



# Mid-Level Management Course for EPI Managers

BLOCK I: Introductory modules

Module 1: A problem-solving approach  
to immunization services management

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World Health  
Organization

REGIONAL OFFICE FOR

Africa





# Mid-Level Management Course for EPI Managers

List of course modules

## **BLOCK I: Introductory modules**

Module 0: Introduction

Module 1: A problem-solving approach to immunization services management

Module 2: The role of the EPI manager

Module 3: Communication and community involvement for immunization programmes

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## **BLOCK II: Planning/organization**

Module 4: Planning immunization activities

Module 5: Increasing immunization coverage

Module 6: Immunization financing

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## **BLOCK III: Logistics**

Module 7: Cold chain management

Module 8: Vaccine management

Module 9: Immunization safety

Module 10: Transport management

Module 11: Maintenance

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## **BLOCK IV: New vaccines**

Module 12: New and under-utilized vaccine introduction

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## **BLOCK V: Supplementary immunization**

Module 13: How to organize effective polio NIDs and measles SIAs

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## **BLOCK VI: Disease surveillance**

Module 14: How to conduct effective vaccine-preventable diseases case-based surveillance

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## **BLOCK VII: Monitoring and evaluation**

Module 15: Monitoring and data management

Module 16: Supportive supervision by EPI managers

Module 17: Conducting immunization coverage survey

Module 18: Conducting assessment of the immunization programme

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## **BLOCK VIII: EPI training materials**

Module 19: Facilitator's guide

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BLOCK I: Introductory modules

Module 1: A problem-solving approach  
to immunization services management

## Module 1: A problem-solving approach to immunization services management

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# Contents

<b>Acknowledgements</b>	IV
<b>Abbreviations and acronyms</b>	IV
<b>Glossary</b>	VI
<b>1. Introduction</b>	1
1.1 Context	1
1.2 Purpose of the module	2
1.3 Target audience	2
1.4 Learning objectives	2
1.5 Contents of the module	2
1.6 How to use this module	2
<b>2. Immunization systems environments</b>	3
2.1 Global environment of immunization systems	3
2.2 Immunization operations and supporting components	4
2.3 Global and regional immunization strategies	4
2.4 What is EPI operations management?	7
2.5 RED/REC strategy: Still a challenge for operations management?	8
<b>3. Problem-solving process for immunization services management</b>	9
3.1 What is the need, problem, cause, effect and solution?	9
3.2 How to solve problems that affect EPI performance?	14
<b>4. Issues and problems of immunization programmes and services in Africa</b>	15
4.1 Immunization operations: Problems and issues	15
4.2 Immunization support components: Problems	16
<b>5. Problem-solving techniques</b>	17
5.1 Creative model of problem-solving	18
<b>6. District team problem-solving for immunization services management</b>	21
6.1 What is district team problem-solving?	21
6.2 How does district team problem-solving strengthen immunization services management?	21
6.3 Conditions for district team problem-solving success	21
<b>Recommended reading</b>	25
<b>Annex 1: Activities for planning to reach every district</b>	26
<b>Annex 2: Adverse events following immunization flowchart</b>	29
<b>Annex 3: Example of a cause-effect diagram</b>	30
<b>Annex 4: Republic of Fredonia: Case study</b>	31

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## Abbreviations and acronyms

AD	auto-disable (syringes)
AEFI	adverse events following immunization
AMP	Agence de Médecine Préventive
BMGF	Bill & Melinda Gates Foundation
CDC	Centers for Disease Control and Prevention
cMYP	comprehensive multi-year plan
CSO	civil society organization
DoV	Decade of Vaccines
DTP	diphtheria-tetanus-pertussis-containing vaccine
DTPS	district team problem-solving
EPI	Expanded Programme on Immunization
GAPPD	Global Action Plan for the Prevention and Control of Pneumonia and Diarrhoea
Gavi	Global Alliance for Vaccines and Immunization
GVAP	Global Vaccine Action Plan (2011–2020)
HBsAg	hepatitis B surface antigen
HHA	Harmonization for Health in Africa
HPV	human papilloma virus
ICC	interagency coordination committee
IDSR	Integrated Disease Surveillance and Response
IIP	Immunization in Practice (course modules)
IMCI	Integrated Management of Childhood Illnesses (interactive training tool)
ITN	insecticide-treated bed nets
MCH	mother and child health
MCSP	Maternal and Child Survival Program (USAID)
MCV1	measles-containing vaccine first dose
MDG	Millennium Development Goal
MLM	Mid-Level Management Course for EPI Managers
MOH	ministry of health
MSF	Médecins Sans Frontières
NESI	Network for Education and Support in Immunisation
NID	national immunization day
NIP	national immunization programme
OPV	oral polio vaccine



PCV	pneumococcal conjugate vaccine
PHC	primary health care
PPP	public-private partnership
RED/REC	Reaching Every District/Reaching Every Community
RSPI	Regional Strategic Plan for Immunization (2014–2020)
SIA <sub>s</sub>	supplementary immunization activities
SNID	subnational immunization day
SWOT	strengths, weaknesses, opportunities, threats
TOR	terms of reference
TQM	total quality management
UHC	universal health coverage
UNICEF	United Nations Children's Fund
USAID	States Agency for International Development
VPD	vaccine-preventable disease
VVM	vaccine vial monitor
WHO	World Health Organization
WPV	wild polio virus

# Glossary

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<b>External environment</b>	Geographic, political, socioeconomic and technological factors, trends and individuals that, even though are outside the health system, have an impact on health. The stagnation and reduction in immunization coverage rates in some countries can be attributed to these external factors.
<b>Health problems</b>	Malfunctions, anomalies, suffering of individuals and lapses of the health system. They are essentially divided into suffering or diseases, community problems and problems related to health service operations.
<b>Health system</b>	A set of individuals and organizations working for the improvement and protection of public health. In the African Region, decentralization, service integration and financing policies adopted under health sector reform represent a challenge for the reorientation of immunization and other services.
<b>Leadership</b>	The ability to direct the operations, activities or performance of an organization or group of people (e.g. EPI team) towards assigned goals and achieve definite results.
<b>Management</b>	A science and an art comprising a set of concepts, skills and tools for organizing an enterprise (e.g. institution or programme), improving its operation by rationally managing the resources to attain the objectives desired.
<b>Mission</b>	A continuing task or responsibility that an organization is destined or specially called upon to undertake. For example, the mission of EPI is to immunize target populations to control or eradicate diseases preventable by immunization.
<b>Need</b>	A lack of something desirable and useful, a discrepancy or gap between the present situation and the desired or ideal solution.
<b>Opportunity</b>	A chance for advancement and progress. A favourable combination of circumstances times and place.
<b>Problem</b>	Something that blocks advancement and requires thought and skill to arrive at a proper decision and solution. A problem relates to a conflict situation either regarding the fulfilment of a need or the expression of the current or desired situation.
<b>Solution</b>	An answer to a gap, need, problem or conflict.
<b>Strategy</b>	A method worked out in advance designed to achieve an objective.
<b>Task description</b>	An instruction document that gives technical details as to how various tasks of the job should be performed.
<b>Team</b>	A group of people working together to attain the same organizational goal.
<b>Terms of reference</b>	A general document on the objectives, methods and the expected results (deliverables) of an assignment by an organization or an individual.

# 1. Introduction

## 1.1 Context

The Expanded Programme on Immunization (EPI) is a key global health programme. Its overall goal is to provide effective and quality immunization services to target populations. EPI programme managers and staff need to have sound technical and managerial capacities in order to achieve the programme's goals.

The immunization system comprises five key operations: service delivery, communication, logistics, vaccine supply and quality, and surveillance. It also consists of three support components: management, financing and capacity strengthening.

National immunization systems are constantly undergoing change, notably those related to the introduction of new vaccines and new technologies, and programme expansion to reach broader target populations beyond young children. The EPI programme also faces external changes related to administrative decentralization, health reforms, as well as the evolving context of public-private partnerships (PPPs) for health, among others.

To ensure the smooth implementation of immunization programmes, EPI programme staff have to manage these changes. This requires specific skills in problem-solving, setting priorities, decision-making, planning and managing human, financial and material resources as well as monitoring implementation, supervision and evaluation of services.

National immunization programmes (NIPs) operate within the context of national health systems, in alignment with global and regional strategies. For the current decade, 2011–2020, the key global immunization strategies are conveyed through the Global Vaccine Action Plan (2011–2020) (GVAP) and the African Regional Strategic Plan for Immunization (2014–2020) (RSPI).

These strategic plans call on countries to:

- improve immunization coverage beyond current levels;
- complete interruption of poliovirus transmission and ensure virus containment;<sup>1</sup>
- attain the elimination of measles and make progress in the elimination of rubella and congenital rubella syndrome;<sup>2</sup> and
- attain and maintain elimination/control of other vaccine-preventable diseases (VPDs).

The key approaches for implementation of the GVAP/RSPI include:

- implementation of the Reaching Every District/ Reaching Every Community (RED/REC) approach and other locally tailored approaches and move from supply-driven to demand-driven immunization services;
- extending the benefits of new vaccines to all;
- establishing sustainable immunization financing mechanisms;
- integrating immunization into national health policies and plans;
- ensuring that interventions are quantified, costed and incorporated into the various components of national health systems;
- enhancing partnerships for immunization;
- improving monitoring and data quality;
- improving human and institutional capacities;
- improving vaccine safety and regulation; and
- promoting implementation research and innovation.

The RSPI promotes integration using immunization as a platform for a range of priority interventions or as a component of a package of key interventions. Immunization is a central part of initiatives for the elimination and eradication of VPDs, and of the integrated Global Action Plan for the Prevention and Control of Pneumonia and Diarrhoea (GAPPD) by 2025.

It is understood that while implementing the above strategies, EPI managers will face numerous challenges and constraints that they need to resolve if the 2020 targets are to be met. Building national capacity in immunization service management at all levels of the health system is an essential foundation and key operational approach to achieving the goals of the global and regional strategic plans.

In view of this, the WHO Regional Office for Africa, in collaboration with key immunization partners such as the United Nations Children's Fund (UNICEF), United States Agency for International Development (Maternal and Child Survival Program) (USAID/MCSP), and the Network for Education and Support in Immunisation (NESI), have revised the Mid-Level Management Course for EPI Managers (MLM) training modules. These modules are complementary to other training materials including the Immunization in Practice (IIP) training manuals for health workers and the EPI/Integrated Management of Childhood Illnesses (IMCI) interactive training tool.

<sup>1</sup> WHO, CDC and UNICEF (2012). Polio Eradication and Endgame Strategic Plan 2013–2018.  
<sup>2</sup> WHO (2012). Global Measles and Rubella Strategic Plan 2012–2020.

This module (1) titled *A problem-solving approach to immunization services management* is part of Block I: Introductory modules.

## 1.2 Purpose of the module

Human beings are not born with the ability to solve problems. Problem-solving is an acquired skill. However, with proper and targeted training many of us will acquire the skills to handle problems which occur in our workplaces. This module aims at developing a systematic and logical approach to solving problems related to immunization services management.

## 1.3 Target audience

As most EPI managers' interventions at various levels of the health system focus on preventing problems and handling them when they occur, all MLM modules use problem-solving as a basic methodology. This module is intended to improve the problem-solving skills of EPI managers at all levels. It also serves as a useful reference source for teachers in training institutions.

