
Assessing forecasting and supply planning and planning for improvements

**Guidance Manual
on Forecasting and
Supply Planning**

for Vaccines and other
Immunization Supplies

Contents

Assessing forecasting and supply planning and planning for improvements

This guidance manual provides an overview of the steps involved in assessing forecasting and supply planning (FSP) and developing an improvement plan. It also introduces UNICEF's FSP assessment tool. The document is organized into the following sections.

- Acronyms
- Definition of terms
- 1. Overview of forecasting and supply planning assessment and improvement planning**
Introduces why, how and when to assess FSP and the improvement planning process
- 2. Forecasting and supply planning assessment**
Discusses the assessment process, including:
 - Planning
 - Conducting the assessment
 - Developing and disseminating results and recommendation
Introduces UNICEF's FSP assessment tool
- 3. Forecasting and supply planning improvement planning**
Discusses the processes for developing an improvement plan
- Key takeaways
- References
- Annexes



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Acronyms

Acronym	Definition
EPI	Expanded Programme on Immunization
EVMA	Effective vaccine management assessment
FSP	Forecasting and supply planning
FSPAT	Forecasting and supply planning assessment tool
MOH	Ministry of Health
NLWG	National logistics working group
PSM TWG	Procurement and supply management technical working group

Definition of terms

Term	Definition
Assessor	An individual tasked with the responsibility of administering the assessment tool following pre-established protocol.
Data manager/analyst	An individual tasked with the responsibility of reviewing and analysing the data collected during an assessment.
Forecasting	The process used to estimate the quantity of doses of each vaccine that will be consumed or utilized for a specific period of time in the future. This process can be based on observed trends or patterns from adjusted demographic, health services utilization and/or logistics data. The output of this process is the estimated projected consumption.
Quality data	Data that are accurate, timely, consistent, reliable and complete.
Supply planning	The process used to determine when, where and how many doses of each vaccine should be delivered to ensure adequate stock levels are maintained throughout the supply chain based on the forecasted consumption, stock status and inventory policies. The supply planning process estimates the total vaccine requirements.

Overview of forecasting and supply planning assessment and improvement planning

Assessing FSP can help countries identify FSP strengths and weaknesses, including underlying causes for observed performance. This may enable them to leverage existing strengths and strategically direct resources for improvement. The assessment should inform improvement planning and can be used to monitor progress following the implementation of an improvement plan. Programme managers can use various tools – which vary in their comprehensiveness and product specificity – for this purpose.

The assessment scope (for example, central-level-focused versus all supply chain levels) and frequency will depend on factors including the country's context, funding, and timeliness of implementing activities/interventions in the improvement plan. It is recommended that FSP are assessed at least every three years with a fixed timeline such that:

- Critical stakeholders that will facilitate the implementation of recommendations are available
- Other programmatic activities, such as effective vaccine management assessment and supportive supervision, can be leveraged
- Recommendations are ready for inclusion in the programme work plan and budget.

The improvement plan's implementation should be monitored every three months (quarterly).

Forecasting and supply planning assessment

The three key phases of conducting FSP assessment are summarized in the following table. They are discussed in more detail in the following subsections.

#	Phase	Description
1	Plan for assessment.	The planning phase covers all activities that should be completed before data collection. These include but are not limited to: <ul style="list-style-type: none"> – Establishing the purpose and scope of assessment – Securing relevant budgetary approval – Assigning roles and responsibilities – Training assessors, including on the use of the assessment tool.
2	Conduct the assessment.	During this second phase, the chosen assessment tool is administered to collect relevant data.
3	Develop and disseminate results and recommendations.	Involves analysis of the assessment data, following which the resultant findings and recommendations are presented to national stakeholders for discussion and ratification.

Plan for assessment

The steps involved in planning for FSP assessment are discussed in the following table.

