivery, immunization session).

Impact on synthesizing and reporting findings

A Topic Lead should be assigned the responsibility for synthesizing findings and recommendations related to the new vaccine. Ensure that any special stakeholders related to the new vaccine are invited to the recommendations drafting sessions or the debriefing.

BOX 6.B Integrating or aligning assessments

Data quality and information systems review

Background and objectives

This review evaluates: (1) the quality of immunization data, through a desk review of data consistency and completeness at national level and through a data verification exercise at all lower levels; and (2) the design and implementation of the system for collecting, analysing and using data for action. Integrating a data quality and information systems review with the EPI Review will allow recommendations for strengthening the health information system to be considered in a broader context. Furthermore, it can provide a better understanding of the limitations that performance data have in informing other review areas. The following are considerations for adding a data quality and information systems review to the EPI Review.

Impact on planning

The data quality and information system desk review can be completed ahead of time or fully integrated with the EPI Review desk review. If fully integrated, along with reviewing findings and recommendations from previous data quality assessments, a more detailed review of data systems, data consistency and completeness at the national level would be needed. This is likely to mean that the broader desk review would require additional expertise or additional time to complete. Guidance for conducting this review is currently being published and will be available online. Together with consideration of desk review findings, the EPI Review methods and tools would need to be adapted. One external expert in data quality should be appointed as Topic Lead for the overall data area, and data focal points will probably need to be added to each field team to concentrate on data verification and data recording, and reporting practices at the service-delivery level.

Impact on sites to visit

No specific considerations: a representative mix of health facilities and districts chosen for the Review should be sufficient to inform evaluation in this module. It is important to consider whether private or other health sectors are included in the visits, as information systems may vary and data reporting may differ from those of the public sector.

Impact on data collection in the field

Apart from the inclusion of specific questions around the monitoring system in the questionnaire, the main added workload for this module concerns data verification. This requires collection of data from tools where vaccination data are first recorded, including tally sheets and immunization registers, and all subsequent tools where these are reported, such as monthly reports and electronic databases of health management information system (HMIS) data (e.g. DHIS2). This can be time-consuming, especially as these data are not easily accessible. If it is considered important enough to execute in every health facility, then it would be best to designate a person familiar with the country's immunization information system to focus on this task. The team might also decide to carry out a data verification exercise in a subset of the sampled facilities only. See *Annex 4* for examples of core data verification questions.

Impact on synthesizing and reporting findings

A Topic Lead should be assigned the responsibility for synthesizing findings and recommendations related to the data area. That person should synthesize not only the results of the field reviews, but also interviews at national level, and the desk review and assessment of the overall system design. The main challenge is then to identify and recommend the concrete steps that can be taken to improve the monitoring system, in coordination with health information systems, if appropriate.

BOX 6.C Integrating or aligning assessments

Surveillance review

Background and objectives

If assessing surveillance is a country priority, the pros and cons of combining a surveillance review with an EPI Review, versus conducting a stand-alone surveillance review, are shown below. It is worth reiterating that a thorough desk review will guide the scoping and priorities for an integrated review.

Advantages of integrating a surveillance review with an EPI Review

- Less burden than conducting separate reviews
- Potential cost-savings
- Gives more complete picture of immunization and surveillance systems, which are linked
- Improved advocacy with policy-makers
- Places with poor surveillance are likely to have poor immunization

Summary of considerations for integrating a surveillance review with an EPI Review

- The review will require at least one surveillance expert (Topic Lead)
- Additional sites may need to be visited (e.g. sentinel surveillance sites, hospitals, laboratories)
- Subnational site selection criteria may need to be altered, for example by adding surveillance performance as a general site selection criteria

Impact on planning

An integrated review will require a surveillance expert before (desk review and protocol development) and during the review (as Topic Lead). A desk review should identify the main issues and diseases to be incorporated into the EPI Review data-collection tools. It is recommended that a maximum of four disease-specific surveillance systems be evaluated to help optimize use of time and resources as part of an integrated review. Choosing which systems to review can be based on eradication/elimination/control goals, when the last surveillance review occurred, recent vaccine introductions, recent outbreaks, burden of disease and/or national priorities. Other vaccine-preventable diseases (VPDs) not reviewed as part of this EPI Review, can be reviewed separately, either with a national team (e.g. field epidemiology training programme team) or another international team.

Impact on sites to visit

At the national level, surveillance focal points from the various systems should be included as part of the national-level review activities. National reference hospitals may be included in the review depending on the surveillance priorities identified. Laboratories may also be included, depending on priority, whether a recent assessment has been conducted, and available expertise.

Several surveillance criteria may guide site selection at the subnational level. Firstly, site selection should include capturing high- and low-performing surveillance sites. This is often done using composite selection criteria: for example, "high-performing regions" may be selected from a group of regions with both high immunization coverage and high surveillance performance indicators. Secondly, for active surveillance systems, either areas of very high or very low surveillance performance (as expressed through surveillance performance indicators) may prompt site selection for the investigation of factors affecting surveillance system performance. At the service-delivery level, guidance may be given to field teams to select health facilities with surveillance activities in mind (sentinel sites, active surveillance sites, or those with a high priority for surveillance-related supervision). Finally, mapping disease incidence can also guide site selection: for example, to help explore the reasons for increased disease incidence (low immunization coverage, high surveillance performance, different epidemiology).

Impact on data collection in the field

Surveillance data to be collected may expand on the core surveillance questions and may include supplemental surveillance queries. Updated guidelines for reviewing surveillance systems are planned to be available in 2018. In the meantime, the training manual for middle-level managers on surveillance guidelines can be used. In addition to integration of selected surveillance questions into the EPI Review questionnaire, *Annex 5* provides additional lines of questioning should surveillance be adopted as a special theme of an EPI Review.

Impact on synthesizing and reporting findings

The surveillance Topic Lead should integrate findings from the desk review and field teams and develop evidence-based recommendations for strengthening surveillance systems.

BOX 6.D Integrating or aligning assessments

Financial sustainability assessment

Background and objectives

Immunization financing sustainability is defined as the ability of a country to mobilize and efficiently use domestic and supplementary external resources, on a reliable basis, to achieve current and future immunization targets. For more background information, see the following resource guide *Immunization Financing – a resource guide for advocates, policymakers, and programme managers*.

Assessments of financial sustainability are conducted to determine the capacity of the country to sustain financing efforts and to identify any possible bottlenecks in the flow of funds from central level to field/district level. A methodological framework used to conduct a financial sustainability assessment is now available on the internet; suggested tools and guidance will soon be provided at the same website. If a financial sustainability assessment is needed, the following are considerations for integrating this assessment into the EPI Review.

Impact on planning

The EPI desk review will need to include an analysis of macroeconomic and immunization financing information, together with country plans for the health sector and for immunization. A specialist will probably be required to join the desk review consultant/team for this purpose. In addition to reviews at the national level, the desk review team should draft finance-related questions to add to the subnational tools that the EPI Review field teams will use during the Review. These questions should explore the adoption of national guidance and finance-related practices at the appropriate subnational levels. Ideally, the specialist who conducted the financing part of the desk review would participate in the Review itself, to synthesize, interpret and help draft recommendations related to financial sustainability. Otherwise, this specialist would need to be in contact with the Review's Topic Lead on financing to prepare them for that role.

Impact on sites to visit

Visits should be organized at central level, including to departments of budget and planning within the ministries of health and finance, and at local level, including to districts and fixed posts for immunization. Most of the financial review takes place at the national level during the desk review and will not need to be repeated during the EPI Review itself.

Impact on data collection in the field

Time should be devoted to cross-checking the completeness of reporting of financing and expenditure data, and to assess the EPI monitoring and accounting system at central and local levels. Field teams should be briefed on what kind of information and systems they can expect at subnational level and whom they should interview.

Impact on synthesizing and reporting findings

It will be the task of the Topic Lead to synthesize findings across all the field teams and link them to the desk review findings. This synthesis should lead to conclusions and recommendations for strengthening the country's immunization financing system.

BOX 6.E Integrating or aligning assessments

Special activities related to strengthening routine immunization (MOV and 2YL)

Background and objectives

Guidance and tools are currently being formulated to respond to missed opportunities for vaccination (MOV) and for strengthening a platform to vaccinate in the second year of life (2YL). It may be helpful to be aware of these routine immunization (RI) strengthening guidelines and activities, especially if there is an indication that either of these are a problem, or if assessments have been previously conducted and recommendations need follow-up.

An MOV refers to any contact with health services by an individual who is eligible for vaccination (e.g. unvaccinated or partially vaccinated and free of contraindications to vaccination) but is not vaccinated during that contact. Guidance and tools have been developed to assess and respond to MOVs. The MOV assessment requires interviewing a variety of different health offices and health workers and may not easily be integrated with an EPI Review. However, MOV-related queries could be added to as a diagnostic to possibly recommend a full MOV assessment.

Regarding 2YL, PIE for the second dose of measles-containing vaccine (MCV2) have elucidated that vaccination beyond infancy, and specifically during 2YL, requires special considerations compared to infant vaccines. Key considerations include increasing demand, modifying data monitoring systems and using a 2YL platform to catch-up missed infant doses. Guidance and tools for establishing and strengthening 2YL platforms are being drafted.

Impact on planning

Both MOVs and 2YL should be covered as part of a desk review; either to follow up on MOV assessments or 2YL-related PIES, or to review data, or to ask health officials if they feel either of these could be factors affecting immunization coverage. Queries could be added to field questionnaires related to assessing if these are potential RI gaps or to follow up on previous MOV or 2YL assessments and recommendations.

Impact on sites to visit

Regarding MOVs, national-level interviews with hospital or curative services would help understand policies or barriers to vaccination at a curative care visit. Regarding 2YL, it would be important to review health worker knowledge and behaviour, as well as data systems capacity to monitor 2YL vaccinations.

Impact on data collection in the field

Possible field questions that may help identify if MOVs or a weak 2YL platform is impacting RI performance could be as below.

LEVEL	MOV	2YL
National and sub-national	What strategies are employed to reduce missed opportunities for vaccination (see *Annex 5* for additional questions)?	Guidance for 2YL vaccination & monitoring? Is immunization coverage lower in 2YL compared to <1 coverage? If so, why?
Service delivery	Is a child's vaccination status checked at a non-vaccination related HF visit? Is a mechanism in place for this child to be vaccinated?	Are missed infant doses administered after 12m and tallied, reported accurately? Are 2YL health interventions integrated? See specific MCV2 PIE questions (*Annex 5A*)
Caregiver interview	Has your child ever been denied vaccine? For what reasons?	Are you aware that your child needs to be vaccinated in 2YL?

Impact on synthesizing and reporting findings

Findings should be presented in a way that will indicate if strategies to reduce MOVs and/or strengthen 2YL platforms could improve RI, whether MOV and/or 2YL recommendations are being successfully implemented, and whether more in-depth MOV and/or 2YL assessments or related activities are needed.

BOX 6.F Integrating or aligning assessments

Tailoring immunization programmes

Background and objectives

Many immunization programmes are faced with the challenge of un-vaccinated or under-vaccinated population groups. Drawing on people-centred approaches and social science research methods, the WHO Tailoring Immunization Programmes (TIP) offers a proven approach through which to: 1) define sub-optimally vaccinated population groups; 2) diagnose barriers and drivers to vaccination; 3) develop effective and cost-effective strategies to increase vaccination coverage.

A TIP typically follows a series of four steps that are shaped according to the local needs and context.

1. **Situation analysis and stakeholder engagement** – to review all available coverage, surveillance and social data, identify gaps in knowledge, and agree on next steps.
2. **Research** – to conduct the necessary quantitative and/or qualitative studies to form a more complete view of all barriers and drivers to immunization; this may include a literature review.
3. **Profiling and segmentation** – to review the research findings and also to inform a segmentation and prioritization of susceptible population groups, normally determined with stakeholders.
4. **Development of tailored strategies** – to design and implement tailored strategies intended to increase vaccination uptake, and to monitor, evaluate and adjust to ensure sustainable behaviour change.

A range of user-friendly guidance and adaptable tools for establishing and implementing a TIP are available.

Impact on planning

If a country programme is interested in implementing the TIP approach, it is advisable to invite an external participant familiar with TIP approaches who can be the Topic Lead for demand generation.

Guidance on the TIP's situational analysis should be reviewed, as far as possible, and considered as part of an EPI desk review. Desk review findings may guide data collection that take place during the Review's national level interviews and data collection in the field. EPI Review core questions already include queries that harmonize with a TIP approach, especially during caregiver interviews that ask for reasons for under-vaccination and health-care worker interviews asking if vaccine hesitancy is a concern. However, if a country prioritizes a TIP approach, these core variables may be enhanced during tool development using TIP guidance.

Impact on sites to visit

Integrating TIP will not impact the field sites visited, but it could impact activities once the teams reach service delivery/community level. Although it is not standard activity, some countries include focus group discussions as part of a team's field visit. This is not considered standard because these can be hard to organize without advance notice. However, in some settings, this is possible if the external lead conducts the health-facility interview while the internal team member organizes a community-based focus group. It is easiest if an established community group exists that concerns itself with health provision. If this is a possibility, then it is suggested to refer to TIP guidance as it offers a people-centred approach, bringing a strong focus on social science research and methods to obtain insights on behaviours, communities and services.

Impact on data collection in the field

If community focus groups are conducted, there is likely to be wealth of qualitative data collected along with quantitative data.

Impact on synthesizing and reporting findings

TIP related findings should be covered as a part of the demand creation topic presentation, even though other areas will probably reveal important factors, especially service delivery findings. It will be up to the Topic Lead to keep track of all relevant input, synthesize findings and facilitate making recommendations. Making recommendations is another phase when it could be helpful to refer to TIP guidance if further research or tailoring strategies are needed.

BOX 6.G Integrating or aligning assessments

Effective vaccine management assessments

Background and objectives

Effective vaccine management assessments (EVMAs) and EPI Reviews are heavily resource- and time-intensive, making it important to consider aligning and, if feasible, conducting them at the same time. These assessments have many similarities (see *Annex 3*) and could, in theory, be conducted jointly; however, careful planning and a slight modification of methods would be needed. Conducting an EVMA jointly with an EPI Review was done for the first time in South Africa in November 2017. The following outlines the impact anticipated on planning and implementation if assessments were to be jointly conducted.

Impact on planning

For the EPI Review, it would be important to include an immunization supply chain (ISC) assessor in-country at least one week in advance of training to prepare for the ISC portion of the Review and to coordinate with the Review Lead. An additional national member on the field teams should be available for conducting effective vaccine management (EVM) queries and observations. Training will also need to be organized to have a parallel training session or additional days to train the EVM field team members.

Impact on sites to visit

Sampling of sites should be done to meet EVM requirement of "representativeness". Otherwise, there should be no major difference in the number or types of sites selected at subnational level.

Impact on data collection in the field

The full ISC component should be added, with EVM queries and observations conducted by separate team members.

Impact on synthesizing and reporting findings

The lead EVM assessor should fulfil the role of the ISC Topic Lead for the EPI Review. The methods for formulating and presenting the findings and recommendations for the EPI Review remain the same. It should be noted that EVMA 2.0 plans to build in an "improvement plan" development stage, which is to take the findings and general recommendations from the EVMA and detail them in a plan. This can be done in a workshop by the EVM assessor. It is anticipated that this step may take several weeks, and EPI Reviews could also benefit from this added step.

Enhancing country priorities

The examples in the previous section are a form of enhancing country priorities and modifying a standard EPI Review, but from the perspective of integrating other immunization-related assessments. The EPI Review objectives, or desk review, may reveal that the standard EPI Review should be modified to go into more depth in an EPI system component. This can be in terms of a more in-depth desk review, adding additional interviews during the national review, adding supplemental questions as part of the field review, or all of the above. Any one of the seven immunization components could be enhanced. Below are two examples of enhancing country priorities that relate to health systems and external environment.

BOX 7.A Enhancing country priorities

Health systems

Background and objectives

All reviews should consider the broader health systems context; however, this may be a high priority in some reviews and require enhancement. The relevance of health-systems information should be assessed according to the extent to which health-sector developments or trends have an impact on EPI performance and to the extent to which change may occur. Factors that could be considered include:

- ↦ administrative reform, in particular decentralization;
- ↦ private sector growth;
- ↦ fragility of state institutions;
- ↦ economic growth and fiscal space analysis;
- ↦ life course vaccination including newborn, infant, childhood, adolescent and adult/antenatal vaccination;
- ↦ cross sector implementation such as screening for vaccination status at school entry and integrating with other health interventions.

Impact on planning

This will require having health systems expertise to provide additional contributions to the desk review and input to the protocol and field team questionnaires. Refer to the desk review template in *Annex 1*, which provides a checklist of basic questions to be addressed as part of the desk review.

Impact on sites to visit

Visits should be organized at central level, including to departments and staff persons involved with health sector planning. Generally speaking, health-system issues have nationwide impacts. There may, however, be specific geographical areas of the country where a wider health-system issue, such as human resource shortages or newly defined administrative boundaries, may be of particular concern. At the national level, if operational financing of outreach services is a particular concern, then consultations with the finance ministry would be warranted.

Impact on data collection in the field

Field teams should be briefed on what kind of information and systems they can expect at subnational level, and whom they should interview.

Impact on synthesizing and reporting findings

The main issue in relation to health-system analysis is the assessment of the degree to which the EPI strategy is aligned and harmonized with the broader health sector strategy and investments. Such alignment and harmonization will maximize synergies, as well as providing the opportunity for specifying the contribution of immunization to the achievement of wider health and development goals. It will also be critical to consider those health-system components which hinder immunization performance, such as human resource availability and operational fund availability at the service-delivery level.

BOX 7.B Enhancing country priorities

External environment

Background

Like health systems-related topics, external environmental analysis should always be built into an EPI Review, in order to ensure that the Review's focus and process are fully adapted to the reality of the national social and health system context. For the external environment, important factors to consider are:

- ↦ demography and urbanization;
- ↦ humanitarian emergency or conflict settings;
- ↦ social determinants of vaccine demand/uptake;
- ↦ socioeconomic, geographical or ethnic inequities;
- ↦ role of CSOs and NGOs.