## 1.4 Learning objectives

At the end of this module, participants should be able to:

- describe immunization systems environments;
- describe the main EPI management operations and supportive components;
- describe various types of problem analysis and problem-solving tools e.g. strengths, weaknesses, opportunities, threats (SWOT) analysis, 5 Whys;
- explain key concepts related to problem identification and problem-solving;
- apply problem-solving techniques (models) to immunization services management;
- analyse situations in a structured manner and generate possible solutions; and
- determine the best solutions and implement them.

## 1.5 Contents of the module

This module contains the following sections:



## 1.6 How to use this module

Throughout the MLM course, the problem-solving approach is used as a common methodology. This module introduces the problem-solving process.

To use this module:

- read the supporting text;
- go through the proposed exercises; and
- at the end of the exercises, discuss the answers within your group and with the facilitator.

Constantly use the problem-solving methodology when managing immunization programmes and services through respective technical and management functions and activities.





## 2. Immunization systems environments

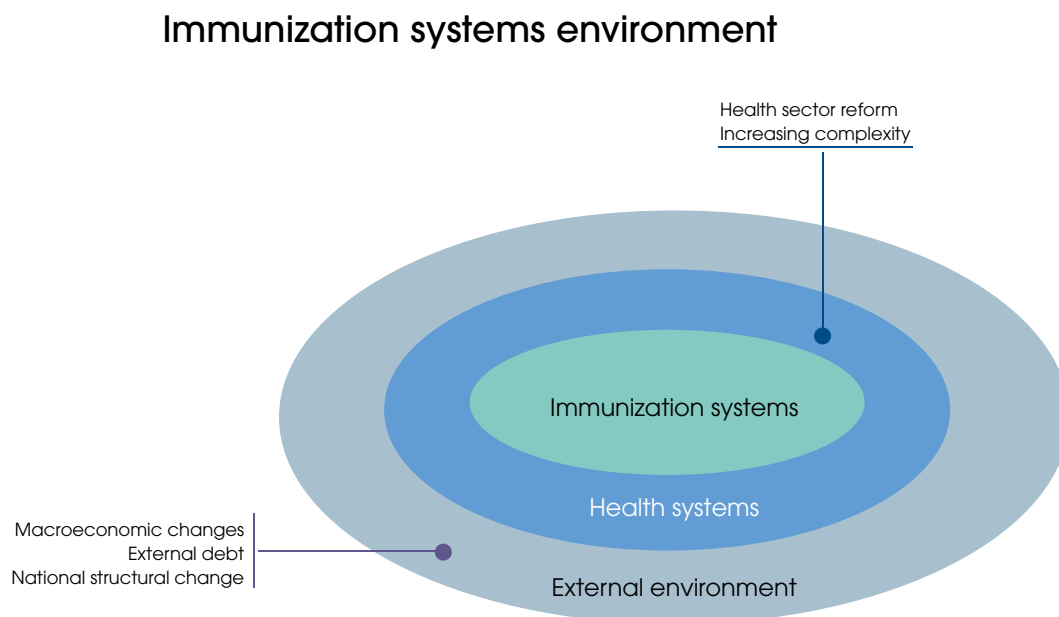
### 2.1 Global environment of immunization systems

Immunization services do not operate in a vacuum; the external environment and the health system form the framework within which they function (Figure 2.1). In order to carry out planning, implementation and evaluation functions, EPI managers must understand the context in which the management of services in health centres, hospitals and administrative units (e.g. district

health offices) is carried out. They should also be aware of the influence of the health system and the external environment on the services provided and factor them into planning, implementation and evaluation.

Within the health sector, EPI managers should be able to improve the components and operations of immunization programmes that depend on changes in the wider socioeconomic environment (demographic, sociocultural, epidemiological and macroeconomic).

**Figure 2.1 Interrelationship between immunization systems, health sector and the external environment**



#### Exercise 1

Task 1: Review Figure 2.1 and identify some important factors within the health system and external environment influencing immunization systems.

Task 2: List your current major activities within EPI and, using information in Figure 2.2, classify them into components or operations of the immunization system.



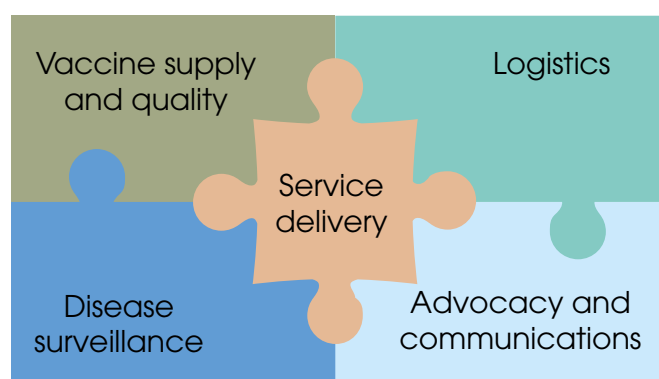
Many African countries continue to undergo health sector reforms and immunization services are consequently in transition as governments try to meet political pressures, improve efficiency, reduce costs and identify reliable funding sources, to increase access to and quality of services. These continuous changes affect all aspects of government, including the health sector. It is imperative that immunization managers participate in discussions on the organization and financing of health activities at all levels. The common elements of health sector reform that are most likely to affect the management and delivery of immunization services are: decentralization, integration, public-private mix and changes in financing patterns.

## 2.2 Immunization operations and supporting components

The immunization system is comprised of five key immunization operations:

- **service delivery** – strategies and activities of giving vaccinations;
- **vaccine supply and quality** – forecasting vaccine needs, procurement of vaccines, monitoring of vaccine utilization and safety procedures;
- **logistics** – delivery of vaccines and equipment to the place of use, transport, management of cold chain and waste disposal;
- **disease surveillance** – includes monitoring of disease incidence, laboratory testing, record keeping and reporting; and
- **advocacy and communications** – social mobilization, advocacy, community education on immunization and programme promotion.

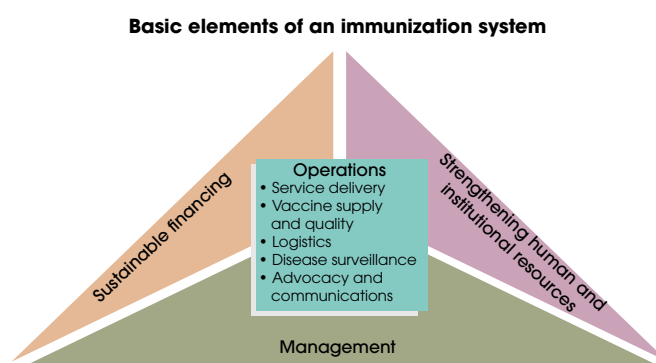
**Figure 2.2 Immunization systems operational components**



Immunization operations are sustained through the following supporting components (Figure 2.3):

- **management** – policy-making and standard setting, planning, coordination, information collection and sharing, collaboration with other partners, quality assurance, monitoring and evaluation;
- **sustainable financing** – budgeting, identifying long-term funding sources, actions to increase allocation of financial resources for immunization programmes; and
- **strengthening human and institutional resources** – staffing, training, supervision and institutional support (including supply of technical information, support to research projects etc.).

**Figure 2.3 Immunization systems operational components and supporting elements**



## 2.3 Global and regional immunization strategies

### 2.3.1 Global Vaccine Action Plan (2011–2020)

The last century was, in many respects, the century of treatment, resulting in dramatic reductions in morbidity and mortality, with the discovery and use of antibiotics as one of the biggest agents of change in health. This century promises to be the century of vaccines, with the potential to eradicate, eliminate or control a number of serious, life-threatening or debilitating infectious diseases; with immunization at the core of preventive strategies.

Vaccines against microbial and viral diseases have already improved the health of millions of people. In the current decade, which WHO and partners refer as the “Decade of Vaccines” (DoV), there are extraordinary opportunities to expand this range as well as to pioneer the first vaccines against human parasitic and fungal diseases. The goals of the DoV are:

- achieve a world free of poliomyelitis;
- meet global and regional elimination targets;
- meet vaccination coverage targets in every region, country and community;
- develop and introduce new and improved vaccines and technologies; and
- exceed Millennium Development Goal (MDG) 4 target for reducing child mortality.

The GVAP builds on the successful implementation of the Global Immunization Vision and Strategy (2006–2015) which was launched in 2005 as the first 10-year strategic framework to realize the potential of immunization. Developing the plan brought together multiple stakeholders involved in immunization, including governments and elected officials, health professionals, academia, manufacturers, global agencies, development partners, civil society, media and the private sector, to define collectively what the immunization community wants to achieve over the subsequent decade. The GVAP reiterates existing goals and sets new ones for the current decade, proposing the following six strategic objectives:

- **All countries commit to immunization as a priority:** Key indicators to monitor progress towards this strategic objective at the country level are the presence of a legal framework/legislation that guarantees financing for immunization, and the presence of an independent technical advisory group.
- **Individuals and communities understand the value of vaccines and demand immunization as both their right and responsibility:** Progress towards this objective is measured by surveys on knowledge, attitudes, beliefs and practices.
- **The benefits of immunization are equitably extended to all people:** Progress towards greater equity can be evaluated by monitoring the percentage of districts with less than 80% coverage with three doses of DTP (diphtheria-tetanus-pertussis-containing vaccine) and coverage gaps measured by an appropriate equity indicator.
- **Strong immunization systems are an integral part of a well-functioning health system:** The strength of health systems can be evaluated based on drop-out rates between the first dose of DTP-containing vaccine and the first dose of measles-containing vaccine.

- **Immunization programmes have sustainable access to predictable funding, quality supply and innovative technologies:** Key indicators to monitor progress towards this strategic objective will be the percentage of routine immunization costs financed through government budgets.
- **Country, regional and global research and development innovations maximize the benefits of immunization:** This objective is measured by the institutional and technical capacity to manufacture vaccines and/or carry out related clinical trials and operational and organizational research.

The plan provides a set of actions that will support the achievements of these strategic objectives.

### 2.3.2 Regional Strategic Plan for Immunization (2014–2020)

The aim of the RSPI is to achieve universal immunization coverage within the WHO African Region. The plan's objectives are to:

1. Increase and sustain high vaccination coverage.
2. Complete the interruption of poliovirus transmission and ensure virus containment.
3. Eliminate measles and advocate for the elimination of rubella and congenital rubella syndrome.
4. Attain and maintain elimination/control of other vaccine-preventable diseases.

The targets are:

#### Objective 1: Increase and sustain high vaccination coverage

- (a) Reach DTP3-containing vaccine coverage of at least 90% region-wide by the end of 2020.
- (b) All countries to have introduced pneumococcal conjugate virus (PCV) by the end of 2020.
- (c) At least 37 countries to have introduced rotavirus vaccine by the end of 2020.
- (d) At least 35 countries to have introduced human papilloma virus (HPV) by the end of 2020.
- (e) At least 25 countries to have introduced a birth dose of HepB by the end of 2020.

