COMPREHENSIVE DISTRICT PACKAGE FOR PRIORITY HEALTH SERVICES

JAFFARABAD

2023

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Disclaimer:

This publication was prepared by the USAID funded Global Health Supply Chain Program – Procurement and Supply Management (GHSC-PSM) project, managed by Chemonics International Inc. The authors' views expressed in this publication do not necessarily reflect the views of the U.S. Agency for International Development or the United States Government.

ISBN #: 978-627-7638-14-6

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ACRONYMS

AMC	Average Monthly Consumption
AMTSL	Active Management of the third Stage of Labor
ANC	Antenatal Care
BHS	Basic Health Services
BHUs	Basic Health Units
BPPRA	Balochistan Public Procurement Regulatory Authority
CMAM	Community Based Management of Acute Malnutrition
CMWs	Community Midwives
COCs	Combined Oral Contraceptives
DHIS	District Health Information System
DHO	District Health Officer
DHPMT	District Health and Population Management Team
DHQH	District Headquarter Hospital
DPWO	District population welfare officer
ECPs	Emergency Contraceptive Pills
EML	Essential Medicines List
EPI	Expanded Program on Immunization
EmONC	Emergency Obstetric & Neonatal Care
FASP	Forecasting & Supply Planning
FEFO	First Expiry First Out
FWAs	Family Welfare Assistants
FWWs	Family Welfare Workers
GHSC-PSM	Global Health Supply Chain Program-Procurement and Supply Management
HFs	Health Facilities
HMIS	Health Management Information System
HRBA	Human Rights Based Approach to Family Planning
HRM	Human resource management
HTSP	Healthy Timing and Spacing of Pregnancy
IUCD	Intrauterine Contraceptive Device
LHSs	Lady Health Supervisors
LHVs	Lady Health Visitors
LMIS	Logistics Management Information System
LMO	Lady Medical Officer
M&E	Monitoring and Evaluation
MCH	Mother & Child Health
MCC	Medicines Coordination Cell
MICS	Multi Indicator Cluster Survey
MISes	Management Information Systems
MNCH	Maternal, Neonatal and Child Health
NIPS	National Institute of Population Studies
OJT	On the job training
OTP	Outpatient Therapeutic Program
PDHS	Pakistan Demographic and Health Survey
PPC	Postpartum Care
PPFP	Postpartum Family Planning
RHC	Rural Health Center
RUTFs	Ready to Use Therapeutic Foods

SAM	Severe Acute Malnutrition
SBA	Skilled Birth Attendant
SOH	Stock on hand
TB	Tuberculosis
THQH	Tehsil Headquarter Hospital
TT	Tetanus Toxoid
TWG	Technical Working Group
USAID	U.S. Agency for International Development
WHO	World Health Organization

MESSAGE FROM DIRECTOR GENERAL HEALTH SERVICES, BALOCHISTAN

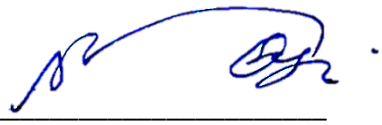
The Government of Balochistan and USAID cooperation is committed to improving the quality of health services of the millions of women and children in the flood affected districts of Balochistan.

Since 2009, USAID has been providing support to the federal and provincial governments for public health supply chain system strengthening and improved health products and supplies availability at the last mile. We highly value USAID support during the COVID-19 pandemic including the provision of ventilators, PPEs, Rapid Antigen Tests, mobile biosafety laboratory (BSl-2), Refrigerated Trucks and COVID-MIS.

We are thankful to USAID for providing the District Health Systems Strengthening support in the three focused districts namely Jaffarabad, Naseerabad and Sohbatpur to improve service delivery in these floods affected districts.

We acknowledge the invaluable leadership and technical assistance of Mr. Bradley Cronk, Director, Health Office, and Mr. Khalid Mahmood, Project Management Specialist at USAID Pakistan, Dr. Muhammad Tariq, Country Director, GHSC-PSM project and his technical team for formulating the Comprehensive District Packages for Priority Health Services. The package will serve as a key document for the officials working in the health department at the district level, including the district health officer, district storekeepers, service providers at the district health facilities and vertical program coordinators of flood affect districts. The department of health shall play a pivotal role by implementing these guidelines and will ensure improved health outcomes in the flood affected districts.

The Health Department, Government of Balochistan appreciates the timely and constructive support of USAID/Pakistan for improved health service delivery in the flood affected districts of Balochistan. After the successful implementation of USAID–Government of Balochistan Flood Response and Recovery Cooperation, we would like to reap the gains of health-related resilience in the remaining districts of the province.



Dr. Noor Muhammad Qazi
Director General Health Services,
Health Department, Government of Balochistan

MESSAGE FROM DISTRICT HEALTH OFFICER JAFFARABAD

The recent floods had a significant impact on district health services and products at the last mile. The unfortunate catastrophe led to disruption of healthcare facilities, limited access to healthcare services, increased incidence of infectious diseases, and shortage of essential medicines and supplies.

We highly appreciate the USAID support through its GHSC-PSM project for flood response interventions in the Jaffarabad district in the times of need. USAID support has always remained instrumental for strengthening systems at the district and below levels. USAID supported information systems like Contraceptive LMIS, Vaccine LMIS, Health LMIS are implemented and being used to manage the respective supply chains. We are excited for the deployment of Pakistan Infectious Diseases MIS in the district that would enable to better decision making leading to saving people's precious lives.

We value the GHSC-PSM project's technical support for the development of this package. The package would not only allow the district staff to efficiently discharge their duties as per standards but also mitigate the impact of floods on district health services and products at the last mile. Improved health services delivery to the communities and provision of essential health medicines and supplies at the last mile can contribute a big deal in addressing the immediate and long-term health needs of the affected population.

We are committed to implementing the package in true letter and spirit.

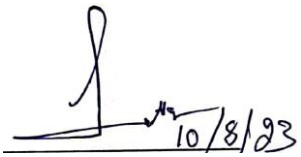
Dr. Ayaz Jamali
District Health Officer, Jaffarabad

MESSAGE FROM DISTRICT POPULATION WELFARE OFFICER JAFFARABAD

Population Welfare Department acknowledges the exemplary work done in Jaffarabad district by USAID support through its GHSC-PSM project. This support was much needed in flood affected areas in Jaffarabad district. USAID interventions have always played a significant role in strengthening health systems at the district level. USAID supported Contraceptive Logistics Management Information System (cLMIS) and Electronic Client Record (ECR) is providing real time product and services data visibility enabling the department to take evidence-based decisions. The uninterrupted contraceptive supply is essential to meet the needs of the people and for better health outcomes.

The health service delivery package will help our staff in implementing best practices in the district. The package will also contribute to improved access to Family Planning services.

It will be a great pleasure for our department to implement health service delivery package in Jaffarabad district.



Mr. Abdul Sattar Durrani
DPWO, Jaffarabad

MESSAGE FROM DISTRICT MANAGER PPHI JAFFARABAD

It is an immense pleasure for PPHI to implement health service delivery package, considering the disruption caused by floods in Jaffarabad district. The main objective of PPHI is also to revitalize health services in Balochistan. The immediate goal was to ensure that health facilities, handed over to PPHI, are fully functional, providing services to all individuals within their reach. These guidelines will be a great support in achieving our goal.

We truly acknowledge the work done by USAID through its GHSC-PSM project for flood response interventions in the Jaffarabad district. USAID's measures in flood affected districts including Jaffarabad will help to improve health service delivery, MIS and strengthening of existing health systems. These measures will also result in reduction of maternal, neonatal and child mortality. I believe that this package will play a pivotal role in bringing health department, population welfare department, PPHI and private health sector together. It is for the first time that such a Comprehensive District Packages including MNCH, nutrition, immunization, family planning and supply chain management is developed at the district level.

PPHI values the GHSC-PSM project's team for their technical support in development and implementation of health service delivery package.

We assure to implement this package in cooperation with different stakeholders in Jaffarabad district.

Mr. Babar Jamali
DSM PPHI, Jaffarabad

PREFACE

The uninterrupted and timely supply of health commodities at all levels including procurement planning, storage, transportation, delivery and most critically the last mile i.e., service delivery is integral to connect national and provincial health policies with the people. With the aim to improve health service delivery especially in the flood affected districts, USAID funded Global Health Supply Chain Program-Procurement and Supply Management project, managed by Chemonics International took the initiative to develop the Comprehensive District Packages for Priority Health Services in consultation with the national, provincial, and most importantly the district authorities.

This package incorporates the information focusing the district infrastructure. The package attempts to offer an integrated approach of Service Delivery Network Optimization, covering guidelines for all the providers of DOH, PWD, PPHI, IRMNCH and Private sector to improve health service delivery. In addition, it gives detailed information on the availability of human resource, trained service providers and infrastructure. This package is unique in the context as it provides comprehensive information on MNCH, Nutrition, Immunization, and Family planning services along with the standards of effective supply chain management. It can also be utilized by the community health workers to identify the need for timely referrals and hence reducing morbidity and mortality. The district health package comprises of comprehensive set of guidelines pertaining to the provision of basic healthcare services and availability of essential medicines, vaccines, and medical supplies at the grassroots level. It not only determines the available stocks of medicines/commodities but also provides guidance on calculation of the requirement for the district. The package is designed to assist the district health delivery staff to ensure best practices in their own settings, therefore, contributing towards improved access to health services thus a healthy population and workforce.

I would like to take this opportunity to acknowledge the Health Department, Government of Balochistan, which is committed to improve the health and quality of life for all, particularly women, children, and marginalized communities, through access to essential quality health services.

The aim of these guidelines is to provide a comprehensive framework for provision of basic health services (BHS), forecasting, procurement, storage, distribution, as well as management information system, and monitoring and evaluation. These guidelines are based on international best practices, ensuring an effective and efficient supply chain management system. These guidelines are widely applicable to a broad range of health commodities, including but not limited to essential drugs for basic health services (BHS), vaccines, contraceptives, malaria rapid diagnostic tests, antimalarial, typhoid and tuberculosis (TB) medicines.

This document aims to address the key challenges faced in ensuring uninterrupted and timely supply of health commodities and services at all levels of the supply chain, particularly at the last mile. The recent floods and COVID-19 pandemic have adversely impacted the health service delivery to the people, especially the marginalized communities. The manual covers the basic standards pertaining to the health service delivery and effective supply chain management of health products and supplies.

It emphasizes the criticality of accurate forecasting and quantification of supply requirements, which relies on high-quality data, knowledgeable personnel, and strengthened coordination among key stakeholders. In Balochistan, public procurement reforms have been implemented to ensure transparency, value for money, and accountability in the procurement of goods and services. However, there is a need to enhance procurement practices at the district level to optimize resource allocation and respond effectively to procurement demands.

The manual also recognizes the significance of maintaining the safety, quality, and integrity of health products from storage facilities of varying sizes. Transportation and distribution of health commodities from district stores to health facilities have historically posed challenges, leading to facility-level stock outs. Limited financing and competing health priorities further hinder effective transportation and distribution planning at the district level. Timely availability of health commodities is crucial for effective health policies, treatment of illnesses, family planning, and other essential health services.

The manual emphasizes the importance of last mile product delivery and the need for up-to-date information on product quantity, batch, expiry date, and other key features. Monitoring and evaluation (M&E) play a vital role in program management, providing valuable information for resource allocation, addressing challenges, and tracking program performance. Commodity security, encompassing forecasting, quantification, procurement, storage, and distribution, requires coordinated and monitored supply chain processes. The manual emphasizes the need for clear definition of M&E scope, encompassing geographical areas (district, sub-district stores, and health facilities) and programmatic indicators (stock sufficiency). By adhering to the guidelines outlined in this manual, stakeholders can work towards ensuring a reliable supply of health commodities for the population.

I owe special thanks to Mr. Bradley Cronk, USAID Health Director, Ms. Kyat Erdahl, USAID Deputy Director Health Office, USAID/Pakistan, Mr. Khalid Mahmood, Project Management Specialist at USAID Pakistan, Mr. Sherif Mowafy, Mr. John Vivalo, and Mr. Ramy Guirguis at USAID Washington for their invaluable leadership and financial support.

At the end, I would like to acknowledge my technical team members, Dr. Sadaf Gul, Health Service Delivery Specialist, Ms. Ambreen Khan, Director Service Delivery & MEL, Mr. Muhammad Ahmed, Director Systems and Analytics, Dr. Farooq Azam Jan, Team Lead Balochistan, Dr. Kaleem Ullah Mengal, District Coordinator, Jaffarabad, Mr. Junaid Ashraf, M&E Officer, Ms. Syeda Mahrukh Zahra, Nutrition Officer, Mr. Shayan Ahmed, Program Associate for their contributions in formulation of this document.

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Dr. Muhammad Tariq
Country Director
USAID Global Health Supply Chain Program-Procurement and Supply Management

CHAPTER 1: JAFFARABAD DISTRICT PROFILE

INTRODUCTION

Jaffarabad district lies in southeast of Balochistan province, Pakistan. District Jaffarabad is geographically placed in a very important region as it serves as a gateway to historical Upper Sindh Frontier region (Jacobabad). To its North lies District Naseerabad while to its South is District Jacobabad. To its East in the newly formed District Sohbatpur District while Usta Muhammad District lies to its West. To the South- West of Jaffarabad lies District Kambar Shahdad Kot of Sindh. Area-wise it is spread over 690 Square Kms. Its administration comprises of 2 Tehsils (Jaffarabad and Jhat Pat). The population of district Jaffarabad has been steadily growing over the years, reflecting natural increase and rural-urban migration. The district's population at the time of 2017 census was around 513,972 with 262,872 males and 251,047 females.

According to Balochistan district profile, literacy rate in Jaffarabad is 30.6%. Married women of reproductive age (MWRA) are 95, 721, No. of the children under 5 years of age are 122,637 and 137,064 are children under one year of age. The rural area population is 356,261 while 157,711 is urban area population. A total of 67,325 households are registered.

Table 1: Jaffarabd demographics

Demographics of Jaffarabad	
Total Population	513,972
Males	262,872
Females	251,047
Rural Area Population	356,261
Urban Area Population	157,711
Households	67,325
MWRA	95,721
No. of Children under five years of age	122,637
No. of Children under one year of age	137,064

HEALTH FACILITIES IN DISTRICT JAFFARABAD

The district has a network of public and private sector health facilities that cater the healthcare needs of the residents at all levels. These facilities include hospitals, clinics, dispensaries, and specialized centers. There are a total of around 61 public sector health facilities including 20 Civil Dispensaries, 01 Tehsil Headquarter Hospitals (THQH), 02 Rural Health Centers (RHCs), 19 Basic Health Units (BHUs), and 01 District Headquarter hospital (DHQ). These institutions provide healthcare services to the local population. There are 03 Mother & Child Health Centers (MCH), 17 Nutrition Centers, 23 Birth stations and 14 CMW outlets in Jaffarabad. In addition to the public sector facilities, Jaffarabad also has a significant number of private hospitals, clinics, and diagnostic centers. There are 05 private hospitals and 120 private sector clinics respectively. During catastrophic conditions like floods the health services are extremely disrupted, which need to be focused to reduce associated morbidity and mortality. Jaffarabad was markedly affected during the recent floods hitting the country; hence implementation of this package will strengthen the health service delivery bringing together the public and private sector.

Table 2: Health facilities in Jaffarabad

Facilities	Total Number
Department of Health	
Basic Health Units (BHU)	19
Rural Health Centre (RHC)	02
Tehsil Headquarter Hospital (THQ)	01
District Headquarter hospital (DHQ)	01
Civil Dispensaries	20
Total	**43**
Private Health Facilities	
Private hospitals	05
Private sector clinics	120
Total	**125**
Maternal, Neonatal and Child Health Department (MNCH)	
Mother & Child Health Centre (MCH)	03
Nutrition Centers (OTPs & NSC-1)	17
Birth Stations	23
CMW outlets	14
Total	**57**
Expanded Program on Immunization	
EPI centers	32

HEALTH PROVIDERS IN DISTRICT JAFFARABAD

Jaffarabad has a workforce comprising of health providers, including doctors, nurses, vaccinators, and community health workers. There are total of 140 Lady Health Workers (LHWs), 06 Lady Health Supervisors (LHSs), 21 Lady Health Visitors, 14 Community Midwives (CMWs), 71 Vaccinators/EPI Technicians and 11 Women medical officers (WMOs). Efforts are continuously made to enhance the skills and knowledge of healthcare professionals in Jaffarabad. Training programs, workshops, and capacity-building initiatives are conducted to improve their capabilities, enabling them to deliver effective and efficient care to the residents.

Table 3: Health Service Providers in Jaffarabd

Service Providers	Total Number
WMOs	11
Lady Health Workers (LHWs)	140
Lady Health Supervisors	06
Lady Health Visitors	21
Community Midwives (CMWs)	14
Vaccinators/EPI Technicians	71
Total	**263**

CHAPTER 2: INTRODUCTION TO HEALTH SERVICE DELIVERY

INTRODUCTION

Health service delivery is defined as the provision of health care services to the population. Pakistan health service delivery system comprises of both the public and private sectors. Health service delivery has been jointly administered by the federal and provincial governments, while districts are mainly responsible for implementation. Service delivery includes preventive, promotive, curative and rehabilitative services. The curative and rehabilitative services are being provided mainly at the secondary and tertiary care facilities. The preventive and promotive services are primarily provided through various national programs and community health workers including, LHWs, LHSs, LHVs, CMWs, FWWs and FWAs.[1]

The introduction of health service delivery package is to ensure the availability of the essential health services at all the levels, considering the health care needs of the population and the available financial resources. The health service delivery package primarily includes the list of services along with infrastructure, human resource, medicines, supplies and equipment.

Standards for health service delivery refer to a set of guidelines and benchmarks that define the quality and effectiveness of healthcare services provided to individuals and populations. These standards are established to ensure that healthcare providers deliver safe, ethical, and evidence-based care. Some of the key elements of health service delivery include patient centered care, safety, evidence-based practice by health care providers, and continuity of care, timely provision of quality health services, accountability, and transparency. This package covers the standards of service delivery related to Nutrition, Family Planning, MNCH, and Immunization. The purpose of these guidelines is to support district health delivery staff in implementing best practices tailored to their specific settings. By doing so, the package will contribute to improved access to health services, thus resulting in a healthier population and workforce. Health service delivery optimization will help increase uptake of services in both public and private sectors. A comprehensive service delivery package is being introduced for the first time at the district level. It has been developed and finalized after receiving inputs from the district management team.

It has been noted that data base of disease response is very poor in Pakistan. Timely information is very significant to take due action to reduce the associated morbidity and mortality. Baseline data for Jaffarabad district was gathered prior to implementation of package to reflect outcomes of different health interventions, directed for improvement in Nutrition, Family Planning, MNCH, and Immunization. It provides guidelines for an integrated service delivery network optimization involving all the key stakeholders including the Health Department, Population Welfare department, PPHI and private sector. Hence both the government and private sectors can work in close collaboration with each other.

This package is also different in the context that it also includes the standard template for developing an action plan by the district management (Annexure-A). This will help in timely resolution of identified issues.

[1] *https://www.emro.who.int/pak/programmes/service-delivery.html*

QUALITY OF CARE FRAMEWORK

The figure below shows the quality-of-care framework[2] for health services delivery.

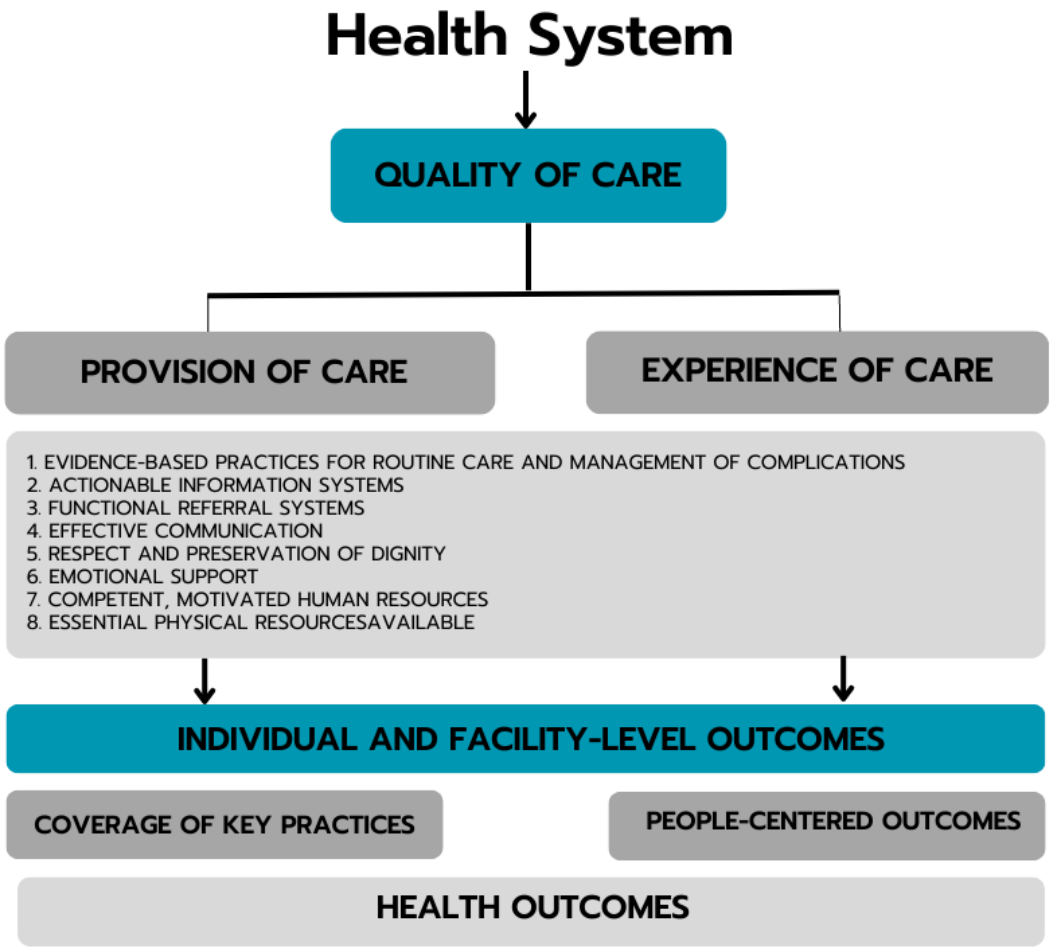

Figure 1: Quality of care framework

[2] *WHO standards of care to improve maternal and newborn quality of care in facilities.* https://www.who.int/publications/i/item/9789241511216

CHAPTER 3: MNCH SERVICES

INTRODUCTION

The MNCH services refer to a range of healthcare interventions and programs aimed at promoting the health and well-being of women, newborns, and children. Maternal health refers to the health of woman during pregnancy, childbirth, and the postpartum period while newborn health refers to a baby's first month of life. Maternal, Infant, and Child Health include a number of conditions, health behaviors, and health systems indicators that affect women, children, families' health, wellness, and quality of life. The risk associated with maternal deaths, infant mortality and pregnancy-related complications can be minimized by increasing access to quality antenatal, intra-natal, and postnatal care.
Early identification and treatment of different health issues, development problems and disabilities among newborns/infants can prevent the associated death and disability.