#	Activity	Description	Guidance	Responsible
1	Identify FSP planning assessment as a priority.	For FSP assessment to be impactful, stakeholders must identify it as a priority.	<p>In some instances, the assessment can be ad hoc or triggered by findings from other assessments such as the effective vaccine management assessment (EVMA) and supply chain maturity model assessment.</p> <p>Institutionalization of regular assessment is also recommended (for example, adding FSP assessment to the programme's strategic plan).</p>	<p>FSP team</p> <p>Entity responsible for leadership oversight</p> <p>Expanded Programme on Immunization (EPI) team</p>
2	Define the objective of the assessment.	The objective of the assessment should also be clarified. FSP assessment can be conducted to identify FSP strengths and weaknesses, including underlying causes for observed performance.	The team can use the results of the assessment to support funding applications or decisions on funding allocation.	<p>FSP team</p> <p>Entity responsible for leadership oversight</p>
3	Determine the assessment scope.	<p>The scope of the assessment should also be clear, i.e., whether to conduct a central-level-focused assessment or an assessment that covers all supply chain levels or focus on specific aspect of FSP function.</p> <p>The team should also agree on the number of facilities and the data-collection method.</p>	<p>When the assessment includes visits to all levels of the supply chain, the team can use the effective management assessment (EVMA) approach to determine the number of facilities.</p> <p>Finally, countries can choose between a manual and electronic data collection method. The electronic data collection method is advantageous when conducting a full-scale assessment as it eliminates manual entry of collected data and can also facilitate quality checks while data collection is still ongoing. However, electronic data collection may not confer a considerable advantage for the central-level focused assessment.</p>	<p>FSP team</p> <p>Entity responsible for leadership oversight</p>
4	Develop and secure required budgetary approval.	Based on the purpose and scope of the assessment, a budget should be developed and approval secured.	This should include considerations around whether an external consultant will be engaged.	<p>FSP team</p> <p>Entity responsible for leadership oversight</p>

#	Activity	Description	Guidance	Responsible
5	Assign roles and responsibilities.	Key responsibilities should be assigned to all personnel that will be involved in the assessment (see Annex 1 for a sample).	<p>Government should be fully involved in coordinating the assessment to ensure ownership.</p> <p>The competencies of personnel should be considered while assigning these roles.</p>	<p>FSP team</p> <p>Entity responsible for leadership oversight</p>
6	Agree on the assessment tool, including quality control measures.	It is also important to agree on the assessment tool (see the subsection on UNICEF's FSP assessment tool) and establish the quality control measures that will guarantee the quality of collected data.	<p>Some of quality control measures that can be built into tool design when an electronic data collection approach is used include:</p> <ul style="list-style-type: none"> – Ensuring that electronic reports are transmitted with sites' geocoordinates as this can help establish whether the right sites were visited – Developing an operational guide that can be consulted while in the field and providing contacts of individuals who can provide clarification 	<p>FSP team</p> <p>Entity responsible for leadership oversight</p>
7	Identify required background/source documents.	All required background documents should also be identified, especially for the central level assessment (see Annex 2 for potential documents).		<p>FSP team</p> <p>Entity responsible for leadership oversight</p>
8	Develop training materials and train assessors/data collectors.	<p>For a central-level-focused assessment, training may not be required.</p> <p>However, for a comprehensive assessment that involves all levels of the supply chain, training/orientation will be required to introduce data collectors to the assessment tool and the data-collection process.</p>	<p>Potential training materials are available in Annex 3.</p> <p>This training should cover:</p> <ul style="list-style-type: none"> – The purpose of the assessment – Introduction to the assessment tool – The data-collection process – Resources that can be consulted for clarification <p>When an electronic approach is used, participants should be supported to install the relevant applications, and the data-collection process should be simulated during the training.</p> <p>A pilot assessment that involves a site visit can also be built into the training to enable assessors to apply the assessment tool in real programme settings. This will not only boost assessors' confidence but can also prompt the identification and resolution of previously unanticipated issues.</p>	<p>FSP team</p> <p>Entity responsible for leadership oversight</p>

#	Activity	Description	Guidance	Responsible
9	Make other necessary logistics arrangements.	All key stakeholders should be given sufficient notice to ensure they are available and can participate.	<p>For an assessment that involves all supply chain levels, this includes informing relevant administrative units well ahead of time, including sharing the site details and schedule of the visit to ensure that appropriate staff are available. This approach can also facilitate local supervisors' participation in the assessment, enabling prompt resolution of the gaps observed.</p> <p>Assessors should also be informed of the security situation of the locations they are visiting and other cultural issues that should be considered while interacting with respondents and other community members. There should also be an established medium for regular updates.</p>	<p>FSP team</p> <p>Entity responsible for leadership oversight</p>



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Conduct the assessment

During this second phase, the chosen assessment tool is administered, and relevant local authorities are debriefed in instances where a comprehensive assessment (all levels of the supply chain) is conducted.