**Objective 2: Complete the interruption of poliovirus transmission and ensure virus containment**

- (a) All countries to have interrupted wild polio virus (WPV) transmission by the end of 2014.
- (b) All countries using oral polio vaccine (OPV) to have introduced at least one dose of inactivated polio vaccine by the end of 2015.
- (c) All polioviruses are laboratory-contained and the region certified polio-free by the end of 2018.
- (d) A regional polio legacy plan is finalized by the end of 2015.

**Objective 3: Eliminate measles and advocate for the elimination of rubella and congenital rubella syndrome**

- (a) All countries to have achieved an incidence of less than one confirmed measles case per million population by 2020.
- (b) Attain measles-containing vaccine first dose (MCV1) coverage  $\geq 95\%$  at national and district levels and at least 95% supplementary immunization activities (SIAs) coverage in all districts.
- (c) At least 25 countries have introduced rubella-containing vaccine by the end of 2020.

**Objective 4: Attain and maintain elimination/control of other vaccine-preventable diseases**

- (a) All countries to have attained and validated the elimination of maternal and neonatal tetanus by the end of 2020.
- (b) All high-risk countries to have attained yellow fever immunization coverage  $\geq 90\%$  by the end of 2020.
- (c) All countries within the meningitis belt to have introduced MenAfriVac through campaigns, and 15 of them to have introduced it into routine immunization by the end of 2020.
- (d) Seroprevalence of hepatitis B surface antigen (HbsAg) among children below five years of age is  $< 2\%$  by the end of 2020.

The guiding principles are:

- **Country ownership** to identify and implement national immunization priorities and provide access to quality immunization for all;
- Partnership and mutual accountability among individuals, communities, stakeholders and governments;
- **Access to universal health coverage (UHC)** for improved health outcomes among all groups especially underserved and marginalized populations, during humanitarian emergencies, to enhance the

contribution of immunization in reducing morbidity, disability and mortality from vaccine-preventable diseases;

- **Integration** of global disease eradication and elimination initiatives within the broader health system in close coordination with primary health-care (PHC) approaches. Surveillance of vaccine-preventable diseases linked to integrated disease surveillance and response (IDSR) as well as the use of other child health opportunities should be maximized for achieving immunization objectives;
- **Sustainability** through appropriate levels of financing, financial management and oversight based on evidence-based decisions and implementation of strategies; and
- **Innovation** and quality improvements across all aspects of immunization.

**2.3.3 Key approaches to implement strategies**

**Implementation of the Reaching Every District/Community (RED/REC) approach** and other locally tailored approaches will be promoted to maximize the accessibility and utilization of immunization services. This will ensure greater involvement of individuals and communities in moving from supply-driven to demand-driven immunization services.

**Extending the benefits of new vaccines to all.**

Countries will be supported to introduce new vaccines and to intensify advocacy for reduction in their prices particularly for middle-income countries. Efforts should be made to improve vaccine procurement, supply and management systems while ensuring accessibility and affordability to the population in order to achieve universal coverage. Advocacy for developing local capacity for vaccine manufacture within the African Region should continue.

**Sustainable immunization financing** will be pursued and domestic resources provided. Efforts to establish national budget lines and allocate and disburse funds for immunization will be supported. The need for additional resources to reach “the fifth child” and to increase immunization coverage to at least 90% should be strongly emphasized.

**Integrating immunization into national health policy and plans**, with immunization interventions quantified, costed and incorporated into the various components of national health systems strengthening. Integration of additional child survival interventions with immunization should be pursued to leverage the potential for prevention of pneumonia and diarrhoea.



Immunization will also be included as a priority intervention during humanitarian emergencies to save lives and reduce morbidity, disability and mortality due to vaccine-preventable diseases.

**Enhancing partnerships for immunization.** Partnerships for immunization will be expanded at country level while relying on existing regional initiatives such as Harmonization for Health in Africa (HHA). Continued use of the interagency coordination committee (ICC) platform and other national and subnational coordinating mechanisms will be strengthened to enhance local partnerships and forge new ones.

**Improve monitoring and data quality.** The quality of immunization and surveillance data will be regularly monitored and their use at country level promoted. Information generated from monitoring systems and surveys will be used for advocacy and for programme and service improvement. Sensitive and high-quality surveillance, including laboratory confirmation, linked to the IDSR platform, should be used to monitor the epidemiological trend of vaccine-preventable diseases and guide implementation of immunization strategies.

**Improving human and institutional capacities.** Individual and institutional capacity to adequately plan, implement and monitor immunization programmes should be strengthened through training. The capacity

to plan and manage immunization services at district and operational levels should be prioritized with a view to improving and sustaining high vaccination coverage rates.

**Improving vaccine safety and regulation.** Vaccine safety monitoring systems should be enhanced by strengthening the capacity of national regulatory authorities through the implementation of institutional development plans. The promotion of safe injection policies and practices and improved surveillance of adverse events following immunization (AEFI) should be assured. Member States' capacity to authorize and monitor vaccine clinical trials as well as compile evidence for better decision-making on new vaccine introduction should be enhanced.

**Promoting implementation research and innovation.** Guidance and capacity for implementation research should be strengthened. Social and anthropological studies should be emphasized for better understanding of the reasons for non-immunization of some populations and low performance of immunization programmes. Member States should be supported to implement the Algiers Declaration and the Bamako Call to Action on research for health in the African Region in order to refine strategies for improved immunization service delivery.

### Exercise 2

Divide participants into four groups.

Task 1: Each group should review one of the four strategic objectives of the RSPI and list ongoing relevant activities in their countries aimed at meeting the objective.

Task 2: After activities have been discussed, classify them according to the five immunization operations and their supportive components.

## 2.4 What is EPI operations management?

### Exercise 3

Task 1: Define the concept of management.

Task 2: List the main operations management components within immunization services.

Task 3: List management activities related to communication component of EPI.

Management is a science and an art consisting of a set of concepts, skills and tools for organizing an enterprise (institution, programme); improving its operations by rationally distributing and utilizing resources to attain the assigned goals and objectives. In the context of the EPI programme, operations management, if properly applied, will enhance the functionality of the programme and optimize its achievements. Below is a list of the various management functions and activities related to the logistics and vaccine supply components of EPI.

- selection of supplies
- ordering of supplies
- storage and inventory of supplies
- distribution
- monitoring of vaccine usage
- inventory of cold chain equipment
- maintenance and repairing
- replacement of old equipment
- transportation
- waste management, etc.

To implement other components of the immunization programme, e.g. for communications or disease surveillance, you may need other types of management activities.

## 2.5 RED/REC strategy: Still a challenge for operations management?

In 2002, WHO and its partners developed the RED approach to increasing and sustaining high levels of routine immunization. Since then, most African countries have introduced the approach in some form aiming to improve the organization of immunization services, maximize the use of available resources and guarantee sustainable and equitable immunization coverage for every eligible woman and child.

Based on the findings of a comprehensive evaluation of the implementation of the RED approach, the WHO Regional Office for Africa and its partners updated the RED guidelines in 2008 to further scale up the RED approach to contribute to the achievements of MDG 4 and targets of the Gavi and RSPI. The revised RED guidelines maintain the original five components but have been rearranged to start with the “Planning and management of resources” component while “Re-establishing outreach vaccination” was changed to “Reaching target populations” to reflect the need to reach all eligible populations with immunization services using a combination of approaches. The components have proved highly relevant to guide current RED operations.

1. **Planning and management of resources:** Better management of human and financial resources.
2. **Reaching target populations:** Improving access to immunization services by all.
3. **Linking services with communities:** Partnering with communities to promote and deliver services.
4. **Supportive supervision:** Regular on-site teaching, feedback and follow-up with health staff.
5. **Monitoring for action:** Using tools and providing feedback for continuous self-assessment and improvement.

Building national capacity to reach every district is therefore an essential foundation and key operational strategy for implementation of the global and regional strategic plans.

A full account of the management activities for the implementation of the RED strategy is given in Annex 1 of this module.

As immunization services are currently delivered as part of integrated mother and child health (MCH) interventions at district and health facility level in almost all African countries, the RED operational strategies have to be implemented in an integrated and equitable manner using immunization as a platform for priority interventions that may include vaccination, the provision of insecticide-treated bed nets (ITN), malaria treatment kits, vitamin A, deworming, etc., accompanied by health and nutritional advice and health education materials.





## 3. Problem-solving process for immunization services management

### 3.1 What is the need, problem, cause, effect and solution?

The problem-solving processes presented in this module will focus on problem identification, i.e. how to determine the problems and their causes. The EPI manager must be able to distinguish between the concept of “need” and of “problem”. A **need** is expressed in terms of a discrepancy or gap between the present situation (which is being experienced for the moment) and the desired or ideal situation. A **problem** relates to a conflict situation either in the fulfilment of a need (most often) or in the expression of current and desired situations.

#### 3.1.1 SWOT analysis

The SWOT (acronym for strengths, weaknesses, opportunities and threats) analysis framework (see Figure 3.1) is commonly used to analyse and present various factors which may facilitate programme implementation (acting positively and presenting the strengths of the programme) or may constitute a stumbling block for its implementation (negative impacts causing weaknesses

within the programme). The strengths and weaknesses thus characterize internal EPI environments. For example, if the government has an EPI budget line with sufficient funds to buy vaccines and consumables – this is a strength of the programme. If the EPI unit at the ministry does not have sufficient staff or it suffers from high staff turnover, this is a weakness. On the other hand, the framework prompts managers to be aware of opportunities or threats that can be identified during desk reviews of available reports and documentations or during discussions with stakeholders and partners. These are related to the external environment within which the programme operates.

If Gavi plans to open a window for funding new vaccine introduction it is an opportunity which is available externally. The increased cost of vaccines from a manufacturer constitutes a real threat to programme implementation.

The EPI manager has therefore to be familiar with SWOT analysis as one of many tools for problem-solving and use it for informed decision-making.

#### Exercise 4

Work in groups.

Task 1: Define the following concepts: **need, problem, cause, effect** and **solution**. (Probe to distinguish between a need and a problem and between a solution and an alternative.)

Task 2: Look at the following situations and answer the subsequent questions:

- Public health workers complain that training opportunities are limited and are offered inequitably.
- To obtain Gavi support, I have to prepare my five-year strategic plan.
- The local newspaper has appeared with the headline “Immunizations give abscesses”.

Answer the following question with regard to each of the above situations:

- Is this a problem or a need?
- List the underlying problem situations in each case.

Task 3: You are phoning an EPI district manager and no one answers. List all possible reasons why your phone call is not answered.

Task 4: Read the case study on the Republic of Fredonia (Annex 4) and answer the following questions:

- What are the problems?
- What are the main causes?
- What are the consequences?
- What solutions do you propose?

**Figure 3.1 SWOT analysis framework**

Environment Impact	Internal	External
Positive	Strength – <b>build</b>	Opportunity – <b>utilize</b>
Negative	Weakness – <b>correct</b>	Threat – <b>avoid</b>

SWOT analysis is a tool that can assist EPI managers to identify problems and to help them recognize strengths and opportunities characterizing their

programmes. The case study that follows is an example of SWOT analysis applied to EPI.

### Case study: SWOT analysis applied to EPI

During the planning period for developing the EPI five-year comprehensive multi-year plan (cMYP), a working group undertook a SWOT analysis with the aim of establishing perceptions of the current reality and the potential for implementation of the strategic plan to succeed.