MNCH services are typically provided at various levels of healthcare delivery, including primary healthcare facilities, hospitals, and community settings. These services mainly include:[3]

Primary Healthcare Centers

- **Antenatal care:** Regular check-ups and screenings for pregnant women, including monitoring of the mother's health, growth of the fetus, and provision of necessary immunizations and supplements.
- **Postnatal care:** Assessing the health of the mother and newborn after delivery, offering guidance on breastfeeding, newborn care, and addressing any concerns or complications.
- **Family planning:** Providing contraceptive methods, counseling, and support to help individuals and couples plan their pregnancies.
- **Immunizations:** Administering vaccines to protect infants and children against various diseases, such as measles, polio, and tetanus.
- **Growth monitoring:** Assessing the growth and development of infants and young children through regular check-ups and weight measurements.

Hospitals

- **Maternity services:** Providing comprehensive care during pregnancy, labor, and delivery, including monitoring the progress of labor, managing complications, and offering pain relief options.
- **Emergency Obstetric & Neonatal Care (EmONC):** Offering life-saving interventions for women experiencing complications during childbirth, such as postpartum hemorrhage, obstructed labor, or eclampsia.
- **Neonatal intensive care:** Providing specialized medical care for sick or premature newborns, including monitoring vital signs, administering medications, and supporting their overall well-being.
- **Pediatric care:** Treating common childhood illnesses, providing vaccinations, conducting developmental assessments, and offering counseling on nutrition and growth.

[3] https://health.balochistan.gov.pk/index.php/provincial-mnch-program/

Community Settings

- **Community health workers:** Community Health workforce includes LHWs, LHVs, LHSs, CMWs, FWWs and FWAs. They provide basic healthcare services, health education and referrals within their communities, focusing on maternal, newborn, and child health.
- **Home visits:** Healthcare providers visit families to assess the health of mothers and newborns. They provide education on breastfeeding, hygiene practices, and identify any potential health issues or risks.
- **Support groups:** These are the platforms within the communities for mothers and families to share experiences, receive emotional support, and learn about best practices for MNCH care.

STANDARDS

Following are the standards for provision of MNCH services:[4]

- **Comprehensive and Basic Emergency Obstetric and Newborn Care** (EmONC) should be available 24/7.
- Essential equipment and emergency medicines with regards to maternal and newborn health should be available in health facilities.
- **Antenatal care:** All pregnant women should have at least four antenatal care (ANC) assessments by or under the supervision of a skilled attendant. They should be given education and counseling on childbirth preparation, nutrition, breastfeeding, family planning and newborn care.
- **Intrapartum Care:** Women should have access to skilled birth attendants or midwives during labor and delivery. There should be monitoring of maternal and fetal well-being, including vital signs, fetal heart rate, and progress of labor. Pain management options should be available, including non-pharmacological techniques and appropriate use of analgesia. Complications during labor and emergency obstetric care should be managed if needed.
- **Postnatal Care:** These include routine postpartum check-ups for mothers and newborns, assessment of maternal physical and mental health, including screening for postpartum depression. Support and guidance for breastfeeding and newborn care. Immunization of newborns and provision of vitamin supplements. Education on family planning options/ birth spacing.
- **Newborn Care:** This includes routine neonatal assessments and screenings, early initiation of breastfeeding and support for exclusive breastfeeding, prevention, and management of common newborn conditions, such as jaundice or any other infection. Identification and management of high-risk newborns, including premature or low birth weight infants. Timely referrals for specialized care when needed.

Antenatal Care (ANC)

Antenatal care or 'pregnancy care' is the healthcare and support during pregnancy to ensure wellness of the mother and the baby. It provides a platform for important health-care functions, including health promotion, screening, diagnosis, and disease prevention. It has been established that implementation of timely and appropriate evidence-based practices can save lives.[5] Antenatal care emphasizes required action to be taken or referral made based on the assessment.

[4] https://www.who.int/publications/i/item/standards-for-maternal-and-neonatal-care

[5] 9789241549912-eng.pdf (who.int)

The major goal of antenatal care is to help women maintain a normal pregnancy by:

- Identification of preexisting health conditions
- Early detection of complications arising during pregnancy
- Health promotion and disease prevention
- Birth preparedness and complication readiness planning
- Timely referrals

Four antenatal visits are recommended during pregnancy as per following schedule:

Visit	Timeline
First Visit	Before 12 weeks of pregnancy
Second Visit	Around 26 weeks
Third Visit	Around 32 weeks
Fourth Visit	Between 36 and 38 weeks of gestation

Women are advised to return for ANC immediately in case of any of the following danger signs.

- Vaginal bleeding
- Severe headache/blurring of vision
- Severe abdominal pain
- Respiratory difficulty
- Fever
- Convulsion/loss of consciousness
- Foul-smelling vaginal discharge
- Loss of fetal movement
- Leaking of greenish/brown meconium[6]

Intrapartum care

Care of women and their babies, during labor and immediately after the birth is known as Intrapartum care. Appropriate delivery care is crucial for both maternal and perinatal health.

- Provide empathetic care during labor and childbirth
- Facilitate good communication between service providers, women, and their relatives
- Allow a female relative to provide labor support
- Closely monitor labor with partograph
- Provide magnesium sulfate when indicated
- Practice active management of the third stage of labor (AMTSL)
- Examination of placenta and membranes
- Examination of perineum for tears

[6] *Maternal and Child health reference module, Population Welfare department- RTI, December 2020*

Postpartum Care (PPC)

According to WHO, care provided after delivery of the placenta and through the first 6-8 weeks postpartum is known as postpartum care. The first 24 hours after childbirth are significant in which special care is required for both the mothers and newborns.

More than 500,000 women die every year due to pregnancy-related complications, and 2/3 of these deaths are in the postpartum period. Every year 40 million infants also die within the first month of life.

This is the most critical period and provision of quality care and timely referral can prevent maternal and newborns' morbidity and mortality.

World Health Organization (WHO) Recommendations on Postpartum Care

1. Timing of discharge from a health facility after birth

After an uncomplicated vaginal birth in a health facility, healthy mothers and newborns should receive care in the facility for at least 24 hours after birth.

2. Postpartum Visit Schedule:

Visit	Timeline
First Visit	The first postnatal contact should be as early as possible within 24 hours of the birth (if the birth is at home)
Second Visit	Between 48 – 72 hours
Third Visit	Between 7–14 days
Fourth Visit	At 06 weeks after birth

3. Home visits for postpartum care

   Home visits in the first week after birth is recommended for the assessment and care of the mother and newborn.

Maternal Care

Visit	Assessment	Recommendations
First Postpartum Visit (First 24 hours)	• General physical exam (pulse, blood pressure, temperature, pallor) • Check for uterine tenderness and fundal height • Palpate the abdomen to see if the uterus is hard and round • Check the amount of bleeding • Examine perineum for inflammation/discharge	• Advice on proper nutrition • Encourage breastfeeding • Suggest about personal hygiene
Second and Third Postpartum Visits	• The physical examination (pulse, temperature, blood pressure, pallor) • Uterus for tone and contraction (Is it hard and well contracted?) • Bladder and bowel (ask about problems with passing urine or stool) • Breasts (mastitis, cracked nipples, engorged breasts, not enough milk?)	• Advice on proper nutrition • Encourage breastfeeding • Suggest about personal hygiene • Give iron and folate supplements • Counsel for birth spacing • Referral for psychosocial support, if required

Visit	Assessment	Recommendations
	• Vulva and perineum (tears, swelling, discharge) • Vaginal bleeding (excessive bleeding or foul-smelling discharge/lochia) • Legs (thrombophlebitis, signs of thrombosis)	
Fourth Postpartum Visit	• Assess for physical and psychological status (refer to a psychiatrist if required) • Pelvic examination for the healing of large tears, pain, swelling, or pus • Check hemoglobin clinically or through laboratory if possible	• Ensure the mother and family is aware of danger signs, and when to seek help • Counsel for breastfeeding • Counsel for birth spacing • Counsel for child immunization • Provide iron supplementation if needed

Newborn Care

Essential newborn care involves immediate care at the time of birth, and care during the entire newborn period.[7]

The presence of a skilled birth attendant (SBA) at the time of delivery of the newborn is extremely important. SBAs should be able to make timely decisions and referrals, if needed. Newborn care is also important because birth asphyxia and infection are major causes of newborn deaths. Special care by SBAs is required in case of pre-term /low birth weight newborns, for proper management and reduction of morbidity and mortality.

Assessment:

Community health workers like LHWs, LHSs and LHVs etc. can play a crucial role in newborn assessment and timely referral to the health facility.

Newborns should be assessed and referred immediately if they have any of the following Danger Signs:

- Stops feeding well
- Convulsions
- Breathing rate (≥ 60 breaths per minute)
- Severe chest in-drawing or no spontaneous movement
- Body temperature (≥ 37.5°c) or (< 35.5°c),
- Jaundice in the first 24 hours of life

Recommendations:

<u>Exclusive Breast Feeding</u>

- All babies should be exclusively breastfed from birth until 06 months of age
- Mothers should be counseled and provided support for exclusive breastfeeding at each visit

[7] *https://www.who.int/teams/maternal-newborn-child-adolescent-health-and-ageing/newborn-health/essential-newborn-care*

Cord Care:

Daily application of chlorhexidine (7.1% chlorhexidine digluconate aqueous solution or gel, delivering 4% chlorhexidine) to the umbilical cord stump during the first week after birth

- Clean and dry cord care for newborns both in the health facilities and at home
- Bathing should be delayed until 24 hours after birth
- Mother and baby should be kept together
- Appropriate clothing of the baby according to temperature
- Promote immunization as per national guidelines
- Pre-term and low-birth-weight babies should be provided special care as per existing WHO guidelines

Following is the Newborn Assessment Checklist:

Assess	Normal	Abnormal/Urgent Referral
Weight	2.5 kg–4.0 kg	Birth weight < 2 kg or > 4 kg
Respiration	30–60 breaths/minute	Respiration not within a normal range
Chest	The chest movements are regular and symmetrical. There is no chest in-drawing	Severe chest in-drawing
Temperature	36.6–37.5° C	Temperature not in a normal range
Color	Lips, tongue, palms, soles, nail beds are pink	Pallor or Cyanosis
Movement and posture	Movements are regular and symmetrical (same on both sides)	Convulsing/back arched
Alertness	Responds actively to stimuli	Floppy/lethargic
Abdomen and umbilical cord stump	Soft and flat Umbilicus stump dry and clean	Distended Blood or pus oozing from umbilical cord
Back and limbs	The spine should be free of swelling, lesions, dimples, or hairy patches	Any swelling/abnormality in the spine
Head	The head is symmetrical in shape Fontanels are soft and flat	Bulging anterior fontanels Abnormal size and shape

Child care

The specific objectives of child care are to reduce child morbidity and mortality. The term childhood disease refers to a disease that is contracted or becomes symptomatic before the age of 18 years. Infections in children can cause a number of acute and chronic diseases.

Assessment: Assess for any of the Danger Signs present in the child

- Convulsion
- Lethargy/Unconscious
- Inability to drink
- Vomiting

Urgent referral to health facility by community health worker if any of the danger signs appear
Examples of some childhood diseases include Diarrhea, Pneumonia, Malaria and Malnutrition

Diarrhea:

Diarrhea is a leading disease-causing child morbidity and mortality especially in low income countries.

Most deaths from diarrhea occur among children below the age of 2 years, living in South Asia.

Danger Signs:

- Lethargic or unconscious
- Sunken eyes
- Not able to drink properly
- Skin pinch goes back slowly

Management:

- Nearly 70 to 90 percent of deaths caused by acute watery diarrhea are preventable by proper use of oral rehydration salt (ORS). Proper fluid replacement continued feeding and selective use of antibiotics are also critical.
- Look for signs of dehydration
- Give plenty of fluids/ ORS
- Zinc supplements
- Antibiotics if diarrhea is infective
- Refer the child immediately to the health facility if any of the danger signs is present

Pneumonia:

- Pneumonia is another infectious disease causing deaths among children below 5 years of age. Pneumonia is a disease common in poor population. Although the disease can be prevented, but still more than 800,000 children died due to pneumonia in 2017. Pneumonia is the leading Lower Respiratory tract infection. It is caused primarily by bacterial infections.[8]
- Undernourished children are more prone to pneumonia complications.
- Lack of safe water, sanitation, air pollution and inefficient health services also contribute towards children morbidity and mortality.

Preventive measures:

- Exclusive breastfeeding
- Scheduled Immunization
- Reduced household air pollution
- Safe drinking water
- Proper sanitation and hygiene

[8] *Troeger, Christopher, et al. "Estimates of the global, regional, and national morbidity, mortality, and aetiologies of lower respiratory infections in 195 countries, 1990–2016: a systematic analysis for the Global Burden of Disease Study 2016." The Lancet Infectious Diseases 18.11 (2018): 1191-1210*

Assessment:

Assess the Child for any of the danger signs:

- Breathing problem
- Chest in-drawing
- High fever
- Convulsions

Management:

- Antibiotics are critical for treating pneumonia
- Urgent referral to health facility with availability of required health services

Malaria

Malaria is the world's third most common cause of death among children below 5 years of age. A child dies every two minutes in Malaria endemic regions.

Management

- Protection can be provided effectively by usage of Insecticide-treated mosquito nets
- Early diagnosis is essential for proper malaria treatment
- Recommendation of malaria tests in suspected cases if possible, to confirm the diagnosis
- Give antipyretics to reduce fever
- Refer the child urgently to the hospital where all facilities are available [9]

[9] PA00MJDH.pdf (usaid.gov)

CHAPTER 4: NUTRITION SERVICES

INTRODUCTION

Proper nutrition is an essential requirement for maternal, infant and child health. A healthy individual has a strong immune system and is less likely to contract different communicable and non-communicable diseases. Nutrition plays a critical role for the physical and mental development of children. People with adequate nutrition are more productive as compared to malnourished individuals.

In low- and middle-income countries malnutrition is a great threat to human health. There are multiple forms of malnutrition, including under nutrition (wasting and stunting), overweight, obesity, and many diet-related non- communicable diseases. Besides this, economic and social burden of malnutrition has a serious impact on country's growth and development.[10]

Nutrition services are crucial in addressing the high rates of malnutrition and improving the overall health and well-being of the population. Nutrition rehabilitation centers are established in various areas of the districts to treat severe acute malnutrition. These centers provide specialized care, including medical treatment, therapeutic feeding, and counseling, to severely malnourished children. Food fortification is an effective strategy to address nutrient deficiencies in the population. The government has mandated the fortification of wheat flour, edible oils, and salt with essential nutrients such as iron, folic acid, vitamin A, and iodine to ensure that a significant portion of the population has access to fortified food products.[11]

STANDARDS

Following are the standards for provision of nutrition services:

Collaboration and Referrals

Nutrition services often require collaboration with other healthcare professionals. Nutrition practitioners should have the ability to communicate and collaborate effectively with other members of the healthcare team like community health workers i.e. Community Midwives, Lady Health Workers, Lady Health Supervisors, etc. They should also be aware of their scope of practice and refer individuals to other professionals when necessary.

Management of Severe Acute Malnutrition in Children

Management of severe acute malnutrition (SAM) in children involves a comprehensive approach that addresses both the medical and nutritional needs of the child. Here are the key components of the management process:[12]

1. **Identification and Diagnosis:** The first step is to identify and diagnose SAM in children. This can be done through various screening methods, such as mid-upper arm circumference (MUAC) measurement or weight-for-height/weight-for-length assessment. Medical professionals, including doctors and nutritionists, play a crucial role in making an accurate diagnosis.

[10] https://www.who.int/health-topics/nutrition
[11] https://www.pc.gov.pk/uploads/report/Pakistan_%202018-25.pdf
[12] https://www.childrenandaids.org/sites/default/files/2017-05/SAM%20Guidance.pdf

2. **Stabilization Phase:** Once diagnosed, the child enters the stabilization phase, which focuses on treating any medical complications and stabilizing their condition. This phase usually takes place in a hospital or therapeutic feeding center, where the child receives 24-hour medical care. Treatment may include the management of infections, dehydration, and electrolyte imbalances. Antibiotics may be prescribed if there is evidence of infection.

3. **Therapeutic Feeding:** Nutritional rehabilitation is a critical aspect of managing severe acute malnutrition. In the stabilization phase, therapeutic feeding involves the use of ready-to-use therapeutic foods (RUTFs), which are energy-dense, and nutrient-rich pastes or spreads. RUTFs are specifically designed to meet the nutritional requirements of malnourished children and are easy to administer. They do not require refrigeration or cooking.

4. **Transition Phase:** Once the child has stabilized and no longer requires 24-hour medical care, they enter the transition phase. During this phase, the child's nutritional rehabilitation continues, but they may receive care in an outpatient setting or a community-based program. The transition phase aims to restore the child's weight, promote growth, and prevent relapse. Regular follow-up visits, growth monitoring, and counseling for caregivers on appropriate feeding practices are important during this phase.

5. **Follow-up and Support:** Long-term follow-up and support are crucial to sustain the child's recovery and prevent relapse. This may involve regular visits to health clinics, growth monitoring, counseling on appropriate feeding practices, and education on nutrition and hygiene. The involvement of the child's caregivers and community in the follow-up process is essential for long-term success.

6. **Integrated Care:** It's important to integrate the management of severe acute malnutrition with other essential health services. This includes immunizations, treatment of other illnesses, and access to clean water and sanitation facilities. Addressing underlying causes of malnutrition, such as poverty, food insecurity, and inadequate healthcare, is crucial to prevent future episodes of severe acute malnutrition.

   It's worth noting that the management of severe acute malnutrition should always be carried out by trained healthcare professionals who are knowledgeable in nutrition and pediatric care.

Community Based Management of Acute Malnutrition (CMAM)

Community-Based Management of Acute Malnutrition (CMAM) is an approach to address acute malnutrition in resource-limited settings. It focuses on the early detection and treatment of acute malnutrition in children under five years of age, with an emphasis on community participation and involvement. The key components of CMAM typically include the following:[13]

1. **Community Screening:** Trained community health workers or volunteers identify and screen children for signs of acute malnutrition using simple assessment tools, such as measuring mid-upper arm circumference (MUAC) or assessing weight-for-height. This screening helps to identify children who are at risk or already experiencing acute malnutrition.

[13] *https://www.unicef.org/pakistan/media/4161/file/CMAM%20Guidelines.pdf*

2. **Outpatient Therapeutic Program (OTP):** Children with uncomplicated severe acute malnutrition (SAM) are enrolled in an OTP, where they receive treatment on an outpatient basis. OTP centers are set up in the community and are easily accessible to caregivers. The treatment primarily involves the provision of ready-to-use therapeutic foods (RUTF), which are nutrient-dense, and energy-rich pastes or bars. The caregivers are educated about the correct usage of RUTF and receive regular follow-up visits to monitor progress.

3. **Stabilization Center:** Children with SAM who have complications or medical conditions requiring inpatient care are referred to stabilization centers or hospitals. These facilities provide intensive medical care, including the management of medical complications and therapeutic feeding.

4. **Community Mobilization and Counseling:** Community mobilization activities, such as awareness campaigns, are conducted to engage the community and promote early detection and treatment of acute malnutrition. Caregivers of malnourished children are counseled on appropriate feeding practices, hygiene, and other aspects of childcare to prevent relapse.

5. **Monitoring and Follow-up:** Regular follow-up visits should be conducted to assess the progress of children receiving treatment for acute malnutrition. Weight gain, nutritional status, and general health should be monitored to ensure the effectiveness of the treatment. The community health workers or volunteers play a crucial role in tracking progress and providing ongoing support and encouragement to caregivers.

The community-based approach of CMAM has several advantages. It brings services closer to the community, reducing barriers to access and increasing treatment coverage. It empowers communities by involving them in the management of acute malnutrition, thereby building local capacity and ownership. Additionally, CMAM is often cost-effective compared to facility-based approaches, making it more sustainable in resource-limited settings.

Nutrition Assessment

Malnutrition

If an individual is provided with inadequate nutrition over a certain period of time it results in malnutrition. This is followed by the appearance of malnutrition symptoms. Furthermore, health issues related to deficiencies appear including skin rashes, hair loss, bleeding gums, muscle spasms, night blindness etc.

Over Nutrition

Excess food intake over a certain period of time adversely affects human health. This in turn may result in a number of diseases including obesity, heart disease, Type 2 diabetes, stroke etc.

To prepare a nutrition assessment, a registered dietitian/ other trained health-care professionals use the following steps:

1. Historical information
2. Anthropometric measurements
3. Physical examinations
4. Laboratory tests

Historical Information

History taking is the first step in nutritional assessment and helps to determine health status, socioeconomic status, dietary status etc.

Anthropometric Measurements

The second important step is to carry out anthropometric measurements such as height and weight.

Physical Examination

This is also an important measure to further determine health status. Visual inspection of hair, eyes, skin, posture, tongue, fingernails etc. are very helpful to determine the nutritional status of an individual.

Laboratory Tests

Laboratory tests assist in early diagnosis of malnutrition even before the symptoms appear. Hence lab tests are crucial to confirm the diagnosis of malnutrition.

Body Mass Index: BMI

An index of a person's weight in relation to height; determined by dividing the weight (in kilograms) by the square of the height (in meters).

Weight in kg/height in m^2

Underweight: Bodyweight below some standard of acceptable weight is usually defined in relation to height (such as BMI); BMI below 18.5.

Normal weight: BMI (18.5 to 25.0)

Overweight: Bodyweight above some standard of acceptable weight that is usually defined in relation to height (such as BMI); BMI 25 to 29.9.

Obese: Overweight with adverse health effects; BMI 30 or higher.

Current bodyweight standards are based on a person's weight in relation to height, called the body mass index (BMI), and reflect disease risks. The disadvantage of this method is that BMI does not reflect body fat, and it may misclassify very muscular people as overweight.

Nutrition Counseling & Education

Nutrition counseling and education is extremely important in helping individuals to take a healthy and balanced diet. This can only bring about a positive impact depending on an individual's willingness to follow advice.

Nutrition counseling sessions can be conducted with individuals or in groups, and helps in prevention of malnutrition. Counseling is used most often during medical nutrition therapy, one-on-one, depending on individual's need. In the one-on-one setting, the nutritionist sets up a transient support system to prepare the client to handle social and personal demands more effectively while identifying favorable conditions for change.

Nutrition before Pregnancy

Nutrition counseling before pregnancy is also very important for healthy outcome of pregnancy

Following measures can play a significant role in the health of mother and the baby:

- Balanced diet should be taken
- Women should remain physically active during pregnancy
- Proper management of chronic conditions like diabetes and hypertension
- Smoking should be avoided before and during pregnancy to avoid the hazardous effects both on the mother and fetus

Nutrition during Infancy

In infants' exclusive breast feeding is recommended till 06 months of age. Weaning should be initiated after 06 months of age. A healthy infant's birth weight doubles at 05 months of age and triples by 01 year. The infant's energy need is much higher than adults which is about twice that of an adult and depends on the body weight. A newborn need about 450 calories per day, whereas an adult's requirement is about 1500 - 2000 calories per day, depending upon the sex of the individual.

Carbohydrates are required to provide energy to the body. Fat is needed to provide energy and support the body's growth. Protein is the most important ingredient for infants. Proteins have multiple functions, including acting as enzymes and hormones, maintaining proper fluid and acid-base balance, providing nutrient transport, making antibodies, enabling wound healing and tissue regeneration, and providing energy when carbohydrate and fat intake is inadequate.

Breast Feeding

Exclusive breastfeeding for 06 months is feeding on demand of the baby i.e. every two to three hours (8–12 times in 24 hours). Encourage the mother to initiate breastfeeding within an hour of birth. Prelacteal feeds such as ghutti/honey should not be given.