Impact on planning

Depending on the external issues to be explored, this may require special expertise or consultation to provide additional contributions to the desk review and input to the protocol- and field-team questionnaires. Refer to the desk review template in *Annex 1*, which provides a checklist of basic questions to be addressed as part of the desk review.

Impact on sites to visit

The desk review may reveal key sites to be visited. For example, a humanitarian emergency may necessitate a particular focus on a geographical area, or rapid demographic changes and high rates of urbanization may result in uncertain access to immunization. High poverty rates among ethnic minorities, or urban slum dwellers, may also require a focus on specific geographical areas. Field teams should be briefed on what kind of information they can expect at subnational level and whom they should interview.

Impact on data collection in the field

Field teams should be briefed on what kind of information they can expect at subnational level and whom they should interview; this may have particular implications on caregiver interviews.

Impact on synthesis and reporting findings

The main question in relation to external environmental analysis relates to the way the EPI programme strategy can adapt to events largely outside programme management control, in order to sustain or even improve EPI performance.

Stage 1
Develop concept

A Concept note development

B Conducting desk review

C Protocol and methods

1. A
Concept note development

The purpose of the concept note is to establish the objectives, general approach, timeline and budget for the EPI Review.

The purpose of the concept note is to describe the EPI Review in general terms so that approvals, dates and funding can be secured. Afterwards, a desk review can take place and a more detailed protocol can be developed. An initial concept note should be drafted by EPI management with technical support from WHO, as needed. The concept note should be shared with the ICC, National Immunization Technical Advisory Group (NITAG) and partners, and once finalized, can serve to impart a common understanding of the review among immunization stakeholders.

A template for the concept note is provided in *Annex 6*; it should be brief (3–5 pages) and cover the following areas.

I. **Background.** Provide brief EPI background, rationale for conducting the review and stakeholders to involve.
II. **Objectives.** Pay particular attention to topics that will require special expertise.
III. **Methods, timelines, human and financial resources, partnerships.**
    a. Including numbers and types of site visits, expertise required, timelines, logistics, estimated budget and source of funding. This does not need to be too detailed; the purpose is to get a general idea of methods and to estimate the budget needed.
    b. Include approaches for linking this Review with the EPI strategic planning process (see next section).
IV. **Expected outcomes.** Include a description of how the findings and recommendations will be used and the potential for the Review to contribute to improved performance.

A CONCEPT ESSENTIAL – LINKING THE EPI REVIEW AND STRATEGIC PLANNING

A key concept to explicitly address in the concept note is the rationale of conducting the Review as part of a strategic planning process. The concept note and/or protocol should describe how the two activities are linked. Opportunities to link the activities and facilitate translation of EPI recommendations into strategic plans may include the following.

1. **Linking the people.** Engage the immunization strategic planning lead(s) in the EPI Review planning and debriefing processes. In addition, the EPI Review managers and coordinators should be aware or engaged in the planning processes. For example, many countries have strategic planning workshops; these provide excellent opportunities to engage the EPI Review managers and coordinators to reinforce or clarify EPI Review recommendations.

2. **Linking the activities and processes.** The EPI Review topics already reflect the health-sector building blocks and cMYP guidance. There may be further country-specific linking and aligning that can be done. Review of the previous strategic plan may reveal topics or formats that may facilitate assimilation of recommendations; reviewing the steps and activities involved in developing the strategic plan may reveal opportunities and points of interaction between the EPI Review and strategic planning. It may also reveal opportunities for linking to specific development partner opportunities, such as health system strengthening or investments in immunization system components.

THINK ABOUT PARTNERSHIPS AT THE CONCEPT STAGE

Identifying EPI partners to be engaged in the Review is an important part of concept development. Some partners may be important only for specific aspects of the programme; for example, the expansion of the immunization schedule to include older age groups should include partners in the field of school and adolescent health.

Partners may be involved directly in the Review or as target audiences in the final debriefing. In addition, immunization programmes are expanding partnerships, through international financing of vaccines, establishment of regional and global immunization technical support networks and disease elimination and control targets, and alliances with national and international vaccine industries. For ideas, see this stakeholder management resource from WHO Regional Office for Europe.

Civil society and private sector participation in immunization service delivery and communications are also important. As outlined in the Global Vaccines Action Plan (GVAP), partnerships with communities are central to improving access to vulnerable communities, and recasting service delivery strategies towards a Reaching Every District (RED) approach.

1.B
Conducting the desk review

The desk review is critical to ensure the Review methods and tools are adapted so that information needed to guide the programme is collected.

While the concept note outlines objectives for the EPI Review largely for administrative and budgeting purposes, the desk review provides a thorough, comprehensive and objective assessment aimed at identifying the lines of enquiry and the kind of evidence needed to support programme improvements. The desk review is required for turning a generic EPI Review into one that reflects country context and draws attention to the most needed areas. Consider it as a critical investment in terms of guiding teams and data collection efforts made across the country and facilitating evidence to be gathered in strategic areas.

Desk review tasks Data and reports should be reviewed and interviews conducted to understand and synthesize the immunization programme trends, priorities and gaps. Desk review tools are provided in this guide to help complete, or at least visualize, required desk review tasks. These include:

- ↦ a table to note figures and trends in existing data provided in *Annex 1A*;
- ↦ a table to highlight the status of recommendations made in recent immunization assessments and the implications this may have for the EPI Review provided in *Annex 1B*. For example, it may be determined that a certain interview during the national-level part of the Review be prioritized to understand why a key recommendation is not being implemented and if alternatives need to be discussed. Field tools may need to include questions to validate whether a recommendation was implemented in the field, and site selection may need to include a certain geographic region or population to see if recommendations have improved the situation of concern. Assessing the status of recommendations will require a combination of conducting interviews and reviewing new policies, documents and data.
- ↦ a checklist of key questions and resources is provided in *Annex 1C* which can facilitate more in-depth analyses – meant specifically for priority topics;
- ↦ a list of questions to facilitate assessing how external environmental factors and health systems may influence EPI performance is provided in *Annex 1D*.

How and when to conduct the desk review Ideally, the same consultant does both the desk review and serves as the external coordinator (see *Box 14*; *Annex 2*). If this is not possible, then desk review lead needs to be very clear on how the findings impact the EPI protocol, methods and tools. The desk review lead and the external coordinator will need to be in contact to discuss options, as needed. Much of a desk review can be done remotely by sharing key documents in advance after which an in-country visit should take place to conduct interviews and site visits. The long-distance work will prime the desk review lead to suggest interviews and dates for an in-country visit. A general recommendation is to conduct the desk review 3–4 months before the start of the EPI Review to allow time to finalize the protocol and test tools, and identify specialists needed for the Review. This time can be condensed if a single person is leading the desk review and is serving as the Review's external coordinator.

Desk review outputs Three outputs should be generated as part of the desk review.

- **A report** synthesizing existing information on system components and priority areas; this synthesis can be written in a format so that it can be inserted as part of a background or methods chapter of the final EPI Review report.

- **A detailed protocol** describing the EPI Review methods; this will help with logistics, planning, training and ensuring a common understanding of methods, and can be used for the methods section of the final EPI Review report. The protocol should also include a list of participants and their roles (ToRs).

- **Field tools** that will be used in the EPI Review should be drafted; they should contain the lines of enquiry and data needed to address priority areas. For example, the desk review may reveal that a critical EMV assessment recommendation has only been partially implemented, and that a targeted question on facilitators and barriers to implementation should be included in the questionnaires. It is also possible to have the Review's External Coordinator (*see Box 12; Annex 2*) draft the tools, in which case a set of questions that amend or supplement the core variables should be provided as part of the desk review report (see *Annex 4*).

1.C
Protocol and methods

The EPI Review protocol basically acts as an elaboration of the concept note by enhancing it with the desk review results and turning it into an operational plan. The protocol serves to document the Review methods and will help ensure a common understanding of the activity. It may evolve over time, especially considering input on the questionnaires and the realities of site selection, but it should stay updated and be used as the definitive reference, especially for training, debriefing and the final report.

A template for the protocol is provided in *Annex 6*; it is generally 10–12 pages in addition to the annexed tools and participant ToRs. The protocol should cover the following areas.

I. Background.
II. Objectives.
III. Participants and stakeholders.
IV. Approaches to link to strategic planning.
V. Methods
  a. Types of sites and site selection.
  b. Data collection approaches and tool development process.
  c. Team composition and roles.
  d. Training.
VI. Data management and analysis.
VII. Synthesis of findings and recommendations.

Items I–IV have been described previously in the concept note or desk review sections. This section will focus on Item V.a–c and items V.d, VI and VII will be discussed in the remaining chapters.

TYPE OF SITES AND SITE SELECTION

Identifying offices to visit and people to interview is fairly standard; *Box 8* lists the most common ones at each level. Additional sites may be added based on the Review priorities. For example, if the Review is integrating an HPV PIE, then stakeholders related to adolescent health, education and cancer prevention may be added.

On the other hand, selecting which geographical areas to include in the Review will require establishing a selection strategy, since it is not feasible or necessary to visit every health office and health facility. Several criteria to consider for selecting subnational health offices and health facilities are presented in *Box 9*; however, the overriding practice is to select high and low performing geographic areas and health facilities (e.g. a 3-year average of DPT3 coverage) to facilitate learning about programme strengths and weaknesses. In addition to technical or programme considerations provided in *Box 7*, administrative factors may also influence the selection strategy, such as available human resources, budget, transportation and time allocated in the field.

The following sections provide considerations for site selection.

Selecting mid-level health departments and health facilities
The selection strategy at the regional level is usually the easiest, bearing in mind that an EPI Review should be nationally representative and should ensure adequate representation of regions throughout the country. If a country has several mid-level administrative units, such as both regions and provinces, country context and interest should guide whether interviews take place at both levels. The number of field teams in the Review is a major driving factor for the number of regions or provinces that are selected (see *Boxes 10* and *11* for an example).

BOX 8. Types of sites to visit and interviews to conduct

HEALTH SYSTEM LEVEL	SITES
National	EPI programme leads for each immunization system component
	EPI Advisory bodies (NITAG, ICC, AEFI, special VPD committees)
	MoH: Mother and child health, communicable disease control, health systems, planning and procurement departments, curative or hospital sector to discuss MOV
	Ministries or departments of planning, finance, education, statistics
	National Regulatory Authority
	Partner agencies, civil society agencies
	Central cold-chain store and logistics unit
	Public Health Laboratory
Mid-level (i.e. region, province, state)	Local government authority
	Provincial Public Health Director
	Provincial EPI management
	Provincial referral hospital (clinicians and vaccinators) and laboratories
	Provincial/regional cold store (cold-chain managers and technicians)
District	Local government authority
	District Public Health Director
	District EPI management
	District referral hospital (clinicians and vaccinators)
	District cold store (cold-chain managers and technicians)
Health facility	Health-facility officer in charge and immunization-related staff including vaccinators, cold-chain technicians, sanitarian in charge of medical waste)
	Volunteers supporting immunization activities in the facility
Community	Interview caregivers attending immunization sessions
	Outreach sites (health-facility workers, community volunteers)
	Community groups (volunteers, community-based organizations, community and religious leaders)
	Some Reviews include verification of reported surveillance cases, such as acute flaccid paralysis (AFP)

An overriding selection strategy is to select high and low performing geographic areas and health facilities (e.g. a 3-year average of DPT3 coverage) to facilitate learning about programme strengths and weaknesses.

For example:

- ↦ if seven field teams are formed and a country has six regions, then one team can cover each region and the seventh team can cover the national-level (see *Box 10)*;
- ↦ if a country has four regions then some regions can have two teams;
- ↦ if a country has many more regions than teams, the n random sampling of regions should be done within geographic strata to obtain geographic representation. For example, if a country has 20 regions and seven teams, then one approach would be to divide the country into north, south, east and west and ensure that all four zones have at least one region covered by a team.

Selecting districts Usually two districts per province are selected; one low performing and one high performing. In most Reviews, all the subnational areas (except health facilities) are pre-selected during the planning stage of the Review. This can ensure adherence to stated selection criteria and helps with arranging the logistics of the Review.

Selecting health facilities Usually two health facilities per district are selected. These can be high/low performing or urban/rural, or other strata depending on the priorities of the Review and country context. In addition, it may be of interest to include a sample of private-health facilities; for example, by visiting a third health facility in each district. The selection of health facilities will be made by field teams and they will therefore need to be carefully briefed on how to select health facilities to ensure adherence to protocol and common practice across teams. The team may discuss with the District Office the selection and mapping out of health facilities to be visited. It is important, if possible, to select health facilities with a planned immunization session; this usually means visiting health facilities in the morning.

BOX 9. Criteria to consider for sampling Review sites

Geographic criteria

An EPI Review should be geographically representative and include subnational sites from throughout the country. The representation may be a combination of location (north, south, east and west, central) or ecological zones or "regions" (e.g. hilly, plain, coastal, mountains, urban).

Coverage criteria

Immunization coverage is one of the most important factors for selecting sites in terms of using it as an indicator for low and high performing areas. Often, Reviews sort geographic areas (provinces/districts) by a 3-year average of DPT3 coverage and select areas from among those with the highest and lowest coverage.

Integration criteria

It is proposed to integrate or align immunization-related assessments when feasible. This may impact site selection; for example, if a surveillance review is integrated with an EPI Review, high and low surveillance performance indicators may be included as selection criteria. See the *Box 6* series for more examples on specific assessments.

Social determinants of health criteria

The Review should intentionally include populations that may have limited access or use of vaccination services, including urban poor, migrants, ethnic minorities, communities that refuse vaccine, conflict-affected populations or "invisible" populations not normally registered with local authorities or health authorities.

Epidemiological criteria

Mapping of surveillance data or VPD outbreaks over the last five years may provide important clues as to specific subnational areas which have a particular risk for low immunization coverage and require special attention and action.

Management criteria

Management or administrative factors may influence site selection. For example, newly created or merged administrative boundaries could impact services, or certain parts of the country may be challenged with high staff turnover rates in health offices or at service delivery.

BOX 10. Example of site visits for seven teams

7 Teams

Multiple national-level offices

6 Province Health Offices

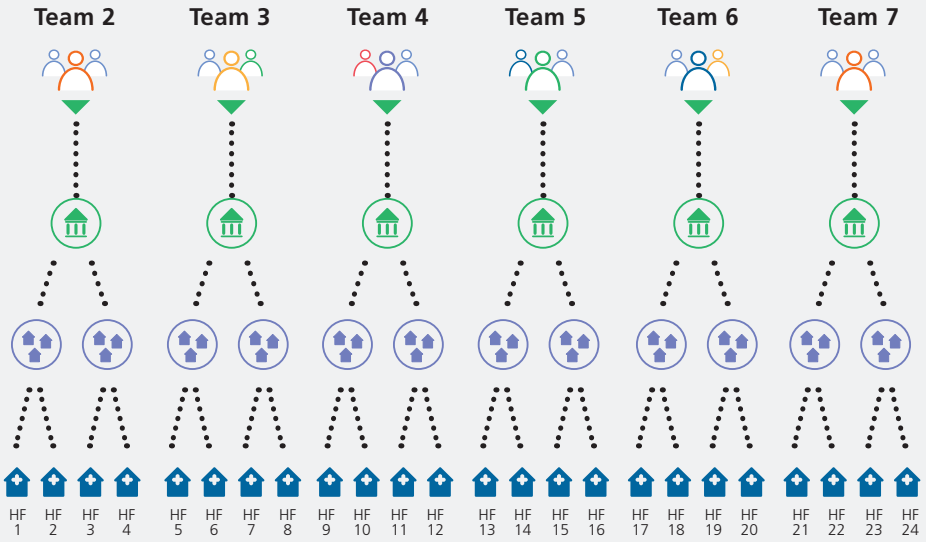
12 District Health Offices

24 Health Facilities

NATIONAL TEAM— Team 1

- EPI interviews & observations (e.g. laboratories and cold stores)
- MoH & other ministry interviews
- Partner interviews
- If possible, visit a district and HF in the capital region

FIELD TEAMS



BOX 11. Example of field team activity plans

FIELD TEAMS	ACTIVITIES	ESTIMATED TIME*
Province Health Office	before field work: courtesy visit after field work: debrief on findings	1 hour for each visit
District Health Office	interviews and data collection select health facilities to visit	2 hours (note each team visits 2 districts)
Health Facility	interviews and data collection observe vaccination session interview caregivers	2 hours (note each team visits 4 health facilities)

*not counting travel or waiting time

These methods can be somewhat flexible to encourage the design of a Review that serves the country's needs. With this flexibility, it is important to establish a methodology, clearly document it, make sure teams understand it and consistently apply it. This will allow the findings to be summarized and interpreted in the context of the site-selection methodology.

DATA COLLECTION APPROACHES

Since information is collected from a variety of sources, different approaches and tools may be used. The main approaches for collecting information are to conduct interviews, make observations and review data, documents and reports. Examples of tools include:

- **questionnaires**, using a mix of categorical and open-ended questions; the categorical questions are needed to facilitate comparisons across teams;
- **interview guides**, mainly open-ended to facilitate in-depth exploration of topics;
- **observation checklist** used to record information obtained through observation, such as of a vaccination session, laboratory or cold store;
- **tally sheets** to track information from different sources used primarily for data quality assessments.

A common challenge with EPI Reviews is to connect national and subnational field activities, since the two processes can happen fairly independently. Linking them at the protocol and tool development stage is an excellent step towards bringing these aspects of the Review together. It is good practice to check your tools to ensure that whenever possible you have parallel lines of inquiry at each level.

For example, if the EPI programme has a policy to open a multi-dose vial of measles vaccine, even if only one eligible child is present during a session but the programme feels this may not be happening at the service delivery level, the Review may:

- assess the messaging and dissemination efforts of the policy clarification at the **national and subnational health offices**;
- review wastage rates at **all levels** as an increased wastage rate may be expected if the practice was adopted;
- observe practices at the **services delivery level** to see if health-care workers are adopting the practice;
- interview **caregivers** to see if they have been asked to come back later for measles vaccine because there were not enough children in the session.