#### Strengths

- Ministry of health (MOH) has vision, mission and some policies in place.
- Progress made in the implementation of a PHC strategy.
- Adequate access to immunization services.
- MOH has well-developed plan for human resource development.
- MOH has a budget that includes immunization.
- Availability of trained manpower at headquarters level.
- Leadership enthusiastic for change.

#### Weaknesses

- Lack of communication, coordination and team work.
- Lack of implementation capacity.
- Poor monitoring and supervision of EPI, especially at district level.
- Poor utilization of current EPI policies and procedures (e.g. multi-dose vial policy not yet introduced).
- Poor staffing at peripheral level due to high turnover or attrition.

#### Opportunities

- Implementation of decentralization policy has started.
- Good working conditions of service, support from employers.
- Private sector consultative process commenced.
- Government started to address the high-level attrition rate of health personnel.
- Country is looking forward to next year's round table in Paris where the immunization programme will be presented as a priority issue.

#### Threats

- High incidence of HIV/AIDS depletes both health manpower and financial resources.
- National immunization day (NID) may distract the attention of health personnel from routine immunizations.
- Sharp reduction in donor support to health sector as the government did not accept International Monetary Fund's conditions for financial assistance.

### 3.1.2 Problems and their causes

There are several types of problems:

**Simple problems:** This type of problem can be solved by rational thinking, collecting the facts and putting them together in a logical framework and coming up with a solution. These are the most common type of problems that happen in the day-to-day operations of a programme.

**Example:** You have sent your monthly summary reports on diseases and immunizations to the central level but they did not reach the MOH. The EPI manager is calling you on the phone requesting urgent submission of the reports within the deadlines.

Facts around the problem:

- You have prepared the reports and have a copy in your report file.
- There was a breakdown at post office level during the first two weeks of the month.
- You sent the reports by hand through one of your relatives who was supposed to travel to the capital city.
- Your son received a call from the same relative that her daughter was sick and was hospitalized.
- You have phone and email contact with the MOH central level focal person.

There are five essential facts related to this problem to help you to “diagnose” its cause. You can put them together, analyse and find links among them to understand how the problem occurred. This will help you in finding a solution.

**Complex problems:** These are multiple-factor problems requiring different levels of thinking, analysis and networking together in a team with a common understanding of the environment surrounding the problem.

**Example:** Poor job satisfaction.

Facts around the problem:

- Lack of basic equipment and consumables at workplace.
- Lack of individual protection items (e.g. gloves) for health staff.
- Lack of transport to undertake outreach services.
- Low salaries (and a high inflation rate).
- Lack of rural/housing allowances for health personnel.
- Staff stagnation (no promotion for several years).

You can see that some of the above issues have their roots outside the health sector. You will need a lot of networking and creative thinking to come up with a solution!

**Complicated problems:** These are problems that are created by different opposing groups with a similar objective.

**Example:** High prevalence of HIV among high-risk groups – highway drivers, drug addicts, commercial sex workers, etc.

- Position of health staff towards the problem – use condoms when having high-risk or casual sex.
- Position of some church leaders – do not use condoms, avoid casual or pre-marital sex.

The two opposing messages above create confusion about condom use, resulting in a decrease in use and potential increase of HIV prevalence among the target population. To arrive at a solution, you need time, discussions, tolerance, persistence and flexibility from both groups aiming at the same outcome, i.e. reduction of HIV prevalence among the population.

**Meta-problems:** These are inherently “locked for a solution” problems: whatever interventions you try, you are unlikely to achieve the desired results or even to make things worse.

**Example:** Poor implementation of the immunization policy and programme in a country with multiple gaps in subnational health infrastructure and calls for the creation of a strong EPI unit within the MOH.

The MOH perception is that it is implementing an integration of services strategy and is not keen to create an EPI unit at central level (which could monitor implementation of the policy). There is a strong belief that the MCH department, responsible for immunization programmes, will do the job in an integrated manner.

In order to find a solution to a meta-problem such as above, one should:

- Learn and understand as much as possible about the context of the problem.
- Identify and build trust with a few key people and wait for something to change to alter the perceptions of decision-makers or the community.
- Wait for an appropriate moment for action.



Each problem is always induced by one or several causes.

**Causes are the specific factors that bring about problems.**

To identify the potential causes of a problem, you must be systematic in dealing with it. An example of this systematic approach is given in Annex 2, which considers an AEFI investigation process.

Various techniques and tools are used to identify the causes of a problem. The most frequent and effective tool for getting to the root of a problem is the “but why” technique, which consists of analysing problems by systematically trying to answer the question “but why?”

Alternatively, you can use the 5 Whys technique. When a problem arises, simply keep asking the question “why” until you reach the underlying source of the problem, and until a robust counter-measure becomes apparent. This technique is used in troubleshooting, quality improvement and problem-solving, but works best for simple to moderately difficult problems. For more complex or critical problems, it can lead to pursuing a single line of enquiry when there could be multiple causes.

Example: Vaccine wastage rates have increased due to a failure to transport vaccine to subnational levels.

But why? What, specifically, was the problem?

Is the problem of transport? But why?

- A resource problem: Are there too few vehicles?
- A planning problem: The delivery system; is it inefficient causing unnecessary delays?
- A management problem? Maybe, as the transportation services have been turned over to a subcontractor, who is not aware of the technical guidelines for vaccine transport.
- A servicing problem? Maybe, as vehicles are not taken in for servicing because there are no extra vehicles for replacement.
- A missed opportunity? Is there a partner in another public or private sector that could provide needed transport?

### 3.1.3 Effects

Problems and their causes bring about effects. Managers should always make an analysis of the problem to understand its main cause(s) and the effect(s) it has on services and/or the target population.

**Effects are the consequences (symptoms) of problems and their causes.**

For example:

- Drop in immunization coverage = Problem
- Vaccine stock-out = Cause
- Increase in disease occurrence = Effect

The cause and effect analysis can be presented as a diagram as shown in Annex 3.

### 3.1.4 Solutions

**A solution is an answer to a gap or conflict.**

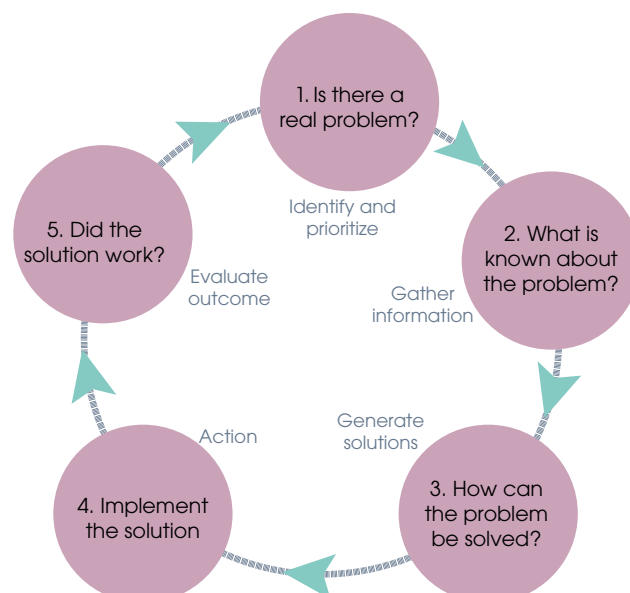
Typically, there are many possible solutions to a problem. Sometimes, however, a solution is out of reach. In such situations, it is important to focus on solvable problem causes and applicable alternatives. An **alternative** is an optional solution: you have to choose one way or another.

EPI managers must draw the distinction between real problems and false problems, between problems that affect the performance of the immunization services and activities and those that do not. Problems that managers should focus on belong to one of the following categories:

- impossibility of attaining the objectives or targets defined;
- impossibility of fulfilling the criteria (e.g. quality criteria);
- accidents or programme errors; and
- inability to face unexpected situations, (e.g. refusal of immunization due to cultural or religious beliefs).

The problem-solving approach is a generic process comprising five steps (see Figure 3.2).

**Figure 3.2 The problem-solving cycle: Five key steps**



## Exercise 5

Before starting Exercise 5, the group should discuss suggested solutions to the problems described in section 3.1.2.

Divide the participants into four working groups. Each group should select one problem from the list below. Then highlight and interpret the steps needed to solve the problem. As national EPI manager, with your team, conduct extensive research to determine the causes of the problem and propose how to implement possible solutions.

1. An article has appeared in the local newspaper with the headline, “Immunizations give abscesses”. The MOH has instructed you, as national EPI manager, to form a multidisciplinary team to identify the facts behind this article. Your team is responsible for all aspects of the investigation and must propose all possible solutions and methods of implementing them.
2. The MOH has directed that waste disposal systems be upgraded to comply with Fredonia’s policy on clinical waste management. With other EPI team members, make a plan to ensure safe and effective waste disposal.
3. The EPI manager has realized that health workers disregard the vaccine vial monitors (VVM) attached to OPV. They are not used to check the potency of the vaccine and, therefore, vaccines that are still active are thrown away. This results in unnecessarily high vaccine wastage.
4. The EPI manager receives a resignation letter from the national cold chain officer who wants to move to the private sector. There is no replacement immediately available.

**Table 3.1 Overview of the five key steps of the problem-solving cycle**

Table 3.1 provides additional information to help the EPI manager identify and analyse the problem and find solutions.

Key steps	Explanations/questions to answer
1. Is there a real problem?	How are we doing in relation to the objectives we want to achieve?
2. What is known about the problem?	What essential information is needed to determine the primary causes of the problem? Where is it happening? When is it happening? Who is affected? Who can supply reliable information and can I involve them in the analysis?
3. How can the problem be solved?	Am I sure this problem is my responsibility? Or is it a shared problem? Who is my partner in this issue? What precisely do we need to resolve the problem? How many different ways are there to solve the problem in order to achieve the objectives? (Brainstorm as many solutions as possible. Be part of the solution!) What are the advantages and disadvantages of each identified alternative? What are the comparative costs of these alternatives? What is the best option for solving the problem? How should the best option be implemented and the solution be achieved? Think of major activities to be conducted, when, where and by whom and include them in your weekly/monthly/annual plan of work.
4. Implement the solution	How should we routinely supervise and monitor the implementation of the proposed activities in the plan? Identify resources for the best solution. Provide necessary staff and train them on the tasks involved. Provide necessary supplies. Conduct supportive supervision.
5. Did the solution work?	How well do the planned activities solve the problem and achieve the desired level of performance? Conduct interviews. Collect data and review reports. Conduct observations. Conduct operational research/surveys. Conduct an evaluation. What should be done next?

### 3.2 How to solve problems that affect EPI performance?

EPI managers must draw a distinction between misunderstandings and problems that affect the performance of the programme. If performance is not satisfactory, then there is a problem, such as:

- Specific objectives are not attained.
- Specific criteria are not met.
- Accidents occur or programme errors are committed.
- Health workers are incapable of managing unexpected changes or situations.

One or several of the following factors are often the cause of performance problems at various levels of the health system:

1. Staff members do not know what is expected of them.
2. Staff members do not know how to carry out what is expected of them.
3. Staff members do not have supplies, equipment, etc. needed to carry out the work.
4. Staff members do not have the support of the EPI team, supervisors or work colleagues.