Advantages of Breast Feeding

For Infants:

The first few days after birth, breasts make ideal "first milk." It's called colostrum. Colostrum is thick, yellowish, and is plenty to meet baby's nutritional needs.

- Breast milk provides balanced nutrition to the newborn
- Provides immunity and protects from different infections
- Provides hormones promoting physiological development

For Mothers:

- Breastfeeding burns extra calories, so it can help lose pregnancy weight faster
- Helps the uterus to contract well and prevents excess blood loss
- Delays ovulation thus used as a natural method of family planning
- Conserves iron store
- May protect from breast and ovarian cancers
- Lowers the risk of osteoporosis

Economic Benefits

- Cost-saving for purchase of expensive formula milk
- Cost-saving by preventing infant diarrhea common due to bottle-feeding
- Convenient, cost saving and time saving as no need to sterilize bottles and purchase formula milk[14]

Weaning

Weaning is the process by which a baby slowly gets used to eating family or adult foods and relies less and less on breast milk.[15] Weaning is the first introduction of anything other than mother's milk. Solid foods are offered to the baby after 06 months of age. Breast feeding should not be discontinued after initiation of weaning. Mothers are recommended to continue breastfeeding till 02 years of age.

Malnutrition

Malnutrition is one of the reasons for mortality and morbidity among mothers and children. Under-nutrition is responsible for about one-third of children's deaths while being overweight raises the risk of chronic diseases. These issues can occur in all age groups irrespective of social status. Diabetes, cardiovascular disease, and other diet-related conditions are showing an upward trend worldwide.

Wasting

Wasting and bilateral edema are severe forms of malnutrition - resulting from acute food shortages and resulting in many health issues. Rising food prices, food scarcity in areas of conflict, and natural disasters diminish household access to appropriate and adequate food, all of which can lead to wasting. Wasting demands emergency nutritional interventions to save lives.

Stunting

Considering the WHO child growth standards if children are too short for their age group, this is known as stunting. According to 2016 figures, globally about 155 million children are stunted, resulting from dietary deficiencies. Stunting rates among children are highest in Africa and Asia.

Minerals and vitamins are also an essential part of a balanced diet. They are vital to boost immunity and healthy growth and development. Vitamin A, zinc, iron, and iodine deficiencies are primary public health issues. Globally, it is estimated that 40% of all children aged 6–59 months, 37% of pregnant women and 30% of women 15–49 years of age are affected by anaemia.[16] Vitamin A deficiency affects 29% of children 6-59 months of age in low- and middle-income countries and is a risk factor for blindness and mortality from measles and diarrhea.[17]

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[14] *Essential Maternal Newborn Care on the Job Training Modules USAID MCHIP 2014* PA00MJDH.pdf (usaid.gov)
Basic Maternal and Newborn Care: USAID Access Jhpiego 2004 Pnada620.pdf (usaid.gov)
WHO Postnatal Guidelines 2013 WHO recommendations on Postnatal care of the mother and newborn
WHO Antenatal Guidelines 2016 WHO recommendations on antenatal care for a positive pregnancy experience
[15] *https://apps.who.int/iris/bitstream/handle/10665/39335/9241542373_eng.pdf*
[16] *https://www.who.int/news-room/fact-sheets/detail/anaemia*
[17] *https://pubmed.ncbi.nlm.nih.gov/26275329/*

CHAPTER 5: IMMUNIZATION SERVICES

INTRODUCTION

In Pakistan, immunization services are provided through the Expanded Program on Immunization (EPI), which is a national program aimed at reducing vaccine-preventable diseases. EPI offers a range of vaccines to protect children and adults against various diseases. These include vaccines for diseases such as polio, tuberculosis, diphtheria, pertussis (whooping cough), tetanus, hepatitis B, measles, mumps, rubella, pneumonia, and meningitis, among others.[18] The vaccination services are delivered through various healthcare facilities, including government hospitals, basic health units, rural health centers, and private clinics. In addition, outreach programs are conducted to reach remote and underserved areas. Vaccinations are usually provided free of charge at government healthcare facilities.[19]

STANDARDS

Following are the standards for provision of immunization services:[20]

- **Vaccine Storage and Handling:** EPI centers must have appropriate storage facilities, such as refrigerators/ILRs and freezers, to maintain vaccines at the recommended temperatures. The vaccines should be stored separately from other items, and temperature monitoring should be conducted regularly. Proper procedures for vaccine handling, including stock rotation and disposal of expired vaccines, should be followed.[21]
- **Vaccine Administration:** Trained healthcare professionals, such as doctors or nurses, should administer the vaccines. They should adhere to proper injection techniques and maintain a clean and sterile environment to prevent infections. Proper disposal of sharps and adherence to waste management protocols are essential.
- **Vaccine Supply Chain Management:** EPI centers should have a reliable supply chain system in place to ensure an uninterrupted availability of vaccines. This includes monitoring vaccine stocks, forecasting needs, and coordinating with relevant authorities to ensure a timely supply.
- **Cold Chain Management:** EPI centers should have a functional cold chain system to maintain the temperature integrity of vaccines during transportation and storage. This involves using temperature-controlled equipment, such as vaccine carriers and cold boxes, and monitoring temperature during transit.
- **Adverse Events Following Immunization (AEFI) Reporting:** EPI centers should have a system for monitoring and reporting any adverse events that occur after vaccination. Healthcare providers should be trained to recognize and manage potential side effects or adverse reactions, and proper reporting channels should be established to communicate such incidents to the relevant authorities.
- **Vaccine Safety and Quality Assurance:** EPI centers should ensure that vaccines used are procured from approved sources and meet quality standards. Vaccines should be stored and transported under the recommended conditions to maintain their potency and effectiveness.[22]

[18] https://health.balochistan.gov.pk/index.php/provincial-epi-program/
[19] *https://www.who.int/health-topics/vaccines-and-immunization#tab=tab_1*
[20] *https://www.who.int/publications/i/item/standards-for-maternal-and-neonatal-care*
[21] *https://lmis.gov.pk/docs/EPILogisticsManual/EPIVaccineLogisticsManualFinal.pdf*
[22] *https://epi.gov.pk/wp-content/uploads/2023/01/NationalImmunizationPolicy2022-compressed.pdf*

TETANUS AND DIPTHERIA IMMUNIZATION

If the woman is due for her next Tetanus and Diphtheria (Td) vaccination (according to her written record, history, or the schedule below):

- Give injection Td 0.5 ml I.M. in the woman's upper arm
- Update her card and inform her when the next vaccination is due
- If the woman is not due for a Td vaccination, inform her when the next is due

Td vaccination schedule for women of reproductive age

Td INJECTION	DUE
Td1	At first contact with a woman of childbearing age or as early as possible during pregnancy
Td2	At least four weeks after Td1
Td3	At least six months after Td2
Td4	At least one year after Td3 or subsequent pregnancy
Td5	At least one year after Td4 or subsequent pregnancy

ROUTINE IMMUNIZATION SCHEDULE

ROUTINE IMMUNIZATION SCHEDULE		
When	Age	Vaccines
At birth	At birth	BCG, OPV-0, Hep-B
2nd Visit	6 weeks	OPV-I, Rotavirus-I PCV-1, Pentavalent-I
3rd Visit	10 weeks	OPV-II, Rotavirus-II PCV-II, Pentavalent-II
4th Visit	14 weeks	OPV-III, IPV-I PCV-III, Pentavalent-III
5th Visit	9 months	MR-I, IPV-II Typhoid
6th Visit	15 months	MR-II

Counsel the mother for completion of vaccination according to the schedule. Keep the complete vaccination record.[23]

[23] https://epi.gov.pk/immunization-schedule

CHAPTER 6: FAMILY PLANNING SERVICES

INTRODUCTION

According to the World Health Organization (WHO), family planning is defined as "the ability of individuals and couples to anticipate and attain their desired number of children and the spacing and timing of their births". In Pakistan, currently 34% married women use a method of family planning, with 25% using a modern method and 9% using a traditional method.

Among currently married women, the most popular modern methods are the male condom and female sterilization. Contraceptive prevalence rate among married women varies with age, rising from 7% among women aged 15-19, peaking at 48% for women aged 40-44, and then slightly declining to 37% among women age 45 to 49.[24]

HEALTHY TIMING AND SPACING OF PREGNANCY (HTSP)

Healthy timing and spacing of pregnancy is an intervention to help women and families delay or space their pregnancies to achieve the healthiest outcomes for women, newborns, infants and children.

1. Women should delay their first pregnancy until at least age 18.
2. After a live birth, women should wait at least 24 months before attempting another pregnancy to reduce the risk of adverse maternal, perinatal and infant outcomes.
3. After a miscarriage or induced abortion, women should wait at least six months before attempting another pregnancy to reduce risks of adverse maternal and perinatal outcomes.[25]

CLASSIFICATION OF FAMILY PLANNING METHODS

Traditional methods

Include Withdrawal method, Rhythm method and other traditional methods

Modern methods

Include pills, intra-uterine contraceptive device (IUCD), injectable, implants, male and female condoms, diaphragm emergency contraception and female and male sterilization.

Characteristics	Side effects	Indications	Contraindications
Combined Oral Contraceptive (COCs) pills			
• Safe and very effective if used consistently and correctly. • Reversible, rapid return to fertility • Do not interfere with intercourse • Easy to discontinue use • Require daily use	• Headaches, dizziness • Nausea • Changes in bleeding patters • Breast tenderness • Mood changes • Weight gain • Acne • Severe chest pain or shortness of breath • Sharp pain in leg or abdomen	• Women of any parity or reproductive age • Have no known conditions that preclude safe use	• Primarily breastfeeding between six weeks and six months • First three weeks postpartum and not breastfeeding (six weeks postpartum if other risk factors for venous thromboembolism) • Aged 35 or older and smoke 15 cigarettes per day or more • Breast cancer

[24] . *Pakistan Demographic and Health Survey 2017-18.* Pakistan Demographic and Health Survey 2017-18 [FR354] (dhsprogram.com)

[25] *World Health Organization, Department of Reproductive Health and Research, K4 Health HTSP toolkit*

Characteristics	Side effects	Indications	Contraindications
• Incorrect use is common (easy to miss taking a pill) • No protection against sexually transmitted infections, including HIV • Serious complications are very rare			• Severe cirrhosis; malignant liver tumors; or benign liver tumors, except for focal nodular hyperplasia (which is a tumor that consists of scar tissue and normal liver cells) • Cardiovascular conditions (i.e., high blood pressure; diabetes with vascular complications; history of or current deep venous thrombosis, stroke or ischemic heart disease) • Migraine with aura or any migraine in women 35 or older • Taking drugs that affect liver enzymes: rifampicin or rifabutin (for tuberculosis), anticonvulsants (for epilepsy) or ritonavir (as part of an antiretroviral regimen) • (For a complete list, see the World Health Organization medical eligibility criteria)
Progestin-only Injectable			
• Highly effective • Easy to use • Reversible with some delay in return to fertility • Do not affect quality or quantity of breast milk • Provide non-contraceptive health benefits (protection from endometrial cancer, uterine fibroids, ectopic pregnancy and symptomatic pelvic inflammatory disease) • Prefilled single-dose, single- use	• Irregular bleeding or spotting • Prolonged or heavy bleeding • Amenorrhea (common, especially after the first year of use) • Weight gain • Headaches and dizziness • Changes in mood and sex drive • Unusually yellow skin or eyes	• Want to use this method of contraception • Have no known conditions that preclude safe use (such conditions are rare)	• Breastfeeding while less than six weeks postpartum • Multiple risk factors for cardiovascular disease • Blood pressure more than 160/100 mmHg • Acute deep venous thrombosis (unless on established anticoagulant therapy) • Current or history of ischemic heart disease or stroke • Unexplained vaginal bleeding (before evaluation) • History of or current breast cancer • Diabetes with vascular complications

Characteristics	Side effects	Indications	Contraindications
injection (Sayana press) is easy to use by the community health workers or client can self-inject			• Severe cirrhosis; malignant liver tumors; or benign liver tumors, except for focal nodular hyperplasia (a tumor that consists of scar tissue and normal liver cells)
Emergency Contraceptive Pills (ECPs)			
• ECPs substantially reduce the chance of pregnancy after an episode of unprotected sex • Help to prevent pregnancy when taken up to five days after unprotected sex • More effective if taken immediately	• Nausea • Abdominal pain • Changes in bleeding patterns: Slight irregular bleeding for 1-2 days after taking ECPs, monthly bleeding may start earlier or later after taking ECPs • Breast tenderness • Vomiting • Headache • Dizziness • Fatigue	• Women of any parity or reproductive age • Want to use this method of contraception	• Blood pressure more than 160/100 mmHg • Current or history of ischemic heart disease or stroke
Intrauterine Contraceptive Device (IUCD)			
• The IUCD is effective as soon as it is inserted and is one of the most beneficial long-acting reversible contraceptive methods. • Less than 1 % chances of pregnancy in the first year of use. This means less than one pregnancy per 100 women in the first year of use	• Changes in the bleeding pattern • Prolonged and heavy monthly bleeding • Irregular bleeding • More cramps and pain during monthly bleeding	• Women of any parity or reproductive age • Nulliparous women who want to use this method of contraception • Have no known conditions that preclude safety	• Known or suspected pregnancy • Sepsis following childbirth or abortion (if insertion is immediately postpartum or post abortion) • Unexplained vaginal bleeding • Cervical, endometrial, or ovarian cancer • Pelvic inflammatory disease • Purulent cervicitis (gonorrhea or chlamydia) • Malignant gestational trophoblastic disease • Known pelvic tuberculosis • Uterine fibroid or other anatomical abnormalities resulting in distortion of the uterine cavity
Implants			
• Implants are 99% effective • Do not interfere with normal daily activities • Can be used by postpartum women immediately or	• The most common side effect with contraceptive implants is a change in the menstrual bleeding pattern. • Among two-rod implant users, prolonged bleeding and irregular bleeding and spotting are common,	• Women of any parity or reproductive age • Want to use this method of contraception • Have no known conditions that preclude safe use	• Suspected pregnancy • History of past or current breast cancer • Liver tumor or severe liver disease • Acute venous thromboembolism

Characteristics	Side effects	Indications	Contraindications
before going home after delivery • Have no effect on the quality or quantity of breast milk • Insertion involves a minor surgical procedure • Non-contraceptive health benefits (help prevent ectopic pregnancy and iron deficiency anemia) • Implants can be removed at any time by a trained provider with no delay in return to fertility.	especially during the first six to nine months of use. • Weight change • Abdominal pain • Acne (can improve or worsen) • Headaches, dizziness, mood changes, nausea, and breast tenderness (less common than with combined oral contraceptives)	(such conditions are rare) • Postpartum women	

Surgical methods/Sterilization

- The surgical methods of male and female sterilization (vasectomy and tubal ligation, respectively) are highly effective, cost-effective, and convenient. These are irreversible and permanent methods of contraception. They should be provided only to couples who have decided voluntarily that they do not want more children. Informed consent of the couple and written consent of both husband and wife should be obtained in every case.[26] Although the purpose of signing the form is to document informed consent, the principle focus should be on confirming that the client has made an informed choice of this method of contraception.

POSTPARTUM FAMILY PLANNING (PPFP)

According to the World Health Organization (WHO), postpartum family planning is defined as the prevention of unintended pregnancy and closely spaced pregnancies through the first 12 months following childbirth.[27]

PPFP services can be obtained according to the following timelines post-delivery:

- Post placental: Within 10 minutes after placenta delivery
- Immediate postpartum: Within 48 hours after delivery
- Early postpartum: 48 hours up to 06 weeks
- Extended postpartum: 06 weeks to one year after delivery

[26] https://pwd.punjab.gov.pk/permanent_methods
[27] https://tciurbanhealth.org/courses/pakistan-service-delivery/lessons/pakistan-postpartum-family-planning/

Benefits of PPFP

- Although breastfeeding serves as a natural way of contraception, it is not a 100% safe method for contraception. A woman can be fertile again after two weeks postpartum.
- PPFP benefits both the mother and baby. The mother's health improves with time in the postpartum period; the baby, her family, and her household are also settled with time.
- Birth spacing allows the family to provide a better quality of life for the children, their education, upbringing, nutrition, and overall wellbeing.

FAMILY PLANNING DURING DISASTER/CRISES SITUATION

Globally, reproductive health issues are a leading cause of women's morbidity and mortality. Family Planning services should be provided to all women affected by humanitarian emergencies like floods, earthquakes etc. Informed family planning choice is a basic human right and allows both men and women to take control of their reproductive health, especially during disaster situations.

The Family Planning Services package should include the following:

- Counseling services that ensure confidentiality and privacy of the clients
- Provision of different contraceptive methods, including Emergency contraception

Provision of different contraceptive methods, including Emergency contraception, Counseling

Counseling refers to a two-way communication between a skilled provider and the client. It aims to facilitate informed and voluntary sexual and reproductive health decision making by the client. Privacy and confidentiality is a vital pre-requisite for effective counseling. The health care provider must be knowledgeable and have good command of the subject. It requires empathy, genuineness, and the absence of any moral or personal judgment.

Counseling also offers service providers the opportunity to dispel myths & misconceptions of the client for continued use of FP methods. It should also include information on side effects and warning signs for different methods of contraception.

GATHER counseling technique:

Steps	Activities
GREET	• Greet the client (or couple) with a warm and personalized welcome • Spend a few minutes putting the client at ease—this will encourage her to relax and reveal more information to you than she would if she were feeling tense and anxious • Many people, particularly the young, feel embarrassed about discussing their method of contraception
ASK	• Establish age, marital status, cultural orientation, and motivation for the visit without being judgmental or biased • Encourage the client to discuss any previous experiences of contraceptive methods • How did she find out about them? • What did she particularly like or dislike about them? • Collect basic medical information to ensure there are no reasons why she should not use a specific method
TELL	• Be direct and specific and use simple words • Emphasize the most important points the client needs to remember. Explain all available methods and how they are used • Use support materials such as pamphlets and brochures • Let her handle samples of different methods
HELP	• Give more details about the selected method and let the client repeat • Do not decide for her; let the client choose the method

Steps	Activities
	• After a method is selected, the service provider will confirm the suitability of the method by conducting the appropriate medical assessment • Once this is completed, the chosen contraceptive method is provided
EXPLAIN	• Inform the client about the characteristics, benefits, limitations, and side effects of each method • Explain that barrier methods may also be needed to protect against STIs and other STIs, including HBV and HIV/AIDS • Ask the client to repeat all instructions • Encourage her to ask questions or state any remaining concerns
RETURN	• Specific return visit instructions should be provided • Be sure the client knows whom to contact if she has questions • Refer the client to an appropriate clinic for follow-up care as needed

HUMAN RIGHTS BASED APPROACH TO FAMILY PLANNING (HRBA)

WHO guidance advises family planning programs to ensure human rights are respected and protected when services are scaled-up to reduce unmet need for family planning.[28] Rights-based family planning is an important reminder of the need for voluntary contraceptive services. Provision of sexual and reproductive health services should strongly follow this approach.

- Increase access to Contraception
- Ensure reduction in the number of un-wanted pregnancies
- Help ensure a woman's right to health and right to life

Below is the list of fundamental guiding principles and all service providers should follow them:

Principle	Explanation
Principle -1	NON-DISCRIMINATION: What you can do: Welcome all clients equally. Respect every client's needs and wishes. Set aside personal judgments and any negative opinions. Promise yourself to give every client the best care you can.
Principle -2	AVAILABILITY OF CONTRACEPTIVE INFORMATION AND SERVICES: What you can do: know the family planning methods available and how to provide them. Help make sure that supplies stay in stock. Do not rule out any method for a client, and do not hold back any information.
Principle -3	ACCESSIBLE INFORMATION AND SERVICES: What you can do: Help make sure that everyone can use your facility, even if they have a physical disability. Participate in outreach, when possible. Do not ask clients, even young clients, to get someone else's permission to use family planning or a certain family planning method.
Principle -4	ACCEPTABLE INFORMATION AND SERVICES: What you can do: Be friendly and welcoming and help make your facility that way. Put yourself in the client's shoes. Think what is important to the clients—what they want and how they want it provided.
Principle -5	QUALITY: What you can do: Keep your knowledge and skills up to date. Use good communication skills. Check that contraceptives you provide are not out-of-date.
Principle -6	INFORMED DECISION-MAKING: What you can do: Explain family planning methods clearly, including how to use them, How effective they are, and what side effects they may have, if any. Help clients consider what is important to them in a family planning method.
Principle -7	PRIVACY AND CONFIDENTIALITY: What you can do: Do not discuss your clients with others except with permission and as needed for their care. When talking with clients, find a place where others cannot hear. Do not tell others what your clients have said. Promptly put away clients' records.
Principle -8	PARTICIPATION: What you can do: Ask clients what they think about family planning services. Act on what they say to improve care.
Principle -9	ACCOUNTABILITY: What you can do: Hold yourself accountable for the care that you give clients and for their rights.

[28] https://tciurbanhealth.org/courses/pakistan-service-delivery/lessons/pakistan-postpartum-family-planning/

CHAPTER 7: FORECASTING GUIDELINES

INTRODUCTION

Forecasting and supply planning (FASP) lie at the core of the operations of the supply chain in a healthcare delivery system. Forecasting and supply planning not only ensure realistic estimation of the commodities before going for actual procurement but also help in identifying various bottlenecks in the supply chain before incurring any expenses for commodity procurement. This important process enables health managers to ensure uninterrupted supply of commodities from the manufacturers to the end users i-e patients or clients. Forecasting and Supply Planning (FASP) is an integrated process of estimating the required quantities of health products for time and accurate procurement.

PRODUCT SELECTION

Product selection is an important step that precedes quantification and helps district managers select which products they intend to provide and bring into the district health care system. Limiting the number of products and medicines have several benefits including:

- Making the supply chain more manageable – can set up a logistics system more quickly which can ensure better product availability.
- Improving staff familiarity with products – working with fewer products allows district and sub-district level staff to become more familiar with them from district storekeeper to dispenser in facility.

QUANTIFICATION

Quantification is the process of estimating the quantities and costs of the products required for a specific health program (or service) and determining when the products would be delivered to ensure an uninterrupted supply for the health care continuum.

QUANTIFICATION ACTIVITIES

- **Forecasting:** estimating the quantities of the health commodities required for a specific health program (or service).
- **Supply planning:** determining the cost and when the health commodities should be delivered to ensure an uninterrupted supply for the program.

IMPORTANCE OF QUANTIFICATION

The results of a quantification exercise help district level managers:

- Identify the funding needs and gaps for procurement of necessary commodities
- Leverage the sources, amounts, and timing of funding commitments to maximize the use of available resources
- Advocate for additional resources, when needed
- Ensure procurement is coordinated with forecasted supply needs to ensure a continuous supply of commodities which will result in better service delivery

Quantification depends on health commodity selection (i.e. the right products), data from service delivery points (through LMIS, HMIS, DHIS and vertical MISes), district/program level data on program policies, (e.g. Standard Treatment Guidelines), strategies for service delivery, program expansion plans, and external data availability of health commodities in the market.

OVERVIEW OF STEPS IN QUANTIFICATION

PREPARATION

Prior to beginning any data collection for quantification, the following steps should be taken:

Assembling a team. Most quantification teams have 6-10 members who represent stakeholders from across the supply chain. They can be district health officers, district coordinators or program managers, logistics officers, HMIS or DHIS coordinators, procurement specialists, M&E staff, storekeepers, provincial representatives, facility management or any officials who directly involved in supply chain matters within the district. Members from the private sector with relevant expertise can also be contacted if needed, provided they have no conflict of interest. The team members should have:

- Skills related to the specific program area
- Knowledge about the commodities and their use
- Computer literacy
- A proficiency in Excel
- Commitment to conducting ongoing data collection and monitoring,
- The ability to create and manage databases

Additionally, team members should be contributing to updating data pertaining to forecasting, assumptions, and supply planning, as well as finding compilations and presentation.