#	Task	Description	Guidance	Responsible
1	Administer assessment tool.	Involves administering the assessment tool chosen by the country		Assessor
2	Submit responses.	Involves transmitting collected data	This could be daily when an electronic data collection method is used or at the end of the assessment if a manual method is adopted.	Assessor
3	Identify data-quality issues.	Involves identification of data-quality issues that require the attention of the assessor for rectification/clarification		Data manager/analyst
4	Address any data-quality issues.	Involves addressing the data-quality issues raised by the data manager/analyst		Assessor
5	Debrief relevant local authorities.	When a full-scale assessment is conducted, it is important to debrief local authorities on its key findings, including recommendations to address gaps.		Assessor

Steps 2 to 4 primarily apply to an electronic-device-enabled comprehensive assessment that enables daily transmission of data and covers all supply chain levels.

Develop and disseminate results and recommendations

During this step, the assessment responses are analysed, and resultant findings – including recommendations – are presented to stakeholders for discussion and ratification.

The ratified recommendations inform the development of the improvement plan.

#	Task	Description	Guidance	Responsible
1	Enter all collected data.	This step applies when manual data collection is used.		Data manager/ analyst
2	Identify any (outstanding) data-quality issues.	This involves identifying any outstanding data-quality issues (when data quality is assessed daily) or all data-quality issues when a manual data-collection approach is used.		Data manager/ analyst
3	Analyse results and compute relevant indicators.	During this step, the cleaned data are analysed to synthesize key findings and compute relevant indicators.		Data manager/ analyst
4	Interpret results and develop key findings and recommendations.	Working with the rest of the FSP team, results are interpreted and key findings and recommendations are identified for presentation to all relevant stakeholders.		FSP team Entity responsible for leadership oversight
5	Develop presentation to debrief stakeholders.	The presentation for the debrief should cover: <ul style="list-style-type: none"> – The country context, including the overall structure of the supply chain system – The purpose of the assessment An update on the progress of implementation of recommendations from previous assessment(s) – for follow-up assessments only – Key findings from the current assessment, including strengths and weaknesses – Recommendations to address observed gaps 		FSP team Entity responsible for leadership oversight

#	Task	Description	Guidance	Responsible
6	Debrief stakeholders.	During the debrief, key findings and recommendations are presented to stakeholders for their feedback using the presentation developed in step 5.	<p>Depending on the country's context, the following can be the presentation's target audience:</p> <ul style="list-style-type: none"> – The national logistics working group (NLWG) or any other government-led (integrated) procurement and supply management technical working group (PSM TWG) or a designated unit within the Ministry of Health (MOH) – Any relevant working group at the EPI level – Any other stakeholder, organization or coordination platform as determined by the entity responsible for leadership oversight and/or EPI, including programme managers, policymakers and funders 	FSP team Entity responsible for leadership oversight
7	Revise recommendations using feedback from debriefing and develop the final assessment report.	The feedback from the stakeholders should inform the revision of recommendations where applicable, following which the final report should be developed.	<p>FSP team</p> <p>Entity responsible for leadership oversight</p>	

UNICEF'S Forecasting and Supply Planning Assessment Tool

Currently, none of the existing supply chain assessment tools provide comprehensive and immunization-specific coverage of all FSP-related issues. To bridge this gap, UNICEF developed the Forecasting and Supply Planning Assessment Tool (FSPAT), which can be used to assess FSP, from planning to monitoring the implementation of the improvement plan.