To find out possible cause(s) that are contributing to a particular problem, the EPI manager must conduct research in the following ways:

- 1. To find out if it is a problem related to policy, verify the following:**
  - Has a policy or have criteria been developed on the subject?
  - Have guidelines been disseminated?
  - Are the health workers in charge of the implementation of the policy aware of the guidelines? Have they been trained on policy guidelines? Do they understand them?

- 2. To determine if it is a problem related to technical skills, verify the following:**
  - Have the health workers received appropriate training relating to the activities they must carry out?
  - Have competent persons observed them at work? Do they carry out the activities correctly, in line with established standards and guidelines?
  - Are their reports on the problem technically sound and accurate?
- 3. To know if it is a problem related to supplies and equipment, verify the following:**
  - Are adequate equipment and supplies available where they are needed?
  - Do health workers know how to use, store, maintain, repair equipment and place orders for their requirements?
- 4. To know whether it is a problem related to provision of support by supervisors, verify the following:**
  - Has the programme publicly or through internal communication highlighted the importance of the activity?
  - Do the supervisors know that a policy has been developed and that they are in charge of supervising its implementation? Do they know what the health workers need to implement such a policy?
  - Did the supervisor inform health workers about this policy and their role in its implementation?

Review the cause-effect diagram in Annex 3. It can also help the programme manager to diagnose and locate possible causes and eliminate them. Based on the text that you have just reviewed, you can now add even more possible causes of decreasing immunization coverage listed in the diagram.

#### Exercise 6

Identify possible causes of the decline in immunization coverage in District A among those listed below. Number the possible causes (1, 2, 3, etc.) according to their importance. Be ready to justify your analysis in a group discussion.

EPI coverage in the district dropped because:	Priority
• The district administrator insisted that Mrs R (his cousin) should be recruited to replace the nurse transferred to another district.	---
• The lack of a clear plan of action (micro-plan) for the EPI.	---
• Reduced outreach activities in the current year.	---
• Changes in the denominator after the last census.	---
• The EPI manager/focal person went on leave for two months.	---
• Absence of supervision during the last year.	---
• High drop-out rates.	---
• Lack of transport.	---





## 4. Issues and problems of immunization programmes and services in Africa

### 4.1 Immunization operations: Problems and issues

#### 4.1.1 Problems related to immunization service delivery

Although safe and effective vaccines against pneumococcal, hepatitis B and *Haemophilus influenzae* type b infections have been available for many years, their use has been limited mostly to developed countries. Similarly, yellow fever vaccine has been available for many decades, but it is under-utilized in countries where it is most needed (e.g. African countries in the yellow fever high-risk zone).

More recently, vaccines against rotavirus, HPV and meningococcal A epidemics have also been made available in the market. However, many barriers in poor countries impede the introduction of these vaccines. Some of these barriers are:

- insufficient data on disease burden and impact;
- inadequate financial resources to purchase and sustain the new vaccines which are more expensive than those in current use;
- lack of information on cost effectiveness;
- inadequate technical ability to introduce the new vaccines and monitor AEFI; and
- limited cold chain capacity and lack of vaccine management practices for new vaccine introduction.

#### 4.1.2 Problems related to disease surveillance

During the last ten years, many changes have occurred in Africa's health, social, economic, environmental and technical environment. The changes are not only in the disease landscape but also are seen in a broader context with events such as:

- increased migration to cities with subsequent increases in traffic injuries, rates of noncommunicable diseases, and health conditions related to crowded housing and poor sanitation;
- wider access to technologies such as cellular phones and internet;

- impact of climate change on shifting disease patterns with unknown consequences;
- increased recognition of the need for better coordination between human and animal health surveillance;
- increased interest from donor and technical partners to support surveillance and disease reduction strategies; and
- heightened awareness of the global interdependence and importance of national core capacities for surveillance and response demonstrated by adoption of the International Health Regulations (2005).

The assessment conducted in 2009 to determine progress with implementing the IDSR strategy highlighted critical gaps in district level implementation of this initiative, including the lack of dedicated surveillance staff, absence of epidemic management committees or rapid response teams, gaps in logistics and communication capacities and inconsistencies in the use of IDSR core indicators in monitoring and evaluating performance at all levels.

#### 4.1.3 Problems related to logistics, vaccine supply and quality

According to evaluations of immunization programmes carried out in several African countries, the main operational problems in vaccine management were related to poor forecasting, storage, stock control and distribution. These problems are the main cause of the high rates of vaccine wastage and account for the decline in vaccine coverage in many countries. Analysis of the facts on the ground points to three main causes of the problems inherent to vaccines management:

- fragmented approach to logistics support and the lack of links between the various components;
- lack of logisticians with adequate training and experience; and
- lack of coordination between the various logistics officers.

#### 4.1.4 Problems related to advocacy and communication

Communication is one of the key components of the immunization programme. It plays an important role in addressing GVAP goals, as well as in operationalizing RSPI strategies and promoting the RED approach. The most frequent problems in implementing this component, based on numerous programme reviews and community-based studies, include:

- absence of a strategic communications framework or plan to guide national programmes;
- weak partnerships between communities and health workers;
- lack of training of health personnel in interpersonal communication skills; and
- inadequate use of mass and traditional media, available networks and religious groups to build people’s trust in immunization.

#### 4.2 Immunization support components: Problems

The monitoring of coverage, disease incidence, etc. is central to immunization programme management. The lack of robust data, as well as poor quality data and poor data analysis are system-wide barriers to achieving immunization programme targets.

Monitoring requires efforts to build human capacity for field surveillance and for the collection, compilation, analysis, interpretation and use of data. Vaccine coverage and other monitoring systems can be improved through data quality self-assessment, and

by establishing better systems to compile and analyse data, and regular feedback to district and local levels.

Many ministries of health, service providers and researchers have identified characteristics that lead to poor performance in African health systems. These characteristics include:

- insufficient funding;
- inefficient use of available resources;
- inadequate allocation of health resources to cost-effective health services;
- lack of incentives for health workers to provide quality care;
- inadequate regulation or inappropriate barriers to private provision of health care;
- inequitable distribution of resources between urban and rural areas and between poor and better off populations due to lack of resources or poor management practices; and
- high household health expenditures even in “free” health-care systems.

In recent years, the issues involved in vaccine and immunization financing have broadened, due to:

- evolving world market for vaccines, including increasing divergence in vaccination schedules between developed and developing countries;
- increasing diversity of products and options available to countries;
- emergence of developing country manufacturers; and
- importance of new global initiatives such as Gavi, the DoV etc.





## 5. Problem-solving techniques

**Table 5.1 Common models of problem-solving**

In health management, the problem-solving approach is a comprehensive methodology using various techniques or models.

Technique/model	Description	Usefulness
<b>1. Model based on habit</b>	<p>For health management purposes this model is classified into two major groups: problem-solving that maintains the status quo (current situation) and problem-solving that changes the status quo.</p> <p>The problems encountered in maintaining the status quo are frequently resolved by using an unvarying problem-solving approach.</p>	<p>This problem-solving approach is commonly recommended within the EPI, for example: Problem: Lack of auto-disposable (AD) syringes especially in outreach or mobile sessions.</p> <p>Solution: Make urgent arrangement to purchase or borrow from nearest health facility or district.</p>
<b>2. Epidemiological model</b>	<p>The epidemiological model commonly used in public health is the causal model. It is widely employed for case or outbreak investigations, analysing disease trends and distribution in the population (age, sex, regional or district distribution of cases), attack rates, vaccination status of patients, effectiveness of disease control measures, etc. For instance, if there is a disease problem, one looks successively at the following:</p> <ul style="list-style-type: none"> <li>• problem = disease (e.g. measles)</li> <li>• primary cause(s) = pathogenic agent (measles virus)</li> <li>• secondary causes = favouring factors (overcrowding, nosocomial infection)</li> <li>• determining factor = cause of origin of the problem (frequently related to human behaviour, such as refusal of immunization).</li> </ul>	<p>This model is useful for outbreak investigation and to decide on strategies to reduce disease burden. It may also be used for behaviour analysis to find out the reasons or causes of certain behaviours, which may support or constrain programmes (e.g. refusal of immunization).</p>
<b>3. Model based on decisions</b>	<p>This model consists of successive steps:</p> <ul style="list-style-type: none"> <li>• define the problem</li> <li>• explore all various possible solutions</li> <li>• assess the expected results for each solution</li> <li>• choose the best solution</li> <li>• implement the approved decision.</li> </ul>	<p>It is used to determine the level of achievement of health education objectives related to reduction of disease within a programme or a project.</p>
<b>4. Quantitative model</b>	<p>This model uses various mathematical techniques and statistics to draw conclusions.</p>	<p>This module is useful for developing an EPI plan. It is also useful in emergencies (crisis management) when urgent decisions should be made (e.g. when there is a sudden influx of refugees; having a large unvaccinated population in target groups).</p>
<b>5. Qualitative model</b>	<p>It consists of the following nine interrelated steps:</p> <ul style="list-style-type: none"> <li>• define the problem</li> <li>• analyse the key problem elements</li> <li>• check the possible solutions</li> <li>• determine the choice criteria</li> <li>• compare solutions with criteria</li> <li>• select the best solution</li> <li>• implement the best solution</li> <li>• evaluate the results</li> <li>• standardize the solution for future use.</li> </ul>	<p>This model is frequently used in EPI research. In combination with the epidemiological model, the attack rate of the target diseases or the effectiveness of the immunization programme can be calculated.</p>
<b>6. Creative model</b> (see section 5.1 for more details)	<p>This model uses a number of steps starting with a clear definition of the problem. Sometimes it may take longer to reach a decision than with the other methods (for example, compared with the model based on habits).</p>	<p>This model is derived from the total quality management (TQM) concept. Its use is recommended to ensure the quality of introduction of new technologies, for example for the assessment of injection safety. Often it is combined with the quantitative model to give more value to decision-making. The creative model of problem-solving is very effective for solving problems that need a systematic approach.</p>

## Exercise 7

Divide the participants into working groups to address the following problem.

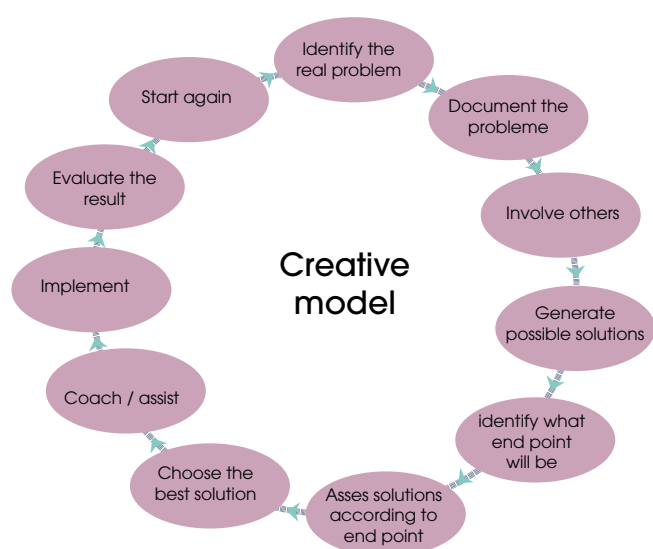
You are looking at issues concerning the level of preparedness of a bordering district in Fredonia to run subnational immunization days (SNIDs) during the next two months. Will the district be ready to meet the coverage objectives of the SNIDs?