Defining the purpose and scope of the quantification exercise.
This step includes:

- Identifying the specific list of products to be quantified, including all formulations, dosages, and brands of products required for the health program.
- Determining if products are quantified for use in the public sector program, NGO sector, or faith-based organizations.
- Defining the geographical outreach of the health program that products are to be quantified for. This allows all stakeholders to know the full extent of commodity needs to coordinate mobilization and allocation of resources for procurement.
- Defining the timeframe for the quantification. A two-year period is recommended for procurement quantification. Quantifications for longer periods (5 years or 7 years) may be conducted for advocacy to secure financial commitments and resource mobilization.

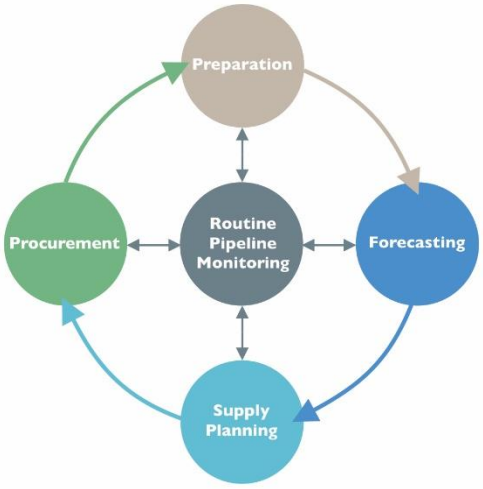


Figure 2:Routine Pipeline Monitoring

Collecting required data: For the forecasting step, it is recommended to collect as many types of data from as many sources as possible to crosscheck and validate the forecast. Generally, four different types of data are used for forecasting health commodities.

Consumption Data: Forecasting based on consumption data involves working directly with the quantities of products being dispensed or used over a specified period. The data can be acquired from LMIS & HMIS reports. If the LMIS or DHIS/HMIS does not accurately report consumption, then supply

orders, or purchase orders from the districts could also serve as tools for compiling and gathering information pertaining to the commodities ordered over a specified period. When forecasting is based on consumption data, a major assumption is that products are dispensed according to the dispensing protocols.

Service Data: The number of specific services provided, or number of patients/client visits over a specified period. The data can be extracted from HMIS reports and examples include:

- Number of pregnant women who received an HIV test
- Number of cases of TB treated
- Number of new clients or number of first-time visits
- Number of returning clients or number of returning visits
- Number of children with acute respiratory infections treated
- Number of births having taken place at the health facilities

Morbidity Data: Morbidity data may be of two types:

- Facility-based morbidity data is based on the number of cases of a disease or health condition treated. As such, morbidity data is linked to services data since cases treated are services that were provided at the service delivery level. This data can be extracted from HMIS reports and can be used for estimating the quantities of products that would be required to treat all cases. In the absence of consumption or services data of health facilities, an estimated number of cases of the disease or health condition that will be treated is used.
- Population-based morbidity data is based on the prevalence or incidence of a disease or health condition present in a population in a specific point in time. It can be acquired from surveys like the Pakistan Demographic and Health Survey (PDHS) or the Multi Indicator Cluster Survey (MICS). Examples include:
- Number of cases of tuberculosis treated in a month.
- Number of cases of malaria treated in a month or year

Demographic Data: Is data on the number and characteristics of the population for whom the quantification is being conducted, including population size, age, sex, geographical location, behavior (at risk populations), preferences (choice of contraceptive method) or other characteristics such as the number of people targeted for services based on population figures. It can be acquired from Census or National Institute of Population Studies (NIPS) reports.
Additionally, established Standard Treatment Guidelines are important to understand what recommended products and dispensing protocols for diseases are being targeted by programs.

FORECASTING

The activities in the forecasting step are:

Organize and analyze data. After the data is collected, its quality needs to be assessed. Several adjustments may have to be made to accommodate issues such as the incompleteness of reporting or outdated and unreliable data.

Build and obtain consensus for forecasting assumptions. Build and obtain consensus for forecasting assumptions made about the program performance, targets, and future demand including expected uptake in services and compliance with recommended treatment guidelines. When doing a forecast based on services

data, a major assumption is that products are dispensed according to the dispensing protocols. If dispensing protocols are not being followed, consumption could be over- or under-estimated.

Calculate forecasted consumption for each product. Document all sources and adjustments to data along with assumptions, and then estimate future consumption for each product for the determined period.

Compare and reconcile results of different forecasts. Compare final forecast quantities from each forecast and consider the implications of the different forecasts based on consumption, services, demographics, and morbidity data sets for the program. This includes service capacity, storage and distribution capacity, funding availability, and any other issue that could affect demand, supply, and use of commodity. Finally, a final forecast for each product should be determined.
The final forecasts based on each of the types of data used would then be cross-checked against each other, with their differences investigated and the quality of the available data considered. This cross-checking serves as a validation of the final forecast.

SUPPLY PLANNING

The final output of the supply planning step is the supply plan which details the total estimated quantities and costs of the products required for the program, the planned quantities and shipment delivery schedule for the period of the quantification, and the comparison of funding available to the total cost of the commodities required.
For the supply planning step, data should be collected on total stock on hand in the program, quantities in orders, procurement and supplier lead times, supplier prices and shipping and handling costs, and funding available for procurements.

Organize and analyze data. As with the forecasting step, supply planning data also needs to be collected and analyzed. The data includes:

- Current stock on hand
- Quantities on order
- Procurement and supplier lead times
- Supplier prices, shipping and handling costs
- Funding available for procurement

This data will help estimate the quantities of commodities needed and the total cost of procurement.

Build and obtain consensus for supply planning assumptions. The assumptions needed to develop a supply plan include timing of available and potential funds, amount of available and potential funds, lead times for each supplier, estimated arrival dates of supplies, and minimum and maximum stock levels for each level in the system.
Assumptions may also need to be made to account for data that is incomplete, unreliable, outdated or simply not available. For example, current stock on hand may only be available at the central level, and procurement lead times or timing of funding disbursements may not be known.

Estimate total commodity requirements. In addition to the forecasted quantities of commodities that will be dispensed to patients or used to provide a service, there is also a need to have enough products to fill the pipeline, for buffer and lead time stock. Supply planning needs to account for current stock on hand, as these will be subtracted from final quantities of commodities.

Develop a supply plan. A supply plan needs to be developed that factors in defined assumptions as well as commodity requirements to ensure a continuous supply of products in the district.

Compare costs to available funding. Once the final quantity of products needed to fill the pipeline and ensure continuous supply has been calculated, an estimated cost to purchase and transport all those products must be calculated. If enough funds are not available, more resources must be identified, or the quantities of products will have to be reduced by adjusting the forecasted amounts.

Institutionalize Mechanism for Forecasting of Health Commodities. For the forecasting and quantification to be properly ingrained into the system, it is important to establish a Technical Working Group (TWG) on the same model as constituted at the provincial level. The TWG will systematically determine district health commodity requirements, estimate their financial costs, and coordinate fulfillment of projected needs to support the continuous availability of commodities. It will also minimize duplication efforts and wastage of resources. The scope of TWG will be expanded to ensure a credible forecast of the health commodities to be consumed in the province, thereby streamlining the procurement planning process.
The TWG could broadly perform the following proposed functions:

- Review and finalize the forecasting and quantification data collection tool that captures the essential information needed.
- While using different data sources, gather key inputs and ensure data is sufficient and of high-quality.
- Define the scope, purpose and period of the forecast.
- Collect and review existing documents to define assumptions and adjustments based on recent demographic, logistics and morbidity data.
- Develop a district forecast for health commodities using the appropriate quantification methodology.
- Develop a supply plan based on the forecasting exercises.
- Review and adjust the supply plan regularly, based on uptake and consumption trends.
- Identify the funding needs and gaps for procuring the required commodities.
- Discuss data sources and data gaps to support regular forecasting and supply planning, as well as steps to address gaps.
- Coordinate with District Health and Population Management Team (DHPMT) for their inputs, if any, on forecasting and quantification of health commodities.

EXAMPLES

Example 1: DMPA/Three Month Injection

For this example of three-month injection (DMPA), we have taken LMIS, DHIS, and LHW-MIS average consumption data for three years (2017-19) for public sector. It is pertinent to note that based on consumption trends, growth factors for method mix have been estimated leading to projections till 2027.

Once the factors were accounted for and a forecast for 2022-23 developed, then a flat 10% yearly increase was used for demand projections till 2027. This 10% annual increase will cater to the yearly population growth and the gradual improvements that would be registered in reporting rate of contraceptives use.

The costing for the projected demands has been carried out based on the procurement of contraceptives by the provinces in FY2020-21/ 2021-22, and a 5% yearly inflation in prices (calculated on recent years' inflation) has been factored in to reach the final cost.

Consumption of DMPA for three years:

	2017	2018	2019	AMC	Yearly
Static Health Facilities	0	0	25,466	25,466	305,589
LHW	41,597	42,731	35,868	40,700	480,785
PWD	26,247	28,978	30,341	28,522	342,261
PPHI	10,845	13,549	18,122	14,172	170,062
total					1,298,697

After taking the average consumption of three years we calculated a yearly consumption which is 1,298,697 combined for all public sector stakeholders and put a markup of 10% each year to calculate the forecasted quantities of DMPA till 2026-27.

Product	**2020-21**	**2021-22**	**2022-23**	**2023-24**	**2024-25**	**2025-26**	**2026-27**
DMPA	1,428,566	1,571,423	1,728,565	1,901,421	2,091,563	2,300,720	2,530,792

For Cost calculation:

We took a markup of 5% on the actual cost of 2021-22 to calculate the forecasted cost till 2026-27

	2021 -22	**2022 -23**	**2023 -24**	**2024 -25**	**2025 -26**	**2026 -27**
Cost/unit	67	70.35	73.87	77.56	81.44	85.51

Forecasting Quantity and Cost:

	2022-23		**2023-24**		**2024-25**		**2025-26**		**2026-27**	
Product	Quantities	Cost PKR	Quantities	Cost PKR	Quantities	Cost PKR	Quantities	Cost PKR	Quantities	Cost PKR
DMPA	1,728,565	121,604,535	1,901,421	140,453,238	2,091,563	162,223,490	2,300,720	187,368,131	2,530,792	216,410,191

Example 2: Oxytocin

For this example, the data has been taken from the Census 2017 and Pakistan Demographic Health Survey. The forecasting is done based on the demographic data as depicted in the table below:

Oxytocin Need for PPH treatment	=	Total expected pregnancies	x	Proportionof public facility deliveries	x	Proportion of women who require treatment	x	Dose per case for PPH treatment

Total Population (projected,based on 2017 census - GR 2.89%)	**30,523,371**	**31,405,496**	**32,313,115**	**33,246,964**	**34,207,802**	**35,196,407**
Parameters	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
A) Expected Pregnancies (3.4%) DHIS Report 1	1,037,795	1,067,787	1,098,646	1,130,397	1,163,065	1,196,678
B) Prevalence of PPH	7%	7%	7%	7%	7%	7%
C) Number of PPH cases (C = A × B)	67,457	69,406	71,412	73,476	75,599	77,784
D) % of public health facility						

deliveries (30.6% Balochistan healthsurvey 2017 - assuming 1% increase)	31%	32%	33%	34%	35%	36%
E) Number of PPH cases seeking treatment from public health facilities	20,709	22,002	23,352	24,761	26,233	27,769
F) Requirement of Oxytocin(40 IU= 4 x 10 IU vial) for treatment of PPH	82,837	88,007	93,407	99,045	104,932	111,076
G) 5% Wastage	4,142	4,400	4,670	4,952	5,247	5,554
H) Total requirement of Oxytocin (10 IU/1 ml vial)to procure including wastage	**86,979**	**92,407**	**98,077**	**103,998**	**110,178**	**116,629**

FORECASTING HEALTH SUPPLIES IN EMERGENCIES

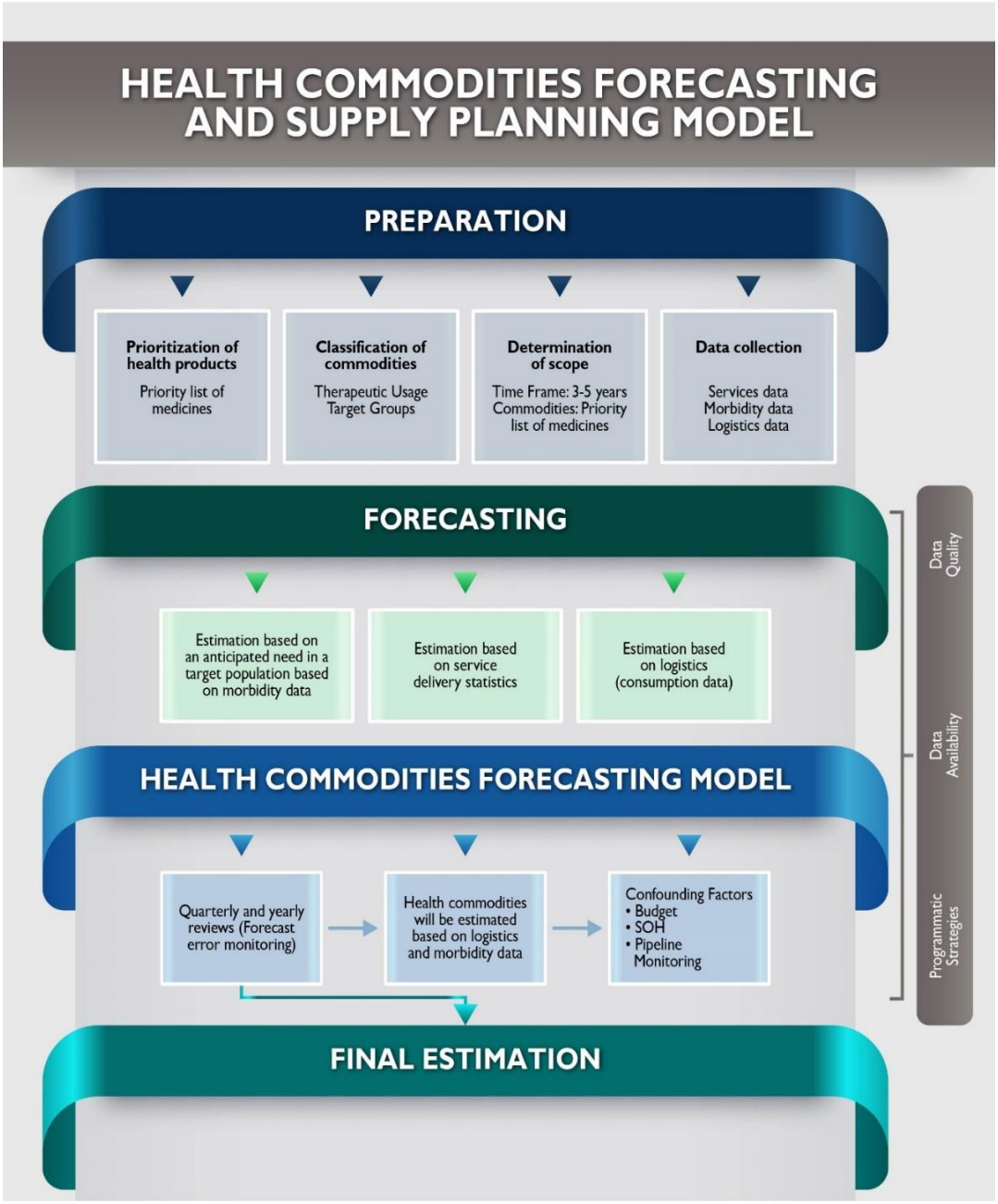
Forecasting health supplies in emergencies is a critical aspect of emergency preparedness and response. Accurate forecasting helps ensure that an adequate supply of essential health products, such as medications, medical equipment, personal protective equipment (PPE), and other necessary supplies, is available to meet the needs of affected populations. Some key considerations and approaches for forecasting health supplies in emergencies include:

- **Historical Data Analysis:** Analyzing historical data from past emergencies can provide valuable insights into the demand for health supplies during similar situations. Examining data on disease prevalence, population demographics, and resource utilization during previous emergencies can help identify patterns and estimate the potential demand for specific supplies.
- **Epidemiological Analysis:** Understanding the epidemiology of the emergency is crucial for accurate forecasting. Epidemiological data, such as the rate of infection, transmission dynamics, and severity of the disease, can help estimate the expected number of cases, hospitalizations, and treatment requirements. This information is vital for determining the quantity and type of health supplies needed.
- **Collaborative Networks:** Establishing collaborative networks between local, national, and international health agencies, humanitarian organizations, and suppliers is essential. Sharing data, expertise, and resources can improve forecasting accuracy and ensure a coordinated response. Collaborative networks can also help identify potential supply chain bottlenecks and facilitate timely procurement and distribution of health supplies.
- **Real-Time Monitoring:** Continuous monitoring of the evolving emergency situation is crucial. Monitoring disease trends, population displacement, and healthcare utilization in real-time can help adjust supply forecasts accordingly. Early warning systems and surveillance mechanisms can assist in identifying emerging health threats and potential supply shortages.
- **Scenario Planning:** Developing multiple scenarios based on different emergency response strategies can aid in supply forecasting. By considering various potential scenarios and their associated demand patterns, decision-makers can assess the robustness of supply chains, plan for contingencies, and allocate resources effectively.
- **Data-Driven Models:** Utilizing data-driven models, such as statistical forecasting methods or machine learning algorithms, can enhance the accuracy of supply forecasts. These models analyze historical data, incorporate real-time inputs, and consider multiple variables to generate predictions.

However, it's essential to continuously validate and update these models as the emergency situation evolves.

By combining historical data analysis, epidemiological insights, collaborative networks, real-time monitoring, scenario planning, and data-driven models, it's possible to improve the accuracy of health supply forecasting in emergencies. However, it's important to recognize that forecasting is not an exact science and should be seen as an iterative process that requires ongoing monitoring, evaluation, and adjustment.

FORECASTING & SUPPLY PLANNING MODEL AT GLANCE



CHAPTER 8: PROCUREMENT GUIDELINES

INTRODUCTION

Procurement is the process of meeting the supply requirements of an organization that spans from selection of products through payment to third party vendors for those products. Procurement provides opportunities to make practical improvements which will ensure cost effectiveness, promote product availability, and service to communities. Timely procurement will ensure product availability, ensuring services to the people. The procurement of medicines at the district level is compliant with rules under Balochistan Public Procurement Regulatory Authority (BPPRA).

PRINCIPLES OF PROCUREMENT

i. The procurement will be conducted in a fair and transparent manner.
ii. The objective of procurement brings value for money.
iii. The procurement process shall be efficient and economical.

OBJECTIVE OF THE PROCUREMENT

Quality	Recognized and approved standards from a reliable source.
Quantity	Will be based on forecasting and needs assessment of the organization.
Time	Will be procured and delivered according to an established schedule.
Place	Will be delivered at a specified location.
Price	Best returns for each rupee spent in terms of quality, timeliness, reliability, after sales service, upgradeability, price, source, and a combination of whole–life cost and quality to meet the procuring agency's requirement.

PROCUREMENT PLANNING

Procurement planning of medicines is driven by the following key objectives:

- Right product
- Right quantity
- Right condition
- Right place
- Right time
- Right cost

To achieve these objectives, procurement planning constitutes the cornerstone of the entire process. With public sector procurements enhancing accountability by virtue of taxpayers' money, the following principles must be adhered to:

- Economy
- Efficiency
- Quality
- Equality
- Fairness
- Transparency

An effective procurement function can optimize the overall supply chain performance and improved service delivery. The officials responsible for procurement functions need to be well versed in:

- Procurement rules prevailing in Balochistan
- Delegation of authority
- Financial thresholds
- Departmental clearance and approval procedures and corresponding administrative time frames
- Complexity or the specificity of requirements

Market conditions, already existing arrangements and or existing contracts

It is imperative to ascertain accurate quantity estimates based on the best available data that includes, but is not limited to, demographics, morbidity, and logistics data. The health facilities operating under District Health Office (DHO), whose procurements are routed through the DHO, estimate their demand based on previous and projected consumption. There is a demand figure which is included in the procurement plans. The key consideration when planning the procurement of medicines is the budget. Currently, the district health budgetary allocations are not based on epidemiological evidence generated from different information systems.

STANDARD PROCUREMENT STEPS

A pre-requisite for sound procurement is to have a clear idea of what needs to be procured. The selection and quantification of the health commodities to be procured should be based on factors including demand, disease burden etc. Some of the essential activities of the procurement process includes, forecasting, preparing specifications, preparation of bidding and prequalification documents, public announcement, using print and electronic media to invite bids, bidding and quotations have separate financial limits, as specified in the Balochistan Public Procurement Regulatory Rules (SPPR) 2014, bids opening, technical and financial evaluation, issuance of contracts and purchase orders, quality and quantity assurance followed by payments.
The steps are mentioned as below:

1. Indent calling from the field.
2. Indent scrutiny by the scrutiny committee.
3. Preparation and issuance of Annual Procurement Plan.
4. Formation of Procurement Committee as mentioned below:
    a. Departmental Purchase Committee (DPC)
    b. Technical Standardization Committee
    c. Inspection Committee
    d. Distribution Committee
    e. Complaint Redressal Committee

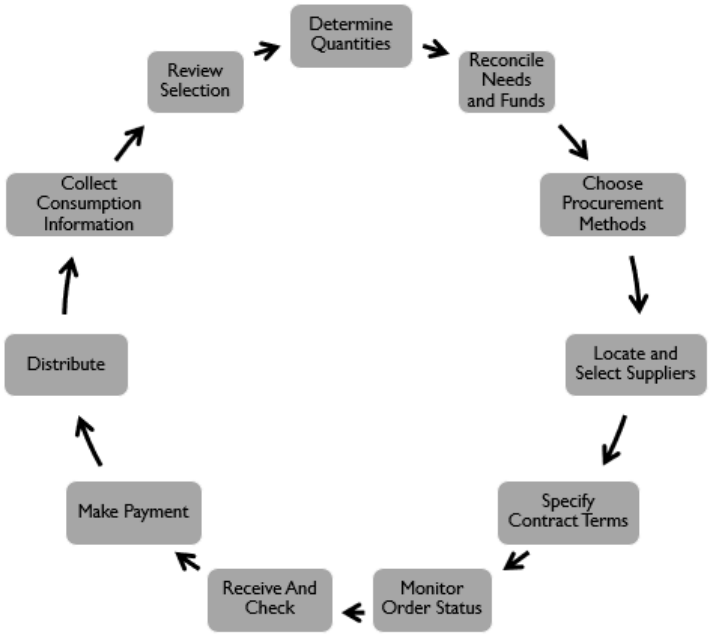


Figure 3: Standard procurement cycle

PROCESS:

1. Preparation of Bidding Document by Departmental Purchase Committee (DPC).
2. Notice Inviting Tender – NIT.
3. Tender Opening and Technical Evaluation by Technical Committee.
4. Bid Evaluations by the Departmental Purchase Committee.
5. Hosting of Bid Evaluation in accordance with BPPR-2014 rules.
6. Submission of recommendations of DPC for Award of Contract.
7. Receipt of Commodities at the Store.
8. Inspection is conducted by the Inspection Committee.
9. Samples are sent to Drug Testing Lab (DTL).
10. Seeking distribution plan from the relevant committee (Distribution Committee).
11. Distributions of medicine to fields.
12. District Level inspection and monitoring at district level is conducted.
13. Payment to vendors is processed as per Balochistan General Financial rules.