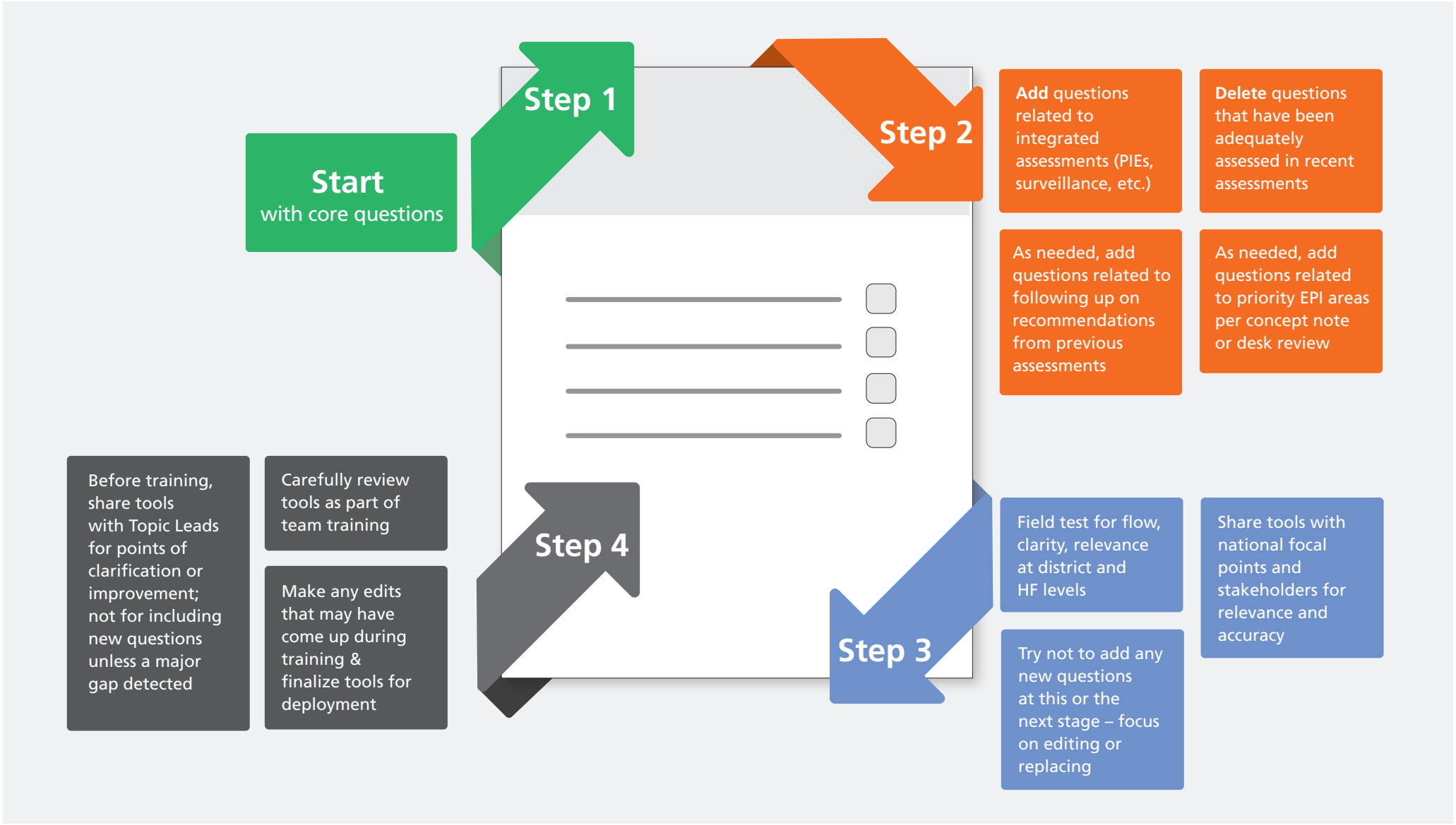
Bringing these findings together from the different data collection approaches and sources will help understand if and where there may be bottlenecks.

STANDARD QUESTIONNAIRES

Standard questionnaires facilitate a common approach so that experiences and observations can be consolidated across multiple teams.

The most common way to collect data during EPI Reviews is to have teams use interview guides or standard questionnaires. Interview guides are often used at the national level for high-level interviews. Some Reviews have used interview guides for mid-level and health-facility levels but this requires highly experienced team leads with the breadth of knowledge to conduct interviews with little guidance and a plan for managing the compilation of largely qualitative data. If a set of highly experienced Review Coordinators and team leads are available, this approach is easier to implement by saving time required to develop and pilot more detailed tools.

BOX 12. Steps for developing standard questionnaires



The important advantage of developing standard questionnaires is that they help make sure key questions are asked and documented in a standard way. This allows for information to be compiled and summarized across teams and across levels if the same or related questions are asked at all levels. The questionnaires should have a balance of quantitative questions and open-ended questions that facilitate conversation and exploration.

EPI Reviews usually use standard questionnaires to collect information from the following sources: **national-level; mid-level health offices; health facility; immunization session; caregiver.**

Annex 4 provides a list of core questions for these questionnaires and editable questionnaire formats will be available online.

Box 12 illustrates the steps for developing and tailoring EPI Review tools, while *Box 13* gives tips on designing EPI data-collection tools, similar to the point above on the importance of checking tools for parallel and complimentary lines of inquiry at each level.

Once the tools are ready, field-test them (Step 3) for flow, clarity, and relevance, especially for the district and service delivery questionnaires. After field-testing, the tools should be finalized for review during the Review's team training (Step 4). It will be important to carefully review the tools with all review participants and inevitably changes will be requested. These changes should be kept to a minimum, especially if the tool was agreed upon by experts and piloted smoothly.

BOX 13. Tips for designing standard questionnaires

EPI Review questionnaires can become very complicated and detailed. The problem with this is that reviewers become swamped in detail and may not engage in conversation needed to understand problems or discuss possible solutions. Some ways to keep questionnaires at a manageable length are shown below.

1. **Use core variables** *(Annex 4)*, prioritize lines of enquiry related to the Review objectives and focus on critical issues that may benefit from Review recommendations. ☐
2. **Delete areas** that have been addressed in recent reviews. ☐
3. **Include open-ended questions** to facilitate conversation about the "how and why", and through this help identify good practices, challenges, and relevant and feasible actions. ☐
4. **Revisit each question** and ask if the question has the potential to generate evidence that will inform recommendations for programme strengthening. ☐
5. **Field-test the tools** to ensure that the questions are clear, the flow is logical, and it is feasible to complete the questionnaire in a reasonable time. ☐

Stage 2
Plan and prepare

A
EPI Review management and participants

B
Inviting external participants

C
Logistics

D
Team training

2.A
EPI Review management and participants

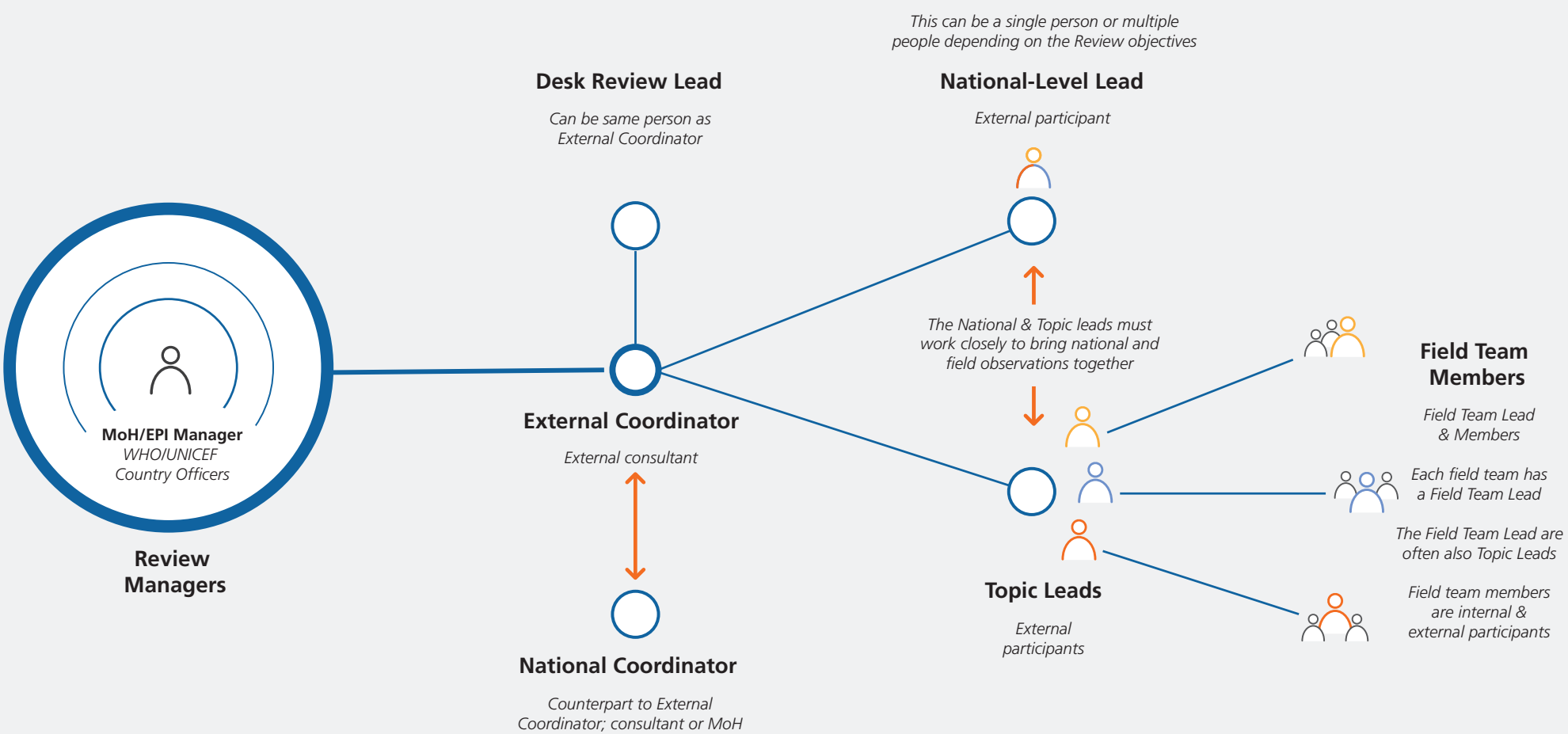
Human resource needs for implementing the Review must be mapped out and roles understood by all participants.

Together with defining the technical priorities and scope of the EPI Review, the human resource needs for implementing the Review must be mapped out. A common managerial framework for an EPI Review includes four types of roles that cover: initiating the review and overall management (**Review Managers**); overall planning, implementation and reporting on the Review (**Review Coordinators**); leading and facilitating synthesis of findings and recommendation for a designated topic area (**Topic Leads**), and leading a field team (**Field Team Leads**). The relationship between these roles is illustrated in *Box 14*. An idea of when to engage human resources can be taken from *Box 3*. See detailed tasks for each of these positions in the sample ToRs provided in *Annex 5*.

Review Managers are usually the country EPI manager along with the immunization officers from WHO and UNICEF. They initiate the Review with a concept note and presentation of ideas to the country's ICC, NITAG and immunization/health-sector planners, six months prior to the proposed start of the Review.

Review Coordinators usually include one external consultant and one national EPI staff or consultant. The availability and commitment of a National Coordinator, to work closely with the External Coordinator, is critical for ensuring the country context is consistently considered in preparing for and conducting the Review. As mentioned earlier, the External Coordinator can be engaged as early as 3–4 months beforehand to conduct the Desk Review. If another person conducts the desk review, the External Consultant can be engaged long distance as early as two months ahead of time to begin implementing the protocol and plan to be in country 2–3 weeks in advance of the Review.

BOX 14. EPI Review management and human resources



Topic Leads are external participants from partner or stakeholder agencies who have been identified to lead the synthesis of Review findings and development of recommendations for a designated topic area. Topic Leads will most likely fill a duel role of being a Topic Lead and Field Team Lead. Topic Leads should be engaged long distance as early as three weeks before the Review to review related background materials and become familiar with tools and questions related to their topic.

Field Team Leads are external participants who lead the field team in a designated geographic area and ensure that activities are conducted according to protocol.

Field Teams and Members are comprised of both internal and external participants. Experience has shown that organizing seven field teams is useful so that each Team Lead can also serve as one of the seven Topic Leads. That would mean inviting eight external participants (seven for the field and one to lead the national level review). For cost-saving reasons or country size, it may not be necessary to form seven field teams, in which case external participants can be responsible for more than one topic. It is not recommended to have many more than seven field teams as this becomes costly and difficult to manage.

Field teams may have 2–4 members. At minimum, a team is comprised of an external and national participant. Other members can be added depending on the Review objectives or field needs; examples include adding a member dedicated for record review and data verification, domestic partner agency representative, or translator. The roles of each member of the team should be defined before field deployment.

2.B
Inviting external participants

A letter of invitation to participate in the EPI Review should be sent to immunization experts and partner agencies as early as three months in advance in order to secure external expert participation. This letter should cover the following points.

1. Review objectives, topics and dates; it should be clear that the participants are needed for the entire period of the Review.
2. Request that highly experienced immunization experts be nominated as participants because of the importance of the Review for strategic planning, and the need to have established experts who can articulate and advocate the importance of action towards programme improvement to ministries and stakeholders.
3. Advise that the participant would lead a field team and would likely be requested to be a Topic Lead for one or two topics (Attach ToRs for Field Team Leads and Topic Leads). If nominee is particularly well-suited to serve as Topic Lead for a specific topic, this may be specified when confirming participation.
4. Request that CVs of nominees accompany confirmation of participation.

The Review Managers should review CVs and select Topic Leads; this will ensure that the required breadth of expertise is obtained to implement the EPI Review.

2.C
Logistics

Review Coordinators will be responsible for a variety of logistic considerations. A version of *Box 3* can be modified and used as a logistics checklist to assist management of Review logistics. Some common logistic considerations include the following.

1. **Participants**
   a. Invitations sent; participation confirmed.
   b. Assigned roles; especially Topic Leads and sharing information required.
   c. Field assignments.

2. **Finalizing field tools**
   a. Pilot tools; testing for clarity and time it takes to implement.
   b. Translation, if needed.
   c. Printing tools for training and finalizing and printing hard copies for the field.

3. **Communication and appointments**
   a. Letters to health offices informing them of field team visits.
   b. Securing appointments for training presentations, national level interviews and site visits.
   c. Invitation to ministries and stakeholders for debriefing.

4. **Field arrangement**
   a. Drivers and cars identified, drivers per-diem.
   b. Plane, train, boat tickets if needed.
   c. Hotel reservations if needed.
   d. Translators if needed.
   e. Security clearance as needed.

5. **Supplies**
   a. Projector for training and debriefing.
   b. Paper for printing.
   c. Folders for field team tools and background materials.
   d. Thumb drives.
   e. Possible – tablets, cell phones for data entry.

6. **Venues**
   a. Workspace for coordinators.
   b. Venue for training.
   c. Venue for field team debriefing – with break-out rooms as needed.
   d. Venue for final debriefing to ministries and stakeholders.

7. **Training**
   a. Prepare agenda.
   b. Invite speakers or facilitators.
   c. Arrange security briefing if needed.

2.D
Team training

Once review participants have convened in-country, training for both national and international participants will be required. The objectives of the training are to present the following.

- ↦ the country context so that participants know what to expect when they are in the field, are knowledgeable when engaging in interviews, can implement the field tools and can develop realistic recommendations;
- ↦ objectives, methods and tools to ensure a common understanding across field teams;
- ↦ ToRs and expected deliverables;
- ↦ logistics and administrative details;
- ↦ security, cultural, emergency, and administrative information.

Teams should be given a team package to take with them into the field. Most documents can be shared on a share drive or thumb drive, except for the hard copies of the questionnaires.

Typical documents in a field team package include the following.

1. **Country background materials**
   a. EPI manual and policies with standards and guidance outlined.
   b. Samples of relevant forms (reporting forms, supervisory checklists, home-based records).
   c. Presentations given during the training.

2. **Review methods and tools**
   a. Review protocol and 1-page summary of key methods for easy reference.
   b. Review tools including necessary number of hard copies.
   c. Map and basic data for the sites to be visited (demographics, number of facilities, coverage, surveillance).
   d. Template for presenting team findings for the debriefing (and format for written subnational report if required).

3. **Administrative information**
   a. ToRs for Review participants.
   b. Field sites and contact information: field team members, predesignated sites to be visited, any needed contact information, official letter of clearance to the field if necessary, emergency contact information.

Stage 3
Field review

A
Best practices

B
Data collection

3.A
Best practices for successful Review implementation

Many aspects of the field review have been covered in the planning chapter. It is worth emphasizing that field methods, protocol and etiquette should be presented in the team training and teams should be given this in electronic or hard copies. The following tips are intended to support the teams and to obtain the best quality information possible.

Reviewers should be reminded that the task is not just to complete questionnaires but to take the time to explore the challenges and possibilities for improvement.

- **Know the priorities.** The field reviewers should be briefed to have a consistent and clear picture of the priority focus areas. Reviewers should be familiar with the findings of the desk review which will assist them to maintain this focus. The tools will help, but a good understanding of priorities will guide team members to ask relevant questions and help them understand responses during interviews. Reviewers should be reminded that the task is not just to complete questionnaires, but to take the time to explore the challenges and possibilities for improvement.

- **Know the methods.** Reviewers should be provided with a 1-page summary sheet on methods for selecting sites, number of sites each team should visit and types of data-collection activities to conduct at each site (i.e. at each health facility at least three data-collection activities normally take place: interview the immunization officer-in-charge, and other immunization-related staff, observe an immunization session and interview a series of caregivers). A clear description of the methods will enhance consistent implementation and the validity of findings. Reviewers should be reminded to follow the EPI Review protocol to the fullest extent possible.