Group task: Based on a review of the Fredonia health profile in Annex 4, groups should examine the problem through a SWOT analysis and, using one of the models in Table 5.1, assess whether the district can meet the challenge.

## 5.1 Creative model of problem-solving

This model uses 11 steps, starting with a clear definition of the problem, to attain solutions (see Figure 5.2).

**Figure 5.2 Creative model of problem-solving**



### Step 1: Identify the real problem

We often waste many hours trying to solve the symptoms of a problem instead of the problem itself. For example, a vaccine stock-out at the central vaccine store may be a symptom of poor stock management (major problem); or refusal to bring a child for immunization may be a symptom of poor communication activities at community level (major problem). Talk to the people who work in the area, look at the records and check what works in similar situations and locations. Differentiate facts from opinion. Your research can help you in many different ways. To illustrate the problem-identification process, go back to Exercise 4 Task 2 first item on staff complaints about irregularities in offering training opportunities.

### Step 2: Document the problem

Document the problem so that others can see it and understand that actions should be taken to fix it.

- state the problem explicitly;
- specify underlying causes;
- identify what standard is being violated; and
- determine whose problem it is.

When solving one problem do not create another problem.

## Example

In the case presented in Exercise 4, the programme manager must determine whether the presumed lack of training opportunities is a real problem or an assumption and whether it affects performance of the unit.

- If performance is satisfactory – then the presumed lack of training possibilities is not affecting the unit’s performance, and the programme manager should move on to other problems. The manager must also inform health workers that their complaints have been considered, their performance is good, and further explain the process of decision-making regarding training.

- If the performance is not satisfactory – then there is a problem:
  - specific objectives have not been attained;
  - specific criteria have not been met;
  - unexpected events occurred or programmatic errors were committed;
  - health workers are incapable of managing the unexpected changes or situations.

Competent EPI managers must draw a distinction between personal misunderstanding and problems that affect the performance of the unit.



**Step 3: Involve others**

Involve your colleagues in the documentation of the problem; include their views and inputs. You will benefit greatly from their experience and new approaches. They may suggest ideas for solving the problem. Seek the opinion of others outside your organization if the problem touches them or they have some expertise that might help – staff from civil society organizations (CSO), purchasing enterprises, maintenance, warehousing, IT and others who assist you in producing quality results on other occasions etc.

**Step 4: Generate possible solutions**

Brainstorming in a group tends to produce a better product than an individual can. You can of course arrive at possible solutions on your own or use one of the techniques described previously if it works better for you. Work on alternative solutions and prioritize those that are consistent with your goals. Categorize them into short- and long-term alternatives. Focus on those alternatives with high expectations that can solve the problem.

**Step 5: Identify what the end point will be**

For each alternative solution, decide on the process and how it should work. Consider the employees, the supervisors, and others involved. Remember, what gets checked, gets done. It is probably wise to factor in cost and the “political” implications of solutions.

**Step 6: Assess solutions according to the end point**

Make a judgment on the possible solutions or a combination of them; what should the end product be? Can available resources cope with the solution? Compare expected achievements with an optimal standard or goal. Evaluate the main effects and side-effects. State the selected alternative explicitly and the explain benefits of the end product.

**Step 7: Choose the best solution**

Consider the following:

Technical soundness of your preferred solution.

- **Affordability** – can your preferred solution resolve the problem with a cost that you can afford?
- **Acceptability** – proposed solution should respect local conditions.
- **Pick the best solution** after evaluating the possible ways to get the end product you need. Solutions that will achieve the desired end product with least cost should be considered as priority.

**Step 8: Coach/assist**

Make sure that people understand what is being changed and why. This will help them to make better decisions. Make sure that they have the resources they need to do what needs to be done. Look for things being done correctly and reward them with something that they value (e.g. certificates of recognition rather than awards). Look on problems as opportunities to learn for both supervisors and employees (occasionally you run into employees who do not want to do it the way they are supposed to, but they are few). Set realistic goals and deadlines with staff, help them to succeed and reward positive behaviour.

**Step 9: Implement**

Put the concrete solution into practice: replenishment of supplies, changing the terms of reference (TOR) of the staff, preparing the plan of action, execution of supervisory visit, etc. Continue coaching and assisting staff. You can lessen the attention given once the new behaviour is well established, but let people know you check it even if only occasionally. Implement at the proper time in the right sequence. Provide opportunities for feedback. Engender acceptance of those who are affected. Establish an ongoing monitoring system.

**Step 10: Evaluate the result**

Is the solution working? Does it need to be tweaked or trashed?

**Step 11: Start again**

Problem-solving is a cycle. Look ahead and remember that what works today might not be the best solution for tomorrow or next year. After all, this module is called “creative”. So be creative and start over if you face a problem.



**Exercise 8**

Using steps 4 and 7, pursue the examination of each problem in the following table and complete the column “Proposed solutions”. Add in the “Possible causes” column more items as appropriate.

Problems	Possible causes – from the analysis	Proposed solutions
Health workers do not know about the existence of a VVM policy	<ul style="list-style-type: none"> <li>• Existing EPI policy was outdated: it was developed before the introduction of VVM into EPI practice.</li> <li>• No information provided to the field on the policy on VVM use.</li> <li>• Policy was developed but the document never left headquarters.</li> <li>• No supervisory visit was made to health facilities since the introduction of polio vaccine vials with VVM.</li> <li>• Supervisory checklist does not have section on VVM use.</li> <li>• Staff do not have access to information disseminated by electronic mail or fax.</li> <li>• Issue is not raised during regular coordination meetings.</li> <li>• No training for supervisors was organized on the subject.</li> </ul>	
Health workers reuse disposable syringes	<ul style="list-style-type: none"> <li>• Shortage of disposable syringes.</li> <li>• Lack of logistics planning.</li> <li>• Health worker ignorance about the consequences of reusing disposable syringes.</li> <li>• Lack of policies on the use of modern injection equipment.</li> <li>• Difficulties in regular supplies for hard-to-reach immunization sites.</li> </ul>	
High dropout between DTP3 and OPV3	<ul style="list-style-type: none"> <li>• Lack of supervision.</li> <li>• Lack of OPV.</li> <li>• OPV available but expiry date has passed.</li> <li>• VVM spot darker than the outer ring.</li> <li>• Health workers stopped using routine OPV waiting for a NID.</li> <li>• Community refuses OPV for fear of getting AEFI.</li> <li>• Wrong calculations of drop-out rate between DTP3 and OPV3.</li> </ul>	



## 6. District team problem-solving for immunization services management

### 6.1 What is district team problem-solving?

District team problem-solving (DTPS) is a process with a duration of approximately one year. During this period, district teams of health workers are guided through two workshops on:

- conducting analysis of one priority immunization services problem in their district;
- devising and implementing solutions to the identified problem over a one-year period;
- developing the ability to gather and use data;
- developing good team work and performing better as a manager;
- conducting evaluation and presenting the results of the implementation (achievements, constraints, service improvements and health impact); and
- preparing a report for dissemination to other districts.

DTPS consists of a one-week planning workshop during which each team develops a realistic, district-based solution to an identified priority problem and prepares an implementation plan. The team then carries out the implementation over a year and conducts an evaluation of the project. Finally, the team presents the findings at a follow-up workshop. The final report of this initiative is shared with other districts.

Each team may consist of five to seven health workers from the same district or from various districts, but working in the same service area. The district medical (or health) officer and the nursing and diseases surveillance officers should always be included in the team.

DTPS workshops are facilitated by trained EPI managers from central or provincial level.

### 6.2 How does district team problem-solving strengthen management of immunization services?

DTPS is based on a results-oriented approach aimed at strengthening immunization services management. The challenge is to reduce/solve a specific management

problem: poor coordination, inadequate vaccine/cold chain management, lack of stock management skills, high drop-out and vaccine wastage rates, poor quality of immunization services, weak data management practices, poor supervision, etc.

To build problem-solving and implementing capacity, DTPS enables teams to:

- apply an analytical approach to a problem;
- identify principal causes of problems and local solutions within the national EPI policy;
- put into operation the team's implementation plan within a realistic timeframe. This plan should be built on the EPI five-year strategic plan;
- decide on district-specific monitoring and evaluation mechanisms and compare achievements with goals;
- present all the above deliberations clearly and briefly within a coherent action plan (or as a project proposal); and
- learn to listen to and use experience of all team members and facilitators during the one-year DTPS period, thus to function with real team spirit (often for the first time).

### 6.3 Conditions for district team problem-solving success

To ensure a successful DTPS process, the following conditions should be met:

- necessary sponsorship and support is needed from all levels (central, provincial and district);
- districts should be selected based on certain criteria: usually those districts with known managerial problems should be prioritized to be included in the project;
- competent DTPS coordinator and facilitators should be selected;
- team members should be selected from among EPI staff who are motivated and available for at least one year;
- problem identification process should consider burning issues within EPI; and
- proposed solutions should be realistic and match available resources.

### Exercise 8

The five operational components of the RED strategy are:

- planning and management of resources
- reaching target populations
- strengthening links between community and service
- supportive supervision
- monitoring for action.

Conduct a group discussion and plenary and undertake the following:

Task 1: Form five discussion groups. Each group will choose one of the operational components of the RED strategy.

Task 2: Identify expected key problems and obstacles for the implementation of the selected component at district level.