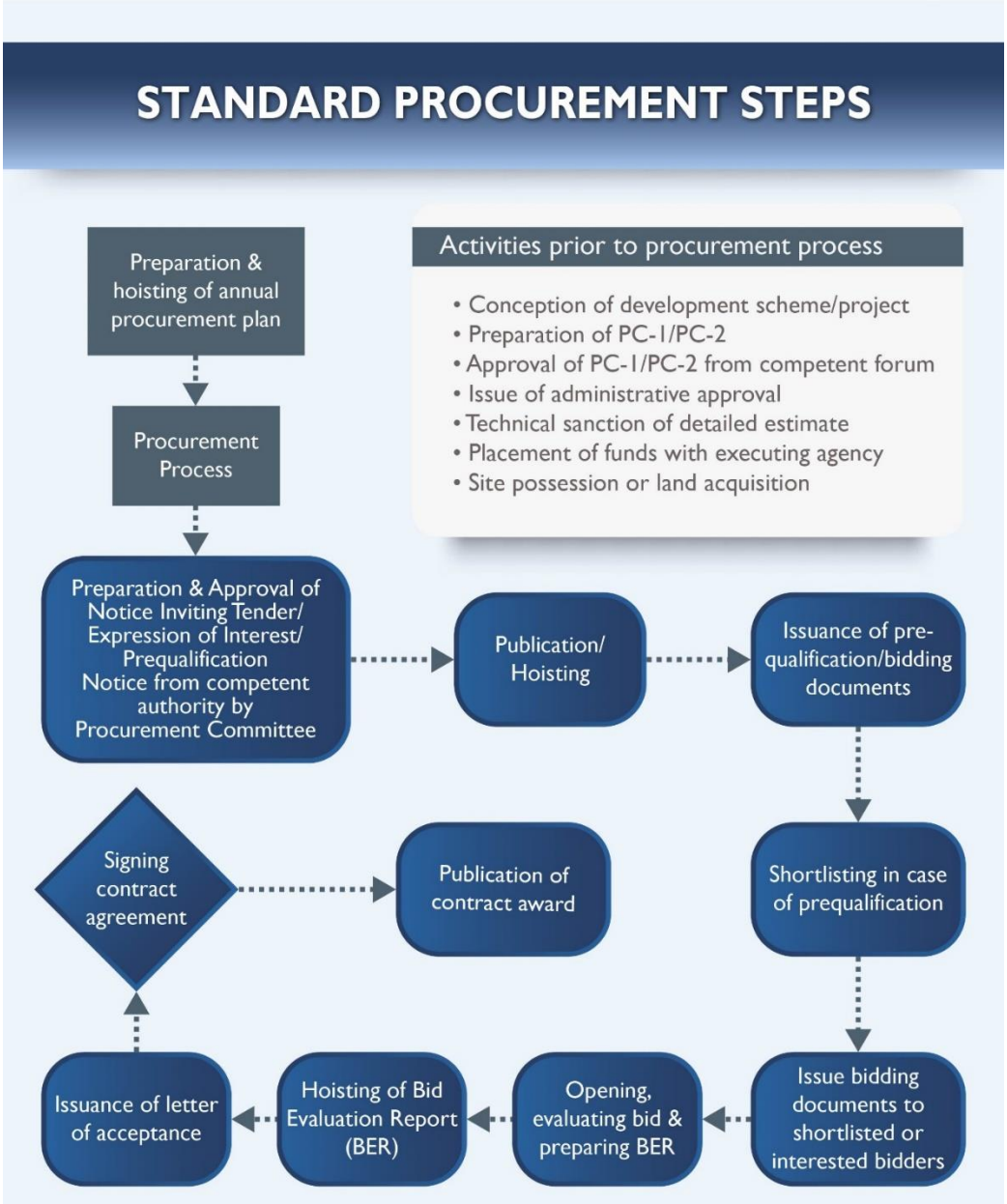
District Level Procurement: From the approved rate contract list for medicines & supplies of DPC, districts procure items using their available budget.

Emergency Procurement – Head of Department (Secretary Health, Balochistan) have to justify and declare emergency with the province. Procurement of health supplies in emergencies plays a crucial role in ensuring the availability of essential medical products and equipment to meet the urgent healthcare needs of affected populations.

APPLICABLE LAWS:

- BPPRA ACT 2013
- BPPRA Rules 2014
- The Drug Regulatory Authority of Pakistan ACT, 2012 and the Drug Act 1976
- The General Financial Rules of Government of Balochistan
- Balochistan Essential Medicine List
- WHO Essential Drug List
- ISO documents

PROCUREMENT STEPS AT GLANCE



CHAPTER 9: STORAGE GUIDELINES

INTRODUCTION

In the continuum of the supply chain, storage of products and their distribution to the service delivery points is of prime importance. In a healthcare supply chain system, availability of a network of stores spanning all levels of administration from become even more important owing to the vitality of any healthcare service delivery program to serve the communities. The chapter covers the best storage practices that should be followed at the district level.

RECEIVING AND INCOMING

- When unloading vehicles, the cartons and packages are visually inspected to avoid the likelihood of damage during transportation. The quantities of the products are also verified and recorded (bilty, invoice, voucher, packing lists).
- The responsible official must report any discrepancy in the physical count, or any damaged items spotted during the visual inspection.
- Visual inspection is the process of examining products and their packaging to look for any obvious problems with the product quality.
- The products received at the store can potentially undergo two types of damages: mechanical (physical) damage and chemical damage.
- Mechanical damage is caused by physical stress, such as crushing or tearing when the product is loaded, off-loaded, or stacked. This kind of damage is usually limited to crushed or torn parts. Generally, mechanically damaged items are removed from stock and the remainder of the box, or carton, is redistributed.
- Chemical damage is more difficult to detect and is usually not obvious during a visual inspection. Laboratory testing is typically required. Some indications of chemical damage include changes in the color, flavor, fragrance, or consistency of the product. Chemically damaged items are removed from inventory, quarantined, and destroyed per disposal procedure.

Indicators of Product Quality Problem

All products	**Liquids**	**Light-sensitive products (such as x-ray film)**	**Latex products**
• Broken or ripped packaging (vials, bottles, boxes, etc.) • Missing, incomplete, or unreadable label(s)	• Discoloration (color change) • Cloudiness • Sediment • Broken seal on bottle • Cracks in ampoule, bottle, or vial • Dampness or moisture in the packaging	• Torn or ripped packaging	• Dry • Brittle or hard • Cracked
Lubricated latex products	**Pills (tablets)**	**Injectable**	**Sterile products (including IUDs)**
• Sticky packaging • Discolored product or lubricant • Stained packaging • Leakage of the lubricant (moist or damp packaging)	• Discoloration • Crumbled pills • Missing pills (from blister pack) • Stickiness (especially coated tablets) • Unusual smell	• Liquid does not return to suspension after shaking	• Torn or ripped packaging • Missing parts • Broken or bent parts • Moisture inside the packaging • Stained packaging

Capsules	Tubes	Foil packs	
• Discoloration • Stickiness • Crushed capsules	• Sticky tube(s) • Leaking contents • Perforations or holes in the tube	• Perforation(s) in packaging	

PUT AWAY

- After unloading and unpacking the containers, the goods should be stored in their designated area (rack, shelf or floor) and recorded in the stock ledger.
- The best approach is to store and record the commodities the day they are received.
- Commodities must be stored based on FEFO (First Expiry First Out) principle, ensuring that patients receive them in good condition and on time, well before their expiration dates.

STOCK PLACEMENT

a) Store Products Using FEFO Principle

- In addition to having visible expiration and manufacture dates, products must be stored such that those that expire first are easiest to reach. This will ensure that the first product to expire is the first out. Managing by expiration date ensures that the oldest products, having less shelf life as compared to the fresh stocks, leave the store first. The storekeeper should confirm that FEFO is being followed every time they take a physical inventory.
- At the service delivery point, old stock should be moved or rotated to the front of the shelf, with new stock placed at the back of the shelf. By rotating stock, staff can ensure that the first stock issued is the first stock to expire.
- The goal is to get the product to the patient, not to have it expire on the shelves. This will ensure that communities receive the best available services.

b) Store supplies in a dry, well-lit, well-ventilated storeroom, out of direct sunlight

- One of the key considerations is to minimize the exposure to heat and direct sunlight as they can be detrimental to shelf life and the composition of products.
- To avoid such damage, it is recommended to store products in their original cartons and shade the interior of the storeroom from direct sunlight at lower levels, store products in the inner boxes (i.e., those that came inside the cartons), and leave medicines in their dark-colored/opaque bottles.

c) Clean and disinfect storeroom regularly

Rodents and insects (e.g., termites and cockroaches) eat tablets and their packaging. Keep the storeroom clean and disinfected all the time as it protects from pests. Do not eat or drink there and if possible, regularly schedule exterminations to eliminate pests. If rodents are a serious problem, cats may be an inexpensive, nontoxic alternative to traps or poisons.

d) Secure storeroom from water penetration

Water has an equally destructive impact on medicines and their packaging. The best way to prevent water damage is to repair leaky roofs and windows. It is recommended to stack supplies off the floor on pallets at least 10 centimeters (4 inch) off the ground and 30 centimeters (1 foot) away from walls to avoid water damage from moisture.

e) Fire Safety Precaution

Stopping a fire before it spreads can save thousands of dollars' worth of supplies and the storage space itself. The right equipment must be available throughout the storage facility, especially fully functioning fire extinguishers (clearly indicating expiry date) near the exits. If extinguishers are not available, use buckets of sand. Fire safety training is imperative for the staff managing the store.

f) Store latex products away from electric motors and fluorescent lights

Latex products, such as condoms and gloves, can be damaged if they are directly exposed to fluorescent lights and electric motors. Condoms and gloves stored in their proper packaging (i.e., boxes and cartons) will not be affected by limited exposure. Whenever possible, keep latex products in their paper boxes and cartons. If not, keep them away from lights and motors.

g) Maintain cold storage, including a cold chain, for commodities that necessitate it

Cold storage, including the cold chain, is essential for maintaining the shelf life of drugs and vaccines that necessitate it. These items are irreparably damaged if the cold chain is broken. If the electricity is unreliable, the alternative option is bottled gas or kerosene-powered refrigeration. During immunization campaigns, cold boxes or insulated coolers may be used for rapid transport.
It is important to follow the manufacturer's recommended storage conditions for all products. To remain compliant with the storage conditions, keep thermometers in various places within the storeroom and record temperatures twice a day (9:00 am and 4:00 pm). The following terms relate to temperature and medical supplies:

- **Store frozen:**
  Some products need to be transported within a cold chain and stored at –20°C (4°F) (e.g. BCG and Measles vaccine stored in the freezer room). Frozen storage is normally for longer-term storage at higher-level facilities.

- **Store at 2°– 8°C (36°– 46°F):**
  Some products are very heat sensitive but must not be frozen. These are usually kept in the first and second part of the refrigerator (never the freezer). This temperature is appropriate for storing vaccines for a short period of time as well as medicines like oxytocin.

- **Keep cool:**
  Store between 8°– 15°C (45°–59°F). Contraceptives like DMPA are stored at this temperature.

- **Store at room temperature:**
  Store at 15°– 25°C (59°–77°F). Medicines like paracetamol are held at this temperature.

- **Store at ambient temperature**
  Store at the surrounding temperature. This term is not widely used due to significant variation in ambient temperatures. It means "room temperature" or normal storage conditions, which means storing in a dry, clean, well-ventilated area at room temperature between 15° to 30°C (59°–86°) depending on climatic conditions.

h) Flammable products safety

Store these highly flammable products near a fire extinguisher and away from other products, such as phenobarbital sodium (elixir).

i) Stacking of Cartons

Pallets keep products off the floor, so that they are less susceptible to pests, water, and dirt damage. By keeping pallets 30 cm (1 ft.) away from the walls and from each other, air circulation is promoted, and it is easier to move, clean, and inspect stock. If storekeepers can walk around the stacks, they are more likely to be able to follow other good storage practices (sweeping, reading labels, and FEFO). Cartons should not be stacked higher than 2.5 m (8 ft.), whether on pallets or not. This is the highest that products can be stacked without crushing the cartons at the bottom. Stacking products at a stable height of less than 2.5 m also reduces the possibility of injury to warehouse personnel. When a storeroom has a reliable metal racking system, the cartons should be stacked in the racks accordingly. Where pallets are inappropriate, shelving is an excellent way to store products. Metal shelving is preferred because wood shelving may attract termites.

j) Arranging Cartons

It is essential that medicines that are the first to expire are also the first products issued, regardless of when they arrived at the storage facility. If shipping cartons do not show the manufacture or expiration dates, or if this information is difficult to read, use a marker to rewrite the dates on the cartons in large, easy-to-read letters and numbers.

Items should always be stored according to the manufacturer's instructions on the carton. This includes the direction of the arrows on the boxes, as storing cartons upside down can affect the usability of certain medicines.

k) Arranging Products

The district store should have a system for classifying and organizing medicines, which all relevant staff should be oriented on.

- **Alphabetical order by generic name:** Often seen in both large and small facilities. When using this system, the labeling must be changed when the Essential Medicines List (EML)/Medicines Coordination Cell (MCC) List is revised or updated.
- **Therapeutic or pharmacologic category:** Most useful in stores where the store staff are very knowledgeable about pharmacology.
- **Dosage form:** Medicines come in different forms, such as tablets, syrups, injectables, and external use products such as ointments and creams. In this system, medicines are categorized according to their dosage form. Using the other methods of categorization can be used to organize the items more precisely**.**
- **System level:** Items for different levels of the health care system are kept together. This works well in stores at a higher level when storing kits is required.
- **Frequency of use:** Frequently used products that move quickly through the store should be placed at the front of the room or closest. This system should be used in combination with another system.
- **Random bin:** Identifies a specific storage space with a code that corresponds to its aisle, shelf, and position on the shelf. This system requires computer automation.

RECORD KEEPING

a) Every district store has a stock register. The stock will be entered by store staff on the stock register and all details will be recorded including brand name, generic name, strengths, dosage forms, quantity, batch, lot number, expiry and receiving date. Each entry should also list the initials of the staff member that completed the intake.

The minimal information that should be collected on stock records for medicines and other health products includes:

- Product name and description, including the dosage form (capsule, tablet, liquid suspension, etc.) and strength
- Stock on hand or opening balance
- Receipts
- Issuance
- Losses and adjustments
- Closing or ending balance
- Transaction reference (such as issue voucher number or name of recipient)

Depending on the system, stock records might also include additional product information such as:

- Special storage conditions (e.g., 2°–8°C)
- Unit prices
- Lot numbers or bin locations
- Item codes
- Expiry dates

b) Stock records might also include certain calculated data items. These are determined by mathematical formulas that depend on system design parameters, such as how often orders are placed. Calculated data items include:
   - Consumption data, such as average monthly consumption (AMC)
   - Lead times29 for ordering or requisition
   - Maximum and minimum stock levels
   - Emergency order points

c) A storage and distribution system may not necessarily use all these forms but it will need forms to record stock data and product transactions. Standard forms used for inventory control include:

d) Stock register: Provides an up-to-date record of all transactions for medicines received, issued, and discarded.
   - Bin cards: An updated balance of an item available in stock. The bin card will be placed and maintained on every item stack for immediate stock monitoring. A separate bin card will be maintained for every drug. Drugs with different dosage forms and strengths of same generic name will be treated as separate drugs and separate bin cards will be used for each of these items.
   - Requisition or issue vouchers: Used for supplies issued or received at one time by the store.
   - Receiving forms (packing slip, freight bill, bilty): Used for supplies issued or received at one time by the store.

[29] The time between placement of supply order and delivery of the medicines

- Delivery or issue vouchers: Used for recording the stock issued at one time.
- Expired stock disposal forms: Used to keep record of the expired stock disposals.
- Physical inventory forms: The physical stock counts will be conducted at the end of every quarter and records will be maintained after signatures of the relevant authorities to ensure transparency in procedures.
- List of approved medicines and prices.

e) The store staff will ensure the presentation of monthly, quarterly, and annual stock reports to the authorities.

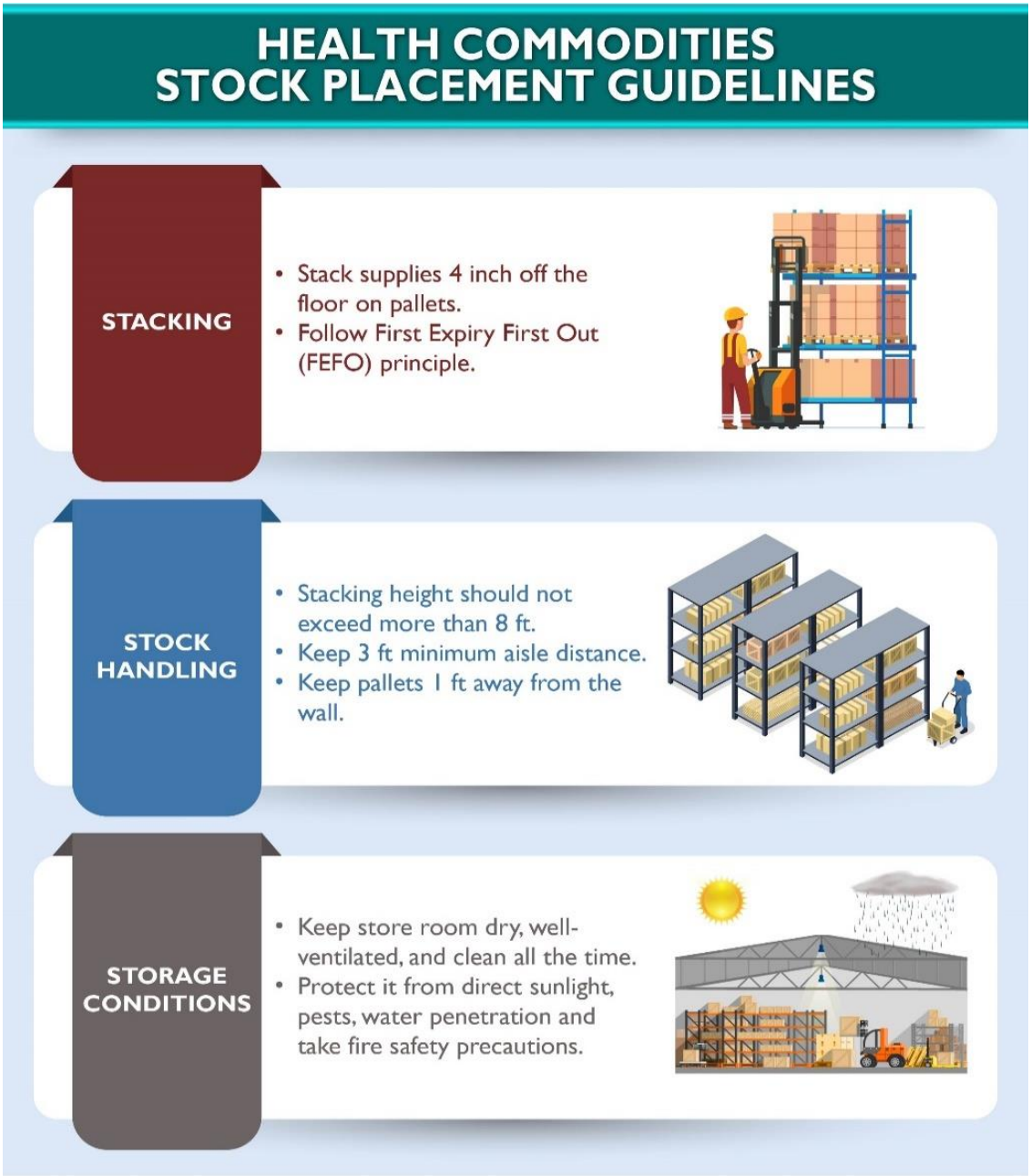


Figure 4: Snapshot of Stock Placement Guidelines

STOCK MANAGEMENT THROUGH INVENTORY MANAGEMENT

STORAGE SPACE CALCULATION

For district stores, shelves and racks are sparingly used and the following parameters are considered:

- Total product volume, by commodity, based on a peak month
- Required space for receiving, picking and packing, and shipping
- Organization and labeling of cartons to ensure accessibility and FEFO
- Required operation aisle distances (at least 3 feet)

Proper storage includes the effective use of storage space. If too much space is unused, a storeroom is underused, and money is wasted. If products are crammed into too small a space, they may be damaged or inaccessible. Thus, store staff must learn how to calculate the space needed to store incoming shipments and how to calculate overall storage requirements for the store, as well as an ideal layout.

To develop a workable layout and calculate storage requirements at a large warehouse, which may serve multiple purposes, it is important to identify the various warehouse activities that would influence layout planning. The space requirements and ideal layout for each activity must be determined to mitigate on constraints.

To determine space requirements, the following must be considered:

- Total stored pallet equivalents, by commodity, based on a peak month
- Stored pallet orientation
- Required space for receiving, inspection, and quarantine (away from other medicines)
- Required space for picking, packing, and shipping
- Type of storage media per commodity (i.e., pallet rack, gravity flow rack, shelving)
- Required operation aisle distances
- Type of material handling equipment required

Some issues to consider before purchasing racking or shelving include:

- Product volume (size and weight of loads)
- Pallets and containers (type, condition, dimensions, and weight)
- Equipment clearance (standard height of equipment and equipment extensions, such as forklifts and load heights)
- Building dimensions
- Warehouse floors (stress and strength requirements)

For smaller storerooms, pallets might not be used as they take up too much space. Shelves may be used instead of racks. Other factors to consider are:

- Total product volume, by commodity, based on a peak month
- Required space for receiving, picking and packing, and shipping
- Organization and labeling of cartons to ensure accessibility and FEFO
- Required operation aisle distances

Space calculations begin with the total number of units of the product needed to be stored. If calculating space for a single shipment, use the number of units in that shipment. If calculating space requirements for the entire quantity of a product that you need to be able to keep in store, use the maximum quantity, as per formula of

max stock level × AMC. In addition to knowing the total number of units stored, the store staff needs to know:

- Number of units in a carton (exterior packaging)
- Size of the cartons

If the carton size is not previously determined, ask the relevant supplier, donor (in case of donation), central or provincial warehouse staff.

To calculate the amount of floor space needed to store any product, follow the steps below (also see table). For example, to store 100,000 of injection—
1. Divide by 100 syringes of injection per carton, which equals 1,000 cartons of injections.
2. Multiply by 0.004307 m^3 per carton of injections, which equals 4.307 m^3 of the total volume.
3. Divide by 2.5 m the maximum carton stack height, which equals 1.723 sq. m of floor space.
4. Multiply by 2 to allow 100 percent for handling space, which equals 3.446 sq. m of total floor space.
The square root of 3.446 sq. m is 1.86 m.