- **Know the responsibilities and deliverables.** The teams should be given ToRs to have with them in the field (see *Annex 5*). Different team members may have different responsibilities (Team Lead, translator, data entry, handling tablet, giving a debrief presentation, etc.). The ToRs should state team deliverables. Common deliverables include data forms in hard copy, electronic data and debriefing presentation. Sometimes a written field report is requested. The national level may appreciate copies of exemplary educational and communication materials or guidelines; copies of high-quality photos that will help illustrate examples during the debriefing presentations and can be used in reports.

- **Subnational debriefing.** Reviewers should be instructed regarding courtesy calls and debriefing at the subnational level.

- **Communications and logistics in the field.** It is also helpful to set up a central command or contact person during the entire duration of the EPI Review to respond to questions related to its implementation (e.g. regarding data-collection tools or data entry platform and methods) or to logistic issues or emergencies.

3.B
Data collection

Once in the field, the reviewers should have clear instructions on reporting requirements. For example, should teams report daily or as soon as they return from the field? Are there special instructions for entering data? Tablets may be used to support data input, reporting and timely analysis of data (see *Annex 3* on lessons learnt from using tablets in the United Republic of Tanzania EPI Review 2015).

Field teams will be responsible for reporting back on findings from the geographic area assigned to them. One practice that is strongly encouraged is for teams to work together at the end of each day to enter and check data and to summarize findings and recommendations for the sites they visited that day. This list can be reviewed and updated each day so that at the end of the field review a cumulative list of findings and recommendations has been generated and the review team is well on its way to producing the team's debriefing presentation. In fact, it is recommended that teams start populating the field debriefing template starting at the end of Day 1 in the field; every subsequent day in the field they can update and amend.

It will be important to make time to carefully review and clean the entered data before generating tables and charts, since these data will influence recommendations.

Regarding the core data that is systematically collected across all teams, there is very little time to compile and summarize this data that will be needed for Day 1 of the debriefing (see *Box 15*). To have data and analyses in a timely manner, it is recommended that summary tables and charts are prepared in advance and then filled with data once the data is received from the teams. The external coordinator can do this while the teams are in the field. If possible, data can be requested on a daily basis to start getting an idea of trends and findings. It will also be important to make time to carefully review and clean the entered data before generating tables and charts, since these data can be used to formulate recommendations.

Stage 4
Synthesis of findings and recommendations

A
Synthesis of findings and recommendations

B
Presentation and written reports

4. A
Synthesis of findings and recommendations

SYNTHESIS PROCESS

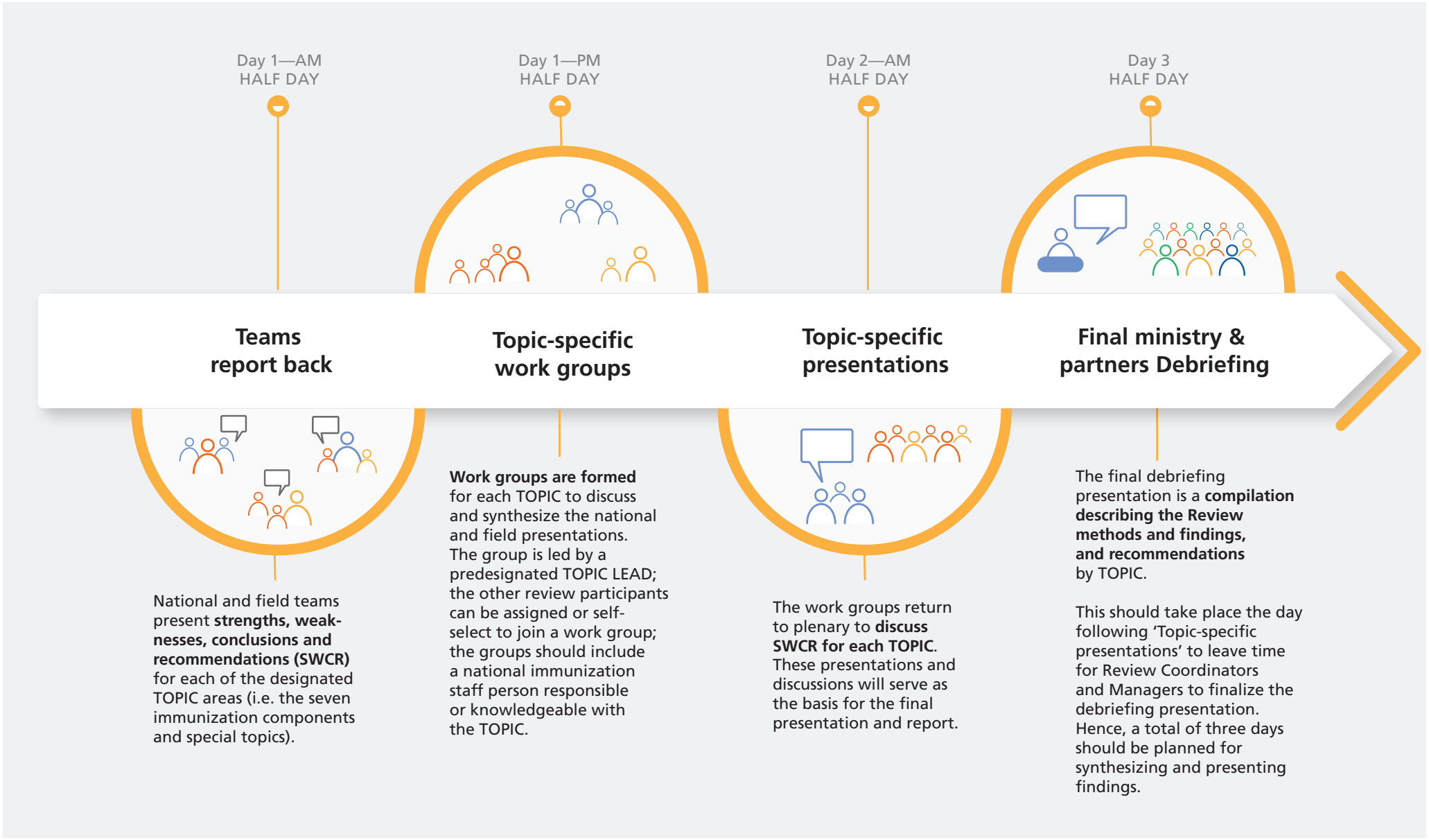
The debriefing process is based on framing information in terms of strengths, weaknesses, conclusions and recommendations (SWCR).

When the teams reconvene, there will be a wealth of information to bring together to create a national picture. Steps to synthesize findings so they can be ready for a final debriefing presentation within **three days** of returning from the field is presented in *Box 15*. One reason to condense the number of days in which to complete this process is that a shorter period will maximize participation and minimize programme disruption. The presence of the whole team increases the visibility and importance of the Review recommendations and Review external experts and participants may serve as advocates and resources during the debriefing. It is also important for the EPI staff to be engaged throughout the entire debriefing period to provide context, input and reality-checks of the findings and recommendations.

The debriefing process is based on framing information in terms of strengths, weaknesses, conclusions and recommendations (SWCR). It starts with the review of national SWCRs by topic. Next the field teams present their subnational SWCR by topic.

During the national and field team presentations, the Topic Leads will need to focus their attention on "their topic" and note SWCR trends. Since the Topic Leads will lead a work group as soon as field team presentations are complete, it is recommended they note the SWCR directly on a presentation template (see *Annex 6G*) while listening to the field presentations. Topic Leads can then use this preliminary presentation to start discussions in their work group where the SWCRs and topic-specific presentation will be finalized.

BOX 15. Steps for synthesizing findings and preparing for the final debriefing



It is important to highlight once again that the Topic Leads have the critical role of: (1) synthesizing SWCR across field teams; (2) linking this with the national SWCRs for their topic; (3) paying attention paying close attention to related recommendations that have been made in recent assessments. In terms of synthesizing information across field teams, the Topic Leads will use both information given during presentations and the summary charts of categorical data compiled by the external coordinator.

Next, the Topic Leads facilitate parallel work group sessions on their topic and start by presenting the SWCR synthesis they compiled while listening to the team presentations (see *Box 15*—Topic-specific work groups). The Topic lead should facilitate discussions on root causes for weaknesses identified, potential actions for improvement at every implicated level, and the feasibility and potential impact of recommendations.

The last group activity before the final debriefing is topic-specific SWCR presentations to all Review participants. These give the plenary an opportunity to review the SWCRs by topic before they are compiled into a final presentation for the ministries and ICC.

MAKING RECOMMENDATIONS

Because the final debriefing will include high-level officials, it will be important to identify the most important recommendations and not let them become lost in a compendium of findings and recommendations. Each phase of the debriefing should go through the process of prioritization of recommendations and only the top 1–3 recommendations per topic should be presented. Other recommendations may be included in the written report.

Considerations for prioritizing recommendations include:

- **Importance:** addresses critical gaps and needs;
- **Feasibility:** actionable; probability of implementing actions given political, economic, human resources factors;
- **Reach:** targets underserved; improves equity;

- **Opportunity:** potential to bring new investments and partners and to build capacity;
- **Strategic value:** supports cross-sector objectives, strategies.

With three recommendations from each topic, a Review may have around 20 top recommendations. This is still too many for the final debrief; it is suggested to hone in on the top 5–8 recommendations to feature during the final debriefing (see *Annex 6*).

4. B

Presentation and written reports

The debriefing presentation is given to the ministries and immunization stakeholders. The EPI Review team should be in attendance and often countries invite the regional EPI officers. The presentation is usually given by the most senior international expert. The presentation may also be given by several high-level experts representing different partner agencies, often divided into three parts: (1) background, rationale, methods; (2) findings; (3) conclusions and recommendations. The presentation should focus on the most important issues and should not take more than 30 minutes.

The draft and final reports should be written by the Review Coordinators, with ultimate responsibility usually given to the External Coordinator. A draft report should be completed, ideally within one week and before the External Coordinator leaves the country. The final report should be completed and disseminated to immunization stakeholders and Review participants within a month. The Review Coordinators work with the Review Managers to make a list of those who should provide input and comments on the draft report; Topic Leads should be included on this list. *Annex 6* provides a template for the EPI Review report.

Stage 5
Translating recommendations into action

A
Translate recommendations into plans

B
Follow-up on recommendations

C
Advocacy for funding gaps

5. A
Translate recommendations into plans

The most important aspect of creating any kind of immunization improvement plan is to link it with the strategic planning process to avoid having redundant or conflicting plans.

Following the final debriefing, a set of vetted recommendations will be available. Keeping in mind that the purpose of conducting an EPI Review is to guide programme resources and activities towards a stronger programme, an essential step is to further detail recommendations into distinct actionable steps, with timelines, focal persons and costs. The process of doing this is often referred to as "road mapping" or developing an "improvement plan" (see example in *Annex 7A*).

The most important aspect of creating any kind of immunization improvement plan is to link it with the strategic planning process and to translate it into a comprehensive annual national plan to avoid having redundant or conflicting plans. It is common to have a stand-alone EPI Review roadmap as the product of elaborating the EPI Review recommendations but ultimately the EPI Review recommendations should be fully assimilated and tracked as part of the strategic and operational planning process.

This road mapping exercise should be included and budgeted in the concept note and ideally takes place immediately following the Review (see *Box 3*). The road mapping process can be led by the Review Coordinators or by another consultant. The EVM 'Improvement Plan' writing process is a good example of a road mapping process in operation in many countries which measures progress on implementation of EVMA recommendations over several years.

5.B
Follow-up on recommendations

As described in the previous section, EPI Review recommendations should be fully assimilated into immunization strategic plans, such as the cMYP and the comprehensive annual national plan, and by default should be tracked and monitored as part of existing monitoring and evaluation processes. However, it is further recommended to conduct an EPI Review follow-up visit 9–12 months following the Review (see *Box 3*).

In addition, the implementation of EPI Review recommendations can be tracked using national coordination and technical advisory mechanisms, including NITAGS, ICCs and health sector forums. In GAVI Alliance (GAVI) countries, the joint appraisal process could be a further opportunity to review the status of recommendations and advocate for implementation, if needed.

5.C
Advocacy for sustainable funding

The EPI Review findings can be used as an advocacy tool for resource mobilization and policy change. As mentioned previously, the advantage of the EPI Review from the advocacy perspective is its joint national and international nature, which can lend weight to advocacy efforts with higher-level planners and policy-makers. Given the international participation of the review, there is potentially a wide and high-level audience for the findings and recommendations.

It is recommended that a deliverable of the Review team is an advocacy summary sheet which can be included in the final report. This summary can outline the needs and opportunities. For example, it could refer to the national coverage targets and disease control goals which the country has committed to, and highlight the broader societal value of immunization. It could draw on existing advocacy tools for vaccination; find here advocacy tools from the WHO Regional Office for Europe.

EPI Programme Managers should identify ways to use and disseminate EPI Review findings to support resource mobilization efforts. The Review findings and recommendations should be aligned and integrated with health sector review and planning processes so that EPI strategic priorities are reflected in higher-level policy and planning proceedings. Ideally, EPI Review recommendations are linked to programme objectives and targets and are tracked for implementation. To the extent possible, recommendations should be well delineated in programme budgets to protect funds for full implementation.

With this high-level platform in mind, it is fitting to conclude by re-emphasizing the importance of designing and conducting a high-quality EPI Review. This includes to clearly document methods and findings in a timely manner.

One way to advance a high quality technical agenda is to ensure that the most experienced experts participate in the EPI Review. This goes back to the planning process where the priority areas are anticipated and high-level experts should be sought to participate in the Review, serve as Topic Leads, and potentially present findings at the ministry and ICC presentation. As outlined earlier, the linking of the EPI Review to ongoing national planning and evaluation systems will provide a stronger evidence base for resource mobilization with high level decision-makers and planners in the health and finance ministries.

Annex 1

Desk review and national-level review tools

Please click on box to get to relevant page in document

1.A
Summary of existing EPI data

1.B
Build on previous assessments

1.C
Checklist and resources by topic

1.D
External environment and health systems analysis

1.E
Surveillance desk review tool

Annex 1.A Desk review
Summary of existing EPI data

IMMUNIZATION COVERAGE (FOR EACH VACCINE)	Year 1	Year 2	Year 3	Year 4	Year 5
COUNTRY'S OFFICIAL DPT3 ESTIMATES					
MoH administrative coverage					
WHO UNICEF DPT3 estimates					
Other sources of DPT3 coverage data (coverage surveys)					
DPT1–DPT3 drop-out percentages					
CASES OF VACCINE PREVENTABLE DISEASES					
Measles					
Rubella					
Polio (AFP)					
Neonatal tetanus					
Other priority VPD reported through surveillance					
SURVEILLANCE STANDARDS					
Non polio AFP rate					
Percentage adequacy of AFP stool specimens					
Non-measles non-rubella discard rate					
Percentage of suspect measles cases with a specimen collected					
IMMUNIZATION EQUITY					
Percentage of districts with DPT3 > 80%					
Percentage of districts with MCV1 coverage ≧95%					
Other measures of equity					
IMMUNIZATION FINANCING					
Government expenditure on RI per live birth (GVAP indicator)					
Percentage National programme funded by the national government					
Trends in national government expenditure on vaccines					
Other indicators of sustainable financing					
IMMUNIZATION TARGETS					
Status of seven GVAP targets					
Status of other national or regional targets					

Annex 1.B Desk review
Build on previous assessments

It is important to take stock of immunization assessments so as not to duplicate efforts and to build on what is already known and has been recommended. This phase of the desk review should assess the status of previous recommendations, understand barriers and determine how to incorporate in the EPI Review, whether it be to reinforce, follow up or revise previous recommendations.

ACTIVITY (*frequency*)	**Key notes on status of recommendations**	**Implications for EPI Review**
ASSESSMENTS		
Health-sector review reports (*annually or every 3–5 years*)		
Previous EPI review (*every 3–5 years*)		
Post-vaccine introduction evaluations (*as required*)		
EVM assessments (*every 3–5 years*)		
Cold-chain assessments (*periodic*)		
Surveillance review (*every 3–5 years*)		
Data quality and information systems review (*every 3–5 years*)		
Data quality self-assessments (*annually*)		
Financial sustainability Assessments		
Service availability and readiness assessment (SARA) (*variable*)		

Continued: Annex 1.B Desk review
Build on previous assessments

ACTIVITY (*frequency*)	Key notes on status of recommendations	Implications for EPI Review
Partner assessments, i.e. GAVI joint appraisal, full country evaluation, polio legacy, programme capacity assessments (*variable*)		
MONITORING & RESEARCH		
Joint Reporting Form (JRF) to WHO/UNICEF (*annually*)		
Immunization coverage surveys (including DHS and MICS) (*every 3–5 years*)		
Research e.g. KAP surveys, barrier to access studies and community insights research for tailoring programmes, such as TIP projects (*as required*)		
Costing or economic studies (*as required*)		
OVERSIGHT		
ICC (*regularly*)		
NITAG (*variable*)		
PLANNING		
Operational plans (*annually*)		
Multi-year immunization plans (cMYP) or health-sector plans (*every 5 years*)		

Annex 1.C Desk and national-level Review

Checklist and resources by topic

This table presents a checklist and resources by EPI Review topic. These can be helpful for conducting the desk review or during the EPI Review itself as part of the national-level review. Several resources will also be helpful for tailoring the field tools to address priority topics.

Click on Resources to review.