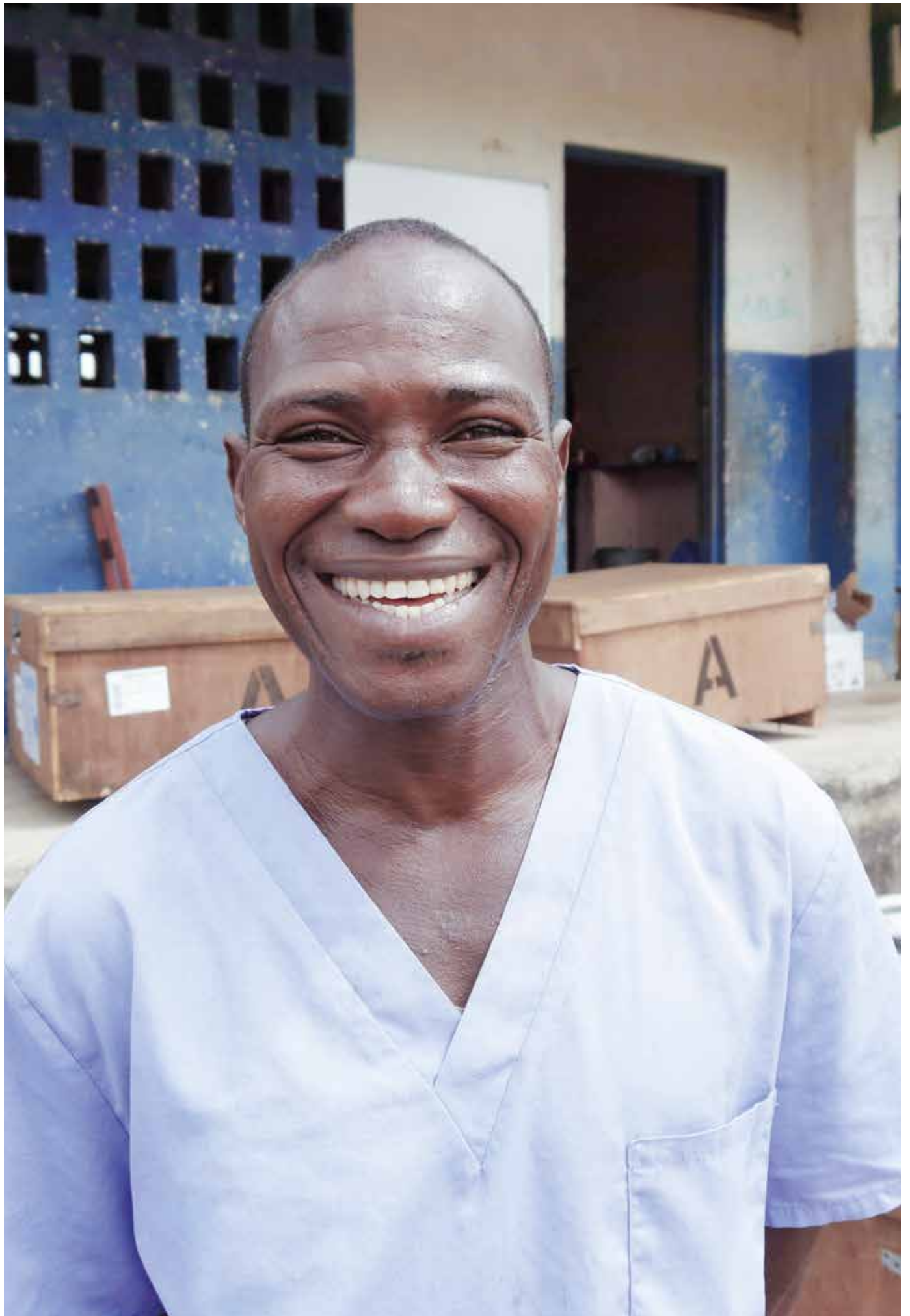
Task 3: Select the most prominent problem that will be eligible for the DTSPS project.

Task 4: Justify your selection when presenting your findings to the plenary. Make your group's presentation under the following headings:

- choosing a RED component
- identifying key problems for implementation
- selecting DTSPS project
- justifying group's selection.







## Recommended reading

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USAID (2003). Immunization essentials: A practical field guide. Office of Health, Infectious Diseases, and Nutrition, Bureau for Global Health. United States Agency for International Development. Available at: [http://pdf.usaid.gov/pdf\\_docs/pnacu960.pdf](http://pdf.usaid.gov/pdf_docs/pnacu960.pdf) (accessed 5 December 2016).

WHO (1993). District team problem solving guidelines for maternal and child health, family planning and other public health services. WHO/MCH/FPP/MEP 93.2. Geneva: World Health Organization. Available at: [http://apps.who.int/iris/bitstream/10665/59105/1/WHO\\_MCH\\_FPP\\_MEP\\_93.2.pdf](http://apps.who.int/iris/bitstream/10665/59105/1/WHO_MCH_FPP_MEP_93.2.pdf) (accessed 5 December 2016).

WHO (2008). Implementing the Reaching Every District approach: A guide for district health management teams. Regional Office for Africa: World Health Organization. Available at: [http://www.who.int/immunization/programmes\\_systems/service\\_delivery/AFRO-RED\\_Aug2008.pdf](http://www.who.int/immunization/programmes_systems/service_delivery/AFRO-RED_Aug2008.pdf) (accessed 5 December 2016).

WHO (2013). Global Vaccine Action Plan 2011–2020. Geneva: World Health Organization. Available at: [http://www.who.int/immunization/global\\_vaccine\\_action\\_plan/GVAP\\_doc\\_2011\\_2020/en/](http://www.who.int/immunization/global_vaccine_action_plan/GVAP_doc_2011_2020/en/) (accessed 5 December 2016).

WHO (2015). Regional Strategic Plan for Immunization 2014–2020. Regional Office for Africa: World Health Organization. Available at: <https://www.who.int/en/ahm/issue/19/reports/regional-strategic-plan-immunization-2014-2020> (accessed 5 December 2016).

### Websites

MindTools – online management and leadership training:  
[http://www.mindtools.com/pages/main/newMN\\_TMC.htm](http://www.mindtools.com/pages/main/newMN_TMC.htm) (accessed 8 December 2016).

WHO – Immunization, Vaccines and Biologicals:  
[http://www.who.int/immunization/programmes\\_systems/interventions/en/](http://www.who.int/immunization/programmes_systems/interventions/en/) (accessed 8 December 2016).

# Annex 1: Activities for planning to reach every district

## 1. Planning and management of resources

At district and facility levels, planning should identify what resources are needed to reach all target populations in a way that can be managed well and thus maintained. Good planning involves: (a) understanding the district/health facility catchment area (situational analysis); (b) prioritizing problems and designing micro-plans that address key gaps; (c) as part of micro-planning, developing a budget that realistically reflects the human, material and financial resources available; and (d) regularly revising, updating and costing micro-plans to address changing needs.

### District level

- Develop comprehensive annual micro-plans.
- Plan all supervisory meetings with health workers and communities.
- Conduct periodic review meetings to review data and assess performance.

### National level

- Use the cMYP as a basis for realistic costing of human and financial resources necessary to undertake the RED/REC strategy at district level.
- Ensure that all elements of the district micro-plans are included in the plan.
- Identify any gaps in funding or human resources.
- Use the national ICC to raise funds.
- Prepare costing of activities to ensure 80% coverage and above in all districts.
- Review human resources to ensure efficiency and links between immunization and other health programmes.

## 2. Reaching the target populations

This is a process to improve access and use of immunization and other health services in a cost-effective manner through a mix of service delivery strategies that meet the needs of target populations.

### District level

- A register tracks target population children.
- A simple hand-drawn map is used to outline villages in the catchment area of each health unit.
- Review session plans for fixed immunization to meet the needs of the community.

- An outreach micro-plan is developed and budgeted using a schedule that is adapted to community convenience.
- Health staff participates in outreach at least every two weeks.
- Appropriate supplies, forms/registers and allowances are assured for every planned outreach trip.
- Appropriate transport is provided for outreach, which could include, for example, a motorcycle for a 6–20-km radius, or a bicycle for less than 5-km radius.
- An influential community focal point is identified and active.
- Outreach is planned and implemented with community participation.
- In negotiation with the community, other interventions are included in outreach (with vitamin A as a minimum).
- Good communication is achieved between service providers and community members.
- Prioritize health facility catchment areas by total number of unimmunized and partially immunized children.
- Develop plans to conduct additional outreach visits or periodic intensification of routine immunization (PIRI) to reduce the number of unimmunized children.
- Immunization advisers are identified to assist with planning and monitoring outreach services.

### Subnational (state, provincial or regional) level

- Prioritize districts by total number of unimmunized and under-immunized children.
- Re-orientation workshops for priority districts to produce district micro-plans using MLM Module 5: *Increasing immunization coverage*.
- Support plans and implementation of accelerated activities to increase coverage and reduce unimmunized and under-immunized children in priority districts.

### National level

- Analyse all districts, including coverage and drop-out rates, unimmunized and under-immunized population, mapping and feedback.
- Guide districts to conduct bottleneck analysis of immunization coverage and develop appropriate strategies.



- Review national policy, strategies, plans and budgets for outreach and PIRI including transport management.
- Systematic monitoring of fixed and outreach immunization sessions at district level through supportive supervision, follow up and feedback.

- Implement regular supportive supervision in priority districts according to plans.

### 3. Supportive supervision

#### District level

Supportive supervision focuses on promoting quality services by periodically assessing and strengthening service providers' skills, attitudes and working conditions. Regular supervision should go beyond checklists and reports. It should build capacity to carry out safe, good quality immunization services at district level. In addition, it should upgrade the skills of health workers by on-site support, training, monitoring and feedback. This should include preparation of district micro-plans and budgets within the district.

- District supervisor visits health units at least once per month to help with planning, budgeting, monitoring, training and problem-solving.
- During a supervision session the supervisor should:
  - stay for at least two to three hours;
  - provide training on specific subjects including safety and waste management;
  - watch health workers conduct immunization sessions to ensure quality and safety;
  - watch health workers train other colleagues;
  - include a technical update; and
  - monitor progress on a standard wall chart.
- Supervisors must be mobile and transport must be planned, provided and budgeted for each supervisory visit.
- When a health worker visits the district level there should be an opportunity to continue training.
- When a health worker visits the district level he/she should travel with appropriate supplies and forms.
- The supervision visit would not necessarily need to be exclusively focused on immunizations, so long as the supervisor gives immunization due attention.

#### Subnational (state, provincial or regional) level

- Organize training of trainers and supervisors in priority technical areas.

#### National level

- Review TORs and duties of supervisors and assess national supervisory plan.
- Redefine TORs of supervisors to improve on-site support and/or training at health facility level.
- Determine training needs of supervisors.
- Identify and secure resources necessary to make regular supervisory visits possible.

### 4. Links between community and health services

#### Health facility level

- Identify a mobilizer to alert the community that the outreach worker has arrived and the outreach session has begun.
- Attend all sessions.
- Mobilize children and mothers.
- Consult on the time and place of an outreach session.
- Inform the community of the next outreach session.

#### District level

- In collaboration with health workers, establish regular meetings with stakeholders to discuss performance, identify local health issues and problems and agree on solutions, e.g. reducing dropout through defaulter tracing.
- Build community networks (communication channels).

#### Subnational (state, provincial or regional) level

- Develop/revise strategies and plans that will result in the systematic identification of community focal points or committees in priority districts.

#### National level

- Identify national focal point for advocacy, communications and social mobilization.
- Review national plans and strategies including orientation of health workers on improving links between community and service.

### 5. Monitoring for action

#### Health facility level

- Determine the target population and catchment area of each health facility in consultation with district level and communicate

- upward to the province and national level.
- Record each dose of vaccine given for all EPI antigens both at fixed posts and during outreach sessions.
- Record vaccine stocks and calculate wastage rates.
- Penta1 is the standard indicator for “access” for the purpose of standardization and simplicity. Other indicators will continue to be used to measure the quality and impact of the service.
- Chart cumulative monthly Penta1 and Penta3 percentage coverage and monitor Penta1-Penta3 dropout.
- Ensure that simple hand-drawn maps are available at each health facility showing villages and populations.
- Ensure the community participates in and is notified about immunization targets.
- Data compiled and discussed at monthly district meetings with the supervisor with a critical review of numerators and denominators.

#### District level

- Monitor completeness and timeliness of immunization coverage and surveillance reports.
- Chart cumulative monthly Penta1 and Penta3 coverage to monitor doses administered and drop-out rates.
- Distinguish between immunization recording and reporting at fixed post and outreach services.
- Calculate the percentage of health units that had no vaccine stock-outs during the month.
- Record vaccine stocks and utilization rates for each health facility.
- Identify problems and find appropriate local solutions.
- Compile information for reporting to province level on a monthly basis.
- Calculate the percentage of health units that have been supplied with adequate (equal or more) numbers of auto-disable (AD) syringes

- for all routine immunizations during the year.
- Plan supplementary immunization activities when necessary.
- Conduct outbreak investigation and response.