How to calculate floor space

Step	What This Tells
1. Begin with the number of units expected in a single shipment. OR Begin with the maximum quantity of a product you expect to store if calculating overall storage requirements for the warehouse.	Most shipments are expressed in units. One needs the number of units expected to tell the total amount one should place in a stack.
2. Divide the number of units to be stored by the number of units in a carton.	This tells the number of cartons. Sometimes, the shipping documents list the number of cartons in the shipment. In such cases, just skip this step.
3. Multiply the number of cartons by the volume of a carton.	Know the volume per carton. Obtain this information from the supplier, donor, or central or provincial warehouse. The answer is the total volume of space needed to store the product, but it does not tell the amount of floor space needed.
4. Divide the total volume by 2.5 m or 8 ft.	Whatever the volume of the cartons, you do not want to stack them higher than 2.5 m or 8 ft. high. Divide the volume by the maximum height to determine the floor space needed to store the product.
5. Multiply the floor space needed to store the product by two.	Double the amount of floor space to allow for handling space, aisles, and other variables. This is the total amount of floor space needed. Multiply by a number larger than 2 to allow more space in which to create a handling area for new or outgoing shipments. In very small facilities where smaller quantities of product are kept, as much handling space may not be required, so one would multiply by a number smaller than 2.
6. Calculate the square root to get the dimensions of the total amount of floor space needed. You can also estimate the dimensions using your knowledge of mathematics.	The answer is the dimensions of the needed space, assuming the space is square. Of course, many storerooms are not square. For example, 36 sq. m is a square of 6 m x 6 m. It could also be an area of 9 m x 4 m.
7. Repeat these calculations for all products to determine the total amount of storage space you will need.	Calculate steps 1–6 for each product separately to estimate the floor space needed for each product separately. If total space requirements for the store are to be known, follow steps 1–3 above for each product, then total all the volume requirements and perform steps 4–6 on this total.

By calculating space requirements for future shipments, the storekeeper can determine whether they have adequate space to receive the shipment. If sufficient space is not available, the storekeeper should ask to receive the order in several small and staggered shipments, instead of one large one. However, large shipments are usually less expensive. Alternatives could also be considered, such as renting additional space when space is not available.

When procurement contracts are set, it would be advisable to set a fixed size of allowable shipments and include a shipping schedule in the contract. Knowing how to calculate storage space before shipments arrive can save a program time and money.
The formula to calculate space needed in an entire warehouse begins with the maximum quantity of product that can be stored rather than the number of expected units. The store staff will usually want to add extra room for loading and unloading docks, quality inspection and quarantine, packing and preparing shipments, and offices for administrative staff.

PHYSICAL INVENTORY COUNT

Stock-on-hand information is recorded but how is the accuracy of the information recorded on the stock card corroborated? The only way to be certain is to conduct a physical inventory count.
While conducting the physical inventory count, it is essential to compare the quantities on hand with the quantities that have been entered in records (for example, inventory control cards). A physical inventory count enables the storekeeper to confirm how much stock is at hand and whether forms are being completed correctly.
For quality assurance, a physical inventory count is also an opportunity to inspect products visually, as described earlier.
The frequency of inventory counts depends on various factors, however the district storekeeper and/or District Health Officer (DHO) may advise a physical inventory count on quarterly, biannually, or yearly basis. If the storekeeper finds that the records do not match the actual stock, then there is a need to conduct a physical inventory count more often and steps must be taken to improve recordkeeping.
When conducting a physical inventory count, it is important that the rules of proper storage are followed. Boxes are to remain sealed and only one box or carton is open at a time. A physical inventory count, therefore, can be a quick, routine exercise, especially if good storage practices are followed.
One factor that may prevent storekeepers from conducting a physical inventory count is the large number of products in a storeroom that must be counted. Some options for conducting inventory counts in this situation include:

Complete physical inventory:
All products are counted at the same time. A complete inventory should be taken at least once a year. More frequent inventory (quarterly or monthly) is recommended.

Cycle counting:
The storekeeper conducts a physical inventory count for a fraction of items each month. By the end of the year, all items have been counted. When the next year starts, they begin the process again. Regular cycle counting can keep physical inventory up to date without disrupting store operations.
Selected products are counted and checked against the records on a rotating or regular basis throughout the year. This process is also called cycle counting.

Vital, essential, or nonessential (VEN) analysis:
This involves counting the most essential, or most expensive items, more often. This analysis categorizes products as vital, essential, or nonessential, enabling the storekeeper to assess stocks of vital items more frequently than nonessential items.

ABC analysis:
In this process, the products are divided into three categories, based on monetary value. ABC analysis is not based on cost but rather how often a receipt or issue is made. Antibiotics can be issued more often from the store than any slow-moving stock like IUCD. In this situation, it is advised to count and assess antibiotic supplies more often.
As with assessing stock status, having many items to count does not need to be a barrier to conducting regular physical inventory counts or regular assessments of stock status.

STOCK MANAGEMENT IN EMERGENCIES

In cases of emergencies like floods, earthquakes, etc. it is essential to take necessary precautions to ensure the safety and integrity of health products and identification of alternate storage points in case of damaged storage facilities. There is need to strategically identify areas in the districts, based on the geography, that are not in the range of natural flow of water or above the tectonic plates to prevent the damage in case of floods and earthquakes.

Stock management in emergencies is a crucial aspect of disaster response and preparedness. Whether it's a natural disaster, public health crisis, or any other emergency, effective stock management ensures that essential supplies and resources are available when and where they are needed most. Some of the key considerations and strategies for stock management in emergencies include:

- Inventory planning
- Pre-positioning stockpiles in strategic positions
- Stock rotation and expiry management
- Establishing effective communication channels and information systems to facilitate real-time monitoring of stock levels, distribution progress and demand changes

STANDARD OPERATING PROCURES AT GLANCE

CHAPTER 10: TRANSPORTATION AND DISTRIBUTION GUIDELINES

INTRODUCTION

The personnel involved in the distribution of health commodities have a responsibility to ensure that the quality of health commodities and the integrity of the distribution chain is maintained throughout the distribution process from the district store to the health facilities.
The principles of good distribution practices should be followed at the district level as the means of establishing minimum standards.

DETERMINE TRANSPORTATION NEEDS AND RESOURCES

Distribution planning and transportation needs should be re-configured and implemented to complement the adopted storage model. District stores will develop efficient and robust district specific distribution and transportation plans down to the facility level.

When designing a new transportation and distribution network, or redesigning an existing one, the following questions need to be answered:

- What is the ideal distribution network given current resources?
- Will it provide a satisfactory service level, without stockouts, at dispensing facilities?
- What would be the ideal distribution network if more resources were available?

The points listed below are essential for any design, regardless of size or complexity. By analyzing this information, officials in charge will be able to determine suitable transportation and distribution methods for delivery sequence and frequency to each facility. They can then use this information to identify the efforts and resources to build an ideal distribution system.
These points include:

- Monthly demand of products supplied to each health facility (total quantity, weight, and packaged volume).
- Location and distance of facilities from their supplying facilities, with information projected on maps for easier viewing (hard copy or in electronic form).
- Fleet details including list of vehicles in use, their type, load capacity, and length of time (in days) the vehicles are available for health product delivery. In some cases, vehicles may not be solely for delivering health products (such as vehicles assigned to Lady Health Supervisors (LHS of LHW Program)).
- Staff trained in activities relating to transportation, including proper equipment operation, safety, delivery schedule planning and execution, material handling, and reporting.

Distribution Planning:

- Arrange a cutoff date (such as the 1st of every month) for receipt of requisitions and demands from health facilities.
- Introduce the requisitioning system covering lead time, safety stock[30] and review period[31] to ensure stock availability and avoid any under or over stocking.
- Chalk out the distribution plan for all health facilities. Considerations should be given to capacity of vehicles used, distance from distribution store, and vicinity of other recipient facilities.

[30] *Safety stock is an additional quantity of an item held in inventory in order to reduce the risk that the item will be out of stock*
[31] *Time between the current stock analysis and the previous one to determine whether to reorder.*

TRANSPORTATION OPTIMIZATION

Transportation optimization enables public health supply chain systems to improve routine transportation in the most cost-efficient manner by consolidating their monthly deliveries to different health facilities by volume, weight, quantity, and carton. This is achieved by converting the quantities for different health facilities into one complete shipment within a district to adopt the most cost effective and appropriate mode of transport per shipment volume.

KEY FEATURES

Shipment conversion by volume

This tool provides complete information for a single or multiple health facilities' deliveries into shipment volume. It provides the most cost-effective mode of transport per the planned deliveries volume for a single or multiple health facilities.

Shipment conversion by carton

This tool converts the products' quantities into number of cartons.

Shipment conversion by weight

This tool demonstrates the complete weight of shipments for the planned deliveries of particular district health facilities.

Shipment conversation by pallet

This tool will convert planned quantities of a single or multiple health facilities' deliveries of districts into pallets.

BENEFITS

- Shipment information by cost for kg per carton, appropriate vehicle, or truck volume.
- Cost effective transport planning of routes.
- Integration and optimization of resources (vehicles and HR).

DIRECT SUPPLY FROM THE MANUFACTURER, CENTRAL, OR PROVINCIAL WAREHOUSE TO FACILITY AND HEALTH WORKERS

Based on the deduction that unstructured sub-district level distribution mechanisms are responsible for low or no stock availability at the last mile, the proposed model eliminates district stores altogether and necessitates direct delivery from the manufacturer, provincial repository/ warehouse, to the health facilities in the district. The stocks to be delivered are determined based on supply orders placed by the DHO.

PUSH AND PULL SYSTEMS

In a pull system, the quantity ordered is determined by demand-based catering to consumption trends at the service delivery point. In a push system, product selection and quantities are determined by allocations from a higher level within the supply chain management structure. Both push and pull approaches can be used in one system but it is usually inefficient to combine the two systems between facilities at the same level. A pull system can be used from the provincial level to the district level, and a push system can be used from the district store to facility level. It can be cumbersome for store staff if some facilities are pulling health commodities while other facilities want the health commodities to be pushed towards them. Proper quantities must be ordered and dispatched in the shortest possible time and deploying two systems at one level adds to confusion and delays.

HEALTH COMMODITIES TRANSPORTATION AND DISTRIBUTION MODELS

FACILITY MANAGED DISTRIBUTION THROUGH CLUSTER APPROACH

Facility managed distribution is the most common distribution model, whereby the facilities clustering approach is adopted. In this model, the facilities are mapped based on their geography and distances. The type of vehicle is arranged according to geographical location and distance of health facility from the district store. This enables optimal utilization of vehicles for distribution of health commodities, contributing to cost savings and timely distribution. As explained in Figure, the geographical proximity of certain facilities has enabled clustering which allows the contracting of the most appropriate vehicle to deliver all the commodities needed for these clustered facilities in one shipment. At the district store they are accounted for separately.

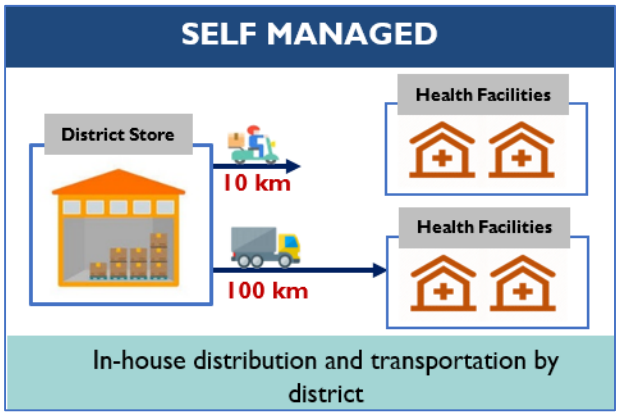


Figure 5: Self-Managed

OUTSOURCING TRANSPORTATION

Through this mechanism, the delivery of health commodities to health facilities is outsourced to a 3rd party contractor who manages the delivery of all supplies from the district store to the service delivery point or health facility. This process can be resource intensive and might encounter certain structural and political barriers. The 3rd party determines how to reduce costs and optimize the transportation and distribution of health commodities from a given location to the intended destination as shown in the figure.

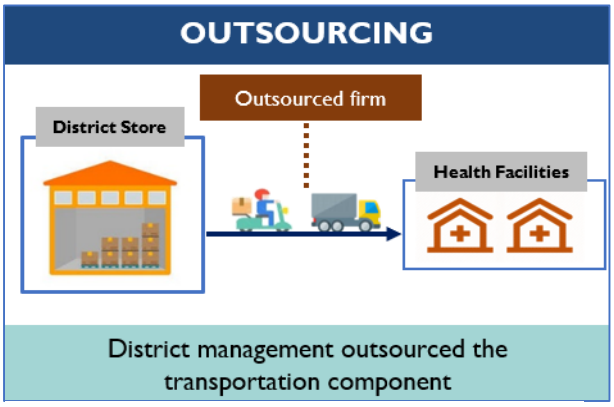


Figure 6: Outsourcing

FRAMEWORK CONTRACTS – SYSTEM DRIVEN REPLENISHMENTS (TOPPING UP APPROACH)

The existing province-wide deployed online Logistics Management Information System (www.lmis.gov.pk) can serve as a tool for system driven continuous replenishment. The district health department can establish a framework contract with a 3rd party transporter or contractor and provide them with the online log-in credentials for the LMIS, where it is assumed that product visibility is 100% for commodities until the last mile. The contractor would be responsible for ensuring acceptable stock levels in any facility and should immediately replenish any facility running out of stock or requisition supplies through an online continuous replenishment system. The contract should specify that in the case of late delivery for a product, the contractor will have to bear the prescribed penalty.

The following could be potential recommendations:

1. Incorporation of facilities' distances and min-max stock levels in the system.
2. Provision of LMIS login and password to 3rdparty contractor.

3. Generation of stock-out auto-alerts to be sent to contractor.
4. Contractor to review the stock situation through LMIS and generate requests for products to district store.
5. District staff to respond to the facility requests and issue the health commodities to facilities.
6. The distributer will use a weight or volumetric system for the distribution of products. This will be pre-determined in the contract and invoicing would take place within the same parameters.
7. The district stores personnel at dispatch will hand over the health commodities and the enclosed documents (2 copies of waybills or demand and issuance vouchers) to the driver responsible for delivering the health commodities to the health facilities.
8. Health commodities must be handed over to facility staff and the facility staff will verify the items against the issuance voucher and provide a receipt voucher.
9. One copy of the voucher should be handed to the driver and the second copy should be retained by facility staff for record purposes.

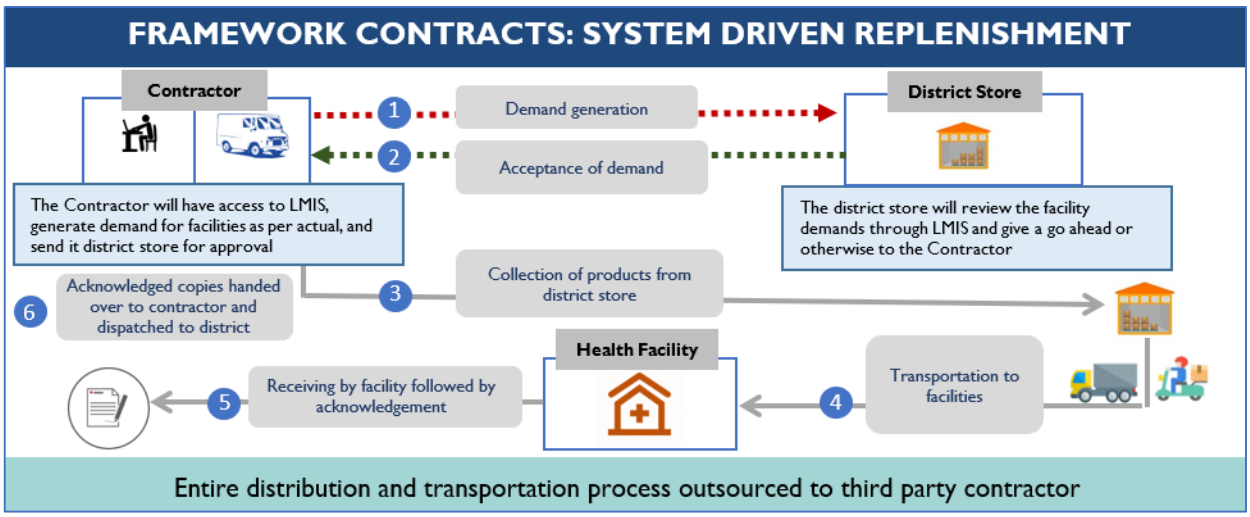
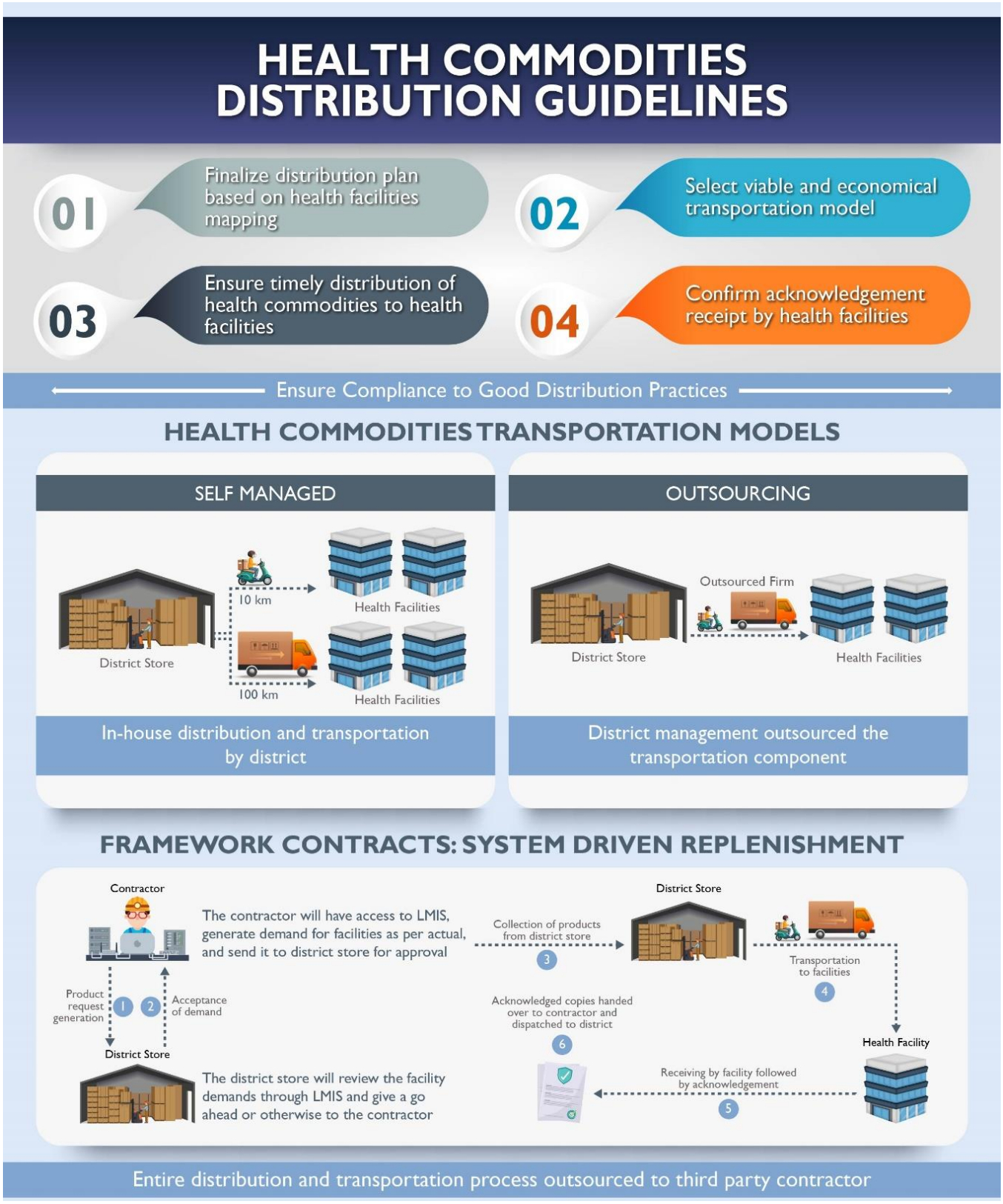


Figure 7: System-driven replenishment model

DISTRIBUTION GUIDELINES AT GLANCE



CHAPTER 11: DISTRICT MANAGEMENT INFORMATION SYSTEM GUIDELINES

INTRODUCTION

Information is at the center of the logistics cycle and informed decision making for better health services. Without it, the logistics system could not be managed effectively and will result in poor service delivery for communities. Managers gather information about each activity in the system and analyze the collected information to coordinate future actions. For example, information about inventory levels and consumption must be gathered to estimate the quantity of a certain product for procurement.

The web-based Pakistan Logistics Management Information System (LMIS) is designed in the context of health sector logistics information of the province. The system brings in district-and sub-district level supply chain data. With a unified system for reporting and requisitioning, the web based LMIS system can integrate information from all levels.

INVENTORY MANAGEMENT SYSTEM: DISTRICT AND DHQ HOSPITAL STORES

This system is designed for stores such as district main medical stores or big hospitals stores. It covers data capturing for the complete lifecycle of store operations. Good storage practices in stores are required to implement this software. The following needs to be ensured for smooth implementation of an inventory management system:

1. Opening balances of the products of each batch needs to be entered into the system correctly – as per physical stock count.
2. Stock receipt needs to be entered on time in the system.
3. FEFO principle needs to be followed.
4. Stock issuances must be done through the system.
5. Physical stock count - Stock must be counted and adjusted accordingly at regular intervals.

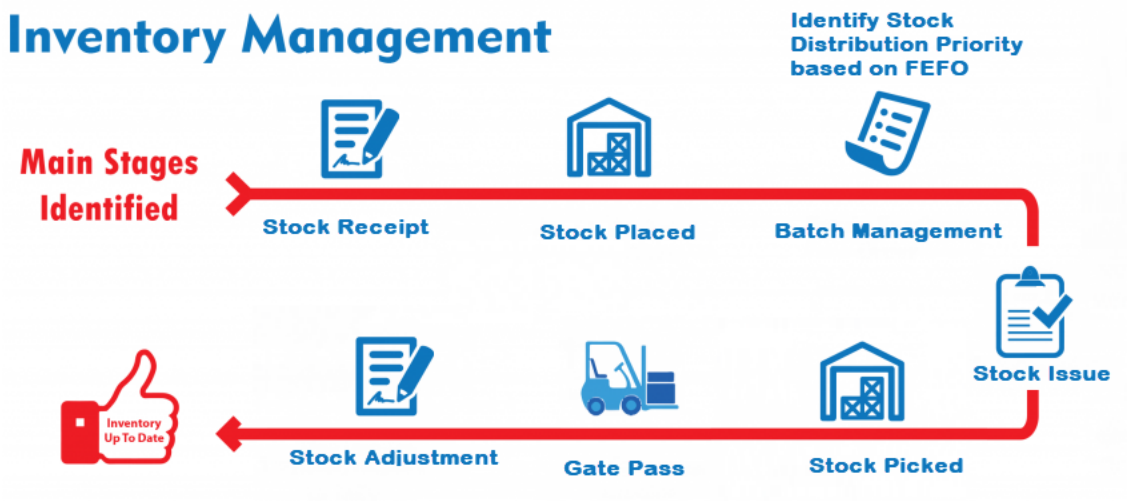


Figure 8:Inventory Management

After login, users directly reach the main screen of the system.