PROGRAMME MANAGEMENT & FINANCING

Policy & guidance	☐ Review: EPI laws, policies and technical guidelines, job aids
Governance & accountability	☐ Review: decision-making bodies including NITAG ☐ Review: Evaluation tool for NITAGs
Planning & procurement	☐ Review health sector and immunization plans ☐ Review: cMYP guidelines ☐ Review: Joint Assessment of National Health Strategies and Plans (JANS)
Partner coordination	☐ Level of functioning of community, NGO/CSO coordination (representation, meetings, recommendations) ☐ Level of functioning of ICC (TOR, membership, frequency of meetings, recommendations)
Budgeting, financing	☐ EPI costing, finance and gap analysis ☐ Resource mobilization ☐ Resource allocations for underserved populations ☐ Review: Framework for immunization financing assessments ☐ Review: Country financial sustainability assessment ☐ Review: Rapid Assessment of financial bottlenecks for immunization services

HUMAN RESOURCE MANAGEMENT

HR Planning	☐ Human resource plan ☐ Human resources information on PHC and mid-level management staff supporting immunization services ☐ Job descriptions and performance standards for immunization services at each level of management ☐ National human resources plan or information system
Capacity building	☐ Training needs assessments
Supervision & performance monitoring	☐ Supervision structure, function, funding ☐ Review: MLM Module 4. Supportive supervision

VACCINE SUPPLY, QUALITY & LOGISTICS

Cold chain	☐ Cold-chain inventory ☐ Latest national EVMA report for this and all subtopics ☐ Review: EVM assessment tools and user guides
Supply mgmt	☐ Vaccine stock monitoring system
Transport	☐ Transport and maintenance plans and funds
Waste mgmt	☐ Waste-management policies, implementation

SERVICE DELIVERY

HR & strategies	☐ Status of HR at service-delivery level, especially for outreach, catch-up and preventing MOVs ☐ Strategies: especially related to vaccination across the life course and hard to reach populations ☐ Review: "Reaching Every District" strategy ☐ Review: Service availability and readiness assessment tool ☐ Review: Maternal Flu Vaccination ☐ Review: USAID's service provision assessments

Checklist and resources by topic

CONTINUED: Service delivery

Session quality	☐ Guidance on session quality
	☐ Results from TIP projects
	☐ Review: IIP Module 5. Managing an immunization session
	☐ Review: MLM Module 8. Making disease surveillance work
Integration	☐ Level of integration of EPI strategies with other PHC services
	☐ National health sector assessment or National health policy

COVERAGE & AEFI MONITORING

HR & systems	☐ System architecture
	☐ Level of functioning of data management and systems
Recording & reporting	☐ Clarity and timeliness of recording and reporting tools
	☐ Guidance on recording and reporting
	☐ Collecting, assessing and using immunization data
Data quality	☐ Data quality practices and assessments
	☐ Coverage surveys and administrative data
	☐ Review: Data quality self-assessment tool
Coverage monitoring	☐ Guidance and tools for monitoring
	☐ JRF data, MICS and DHS surveys
	☐ Review: Collecting, assessing and using immunization data (*pending publication*)
AEFI monitoring	☐ AEFI guidance and systems
	☐ Review: A practical manual for the assessment of pharmacovigilance systems

SURVEILLANCE

HR & systems	☐ Surveillance organization and function
	☐ Surveillance guidelines
	☐ Surveillance training and infrastructure, and funding
	☐ Review: WHO VPD surveillance guidance (*pending publication*)
Reporting & response	☐ Surveillance forms, reporting mechanisms, linking with laboratories
Performace	☐ Review surveillance data, indicators, trends

DEMAND GENERATION

Demand	☐ Data to understand characteristics of undervaccinated groups
	Media coverage on immunization; Internet and social media activities on immunization, including anti-vaccination
Advocacy & communication	☐ Advocacy, communication plan
	☐ National risk-communication strategy for adverse events
	☐ Review: MLM Module 2 and IIP Module 7 on partnering with communities
Community engagement	☐ Coordination mechanisms with NGOs/CSOs, local authorities or leaders
	☐ Availability of research on community and beneficiary insights to understand drivers and barriers to vaccination

Annex 1.D Desk review
External environment and health systems analysis

The following tables provide suggested questions to explore health system and external environmental factors that may impact EPI performance.

HEALTH SYSTEMS ANALYSIS	
Leadership & governance	What are the strategic directions of sector plan?
	What is the relationship of EPI to sector directions?
Human resources	Any assessments in health sector or HR plan which have implications for EPI (numbers, distribution, competencies, motivation)?
Information systems	How does the EPI information link to the health-management information system?
Infrastructure essential medicines and logistics	What is sector status and strategy regarding infrastructure and transport?
	What are the service-delivery implications for EPI?
	Strategic or operational linkages between vaccine supply and the essential medicines and logistics systems of the health sector?
Service-delivery strategy	What is the main policy of service-delivery strategy?
	What implications are there for EPI in terms of service reach?
Health-sector financing	Health-sector financing over the last five years; are there any projections for health expenditures in the coming planning cycle?
	Implications for EPI financing based on current sector trends?
Community participation models	Is there a national PHC or community participation policy or strategy, and what are the implications for EPI?

EXTERNAL ENVIRONMENT ANALYSIS	
Political and social transitions	Recent political reforms impacting EPI management and financing; e.g. decentralization, private sector development, expansion of civil society roles?
	Are there specific political events resulting in mass migrations or humanitarian emergencies requiring a specific EPI response?
Economic growth and fiscal space	Trends in economic growth & fiscal space analysis, how may this impact EPI financing? Check data on national health accounts (NHA)
	What is poverty rate; impact on EPI coverage and strategy?
Demographic trends	What are population growth and fertility rates, and what impact has this for EPI strategy and vaccine forecasting?
	Migration & mobility trends challenging EPI programming and strategy? (urbanization, migration, unregistered migrants, etc.)
Gender analysis	Any evidence of gender barriers to immunization? Check data from UNDP Gender inequality index and WHO State of inequality in childhood immunization
Equity analysis	What evidence is available of geographic, educational, income or ethnic inequities in access to immunization? Check data from WHO State of inequality in childhood immunization
Country development plan	What are overall development goals?
	What are overall rates of economic growth and fiscal space analysis?
Health sector plan	What are the strategic directions of sector plan?
	What is the relationship of EPI strategy to sector directions?

Annex 1.E Desk review
VPD surveillance tool

As part of the national desk review, VPD surveillance should be assessed to understand the diseases under surveillance and to identify which need more in-depth review, either as part of the EPI Review or as part of a separate review. The following is an example of a tool that can be modified to organize the desk review. Many aspects of a surveillance system can be investigated, but in an integrated review the key objectives are to evaluate functionality, timeliness, representativeness, sensitivity, data quality and sustainability. The most commonly reviewed disease surveillance systems have been added. Findings from this tool should inform site selection and development of the final assessment tool for the review. This tool can be filled out by talking to surveillance focal points in the country and reviewing subnational/national/site-specific surveillance data.

	AFP[a] (polio)	**AFR**[b] (measles/ rubella)	**CRS**[c]	**Meningitis/encephalitis**			**Respiratory diseases**			**Diarrhoea**		**Tetanus**	**Diphtheria**	**Yellow fever**	**Other**[h]
				Sentinel IB-VPD[d]	**Epidemic meningitis**[e]	**Japanese encephalitis**	**SARI/ILI**[f] (influenza)	**Pneumonia /sepsis**[g]	**Pertussis/ whooping cough**	rotavirus	cholera				
Is there a functional surveillance system? (Yes/No)															
Is surveillance national (N), subnational (SN) and/ or sentinel (S)?															
Review case definitions; are they reasonable within country context?															
Are standard operating procedures available for review?															
Are they adequate? (Who should report, what, when, how, to whom)															
Review data/indicators at national and subnational level: are there areas that are concerning? At a minimum review the following:															
Are >80% of reporting units reporting?															
Is data relatively complete?															
Is data timely?															

a acute flaccid paralysis **b** acute fever and rash **c** congential rubella syndrome **d** IB-VPD (invasive bacterial vaccine-preventable disease): *Streptococcus pneumoniae*, *Haemophilus influenzae*, *Neisseria meningitidis* **e** Epidemic meningitis: *Neisseria meningitidis*, and in some cases *Streptococcus pneumoniae*

f severe acute respiratory illness / influenza-like illness **g** IB-VPD: *Streptococcus pneumoniae*, *Haemophilus influenzae*
h Examples include varicella, mumps, HPV, hepatitis, typhoid

Continued: Annex 1.E Desk review
VPD surveillance tool

	AFP[a] (polio)	AFR[b] (measles/ rubella)	CRS[c]	Meningitis/encephalitis			Respiratory diseases			Diarrhoea		Tetanus	Diphtheria	Yellow fever	Other[h]
				Sentinel IB-VPD[d]	Epidemic menin-gitis[e]	Japanese encepha-litis	SARI/ILI[f] (influenza)	Pneumonia /sepsis[g]	Pertussis/ whoop-ing cough	rota-virus	cholera				
Are cases mostly laboratory confirmed?												*			
Is sensitivity of surveillance sufficient?															
Laboratory testing in-country?															
Does recent external quality assessment of laboratory performing testing/laboratory network doing testing meet minimum standards?												*			
When was the last surveillance review?															
Which surveillance systems are priorities for the country (e.g. because of new or recent vaccine introduction, progression towards goal)?															
Which ones are priorities to include in EPI review?															

Notes

a acute flaccid paralysis **b** acute fever and rash **c** congential rubella syndrome **d** IB-VPD (invasive bacterial vaccine-preventable disease): *Streptococcus pneumoniae*, *Haemophilus influenzae*, *Neisseria meningitidis* **e** Epidemic meningitis: *Neisseria meningitidis*, and in some cases *Streptococcus pneumoniae*

f severe acute respiratory illness / influenza-like illness **g** IB-VPD: *Streptococcus pneumoniae*, *Haemophilus influenzae* **h** Examples include varicella, mumps, HPV, hepatitis, typhoid

* Does not apply since tetanus surveillance does not require laboratory confirmation.

Annex 2

Terms of reference for EPI Review roles

Please click on box to get to relevant page in document

2.A Desk Review Lead

2.B Review Manager

2.C Review Coordinators

2.D Topic Leads

2.E Field Team Lead

2.F Field Team Members

Annex 2.A Desk Review Lead ToRs

Background

In preparation for an EPI field review, technical assistance is sought by the EPI to undertake a desk-based review of the available literature and data relevant to the performance of the EPI over the last five years.

Main tasks and responsibilities

- Review findings and recommendations of previous plans, evaluations and studies over the last five years. Produce a table of key recommendations and status of implementation; determine topics to consider as priorities in the EPI Review. Key desk review resources include (see *Annex 1* for detailed resources and tips):
  - multi-year plan for immunization;
  - previous EPI review, surveillance reviews, post-introduction evaluations;
  - coverage data and surveys and data quality assessments;
  - vaccine management assessments;
  - joint appraisals, KAP studies and other evaluations;
  - financial or economic assessments if available.
- Map of the country's partners, which will be used as a basis for partner interviews.
- Assist with preparations for training:
  - gather key reference documents for reviewers/Topic Leads including technical guidelines and tools (immunization manual/policies, VPD surveillance, AEFI, vaccine management guidelines, etc.);
  - prepare a desk review presentation on the findings by topic for the Review training.
- Draft the Review protocol and develop and tailor EPI Review tools.

Skills and expertise required

- Sound knowledge and experience with national immunization programming.
- Very good writing and data analysis skills.

Expected outcomes of work

- A report on EPI performance and implications for the upcoming EPI Review's methods and tools. Format the report so that it can be used as background to the EPI Review report.
- A protocol and field tools for the EPI Review.

Annex 2.B Review Manager ToRs

Background

The Review Manager is the in-country immunization leader (usually the EPI Manager and WHO or UNICEF Immunization Officer) responsible for initiating, coordinating and overseeing all stages of the Review. The Review Manager initiates the Review concept development and oversees all stages of the Review.

Main tasks and responsibilities

- Initiate and gain approval of EPI Review concept, secure participants and funds.
- Oversight of all stages of Review – especially the concept, training and debriefing.
- Facilitate access of the EPI Review team to senior-level ministry officials and stakeholders for the planning and debriefing.
- Coordinate integration of EPI Review findings into national planning.

Skills and expertise required

- Leadership and managerial skills.
- In-depth knowledge and experience with the country programme.

Expected outcomes of work

- Resources (both human and financial) mobilized for the Review.
- Field teams mobilized and field reviews completed.
- Debriefing meetings conducted with inputs obtained from major stakeholders.

Annex 2.C Review Coordinators ToRs (External & National)

Background

With oversight by the Review Managers, the Review Coordinators are responsible for preparing, implementing and reporting the Review findings. If an EPI staff person is not available to be a national coordinator, a national consultant may be engaged instead. It is important to cover all the responsibilities below, keeping in mind that consultants should be hired full-time and should be responsible for successful completion of activities. An EPI counterpart has a critical role in facilitating and guiding each aspect of the Review, particularly to ensure national ownership of the Review and its results.

Main tasks and responsibilities

- Responsible for overall Review: planning; logistics; implementation and reporting.
- Finalize methods and data-collection tools.
- Establishes Topic Leads in advance and forms teams and assigns Team Leads.
- Organizes team training: participants; agenda; presentations, and background documents.
- Oversees the data management and analyses.
- Oversees debriefing process, including field team, Topic Leads and final debriefing.
- Responsible for report drafting and finalization.

Skills and expertise required

- Expertise in immunization programming and health systems development.
- Capacity to lead and gain consensus.
- Strong oral and written communication skills.

Specific outcomes

- Site selection and communication to offices as required (national and field level).
- Final tools (questionnaires, checklists, data entry platform).
- Dissemination of ToRs for teams, Team Leads and Topic Leads.
- Field team packages (background information, tools and templates).
- Training agenda, background presentations.
- Field debriefing: national teams; field teams; Topic Leads and development of presentation of findings.
- MoH/ICC debriefing agenda and presentation.
- Final EPI Review report.

Annex 2.D Topic Lead ToRs

Background

The Topic Lead is the designated Review participant (usually an external participant) responsible for leading analysis of a specific topic area. This includes facilitating analysis and synthesis of findings related to the designated topic area.

Main tasks and responsibilities

- In general, provide leadership on a topic of the Review.
- Review background documents.
- Attend Topic Lead briefing session that takes place one day before training starts.
- Review tools to ensure that queries in the topic area are clear and adequate.
- During the debriefing session, synthesize and summarize findings and recommendations across the national and field teams for the designated topic.
- Lead a break-out session on the topic; present the above-mentioned synthesis; facilitate refining of conclusions and recommendations; present topic-specific findings to plenary.
- Provide a written topic summary that can be used for the final Review report.

Skills and expertise required

- High-level expertise in the designated topic.
- Capacity to supervise and coordinate analysis.
- Ability to facilitate identification of main topics and recommendations.
- Ability to contribute to the writing of the EPI Review report.

Specific outcomes

- Preliminary presentation on the designated topic area, including: (1) key background information from desk review; (2) synthesis of findings and recommendation from national and field teams; (3) relevant statistics or analyses that may be available from compiled review team data.
- Revised presentation after input from break-out group.
- Written report on designated topic area that can be used for the final EPI Review report.

Annex 2.E Field Team Lead ToRs

Background

An internal or external Review participant who will lead the field assessment in an assigned geographical area, synthesize findings, conclusions and recommendations, and report back at field and national levels.

Main tasks and responsibilities

- Responsible for leading fieldwork in a designated geographical area.
- Ensures that selection of sites for visits (health facilities) follows the established approach.
- Ensures that the roles of each team member are clear and well implemented (e.g. translation, data input, review records, data verification).
- Responsible for data collection, entry and reporting.
- Conducts subnational debriefings.
- Oversees or gives presentations at field debriefing meetings.
- Writes summary of field findings, if required.

Skills and expertise required

- Good knowledge of immunization systems.
- Capacity to lead field teams.
- Ability to draft a summary report and recommendations.

Expected outcomes of work

- Subnational field assessment analysis and report completed.
- Presentation of subnational report at national debriefing (main findings and recommendations).

Annex 2.F Field Team Member ToRs

Background

EPI Reviews are generally conducted by assembling field teams who can assess the immunization system at each subnational level – usually the regional, district and health facility levels. Each team is usually lead by an independent, external expert, and is accompanied by a national counterpart who is familiar with the immunization programme and country context. Additional members for each team may be needed, depending on the need for translation or special topics that have been integrated, such as data verification and live data entry into handheld tablets.

Tasks and responsibilities

- ↦ Participates in EPI Review training and provides input to design of Review, if applicable.
- ↦ Successfully conducts designated duties such as translation, data entry and data verification.
- ↦ Supports Team Lead to conduct field studies, especially with regard to understanding country context.
- ↦ Contributes to thematic analysis and documentation of the overall national report.

Skills and expertise required

- ↦ Skills in data collection and analysis.
- ↦ Capacity to synthesize findings from field studies into a field report.
- ↦ General knowledge of immunization and immunization programme management.

Expected outcomes

- ↦ Provide input on debriefing presentations.
- ↦ Any other outcome related to designated role, such as complete and cleaned data set or compiled hard copies of questionnaires.

Annex 3

Other planning considerations and tools

Please click on box to get to relevant page in document

3.A Country examples of enhancing EPI Reviews with special topics

3.B Similarities and differences between EPI Reviews and EVMAs

3.C Lessons on use of tablets or smart-phones for data collection

Annex 3.A
Country examples of enhancing EPI Reviews with special topics

SPECIAL TOPIC	MODIFICATION TO STANDARD EPI REVIEW	*Comment*
TIMOR LESTE, 2008		
Surveillance	Additional lines of enquiry were established for the surveillance system.	*Illustrates development of a situation analysis for the next cMYP, providing a technical audit of performance and of guiding policy development*
	The surveillance focus of the review was complemented by a review of other immunization system components.	
CAMBODIA, 2010		
Immunization equity	In addition to examination of wider immunization system components, this review developed a specific focus on analysing bottlenecks to immunization performance for high-risk populations, including remote ethnic populations, urban migrants and the rural disadvantaged.	*An important outcome was a strategic planning shift from a "reaching every district" to a "reaching every community" strategy, which was elaborated in a subsequent health system strengthening proposal*
LAO PEOPLE'S DEMOCRATIC REPUBLIC, 2012		
Immunization policy	Documents reviewed, stakeholders interviewed and 12 provinces visited.	*Highlighted the potential for EPI Reviews to stimulate policy reforms. Recommendations included streamlining and monitoring financial planning and disbursement procedures for outreach and further evaluation of the integrated maternal, newborn and child health package*
	In each province, two districts were visited; one high and one low performing, based on reported coverage (DTP3).	
	Late funding was raised early in the review, so data collection focused on timeliness of funding transfers and how delays affected service delivery and coverage.	