#### Subnational (state, provincial or regional) level

- Organize quarterly meetings for district teams and supervisors.
- Analyse district data and provide feedback to districts.

#### National level

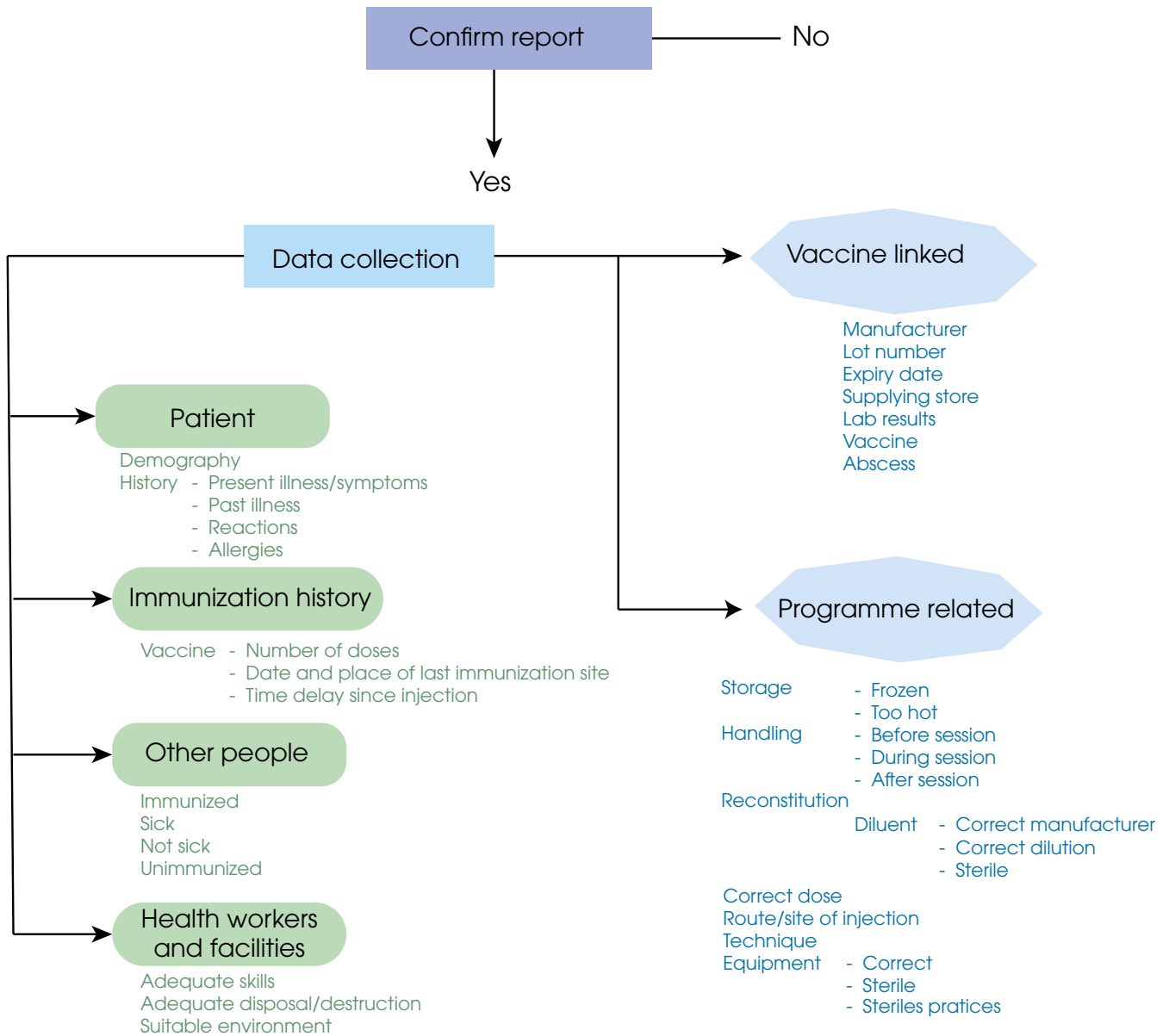
- Strengthen national capacity to produce and maintain district-level indicator database including mapping.
- Review timeliness, completeness and accuracy of district reporting system.
- Compare district, subnational and national numerators and denominators to ensure consistency.
- Develop national consensus on denominators and reporting guidelines.
- Identify priority districts and provinces for strengthening monitoring, evaluation, surveillance and reporting system.
- Follow up the implementation of activities designed to correct subnational and district performance deficiencies.

#### Subregional (intercountry support team – IST) and regional level

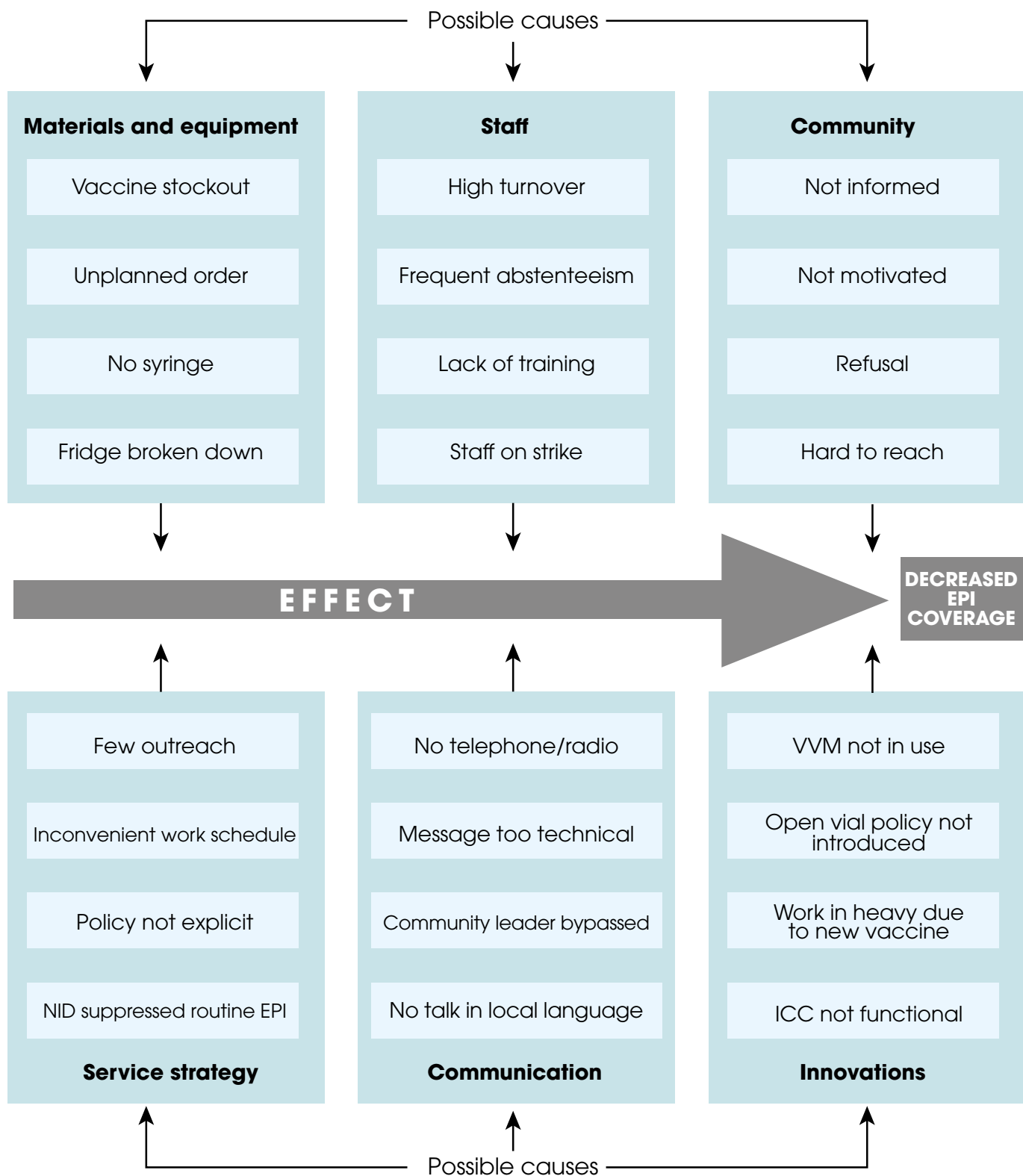
- Review national plans and budgets including cMYP to ensure that activities to increase coverage are included and adequately budgeted for.
- Request all countries to report on progress of the implementation of RED/REC and other strategies to increase coverage
- Provide feedback and technical support where needed to all countries regarding key performance indicators.



# Annex 2: Adverse events following immunization flowchart



# Annex 3: Example of a cause-effect diagram





## Annex 4: Republic of Fredonia: Case study

The following country profile is not intended to be comprehensive. Rather, it provides participants with examples of common situations around which they can centre discussions. Participants may make additional

assumptions about the country as long as they are within reason and consistent with the country profile. In such situations, please maintain a list of such assumptions.

### Country profile

Fredonia represents a moderate-sized country in West Africa. It may share characteristics with some other countries in the developing world. It has broad donor support, but also faces challenges related to dispersed population, very poor infrastructure, struggling health system and conflict in bordering countries. The same individual has led the government for some decades.

National priorities at the current time are:

- HIV/AIDS
- polio eradication
- malaria
- vaccine-preventable diseases.

Priorities for the NIP are:

- raise routine immunization coverage to >80% and maintain the level
- eradicate polio
- control measles
- integration of yellow fever and HepB vaccine into EPI.

A PHC system is in place in much of country. Conflict in bordering countries occasionally spills into Fredonia, interrupting health services. The central government provides minimal support or services in border districts, although NGOs are active in these areas supporting health services. Within the MOH, a committee coordinates MCH activities.

There are 10 provinces with, on average, five districts each. The national government has decentralized management of the PHC system to district level.

Approximately 900 health-care facilities are on record (1 per 10 000 people) that provide immunizations, although only two thirds are believed to operate.

Specialized polio surveillance staff are placed throughout the country.

Birth cohort	Baseline					
Year	2010	2011	2012	2013	2014	2015
Number of births	180 000	183 600	187 272	191 017	194 838	198 735

### Economic and political data

Gross national product per capita (2008)	US\$ 210
Percentage of government budget on health (2008)	10%
External debt (2008)	US\$ 2.5 billion
Official development assistance inflow (2008)	US\$ 338 million

Demographic data		Partner profile	
2010 population	9 million	WHO	CDC
Relative population density	Very low	UNICEF	JICA
Population growth rate	2% per year	World Bank	USAID
Urban:rural population mix	10% urban	BMGF	CIDA
Population under five (2008)	850 000	EU	DFID
2009 infant mortality rate	172 per 1000 live births	Red Cross	MSF

All the bilateral partners are broadly involved in the health sector or, specifically, immunization. WHO and UNICEF have numerous health staff, among which UNICEF has a communications officer. An interagency coordination committee (ICC) exists, however, it is not

fully functional. The ICC is chaired by the national EPI officer. Most of the agencies represented in the ICC send junior officers to attend ICC meetings. The agendas of the meetings do not address the key problems the immunization programme is facing.







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