The tool evaluates and monitors both capability maturity and performance of the FSP function. These aspects define its ability to produce high-quality and more

accurate forecasts in the future and to help improve access to vaccines and other immunization supplies by those who need them.

- Capability maturity defines the state of human resources, policy and processes, and the tools and technologies available across the function.
- Performance defines the performance of the function, as determined by selected key indicators.

As shown in Annex 4 and Annex 5, the assessment tool has central-level-focused (qualitative) and data-quality check/key performance indicators (KPIs)/quantitative components. In addition to the general questions, the qualitative component covers five themes:

- Leadership and coordination
- Strategic planning and integration
- Assessments and improvement planning
- Implementation
- Performance monitoring

This component is designed for administration at the central or national level. It can be completed in one to three days, depending on the country's context and the availability of relevant stakeholders and documents, among other factors. On the other hand, the quantitative component is intended for administration across all levels of the supply chain, including stores and health facilities.

The results of this assessment will reveal the current situation of the country's FSP function, hence serving as a baseline for improvement monitoring.

Forecasting and supply planning improvement planning

The last procedural step is the development of an improvement plan. This plan articulates actionable activities to address the identified weakness and strengthen best practices. The EVMA guide has detailed instructions on how to develop an improvement plan. It is, however, important to note that the improvement plan should include the following details, which should be integrated into the relevant work plan, and its implementation tracked routinely:

- Goal/objective
- Specific activities
- Priority level of each activity
- Timelines
- Responsible individuals
- Resources required
- KPI(s)



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Key takeaways

- **The assessment of FSP can help countries identify FSP strengths and weaknesses**, including underlying causes for observed performance. **This can enable them to leverage existing strengths and strategically direct resources** for improvement.
- **The key phases of the assessment include planning, conducting the assessment, and developing and disseminating results and recommendations.**
- **The improvement plan should be informed by the findings and recommendations from the assessment**, which should be integrated into the relevant work plan, and its implementation tracked routinely.
- **UNICEF’s FSPAT can be used for as a comprehensive assessment tool for FSP** – from planning to monitoring the implementation of the improvement plan.

References

USAID Deliver Project, Task Order 1, 'Guide to Conducting Supply Chain Assessments Using the LSAT and LIAT', USAID, Arlington, Va., 2011. <<http://iaphl.org/wp-content/uploads/2016/05/Conducting-Assesment-with-the-LSAT-LIAT.pdf>>, accessed 10 August 2022.

World Health Organization, 'Effective Vaccine Management – technical resources', TechNet-21, 2022, <www.technet-21.org/en/hot-topics-items/380-supply-chain-and-logistics/evm2/15266-evm2#decision-makers>, accessed 15 October 2022.



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Annexes

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Annexes

Annex 1: Roles and responsibilities for personnel involved in the assessment

#	Role	Description
1	Assessment Manager	<ul style="list-style-type: none"> – Leads, coordinates and manages all aspects of the assessment, including administrative, technical and operational aspects – Receives the reports from assessors and can be an assessor – Presents findings and develops final report writing
2	Assessor	Administers the questionnaire
3	Data Manager	<ul style="list-style-type: none"> – Assesses data quality – Collates and analyses collected data
4	Observer (if needed)	Sees/receives/interprets or decides on the assessment findings

Annex 2: Documents required for assessment

S/N	Required documents	S/N	Required documents
1	Terms of reference for FSP team	11	FSP standard operating procedures (SOP)
2	Minutes of FSP team	12	FSP tool
3	Human resource policy or guidelines	13	FSP presentations and report
4	Supply chain management training report	14	Populated FSP tool
5	Supply chain management training materials	15	Stock allocation assumptions
6	Multi-year strategic plan, e.g., cMYP	16	Data-quality assessment report
7	Supply chain strategy document	17	List of FSP KPIs
8	Annual work plan for the EPI programme, MOH, NLWG	18	KPI estimates
9	Supply chain assessment report, e.g., EVMA report	19	Reports or minutes of FSP review
10	Supply chain improvement plan		

Annex 3: Resources required for forecasting and supply planning training

Training resources

Meeting and/or training venue

Audiovisual and flip chart

Refreshments (tea break and lunch)

Consultancy fees – if an external consultant is engaged

Daily subsistence allowance

Transport

Printing facility or printing budget

Electronic devices – if electronic data collection is used

Meeting and/or training venue

Audiovisual and flip chart

The resources required will vary depending on whether the assessment is focused on the central level.