SPECIAL TOPIC	MODIFICATION TO STANDARD EPI REVIEW	*Comment*
VIET NAM, 2015		
Data quality, urbanization and immunization safety topic	Coverage survey and EPI Review conducted simultaneously, immediately followed by a joint appraisal.	*The timing of the EPI Review immediately prior to the next cMYP planning cycle enabled the country to have an evidence-based situation analysis to inform strategy development, particularly for priority thematic areas such as AEFI systems and urban EPI*
	Specific subnational studies in two major cities incorporated to inform an urban EPI strategy.	
	More detailed line of investigation into AEFI systems provided, in response to nationwide impact on EPI of recent adverse events.	
UNITED REPUBLIC OF TANZANIA, 2015		
Integrating assessments	Measles and rubella, measles second dose, HPV PIE, as well as data verification and system assessment, were integrated; GAVI joint appraisal coordinated.	*This EPI Review demonstrated that it is feasible to 'align' multiple assessments with the main lesson being that strong planning and coordination is needed*
	Required coordination, preparation and modified data-collection tools.	
	Influenced the types of external experts invited to the Review.	
UGANDA, 2014		
Financial sustainability assessment	Desk review of financial documents and key interviews with stakeholders conducted, which identified major bottlenecks in the flow of funds at national level and reviewed the channelling of funds for GAVI co-financing.	*The assessment of financial sustainability within the EPI Review was instrumental for payment of the GAVI co-financing requirement, for inclusion of financing aspects with the immunization law, and for a participatory process of cMYP development*
	Recommended actions to ring-fence operational funds for immunization and disbursements at facility levels.	

Annex 3.B
Similarities and differences between EPI Reviews and effective vaccine management assessments (EVMAs)

SPECIAL TOPIC	EPI REVIEW	EVMA	*Comment*
OVERALL APPROACH	Invite immunization experts from partner agencies to lead field teams to assess EPI performance at all levels; convene to formulate findings and recommendations to present to ministries and ICC	Experienced ISC assessor organizes a 1-week training course for country staff to conduct an intensive ISC assessment. Teams convene and lead assessor formulates findings and recommendations	***EPI Review:*** *the involvement of experienced external partners provides a strong forum for advocacy during debriefing, opportunity to share experiences, and for partners to understand country successes and challenges*
	Mix of quantitative and qualitative	Highly quantitative	***EVMA:*** *approach is efficient and builds country capacity*
		Strong data analysis and display aspect	
TECHNICAL CONTENT ASSESSED	Comprehensive, includes core ISC indicators (mainly performance indicators); approximately 12 core questions per level	Detailed input, output and performance for each of the nine ISC functions; approximately 125 questions per level	*At minimum, the ISC questions on the EPI Review should be aligned with the EVMA*
RATIONALE FOR CONTENT ASSESSED	Because of the comprehensive scope, core questions have been identified to indicate a problem with performance	ISC questions go beyond performance by assessing root causes	*ISC questions go beyond performance by assessing root causes*
HUMAN RESOURCES	↦ Lead international consultant ↦ Lead national consultant ↦ External partner Team Leads (who also serve as Topic Leads) ↦ National counterpart on teams	↦ Lead assessor ↦ National field teams	*Although HR staffing is different for these two assessments, conducting them jointly could be feasible if the lead assessor serves as the ISC Topic Lead and the field teams add national team members responsible for only looking at ISC when in the field*
SAMPLING	Generally, nationally representative (all geographical regions)	Statistically nationally representative	*The concept of national representativeness is similar for both assessments but EVM stricter*
	Purposeful – high and low performing to facilitate identification of strengths and weaknesses		*Types and numbers of sites are similar (numbers of subregions, health facilities)*
TIMING	Before strategic planning cycle	Before strategic planning cycle	
FREQUENCY	Every five years	Every five years	
FIELD TIME	One week; with approach of conducting one site visit in the morning (usually health facility) and one in the afternoon	One week; with approach of conducting one site visit in the morning and one in the afternoon	
TRAINING TIME	Two–three days	One week	
DEBRIEFING	Within three days of completion of fieldwork	Within three days of completion of fieldwork	

Annex 3.C
Lessons on use of tablets or smartphones for data collection

While EPI Reviews have traditionally been implemented using paper forms for data collection, there has been growing interest in using data collection applications in tablets and smartphones. The following are lessons learnt from using tablets in United Republic of Tanzania EPI Review that took place in 2015.

There are several benefits to using tablets/smartphones instead of paper forms:

- automatic data collation and aggregation within spreadsheet format, ready for analysis;
- increased accuracy, with embedded validation checks and skip patterns;
- being able to take pictures, obtain GPS coordinates and mapping capabilities;
- results from data analysis are available sooner and therefore are more likely to be used to support recommendations during the debriefing meetings.

However, there are also potential problems and limitations, such as the following:

- basic skills and time needed for translating the final tools into the mobile application programmes; questionnaires should be finalized one day (preferably two days) before the teams depart for the field;
- difficulty to transmit data due to lack of electrical power or wireless internet connection;
- reviewer's decreased engagement with the interviewee when using a tablet, possibly requiring an additional team member to drive the questionnaire and conversation;
- training time needs to be allocated during the review team briefing period.

Based on previous experience, the following considerations should be made.

- **Form design.** The paper version is often finalized during the briefing when training the reviewers on how to use the forms; there will inevitably be rewording, additions and deletions. If tablets are to be deployed, time will be needed to finalize the electronic form after the final paper version is complete. It is recommended to finalize the paper form at least one–two days before the field teams begin work, to give time to finalize the electronic form. It is important for the electronic form developer to work with a questionnaire focal point in advance so that the electronic version mirrors the paper version, provides adequate space for qualitative data or comments, and so that programmes skip patterns and legal values to facilitate collection of quality and consistent data. Field testing an advanced, but not final version of the electronic form with the questionnaire focal point, is helpful.

- **Hard-copy back up.** Although it would be ideal to completely dispense with hard copies, it is recommended that teams are provided with a full set of hard-copy questionnaires. One reason is to have a back up in case the tablet malfunctions or is stolen before data transfer or back up. It is also recommended that the Team Lead conducting the interview use a hard copy to guide the interview so that tablet navigation or malfunction does not distract the conversation. This requires a separate team member be responsible for tablet data entry. It is possible for the national counterpart or translator to efficiently take this role.

- **Training.** Plan to dedicate at least three hours to tablet training. A full run-through of questionnaires using the tablets is essential so that reviewers are familiar with the flow and how to record responses. Mock interviews with tablet entry are helpful. The briefing location must have a Wi-Fi connection so that the data submission process can be fully demonstrated.

- **Human resources.** Preferably, one person throughout the entire review, should be responsible for creating the electronic form, facilitating and finalizing an analysis plan before the team departure, troubleshooting as needed when teams are in the field and carrying out the analysis of the collected data for the debrief. On the field teams, there must be one person who has been trained to use the tablet and who will be responsible for entering and submitting the data.

- **Communication.** Assess what kind of social media or communication method is most widely used among the reviewers, and set up a group for communication and troubleshooting during the actual review. This could include a WhatsApp group, text messages, email distribution list, etc.

- **Analysis and debrief.** It is ideal for the Topic Leads to provide a list of priority data summaries or analyses they want for their topic before they depart to the field. This way analysis can begin as soon as data are received. Most mobile platforms can export data in spreadsheet format that can be read by statistical software packages such as Stata, EPI-Info, or SAS. Finally, it is critical to review the analysed data as one of the first items during the debrief, so that reviewers start thinking of the big picture (data from all teams).

Annex 4
Core questions

Please click on box to get to relevant page in document

4.A Core questions for the seven topic areas for each administrative level

4.B Core questions for interviewing a caregiver

4.C Core questions for observing an immunization session

Annex 4.A
Core questions for the seven topic areas for each administrative level

Purpose of this resource

To provide a snapshot of the topics of core questions and the levels at which they can be addressed. Levels referenced here include: **national (Natl.); mid-level health offices (Mid), and health facility (HF)** which includes immunization session observations and caregiver interviews. Editable questionnaires for each level will be made available at: http://www.who.int/immunization/programmes_systems/en/.

PROGRAMME MANAGEMENT & FINANCING		Natl.	Mid	HF
Policy & guidance	Adequate national immunization laws and policies	x		
	Adequately detailed & optimized EPI schedule	x		
	Adequately detailed EPI technical guidelines, job aids	x	x	x
Governance & accountability	Level of functioning of the NITAG and related national-level immunization committees (meets criteria of being fully functioning, frequency of meetings, documented recommendations)	x		
Planning & procurement	Strategic and operational plans up-to-date and aligned with other planning processes	x	x	x
	Efficient planning processes and linked to financial planning	x	x	x
	Detailed plans that include strategies for hard-to-reach	x	x	x
Partner coordination	Level of functioning of ICC (ToRs, membership, frequency of meetings, recommendations)	x		
Budgeting & financing	Adequate costing of strategic and operational plans	x	x	x
	Any critical activities cancelled because of lack of funds	x	x	x
	Special funds allocated for hard-to-reach or high risk populations	x	x	x
	NIP has dedicated line item within health budget	x		

Continued: Annex 4.A
Core questions for the seven topic areas for each administrative level

CONTINUED: Programme Management & Financing		Natl.	Mid	HF
Costing & financing	Proportion of EPI costs covered by government; proportion covered by donors	x		
	Adequate institutional arrangements to communicate with Ministry of Finance/local government on immunization financing	x		
	Role of local governments and NGOs in delivery and financing immunization services	x	x	x
HUMAN RESOURCE MANAGEMENT		**Natl.**	**Mid**	**HF**
HR planning	EPI organizational structure meets needs for immunization services (view organogram)	x	x	x
	Adequate job descriptions/functions	x	x	x
	Adequate HR numbers	x	x	x
Capacity building	National training strategy for EPI in plans and funded	x		
	Evidence of training in the last year	x	x	x
Supervision & performance monitoring	Adequate strategies and funding for supervision	x	x	x
	Supervisor checklist adequate and used	x	x	x
	Supervisory visits take place according to plan	x	x	x
VACCINE SUPPLY, QUALITY, LOGISTICS		**Natl.**	**Mid**	**HF**
Cold chain	Adequate cold chain and maintenance in plans and funded	x	x	
	Equipment functioning and appropriately installed (including cold stores and percentage health facilities at district level)	x	x	x

CONTINUED: Vaccine Supply, Quality, Logistics		Natl.	Mid	HF
Supply management	Functioning vaccine stock monitoring system	x	x	x
	Vaccine stock-outs in the last six months	x	x	x
	Unusable products: expired; out of temperature range (VVMs, frozen)	x	x	x
Transport	Adequate transport and maintenance in plans and funded	x	x	
	Transport functioning and accessible	x	x	
Waste management	Adequate guidance for waste management	x	x	x
	Adequate infrastructure and supplies for waste management	x	x	x
SERVICE DELIVERY		**Natl.**	**Mid**	**HF**
HR & strategies	Adequate policies & strategies to serve all communities & life course vaccination	x		x
	Adequate standard operating procedures & practices to vaccinate a late child	x		x
	Adequate polices & practice to track defaulters	x		x
	Adequate HR to implement strategies			x
	Adequate finances and transport to implement strategies			x
Session quality	*Refer to tools for observing sessions and interviewing caregivers (see Annex 4B)*			
Integration	Level of integrating EPI strategies with other PHC services	x		x
	Challenges and opportunities for integrated service delivery	x		x

Continued: Annex 4.A
Core questions for the seven topic areas for each administrative level

COVERAGE & AEFI MONITORING		Natl.	Mid	HF
HR & systems	Data management and systems functioning well	x	x	
	Adequate staff for data management	x	x	
Recording & reporting	Recording and reporting tools up-to-date, available, consistent (registry, tally sheets, reporting forms, home-based records/ immunization cards)	x	x	x
	Clear guidance and practice for recording and reporting vaccines given late (after 12 months)	x	x	x
	Percentage districts that submitted 12 monthly reports in previous year	x		
	Percentage HF that submitted 12 monthly reports in previous year		x	
Data quality	Mechanisms & funding in place for regular data quality review	x	x	
Coverage monitoring & use	Source of denominator data	x	x	x
	Is this source reasonably accurate, too high, too low?	x	x	x
	Immunization coverage monitored and complete through the latest reporting period	x	x	x
	DPT1–DPT3 drop-out monitored and complete through the latest reporting period	x	x	x
	Coverage and drop-out data used to guide actions	x	x	x
AEFI monitoring	AEFI reporting and response in place	x	x	x
	Forms are available and complete		x	x
	Serious AEFI investigated		x	x
	Immunization staff that received AEFI training	x	x	x

SURVEILLANCE		Natl.	Mid	HF
HR & systems	System in place for rapid notification and response to a VPD case or outbreak	x	x	
	Surveillance staff available & knowledge adequate	x	x	x
Reporting & response	Standing operating procedures available, including case definitions	x	x	x
	Surveillance supplies available (forms, specimen collection)	x	x	x
Performance	Surveillance performance standards/targets met	x	x	x

DEMAND GENERATION		Natl.	Mid	HF
Demand	Any indication of barriers and driver to vaccination?	x	x	x
Advocacy & communication	EPI communication strategy covering main content areas/strategies	x		
	Engagement in World/National Immunization week	x		
	National risk communication strategy for adverse events	x	x	
Community engagement	Mechanisms in place to coordinate with NGOs/ CSOs, local authorities or community leaders	x	x	x
	Evidence or need to assess factors affecting immunization services access and use	x	x	

Annex 4.B
Core questions for interviewing a caregiver

Instructions for interviewing caregivers

It is recommended to meet a minimum of five caregivers who are bringing a child for vaccination services (at least one of whom is >18 months old), if applicable. Request the participation of the caregiver. Explain that this interview is for improving the immunization programme in the country. If the caregiver refuses to participate, move on to another one.

SERVICE DELIVERY	
Session quality	Was the caregiver ever turned away for any vaccinations and told to come back later? Why?
	Was the caregiver informed about possible vaccine side-effects?
	Does the caregiver know when to bring child for the next vaccination?
	Is the caregiver aware of side-effects and management of side-effects?
	In general, was the caregiver satisfied by the immunization services?
	Does the caregiver have suggestions for improvement of the services?
COVERAGE & AEFI MONITORING	
Recording & reporting	Caregiver has the child's home-based record (immunization card)?
Coverage monitoring	Is the child up-to-date with immunizations (check card)?
DEMAND GENERATION	
Community engagement	If no, what reasons are given for being partially or not immunized?
	How did the caregiver hear about routine immunization services?

Annex 4.C
Core questions for observing an immunization session

Instructions for observing vaccination sessions

With minimal disruption, introduce yourself and your team, to let the staff know they are not being audited, but rather that they have been randomly selected for observation to improve understanding of how vaccinations are given in the country. Observe how the session is managed and collect data on five children being vaccinated during each immunization session.

SERVICE DELIVERY	
Session quality	What were the number and roles of health workers present during the session?
	Did the child receive appropriate vaccines (check home-based record/ immunization card, ask age)?
	Was health education conducted during the immunization session?
	Does the vaccinator touch or recap the needle?
	Is each vaccine administered using the correct route for the vaccine?
	Are used needles disposed of in safety boxes?
	Is the mother told which vaccine the child is receiving?
	Is the caregiver told when to come for the next scheduled vaccination, if applicable?
	Is vaccinator polite to the caregiver (using an acceptable tone of voice etc.)?
COVERAGE & AEFI MONITORING	
Recording & reporting	Is an immunization register present?
	Are tally sheets present?
	Are blank home-based records (immunization cards) available at the session?
	When is vaccination recorded on the tally sheet: before vaccination; after vaccination, or after session/unseen?
	When is the vaccination recorded in the register?
	When is vaccination recorded on home-based record/immunization card?

Annex 5
Supplemental questions

Please click on box to get to relevant page in document

5.A Supplemental questions for integrating a PIE

5.B Supplemental questions for integrating an HPV PIE

5.C Supplemental questions for integrating a surveillance review

5.D Supplemental questions for financial sustainability assessments

5.E Supplemental questions related to advocacy and communications

5.F Supplemental questions for missed opportunities for vaccination (MOV)

Annex 5.A
Supplemental questions for integrating a PIE

Instructions for using this resource

This resource is designed to provide additional questions needed for evaluating the introduction and impact of adding a new vaccine to the EPI schedule. Questions would need to be adapted for each level of the health system and may vary depending on the vaccine that has been introduced.

NEW VACCINE*	SUPPLEMENTAL CORE QUESTIONS
PROGRAMME MANAGEMENT & FINANCING	
Any	Was the introduction implemented according to the plan?
Any	Are the immunization strategies appropriate?
Any, IPV	Is the immunization schedule appropriate? For example, is IPV scheduled with Penta3?
Any	Have immunization polices been adequately detailed, updated, and disseminated? For example: clear guidance on minimum or maximum age for administration; contraindication; how to record late doses; spacing of doses; clear policy to catch-up infant doses at the MCV2 visit; is there a restriction to how many children should be present before opening a multi-dose vial (Note: check implementation of these polices at service delivery)?
Any	Was the immunization operational guidance updated?
Any	Is the new vaccine introduction adequately linked to relevant stakeholders (antenatal care, labour/delivery, newborn care, nutrition, school health, child or adolescent health strategy, cervical cancer screening, etc.)?
Any	Did accurate and detailed budgeting for the new vaccine introduction take place?
Any	Are financing arrangements for the new vaccine in place?
HepB BD	Has there been/is there coordination and linkages with antenatal care and MCH programmes as part of informing and administering HepB BD?