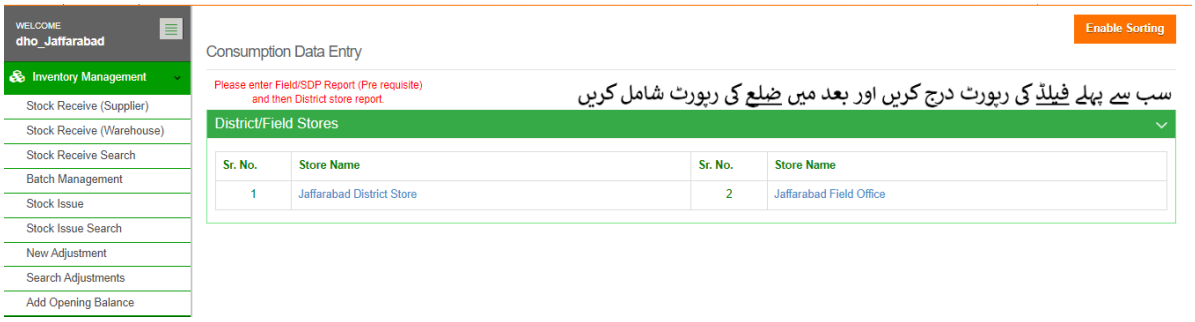


Figure 9: LMIS system welcome page

STOCK RECEIVING AND INCOMING

When health commodities are received from the supplier, the product's batch-wise quantities need to be entered into the inventory management system. Written records such as invoices and packing lists may be referred to for this purpose.

However, before inputting the data in the system, the following information must be known to Store Manager / Keeper:

Physical inspection

After receiving the stock, the store manager or keeper must physically inspect each pack of received stock for any visible damage, sign of dampness or any other abnormalities for the specific commodity. Commodities with any sort of issue(s), must be placed and marked separately from usable commodities.

On an immediate basis, the name, batch number and quantity of the physically damaged commodities need to be recorded and sent to the supplier, District Health Officer, and Provincial Procurement Cell. Communication should be kept in record for future references.

Select the appropriate Physical Inspection value from drop down in the system: NA, In Process, and Completed.

Physical Inspection	Description	Action
NA	Commodities which does not require physical inspection.	Stock can be used for issuance.
In Process	Physical Inspection is in process.	Stock cannot be issued till Physical Inspection is in process.
Completed	Physical Inspection completed.	Stock can be issued as per demand.

Drug testing

For the Drug Testing Laboratory (DTL), Government Drug Inspectors randomly visit the district stores and collect the random samples. Users can choose DTL options from dropdown value as per actual situation.

DTL	Description	Action
NA	Commodities which do not require DTL like Cotton Wool, Syringes, etc.	Stock can be used for issuance
In Process	Government Drug inspector collected sample and sent to Lab for testing.	Stock cannot be issued till DTL is in process
Completed	Drug inspector after receiving the DTL report, allows store manager / keeper to issue the stock	Issue the stock as per demand

- The product profile details need to already be present in the system
- The manufacturer name must already be in the system
- Product secondary packing (carton) needs to be entered into the system to calculate space
- Product funders are identified
- The waybills must contain batch number, expiry date, and quantities of the products

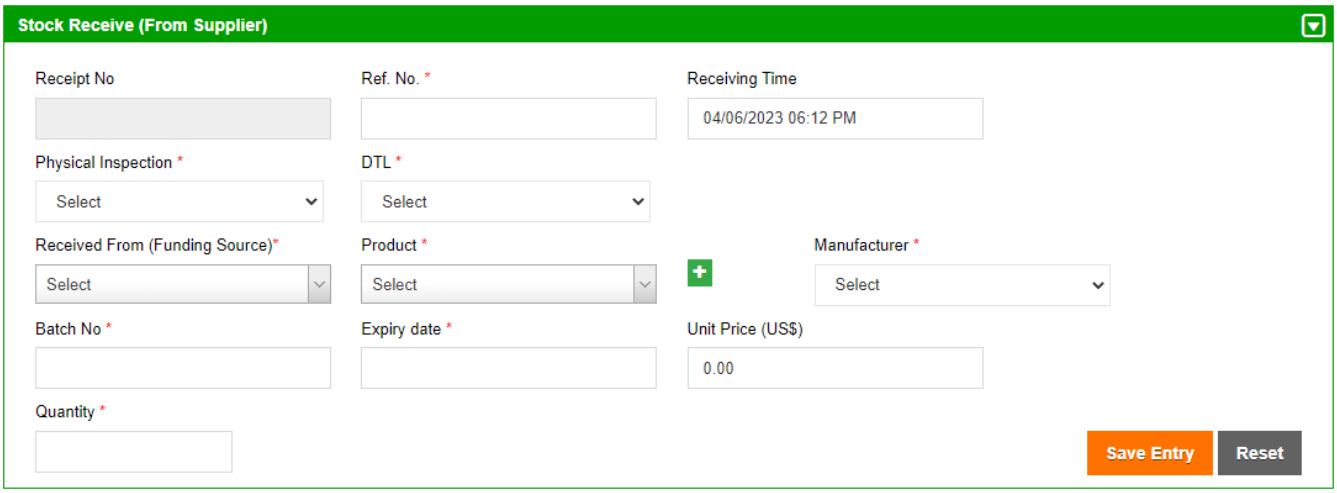


Figure 10:Stock receiving from supplier

If the product is coming from another store where an inventory management system is operational, the user uses "Stock Receive (Store)" menu option to receive the stock. Users of the system must have the voucher issued number from the store sending stock. The user searches the voucher number in the system, if a record is found in the system, entries of the received products will appear automatically for further processing.
The system gives a unique number, e.g. R190400001, to each stock receipt. Each entry begins with "R", the next two digits denote fiscal year while the next two denote month. The last five digits denote serial number in each month, which resets to 00001 on the 1st of each month.

R	1	9	0	4	0	0	0	0	1
Receipt	Year		Month		Serial number (resets on 1st of each month)				

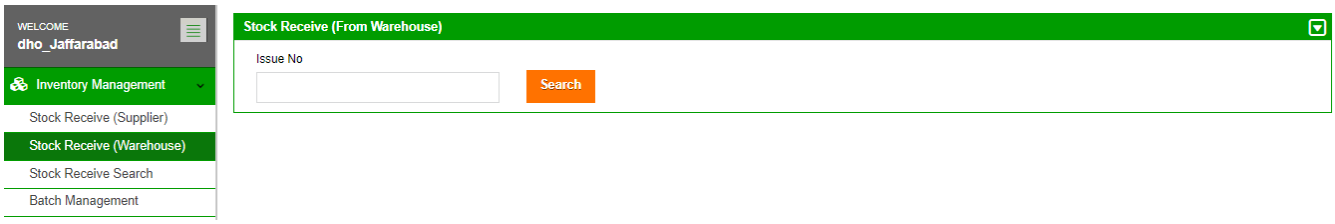


Figure 11: Stock receiving from another store

FEFO OR BATCH MANAGEMENT

After entering the stock in the system, it is important that batches are issued per FEFO principle, ensuring that patients receive them in good condition and with time to use before their expiration dates. The inventory management system provides an automatic system to freeze those batches which have more shelf-life. The storekeeper can, for any reason, override this feature using batch management. This override is recorded in the system audit log.

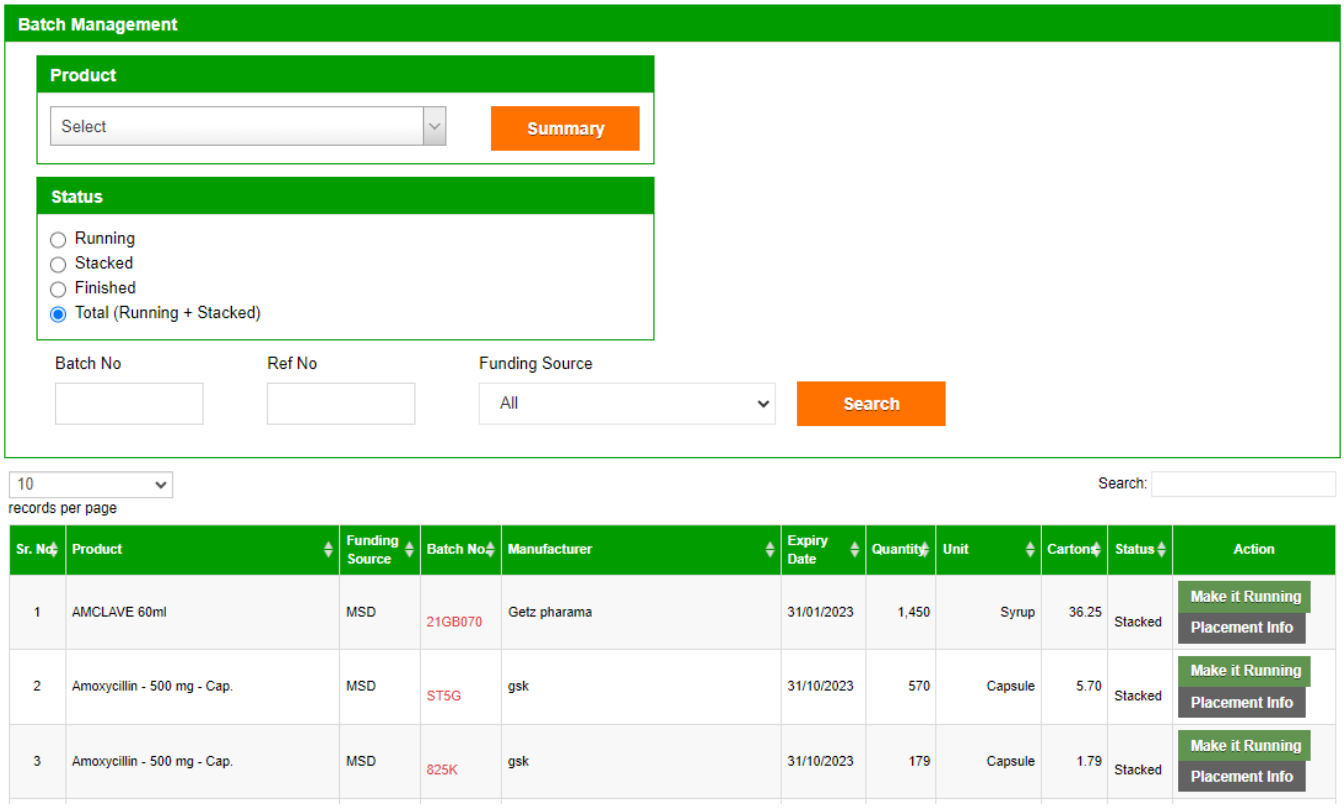


Figure 12: Batch management

STOCK PLACEMENT

The system provides an efficient way to place stock. By default, the received stock quantity is identified as un-allocated, and the appropriate storage location needs to be identified. The system provides facilities with information to identify storage location based on the following parameters:

1. Area: This can be a separate location like rooms or separate premises.
2. Row: This can be a room or location within a room if a racking system is not installed.

3. Rack: This can be stack of cartons if a racking system is not installed.
4. Rack type: This is optional if a racking system is not installed, but typical options are single and double.
5. Pallet: This is optional if a racking system is not installed, typically there are four pallets in a double rack and two in a single rack type.
6. Level or shelf number: This is optional if a racking system is not installed.

Users need to have the following information to place stock:

1. Store location for stock placement needs to be generated and identified.
2. Product batch number and quantity to be placed at specific location must be known.

Using this facility, the system places the entered quantity at the selected location and subtracts that amount from the unallocated quantity.

Place stock from received list to Location: A010111

S.No.	Receive No.	Product	Batch	Expiry	Received Quantity	Allocated Quantity	Unallocated Quantity	Allocate Quantity
1	A19070005	Tab Atenolol	279	05/2024	100,000 Tab / 10 Cartons	50,000 Tab / 5 Cartons	50,000 Tab / 5 Cartons	
2	A19070058	Septran DS Tab	ISCBH	03/2024	100,800 Tab / 12 Cartons	0	100,800 Tab / 12 Cartons	
3	A19070059	Septran DS Tab	GSCCW	11/2022	16,000 Tab / 4 Cartons	0	16,000 Tab / 4 Cartons	

Figure 13: Stock placement

STOCK ISSUANCE

Stock issue is an important step of the store. The system gives a unique number to each stock issue which begins with I, the next two digits denote fiscal year, and the next two denote month. The last five digits denote serial number in each month.

I	I	9	0	4	0	0	0	0	I
Issue	Year		Month		Serial number (resets on 1st of each month)				

The following information must be known before issuance of the stock:

1. Issuance date
2. Issue reference number
3. Issued by
4. Issued to store
5. Product
6. Batch
7. Quantity
8. Expiry date

The system offers batches per FEFO guidelines so that the maximum use of a products' shelf life can be utilized. A voucher can be printed if required after each issuance which serves as evidence for issuance and the designated authority can sign and keep it as a record. The electronic copy is also saved in the system which cannot change, and the audit log keeps track of each issuance.

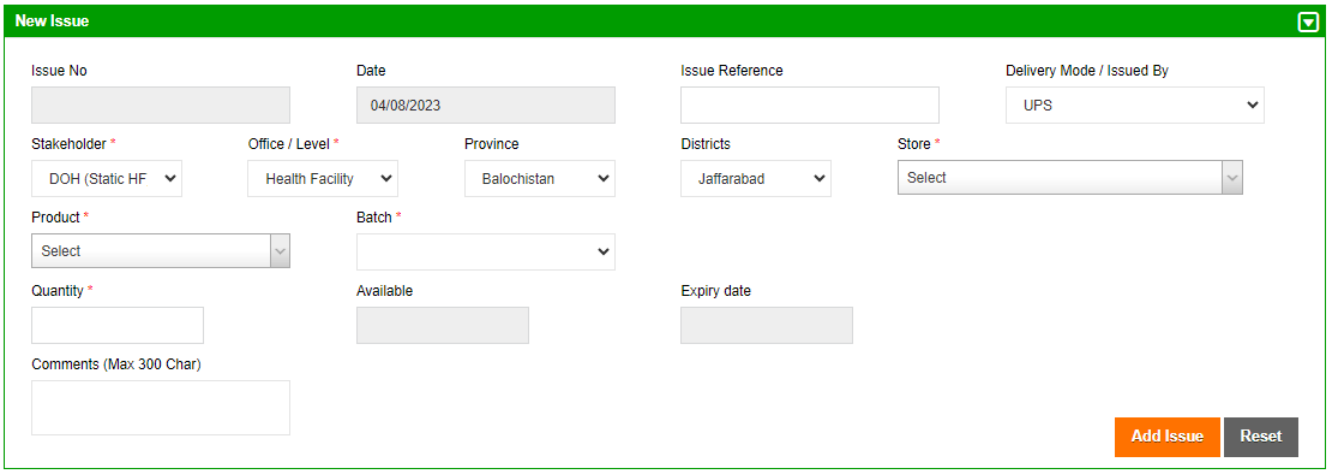


Figure 14: Stock issuance

STOCK PICKING

Stock picking is an important step in inventory management. The system provides users with a list of vouchers based on the search date that are queued for picking and ultimately distributed.
Users first pick the stock electronically from the system which provides the physical location of the specified products within the store.

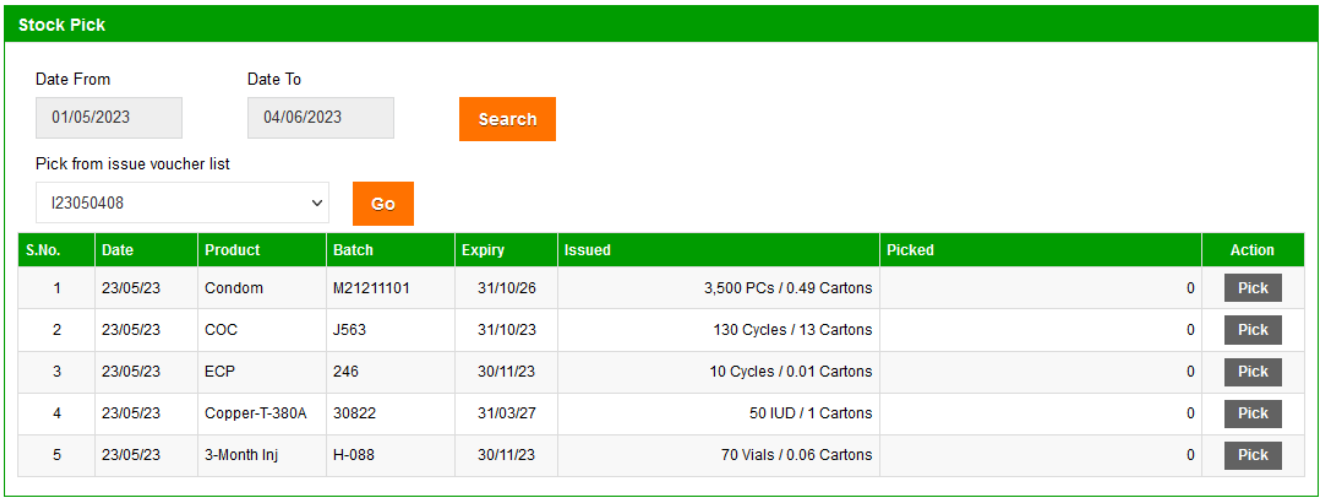


Figure 15:Stock picking

STOCK ADJUSTMENT

It is important that stock records are accurate and reflect physical stock. Sometimes stock is wasted or lost and this change in physical stock must be captured in the system. The system assigns a unique number to each stock issue, which starts with "A". The next two digits denote fiscal year and following two denote month. The last five digits denote serial number in each month.

A	I	9	0	4	0	0	0	0	I
Adjustment	Year		Month		Serial number (resets on 1st of each month)				

The following information needs to be available to the user when entering the adjustments and must be known before issuance of stock.

- Adjustment date
- Adjustment type, such as lost, wasted etc.
- Reference number
- Product and batch number
- Quantity to be adjusted
- Any additional comments for adjustment

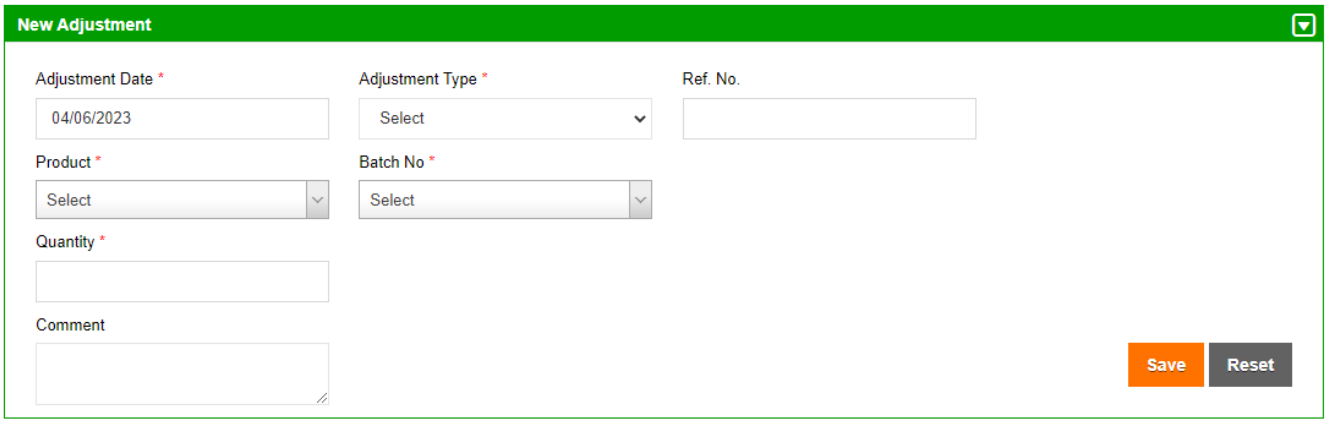


Figure 16: Stock adjustment

RECORD KEEPING AND STOCK LEDGER

Every store has a stock register. The storekeeper is responsible for the stock register and entering all stock related details such as brand name, generic name, strengths, dosage forms, quantity, batch and lot number, expiry date, and receiving date. The available manager will put their initials at the end of each entry.
The inventory management system offers automatic creation of electronic stock register to include:

- Transaction reference (such as issue voucher number or name of recipient)
- Transaction type (including receipts, issuance, losses, and adjustments)
- Product name and description including the form (capsule, tablet, liquid suspension, etc.) and strength
- Stock on hand or opening balance
- Closing or ending balance
- Closing balance product

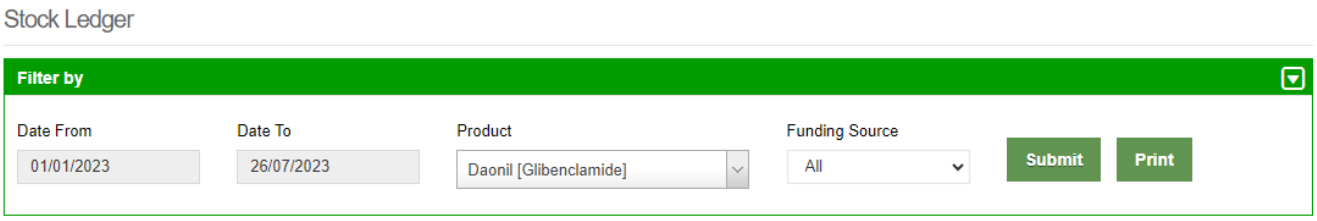


Figure 17: Stock ledger

INTEGRATED SUPPLY CHAIN DASHBOARDS

The district integrated supply chain dashboards are a management tool that are interfaced with all provincial health information systems and consolidate supply chain, services, and demographics data into a single platform at the district level. The objective of a district supply chain dashboard is to provide critical information at the district and sub-district levels. The dashboard would improve visibility, efficiency, accuracy, timeliness of supply chain function, and service delivery to end users. A team of domain experts will manage the information system.