Annex 4: Background information and central level (qualitative) questions

Thematic area	Description
Background questions	
General questions	<p>Background information on the overall supply chain architecture, including the various stakeholders involved in supply chain management.</p> <p>Key details include:</p> <ul style="list-style-type: none"> – Existing supply chain coordination unit – Organizations involved in SCM – Number of SCM levels and health facilities – Overarching description of SCM processes, including FSP – Information flow within the system – Main SCM challenges
Qualitative questions	
Leadership and coordination	<p>Assesses:</p> <ul style="list-style-type: none"> – Existence of a multidisciplinary FSP team with clearly defined terms of reference in place – Availability of capacity-building policy and plan backed up by requisite training materials – Implementation of the training plan
Strategic planning and integration	<p>Verifies if the following are up to date:</p> <ul style="list-style-type: none"> – Programmatic strategic plan – Supply chain strategic plan – Annual work plan that includes and/or informs FSP activities
Assessments and improvement planning	<p>Confirm if there is:</p> <ul style="list-style-type: none"> – Any recent supply chain assessment that includes FSP and an improvement plan that was developed based on the findings
Implementation	<p>Assesses whether:</p> <ul style="list-style-type: none"> – Policies, procedures, roles and responsibilities for FSP are documented – There are comprehensive/standardized tools for FSP – There are necessary supporting technologies for FSP – The implementation of FSP is data-driven, with appropriate documentation of the entire process – The team responsible for FSP is functional
Performance monitoring	<p>Ascertains whether:</p> <ul style="list-style-type: none"> – Improvement plan, data quality and KPIs for FSP are monitored – Underlying causes of poor FSP performance are identified and used to inform continuous improvement

Annex 5: Indicators assessed by UNICEF's forecasting and supply planning assessment tool

Category	S/N	Indicator	Functional definition	Supply chain level	Significance
Data quality/forecasting assumptions	1.0	Accuracy of stock information	Consistency of physical stock with stock balance on record	All levels	Helps verify the validity of stock balance – one of the key supply planning inputs
	1.1	Accuracy of LMIS report	Consistency of essential supply chain data documented in source documents with the aggregated report	All levels ⁺	Helps verify the validity of LMIS reports – data source for generation and monitoring of forecast and supply plan
	1.2	Accuracy of information on issues and receipts	Consistency of quantity issued by the higher level with quantity documented as receipts by the lower level	All levels	Helps verify the validity of a potential proxy for consumption
	1.3	Timelines of reporting	Submission of LMIS reports by the reporting deadline	All levels ⁺	Helps verify if LMIS data will be available on time for decision-making
	1.4	Completeness of LMIS report	Inclusion of all essential logistics data on LMIS report	All levels ⁺	Helps verify if all the required supply chain data will be available for decision-making
	1.5	Open vial wastage	Proportion of opened vaccine vials that are lost due to reasons other than administration to recipients	Health facility	Helps programmes verify one of the key FSP assumptions
	1.6	Closed vial wastage	Proportion of unopened products that are lost due to reasons other than opening for usage	All levels	Helps programmes verify one of the key FSP assumptions
Performance indicators	2.1	Forecast accuracy	Consistency of forecasted consumption with actual consumption	National, regional	Helps ascertain whether the forecast reflects actual programme performance
	2.2	Supply plan accuracy	Consistency of planned shipments with actual orders placed	National	Helps establish adherence to the supply plan

⁺ Does not apply to the national level if this level does not generate aggregated report



01M 0541502151
0.5 mL Dose in
One Syringe in
Preservative
CONTAINS NO
ANTIBIOTIC
PRESERVATIVE
Pentimur 13
ADJUVANT VACCINE (ADJUVANT)
VACCINOLOGICAL POLYVALENT

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