* See Annex 5.B for specific consideration regarding an HPV vaccine PIE

Continued: Annex 5.A
Supplemental questions for integrating a PIE

NEW VACCINE	SUPPLEMENTAL CORE QUESTIONS
HUMAN RESOURCES MANAGEMENT	
Any	Did sufficient training take place at all appropriate levels?
Any	Were supervisory sites and tools updated as needed (checklists, sentinel sites etc.)?
Any	Were sufficient materials (job aids, field guides, FAQs) provided after training?
VACCINE SUPPLY & QUALITY LOGISTICS	
Any	Was supply-chain readiness assessed and were needs anticipated?
Any	Have there been any negative or unanticipated effects of the new vaccine on supply chain? For example, cold-chain space, stock management, vaccine distribution schedules, waste disposal.
PCV	Are stickers placed on fridge if using PCV10 2d vial (not applicable to PCV13 1-dose vial, or upcoming presentations PCV13 4ds and PCV10 4ds)? Is the wastage of the new vaccine within the expected range?
SERVICE DELIVERY	
Any	How is health-care worker acceptance and knowledge of the new vaccine? Are there issues regarding administration of the additional vaccine?
Any	Are the correct technique and route used for administration of the new vaccine?
Any	What is the impression of the overall impact of NVI on routine services?
Any	Did the new vaccine introduction generate extra time/extra session(s) to accommodate its administration?
HPV	What is the status of integration of HPV into the school health strategy?
Any, MCV2	Check the knowledge or practice (*Annex 4C*) related to new policies noted in the first section 'Programme Management & Financing'.
HepB BD	How late is the BD administered? Who administers the BD (EPI or delivery staff)? What are possible reasons why a BD may not be administered?

NEW VACCINE	SUPPLEMENTAL CORE QUESTIONS
COVERAGE & AEFI MONITORING	
Any	Are recording forms updated specifically for the new vaccine (registers, home-based records/immunization cards, MCH books, reports, monitoring charts, database)?
HepB BD	Do recording and reporting forms distinguish timely versus total (or late) BD vaccination?
Any	Is coverage of the new vaccine similar to coverage of other vaccines given at the same visit, and drop-out if applicable? If different, explore possible reasons.
Multiple, MCV2	Is the drop-out rate similar to that of other vaccines? For example, MCV1–MCV2 drop-out
Any	AEFI reported related to the new vaccine? For example, any AEFIs, serious AEFIs?
Any	Were the AEFI strategy and guidelines updated and revised?
SURVEILLANCE	
Multiple	Were surveillance requirements implemented (training, additional sites, equipment)?
Multiple	Consider adding knowledge questions related to new case definitions, specimen collection, reporting equipments.
DEMAND GENERATION	
Any	Was there a communication/risk management strategy for the new vaccine?
Any	Was there a launch, and/or a media advocacy campaign? For example, is the demand for the new vaccine higher, the same, lower than most vaccines in the schedule? Are there any problems with demand/refusals in general, or within certain segments of the population?
Any	What is the perception of demand for vaccine? For example, high, same as most vaccines in the schedule, low?

Annex 5.B
Supplemental questions for integrating an HPV PIE

Instructions for using this resource

For countries that want to evaluate HPV vaccine introduction, here are considerations for intregating the evaluation with an EPI Review.

Considerations related to planning, methods and implementation

1. **Timing.** The HPV vaccination schedule and vaccination strategies are different from childhood vaccination (often periodic, campaign-like in outreach sessions, including in schools). In order to enable observation of sessions and direct interaction with adolescent girls and teachers, the EPI Review will need to take place during actual vaccination periods.

2. **Additional stakeholders & questionnaires.** Integrating an HPV vaccine introduction requires other stakeholders to be involved in the PIE (e.g. MoE or MoH school health programme), and additional questionnaires will be needed to capture interviews with girls or teachers. See below for suggested supplemental questions.

3. **Sampling frame.** For each HF visited, an additional visit to an HPV vaccination session should take place, if at all possible. Do not include multiple sessions with the same HW. In each session, one responsible grade teacher/ health teacher is to be interviewed. In each vaccination session, 1–3 girls can be interviewed, with the overall objective to include at minimum 50 girls at national level.

4. **Posible additional interviews**
   - ↦ Ministry of Health (e.g. school health, adolescent health, cancer programme).
   - ↦ Ministry of Education (MoE) staff (national/provincial/district level).
   - ↦ Teachers (principals, health-education teachers).
   - ↦ Adolescent girls (vaccinees).
   - ↦ Observation during vaccination session.

SOURCE OF INFORMATION	SUGGESTED SUPPLEMENTAL QUESTIONS
MoH other departments	What was the main role of your department/agency in the introduction of the HPV vaccine? Did you feel adequately involved? Comment on your answer.
MoE staff/principals/ teachers	Was MoE adequately involved in the planning of HPV vaccine introduction? Please describe. Did the MoE inform schools, including private schools, of the vaccination? Did the MoH/health workers adequately plan vaccination sessions with the school? Did the MoE / teachers play a role in obtaining consent for HPV vaccination? Did you receive training on HPV vaccine and the diseases it prevents? If yes, were the duration and content sufficient? Overall, did the training and the materials you received allow you to answer the questions girls, their parents and other community members had on HPV vaccination? Did you receive materials on HPV vaccination (field guide, FAQs, posters, leaflet)? How well was the HPV vaccine accepted? Were there any problems with HW, schools, teachers, parents, girls or public. If so, please describe. Were there any rumours about HPV vaccine that you had to deal with? Do you consider the vaccination with HPV vaccine at schools a successful approach? Has the vaccination affected the school/school health programme in any way (positive or negative)?

Continued: Annex 5.B
Supplemental questions for integrating an HPV PIE

SOURCE OF INFORMATION	SUGGESTED SUPPLEMENTAL QUESTIONS
Adolescent girls (after vaccination)	What vaccine(s) did you receive today? Which dose? If first dose, do you have to return for any further HPV injection? Did you talk with your parents about receiving the vaccine? Who decided that you should be vaccinated? (parent, girl, other)? What are the benefits of receiving the HPV vaccine? What disease(s) does the HPV vaccine prevent? How did you hear about the HPV vaccine? If delivery integrated: apart from HPV vaccine and cervical cancer, what else did the health-care worker talk about during the vaccination visit? For instance health messages related to personal hygiene, prevention of HIV, STIs, etc.
Observe a vaccination session (Note: EPI Review protocol will need to advise teams on how they can maximize their chances of being able to actually observe an HPV vaccination session during their site visit)	Do forms accommodate recording HPV doses by age, including for ages beyond the target age (catch-up)? Did health-care worker (HCW) observe the girl for 15 minutes after vaccination for any adverse reactions? Are any posters or leaflets about the HPV vaccine visible in the vaccination site (or wider school, health facility or outreach site)? What messages did the health worker or teacher provide (before, during or after vaccination)? Did they give any health messages related to vaccine risks, cervical cancer screening, or other health messages? Did they explain when to come back if a second dose was needed?

Annex 5.C
Supplemental questions for integrating a surveillance review

Instructions for using this template

The template is designed to provide additional questions to assess the status of the VPDs surveillance system (for use in the desk review or in the field). Findings from the desk review should help guide questionnaire development and areas of focus. Along with core questions in *Annex 4*, findings from the desk review should help identify supplemental questions to include.

PART I. National (*) and sub-national health office level questions

TYPE OF INFORMATION	SUGGESTED SUPPLEMENTAL QUESTIONS
HR & SYSTEMS	
Structure and function of surveillance	* What is the structure and function of the VPD surveillance system (surveillance types – national/sentinel, active/passive), reporting and information flows, links to national health information system)? * Are there any standard operating procedures, including case definitions and classifications, for VPD surveillance? Is there adequate infrastructure (transport, communications) to support the surveillance system? What are the strengths and weaknesses of the structure and function of VPD surveillance? Does the system function well? If not, why not? How is the private sector engaged in the surveillance system, in terms of reporting and response?
Staff numbers, distribution, capacity	Are there adequate numbers and distribution of health staff to maintain the surveillance system? What are their roles? Are there written ToRs? When was the last training course conducted?
REPORTING AND RESPONSE	
Laboratory and transport support	What are the strengths and weaknesses of the laboratory system for investigation of reported VPDs? – Adequacy of laboratory supplies and equipment – Adequacy of transport of specimens – Timeliness and completeness of results – Use of reference laboratories for VPDs

* These questions should only be asked at national level, while non-starred questions should be asked at every level.

Continued: Annex 5.C
Supplemental questions for integrating a surveillance review

Notification and investigation	* Are there uniform case definitions for reportable VPDs? Are there standard operating procedures for investigation and reporting of VPDs? Are the communication and information networks for notification adequate? What are the strengths and weaknesses of notification/ investigations?
Timeliness and completeness of reports, data quality	What is the frequency of VPD reporting between each service level in the health system? How does this vary by disease or type of information? Is the frequency and completeness of reports monitored at each level? *(verify with document review)* Is there a system of data quality review for surveillance data?
Zero reporting	* List the VPDs included in the zero report system. What are the strengths and weaknesses of the zero report system?
Feedback of reports	Is there a system for feeding back analysis of surveillance reports to the field level (publications, programme reviews, electronic communication)?
Use of data for planning/action	Provide examples of how analysis of surveillance data is utilized for programme purposes at the field level.
Impact assessment	* For vaccines that have recently been introduced, do the surveillance data show the impact of vaccination?
Outbreak response	Describe any disease outbreaks over the last five years. Were the outbreaks investigated? Describe the strengths and weaknesses of the current outbreak response systems at each level of the system.
Community-based surveillance	Are there systems for engaging other stakeholders in reporting suspected cases of VPD (voluntary health workers, private sector providers, NGOs, etc.)? What are the strengths and weaknesses of current community-based surveillance strategies?
PERFORMANCE	
Indicators	How is the system performing; are performance indicators met?

PART II. Health facility questions

TYPE OF INFORMATION	SUGGESTED SUPPLEMENTAL QUESTIONS
HR & SYSTEMS	
Surveillance staff numbers, distribution and capacity	Is there someone assigned to conduct surveillance? When was the last training course? Assess the knowledge of case definitions and surveillance procedures by health workers.
SURVEILLANCE NOTIFICATION AND LOGISTICS	
Notification and investigation	Presence of standard operating procedures for investigation and reporting of VPDs. Adequacy of communication and information networks for notification. Are case investigation forms available? What do staff do if they find a case of AFP? Measles/rubella? Neonatal tetanus? Who do they report to? How quickly do they report it? How do they report it (mail/email/fax/etc.)?
Adequacy of laboratory and transport support	Are there sufficient/appropriate specimen collection supplies? What are the timelines and challenges regarding transport of specimens? Timeliness and completeness of results.
REPORTING AND RESPONSE	
Timeliness and completeness of reports	Is form complete? Is zero-reporting done? What is the actual frequency of surveillance and information reporting (make observations of review forms, review log books to assess timeliness and completeness)?
Feedback	Do you receive surveillance reports for the area (publications, programme reviews, electronic communication)? When was the last supervisory visit?
Use of data for planning/action	Examples of how analysis of surveillance data is utilized by the health facility.

Continued: Annex 5.C
Supplemental questions for integrating a surveillance review

PART III. Disease-specific questions with a focus on sensitivity/response; to be tailored based on desk review findings

DISEASE-SPECIFIC INFORMATION	SUGGESTED SUPPLEMENTAL QUESTIONS
Neonatal tetanus elimination (NT)	How many cases of neonatal tetanus/neonatal death have been investigated over the last x years (neonatal death, number investigated, confirmed diagnosis)? Are data on neonatal tetanus (NT)/1000 live births available at subnational level (for the purpose of detecting areas of high risk)? What are the overall strengths and weaknesses of the surveillance system for NT?
AFP	How many cases of acute flaccid paralysis (AFP) have been detected over the last five years? What was the proportion of cases with two adequate stool samples collected 24 hours apart? What was the response to these cases? Are data available for review and are they being used? * What is laboratory capacity and when was the last EQA done? What are the overall strengths and weaknesses of the surveillance system for AFP?
Measles/ rubella elimination	How many measles and rubella cases have been reported over the last five years? How many outbreaks have been investigated? What are: number of suspected measles/rubella cases; number of tested cases confirmed; number confirmed measles; number confirmed rubella? What is the percentage of cases with a specimen collected for confirmation? * What is laboratory capacity and when was the last EQA done? What are the strengths and weaknesses of reporting systems for measles and rubella? What was the response to any measles/rubella cases?

DISEASE-SPECIFIC INFORMATION	SUGGESTED SUPPLEMENTAL QUESTIONS
Sentinel surveillance (e.g. CRS, IBD, rotavirus)	* What diseases are currently investigated through sentinel surveillance systems? * What are the geographical locations and population coverage of the sentinel sites? * What evidence do current sentinel sites provide regarding disease burden and vaccine impacts? * Are data available for review and are they being used? * What is the laboratory capacity and when was the last EQA done? * When was last surveillance review and by whom? * What are the strengths and weaknesses of the surveillance system for each disease (organization and management, infrastructure and laboratory support, human resource capacity, report and feedback systems, use of data for planning and evaluation)?
Other National Surveillance (e.g. diphtheria, non-neonatal tetanus, JE, mumps)	* What other diseases are currently investigated through national passive surveillance systems? * Are data available for review and being used? * What is the laboratory capacity and when was the last EQA done? * What are the strengths and weaknesses of the surveillance system for each disease (organization and management, infrastructure and laboratory support, human resource capacity, report and feedback systems, use of data for planning and evaluation)?

Annex 5.D
Supplemental questions for financial sustainability assessments

PART I. National and sub-national health office level questions

TYPE OF INFORMATION	SUGGESTED SUPPLEMENTAL QUESTIONS
Macro-economic situation and potential fiscal space for health sector	What are the main funding sources for health sector (name international health partners as well as their main working area, if any)? What was the financing trend of each source in the last 3–5 years (government, external donors, private sectors, etc.)?
Policy and management	How is health-care policy connected with financial planning (MTEF, annual budgets, indicative budgets, etc.)? What is the national budget cycle? How does it relate to the immunization planning cycle? What are the principals for health budget allocation and reporting? To what extent do NITAG recommendations influence financial/ budgetary decisions? What are the main financial responsibilities of immunization authorities at central and local levels (both in the sense of funding source and funding management)?
GAVI co-financing (if relevant)	What have been the main problems with financing vaccines, in particular with financing non-GAVI supported vaccines? What were the main reasons and what were the solutions adopted? Were any key lessons learnt? What has been the history of co-financing? For instance, the co-financing sources by year? What have been the challenges with co-financing and what types of solutions have been proposed and adopted? Were these successful? Why? What are the practical steps for ensuring that vaccines costs (for non-GAVI supported vaccines and GAVI co-financing requirements) are paid in time, and the challenges in doing so?
Advocacy for immunization funding	Who are the main stakeholders within the immunization and health sector? What are their views and concerns about sustainability of immunization financing? What are their incentives, concerns and capacities? What roles do NGOs/civil society have in delivery and financing of immunization services? What kind of technical assistance and advocacy efforts are needed to strengthen budget planning, execution and financing vaccines (non-GAVI supported vaccines and GAVI co-financing requirements)?

PART II. Health facilities questions

TYPE OF INFORMATION	SUGGESTED SUPPLEMENTAL QUESTIONS
Budget planning and execution	What are the differences between proposed, approved and executed NIP/EPI budget? What process is in place for mid-year budget implementation review? Has the budget allocation always been on time? What has been the implementation rate of the immunization budget in the last 3–5 years? What are the practical bottlenecks and issues in planning and budgeting immunization programmes?
Funding structure	What are the main funding sources for health facility? How does the health facility finance immunization services (e.g. dedicated funds, integrated budget, insured, user fees, etc.)? What budget lines are related to immunization? What are the main funding gaps?

Annex 5.E
Supplemental questions related to advocacy and communications

TYPE OF INFORMATION	SUGGESTED SUPPLEMENTAL QUESTIONS
Public	Routine communication efforts in place to ensure public awareness of benefits of immunization and risk of diseases. Understand factors that drive vaccination acceptance and demand. Public opinion on vaccines is monitored so that new issues can be detected and responded to. Frontline HCW trained on communicating with caregivers.
Coordination & collaboration	Collaboration mechanism been established, such as a vaccine communication working group. Efforts to engage people who influence opinions on vaccination.
Media	Ongoing efforts to strengthen relations with media editors and journalists. Journalists and editors trained to build their knowledge on vaccination. Mechanisms in place to ensure that media enquiries are answered during a crisis. A media contacts list has been developed and is being maintained. A list of external experts who would be effective information sources for the media has been developed.
Crisis communication planning	A crisis communication plan has been developed. The crisis communication plan has been shared with all relevant stakeholders, including decision-makers, allies and influencers. The crisis communication plan has been endorsed by senior management. The crisis communication plan is flexible, so that it is applicable for different kinds of crises.
Crisis response mechanisms	It is clear who is responsible for ensuring website information and a press release within a few hours, in case of a crisis. Clear guidelines on speedy dissemination of information to regional and local levels are in place. Spokespersons have been trained. Holding statements and messages have been developed. A list of FAQs on immunization has been prepared. Background rates have been calculated.

Annex 5.F
Supplemental questions for missed opportunities for vaccination (MOV)

Instructions for using this resource

For countries that want to explore the status and potential for reducing missed opportunities for vaccination (MOV) in their country, this page provides suggestions for possible people to interview, and questions to ask. See *Box 6* on MOV for more details.

Possible persons to interview

Deputy director or managers of the following departments (if applicable):

- ↦ hospital (curative) services, primary health care (if separate);
- ↦ health policy (if separate);
- ↦ health workforce/human resources for health.

SUGGESTED SUPPLEMENTAL QUESTIONS
Are immunization basics and VPDs covered in pre-service training for other health-care professionals (besides doctors and nurses)? If so, which programmes include this training?
Do you have any mechanisms or policies to identify and vaccinate children who are missing vaccinations and present at non-immunization health clinic visits (e.g. emergencies, treatment for ailment, accompany an adult)?
If yes, can you describe mechanisms/policies in place (e.g. are children's immunization status reviewed and referred to the immunization clinic if they are missing vaccine? Or, can they be vaccinated on the spot/same day? Which type of health-care worker can administer vaccines? Any HCW? Any or all vaccines)?
If no, do you know why mechanisms or policies to vaccinate these children are not in place? What are the barriers?
Are there any national policies/regulations that would prevent or restrict the practice of checking vaccination status at non-immunization health visit contacts?
Are there any national policies/regulations that would prevent or restrict vaccines being provided during non-immunization contacts?
In your opinion, if not already in place, what kind of mechanisms, practices, policies could be effective in your country for identifying and vaccinating these children?

Annex 6
Reporting templates

Please click on box to get to relevant page in document

6.A Concept note template	6.B Desk review report template
6.C Protocol template	6.D Topic report template
6.E Final EPI Review report template	6.F–H Presentation templates

Annex 6.A
Concept note template

Reminder of instructions for writing this concept note. Plan to keep this report to a maximum of 3–5 pages. Focus on the rationale and objectives for the review. The methods will be detailed in the protocol and mainly serve, at this stage, to get a general overview and to estimate the budget.

I. Background *(1–2 pages maximum)*

- a. Overview of the EPI (schedule, strategies, performance trend).
- b. EPI human resources, including an organogram at national level.
- c. Rationale and main issues giving rise to the review.
- d. Stakeholders and partners in the EPI (to be engaged early via this concept note).

II. Objectives

III. Methods *(1 page maximum)*

- a. Overview of the data-collection methods (interviews, observations, questionnaires);
- b. Sites to visit (national interviews and field sites);
- c. Participants (EPI focal points, consultants, national and field team members);
- d. Dates of the review.
- e. Timeline of each phase of the review:
  - i. desk review.
  - ii. planning and preparation.
  - iii. field review.
  - iv. synthesis and recommendations.
  - v. translating into planning and action.
  - vi. analysis and report writing.

IV. Estimated budget

V. Expected outcomes of the EPI Review
(how review findings will be used)

Annex 6.B
Desk review report template

Refer to *Annex 1* for more detail on how to complete data collection and synthesis for the desk review report. The purpose of this report is to summarize key findings – especially for priority areas. It should be formatted so that it can serve multiple purposes, e.g. for use in training, highlight priorities that are addressed in the tools and methods. This report can be approximately 8–10 pages plus Annexes.

I. Introduction and background

- a. Purpose of desk review.
- b. Methods, sources of information (data sources and interviews), timeline.

II. Immunization programme information *(see Annex 1A)*

- a. Immunization coverage trends.
- b. VPDs incidence and trends.
- c. Surveillance standards.
- d. Immunization equity.
- e. Trends in immunization financing.
- f. Immunization governance, planning, assessments.
- g. Immunization targets.

III. Summary of previous EPI or immunization reviews *(see Annex 1B)*

IV. Summary of priority areas of focus by topic areas *(see Annex 1C)*

- a. Programme management.
- b. Human resources.
- c. Budgeting and financing.
- d. Vaccine supply, quality and logistics.
- e. Service delivery strategy.
- f. Surveillance and reporting.
- g. Demand side strategy.

V. External determinants assessment (see *Annex 1D*)

- a. General political, social, economic context, development strategy.
- b. Highlight external environment issues impacting immunization performance.
- c. Overview of health system function, structure, strategy, aspects that impact performance.

VI. Conclusions and recommendations for amending or guiding EPI objectives, methods, data

VII. Annexes

- a. Annex 1. References, resources, persons conducting the desk review, persons interviewed.
- b. Annex 2. Protocol for the EPI Review.
- c. Annex 3. Tailored tools (questionnaires) for the EPI Review.

Annex 6.C
Protocol template

The purpose of the protocol is to document the technical details of the Review so that all involved have the same understanding of the methods used in the Review. The description of the methods can also be used in the final EPI Review report. This protocol should be approximately 5–8 pages plus annexes.

I. Background

2–3 sentences on the general description of the Review (including purpose, dates).

II. Objectives

Refer to the objectives in the concept note and highlight any changes or additional priorities identified.

III. Participants, stakeholders

Provide a list of participants and roles including Review managers, leads, national focal point for the review, national technical focal points, topic leads needed and team membership (how many per team and their roles). Provide ToRs for major roles (i.e. update *Annex 2*). Include partners and stakeholder to invite to the debriefing.

IV. Approaches to link to strategic planning

Describe approaches used to coordinate this Review and EPI strategic planning, (e.g. joint activities or key persons involved in both activities).

V. Data-collection methods

a. Describe the approaches to data collection.
   i. National level – data to be reviewed, stakeholders/partners to interview.
   ii. Field teams – health office interviews/observations, health facilities, immunization session observations, caregiver interviews, case verification, etc.

b. Site selection.
   i. Pre-selected sites. Describe criteria for selection and provide a table of selected sites.
   ii. Site selection by field teams. Describe criteria and special considerations guiding teams in site selection.

c. Teams. Describe the number and composition/roles of national and field teams.

d. Training. Describe the main training topics, approaches (review questionnaires, mock interviews, etc.).

VI. Data management and analysis

a. Describe instructions to teams for data recording, reporting.

b. Indicate if key variables in the questionnaires were identified for analysis – priorities for teams to collect.

VII. Synthesis of findings and recommendations

a. Describe the methods for synthesizing findings.

b. Describe the process for developing recommendations.

c. Describe how these recommendations will be shared, used and tracked.

Annex 6.D
Topic report template

The purpose is to bring together the observations and recommendations from the national level and across ALL field teams for each topic. This report should be written by the Topic Lead and is a key contribution to the final Review report. It is recommended to try and keep the text of this document within 2–3 pages, although it may be longer if data tables and images are included.

I. Topic name

2–3 sentences on the general description of the Review (including purpose, dates).

II. Background *(only one paragraph if possible)*

III. National level

(this information comes from desk review and national lead presentation)

a. Strengths.
b. Weaknesses.

IV. Field level

(this information is from field team presentations and analysis of core data across ALL teams)

a. Strengths.
b. Weaknesses.

V. Observations and data collected

(to back up strengths and weaknesses listed above)

a. Summary of core variables.
b. Summary of key observations and trends from the national and field teams.
c. Pictures or examples that illustrate points.
d. Best practices noted.

VI. Conclusions

(reflecting national and field findings)

a. Top recommendations (1-2 maximum).
b. Other recommendations.

Annex 6.E
Final EPI Review report template

National EPI Review report outline (30–50 pages). The following is a sample outline of a national EPI Review report. The outline of the national report may vary according to the objectives of the review and if a "special topic" was identified for analysis. In general, the categories should be limited in number in order to (a) facilitate ready analysis, and (b) focus on the main factors affecting EPI programming in context. Focus on findings that back recommendations and priority actions.

I. Background/desk review

a. Demography and geography and other relevant external issues.
b. Health system.
c. immunization programme in the last five years.

II. Objectives and methods

a. Objectives of the Review.
b. Data collection and analysis methods.

III. Immunization system components

(strengths, weaknesses, conclusions, recommendations)

a. Programme management.
b. Human resources management.
c. Costing and financing.
d. Vaccine supply, quality and logistics.
e. Service delivery.
f. Surveillance and reporting.
g. Demand generation and communication.

IV. Conclusion and summary recommendations

a. Summary of overall findings.
b. Recommendations for policy or planning actions.
c. Acknowledgments.

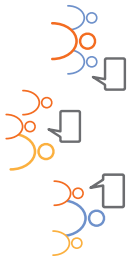
V. Annexes

a. Subnational reports.
b. Data-collection instruments.

Annex 6.F

Team debrief presentation

Each field team should prepare a presentation along the lines of this template (see *Box 15*). Download template here.



Team Debrief Presentation

COUNTRY NAME EPI REVIEW

Field Team Location | Field Team Members:

PROGRAMME MANAGEMENT & FINANCING

Strengths	
Weaknesses	
Conclusions	
Suggestions for improvement (maximum 2–3)	*(Other suggestions can be documented in the field report)*

This is an example of the format for one of the Review topics. One slide should be created for each topic. A full set of template slides will be available online.

How many sites did you visit & what kind of data did you collect?

X Number of Regional Health Office
X Number of Regional Hospital / Cold Store
X Number of District Health Office /Cold Store
X Number of District Hospital
X Number of Health Facilities

X Number of Immunization Sessions
X Number of children immunized
X Number of Caregiver Interviews

Include a map of sites visited (see last 4 slides for examples)

If applicable:
X Reported VPD cases verified
X Community Focus Groups (check this with GLs)

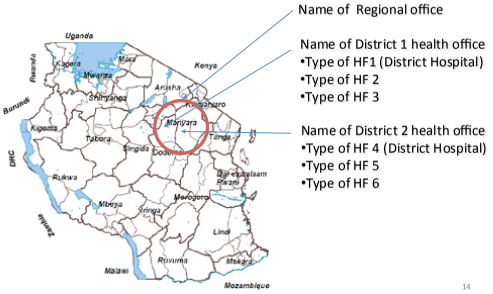
National Team to list sites visited, interviews conducted, and major sources of data used for findings on the following slides…

Summary

Key achievements including best practices (up to 3):
Areas for improvement (up to 3):
What would be needed to make improvements:

Addendum: Examples of ways to show location of sites visited

Coordinators provide teams with maps; ideally with district boundaries



14

Take a picture of a map you find in the field

15

Use an application on your phone to map sites visited

16

PROGRAMME MANAGEMENT & FINANCING

Topic-Specific Presentation

COUNTRY NAME EPI REVIEW

Topic work group members

External Lead	
National Lead	
Group Members	

Names, affiliations or government job title

Background & policies related to topic

Provide context to this topic:

- *Key policies*
- *Desk review findings especially key recommendations & the status made in recent assessments*

National findings

- *List interviews conducted, reports reviewed*
- *Summarize findings as they relate to field findings and overall recommendations*

Sub-national findings

- *Include tables or figures showing summary of core variables*
- *Describe concordance or discordance between national findings and field findings*
- *Focus on evidence backing recommendations*
- *Include illustrative photos or examples from field presentations*

Summary of strengths

Key achievements
Lessons to share

Summary of weaknesses

These should link with recommendations on next slide

Recommendations

1–2 recommendations

To be considered for presentation for final briefing

If needed, mention other key recommendations

The full set of recommendations to be included in the topic & final reports

Annex 6.G

Topic-specific presentation

Each Topic Lead should be prepared to give a presentation along the lines of this template (see *Box 15*). Download template here.

Annex 6.H

Final debrief presentation

A final presentation along these lines should be given to the Ministry of Health and partners (see *Box 15*). Download template here.

Final Debrief Presentation

COUNTRY NAME EPI REVIEW DATES

Background, rationale, objectives for the review

Write here

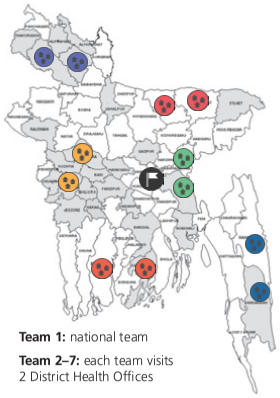
Review methods

Review participants	
Number & composition of teams	
How geographic sites were selected	
Types of sites / information collected	

Data collection

Teams	7
National level	1
District Health Office	12
Health Facility	24
Session observed	20
Caregiver interviews	84

Map showing team deployment and sites visited plus summary of sites visited/interviews conducted



Team 1: national team

Team 2–7: each team visits 2 District Health Offices

NOTE: this is not an official map and it represents fictional data.

Findings

PROGRAMME MANAGEMENT & FINANCING

Strengths	
Weaknesses	

This is an example of the format for one of the Review topics. One slide should be created for each topic. A full set of template slides will be available online.

Summary

Key achievements including best practices

Recommendations:

1–2 recommendations for improvement
If needed, mention other key recommendations

Key actions, needs and next steps

- *Reiterate urgent or priority actions*
- *Next steps regarding ICC and cMYP planning*
- *Monitoring & evaluation of follow-up to this Review*

Annex 7
Synthesis templates

Please click on box to get to relevant page in document

7.A	7.B
Example for 'Road mapping' recommendations	Example of summarizing EPI Review findings for advocacy purposes

Annex 7.A
Template for 'Road mapping' recommendations

ACTIVITY NUMBER	ACTIVITY DESCRIPTION	Priority (high or medium)	Time horizon (short, mid, long)	Start date	End date	Responsible agency/person	Indicator, deliverable	Status (done, partial, not started)	Comments
	1. PROGRAMME MANAGEMENT & FINANCING								
1.1									
1.2									
1.3									
1.4									
	2. HUMAN RESOURCES MANAGEMENT								
2.1									
2.2									
2.3									
2.4									
	3. VACCINE SUPPLY & QUALITY LOGISTICS								
3.1									
3.2									
3.3									
3.4									
	4. SERVICE DELIVERY								
4.1									
4.2									
4.3									
4.4									

Continued: Annex 7.A
Template for 'Road mapping' recommendations

ACTIVITY NUMBER	ACTIVITY DESCRIPTION	Priority (high or medium)	Time horizon (short, mid, long)	Start date	End date	Responsible agency/person	Indicator, deliverable	Status (done, partial, not started)	Comments
	5. COVERAGE & AEFI MONITORING								
5.1									
5.2									
5.3									
5.4									
	6. SURVEILLANCE								
6.1									
6.2									
6.3									
6.4									
	7. DEMAND GENERATION								
7.1									
7.2									
7.3									
7.4									
Special topics, if applicable									

Fictional EPI Review Country name, 20XX

Background

- Country XYZ has coverage and disease control targets which have not yet been met. The country continues to strive to stop disease, and outbreaks that can be prevented through vaccination.
- The programme needs to explore adequacy of programme planning, budgeting and coverage monitoring that is critical for identifying areas that should improve access to vaccines and service delivery.

EPI Review methods

Participants:

—total of 35 persons led by EPI/MoH;

—with field teams led by external experts from WHO, UNICEF, CDC, CHAI, JICA

Data sources

15 National interviews
6 Provincial health offices
12 District offices
24 Health centres
20 Immunization sessions
84 Caregivers

Purpose

This EPI Review was conducted to generate evidence to guide the development of a strategic plan for 20XX–20XX

Priority areas

Programme management

Select findings & actions needed

Service delivery

Select findings & actions needed

Monitoring coverage

Select findings & actions needed

Key programme, budget and partnership implications

Next steps

Useful links overview

pg Name of resource

47 Stakeholder management resource from WHO Regional Office for Europe
http://www.euro.who.int/__data/assets/pdf_file/0004/337495/02_WHO_VaccineSafety_SupportDoc_StakeholderManagement_Proof8-3.pdf?ua=1

47 Reaching Every District
http://apps.who.int/iris/bitstream/10665/70450/1/WHO_IVB_09.11_eng.pdf

60 Editable questionnaires
http://www.who.int/immunization/programmes_systems/en/

87 Advocacy tools from the WHO Regional Office for Europe
http://www.euro.who.int/en/health-topics/disease-prevention/vaccines-and-immunization/publications/communication-and-advocacy/immunization-advocacy-library

96 Evaluation tool for NITAGs
http://www.nitag-resource.org/media-center/document/688-indicators-to-assess-na%C2%ACtional-immunization-technical-adviso%C2%ACry-groups-nitags

96 cMYP guidelines
http://apps.who.int/iris/bitstream/10665/100618/1/WHO_IVB_14.01_eng.pdf

96 Joint Assessment of National Health Strategies and Plans (JANS)
www.internationalhealthpartnership.net/fileadmin/uploads/ihp/Documents/Tools/JANS/JANS_2014_English_WEB__1_.pdf

96 Framework for immunization financing assessments
http://www.who.int/immunization/programmes_systems/financing/tools/en/

96 Country financial sustainability assessment
http://www.who.int/immunization/programmes_systems/financing/tools/en/

96 Rapid assessment of financial bottleneck for immunization services
https://www.unicef.org/health/files/RapidAssess_EPI_financing_Tool_Uganda_061414_FINAL-for-Printer.pdf

97 MLM Module
http://www.who.int/immunization/documents/mlm/en/

97 EVM assessment tools and user guides
http://www.who.int/immunization/programmes_systems/supply_chain/evm/en/index3.html

97 Reaching Every District strategy
http://apps.who.int/iris/bitstream/10665/70450/1/WHO_IVB_09.11_eng.pdf

97 Service availability and readiness assessment tool
http://www.who.int/healthinfo/systems/sara_introduction/en/

97 Maternal Flu Vaccination
http://apps.who.int/iris/bitstream/10665/250084/1/WHO-IVB-16.06-eng.pdf?ua=1

97 USAID's service provision assessment (SPA)
https://dhsprogram.com/What-We-Do/Survey-Types/SPA.cfm

98 Immunization in Practice
http://apps.who.int/iris/bitstream/10665/193412/1/9789241549097_eng.pdf

98 Data quality self-assessment tool
http://www.who.int/immunization/monitoring_surveillance/routine/coverage/DQS_tool.pdf?ua=1

98 Collecting, assessing and using immunization data (pending publication).
WHO VPD surveillance guidance (pending publication)
http://www.who.int/immunization/monitoring_surveillance/en/

98 A practical manual for the assessment of pharmacovigilance systems
http://www.who.int/medicines/areas/quality_safety/safety_efficacy/EMP_PV_Indicators_web_ready_v2.pdf?ua=1

101 National health accounts (NHA)
http://apps.who.int/nha/database

101 UNDP Gender inequality index
http://hdr.undp.org/en/content/table-4-gender-inequality-index

101 WHO State of inequality in childhood immunization
http://www.who.int/gho/health_equity/report_2016_immunization/en/

This document was published by the Expanded Programme on Immunization (EPI) of the Department of Immunization, Vaccines and Biologicals.

This publication is available on the Internet at: www.who.int/immunization/documents

Copies of this document as well as additional materials on immunization, vaccines and biologicals may be requested from:
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Email: vaccines@who.int
Web: www.who.int/immunization/en