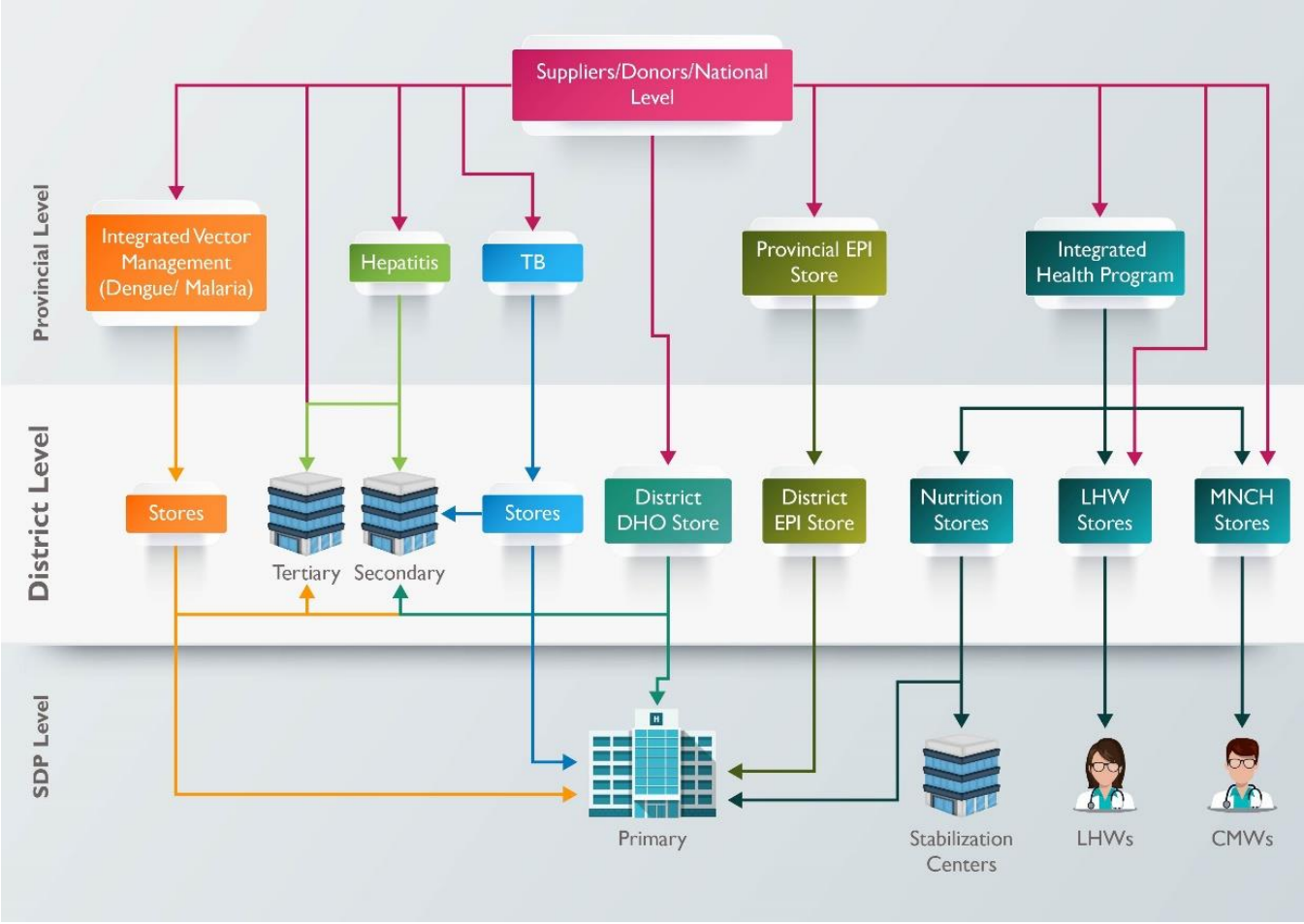


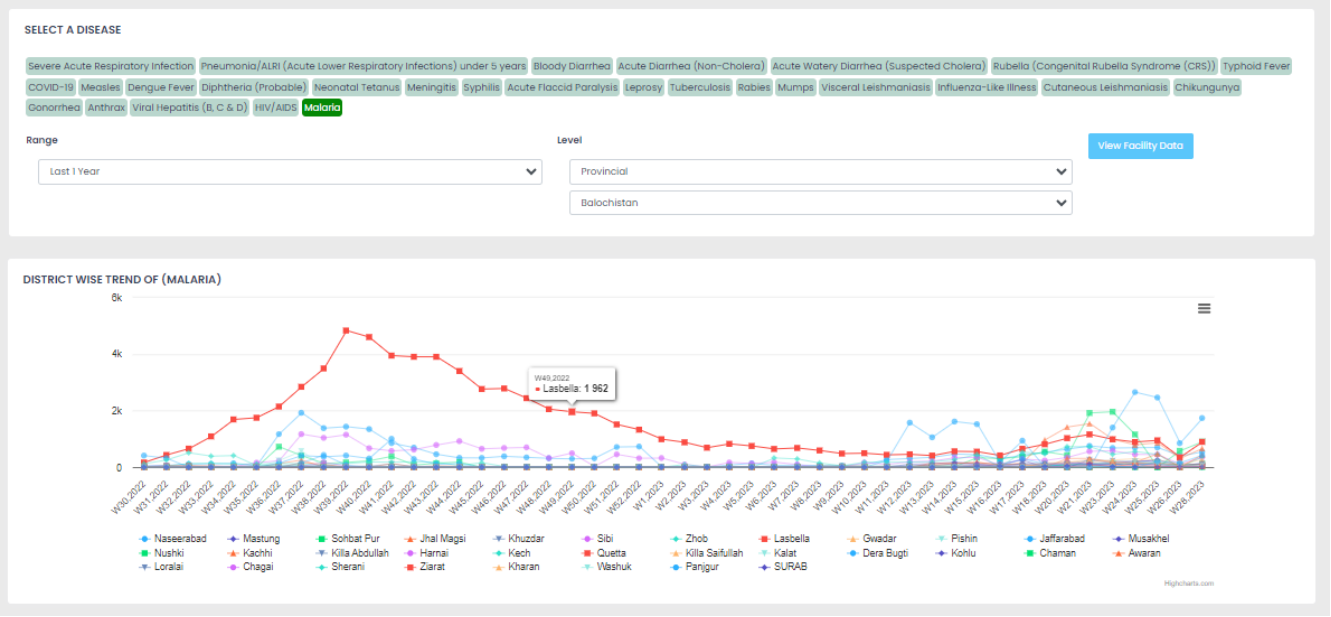
Figure 18: Health commodity flow in province

Integrated Supply Chain Dashboards are visual representations of real-time data that provide comprehensive insights into various aspects of the supply chain. They consolidate and present data from multiple sources, allowing supply chain managers to monitor key performance indicators (KPIs), track inventory levels, analyze demand patterns, and identify potential bottlenecks or issues in the supply chain.

Key Features of Integrated Supply Chain Dashboards

- **Real-time Data Visualization:** Integrated Supply Chain Dashboards offer real-time visual representations of data, enabling quick and informed decision-making.
- **KPI Monitoring:** Dashboards provide a consolidated view of KPIs such as order fulfillment rates, delivery performance, inventory turnover, and transportation costs, allowing managers to identify areas of improvement or concern.

- **Supply Chain Visibility:** Dashboards provide end-to-end visibility of the supply chain, including supplier performance, production status, warehousing, and distribution, facilitating proactive management and risk mitigation.
- **Customization and Drill-Down Capability:** Dashboards can be customized to display specific metrics or areas of interest. Additionally, users can drill down into detailed data to gain deeper insights and identify underlying causes of issues.
- **Highlight Flood Affected Districts:** The dashboard provides a visual representation of districts impacted by floods. It utilizes maps or color-coded indicators to identify and highlight the affected areas. This feature allows authorities to quickly identify the extent of flood-affected regions and prioritize response efforts accordingly.
- **Medicine Stock Availability**: The dashboard includes real-time information on medicine stock availability in various healthcare facilities across the district. It provides an overview of the current stock levels, enabling healthcare administrators to monitor and manage the supply of essential medicines effectively. This information is crucial for ensuring that healthcare facilities have an adequate supply of medicines to meet the needs of the affected population.
- **Weekly Disease Trend for 33 Notified Diseases:** This feature presents a weekly analysis of disease trends for the 33 notified diseases in the district. It tracks the number of reported cases for each disease and provides insights into disease patterns, spikes, or unusual trends. The data can be displayed in the form of charts or graphs, allowing health officials to identify disease hotspots, allocate resources, and implement targeted interventions.
- **Affected Population:** The dashboard provides information on the population affected by various events or disasters, such as floods. It may include data on the number of displaced individuals, affected households, or specific vulnerable groups. This feature helps authorities assess the scale of the impact and tailor relief efforts to address the specific needs of the affected population.



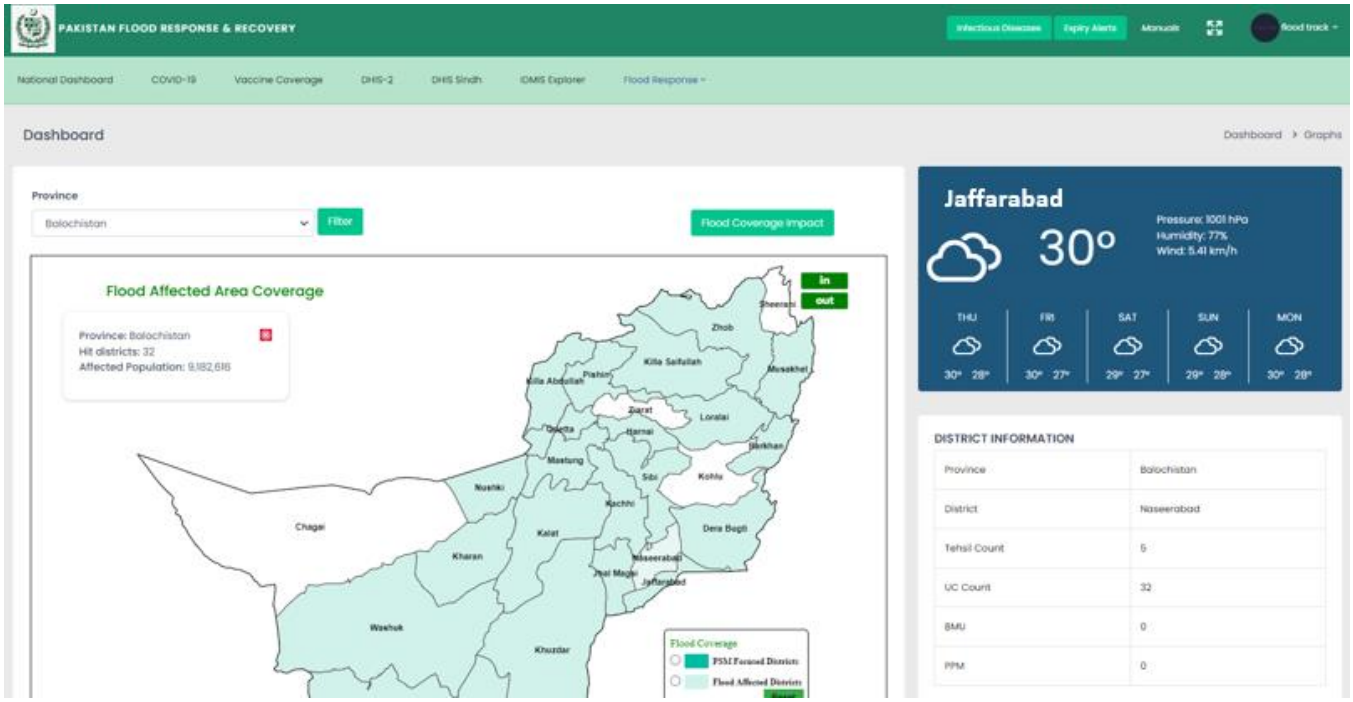


Figure 19: District wise Disease Trend

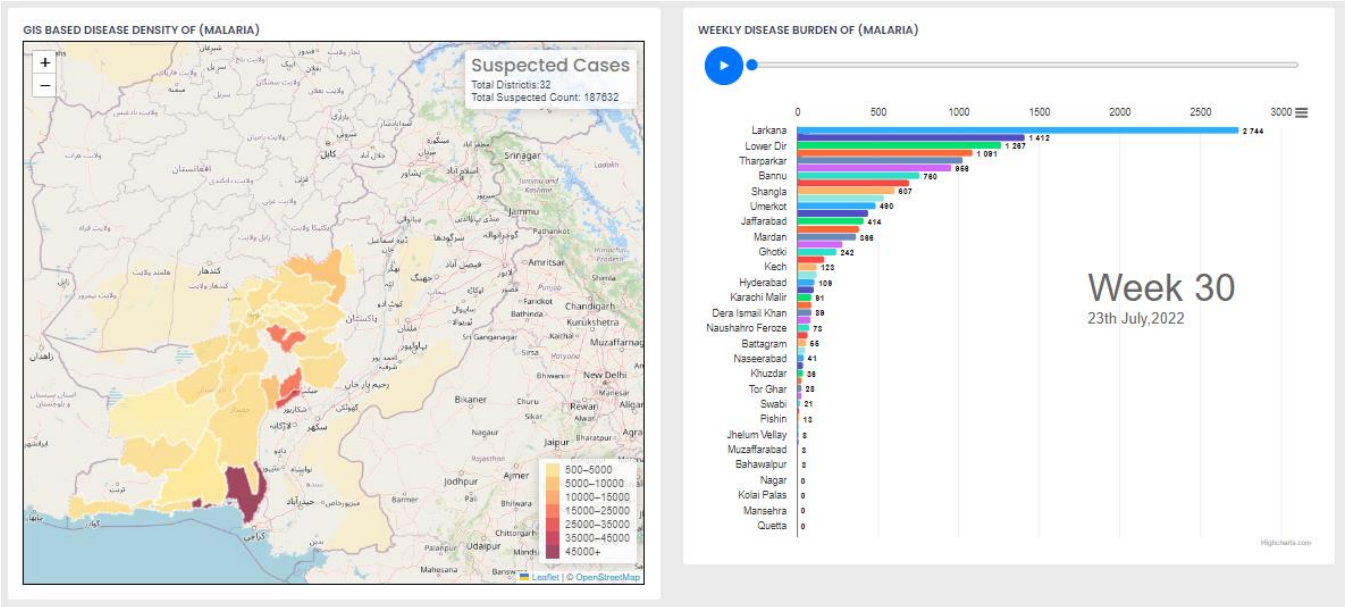


Figure 20: Weekly Disease Density and Moving Trends

The district supply chain dashboards will consist of three components: analytical dashboards, inventory and warehouse management, and interfaces with other MISes.

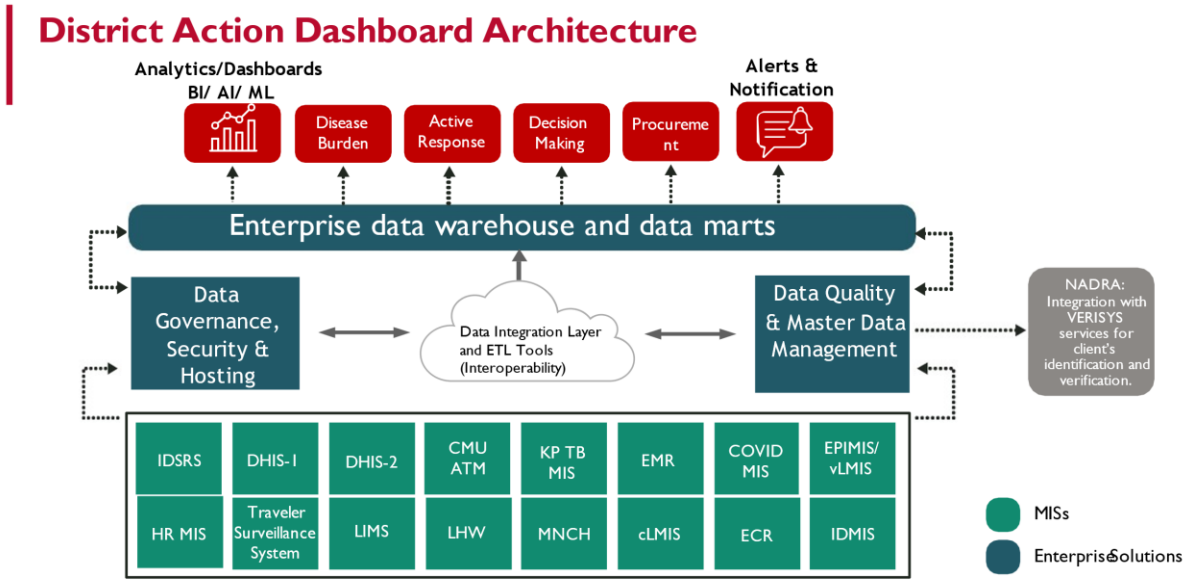


Figure 21: Overall information system architecture in province

The district supply chain dashboard shows stock availability and stock out status at district and sub-district levels and consumption trends for different medicines.

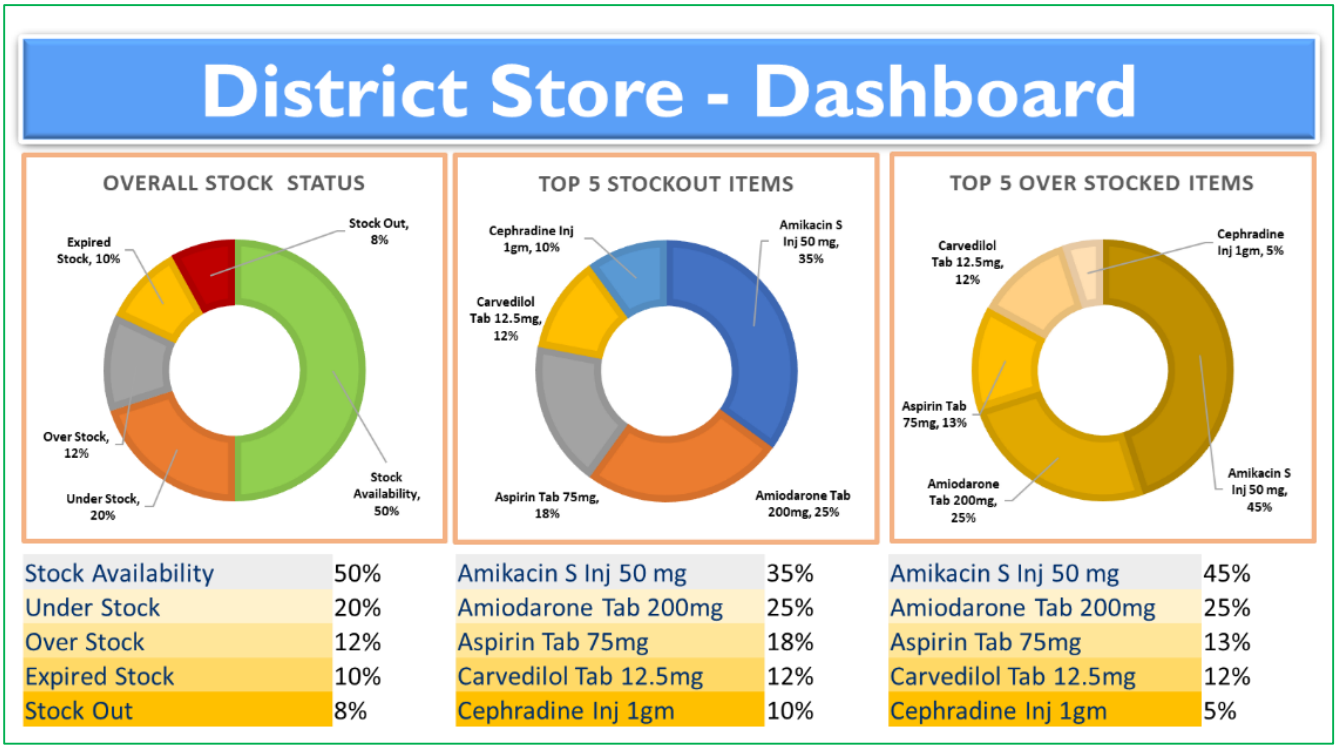
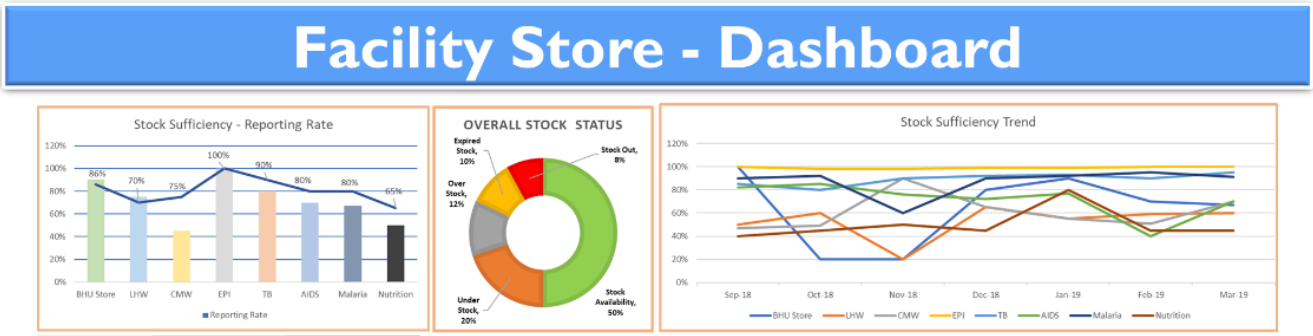


Figure 22: Dashboard: District store



Stores	Reporting Rate	Stock Sufficiency
BHU Store	90%	86%
LHW	75%	70%
CMW	45%	75%
EPI	100%	100%
TB	80%	90%
AIDS	70%	80%
Malaria	67%	80%
Nutrition	50%	65%

Stock Availability	50%
Under Stock	20%
Over Stock	12%
Expired Stock	10%
Stock Out	8%

Stores	Sep-18	Oct-18	Nov-18	Dec-18	Jan-19	Feb-19	Mar-19
BHU Store	100%	20%	20%	80%	90%	70%	67%
LHW	50%	60%	20%	65%	55%	59%	60%
CMW	47%	49%	90%	65%	55%	51%	70%
EPI	100%	98%	98%	99%	99%	100%	100%
TB	85%	80%	90%	92%	93%	90%	95%
AIDS	82%	85%	76%	72%	77%	40%	70%
Malaria	90%	92%	60%	90%	92%	95%	91%
Nutrition	40%	45%	50%	45%	80%	45%	45%

Figure 23: Dashboard: Health facility

INTEGRATED LAB MODULE (EMR)

The Electronic Medical Record (EMR) Module implemented in Naseerabad and Jaffarabad, Balochistan, is a ground-breaking initiative that has revolutionized the management of Hepatitis and other notified diseases. This comprehensive module integrates various components, including EMR, medical supplies management, patient management, and a lab module for all 33 notified diseases. Its advanced features, such as AST-to-Platelet Ratio Index (APRI) score calculations, enable data operators to issue medicine to patients for specific durations based on their APRI score.

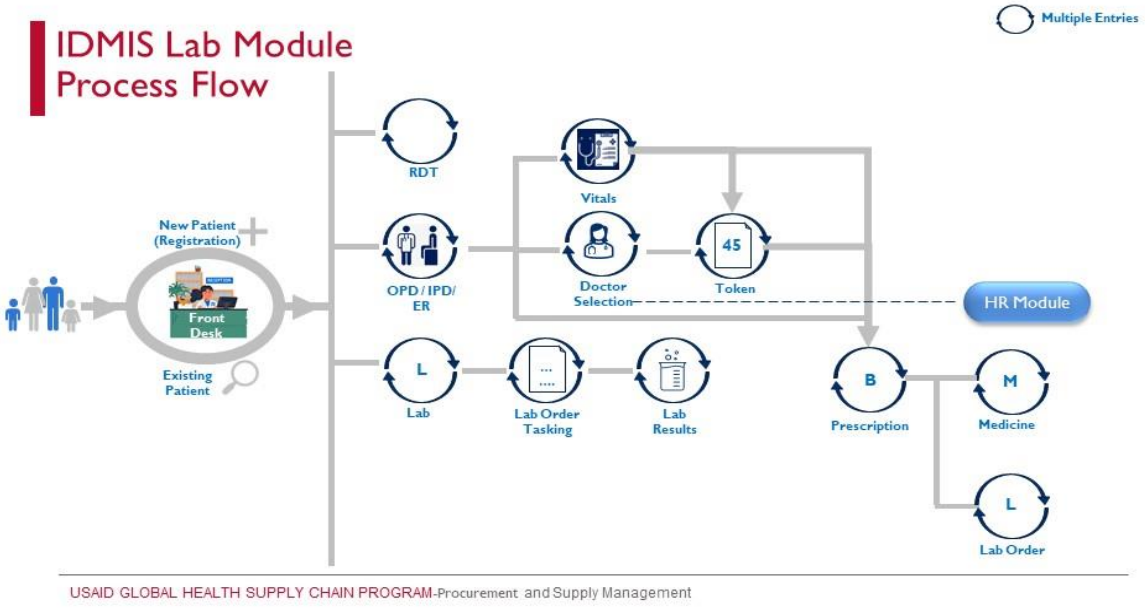


Figure 24: IDMIS Lab Module Process Flow

EMR FUNCTIONALITY

The EMR component of the module facilitates the electronic storage, retrieval, and management of patient health records. It ensures the seamless flow of information between healthcare providers, enabling efficient diagnosis, treatment, and monitoring of Hepatitis and other notified diseases. With the EMR, healthcare professionals can access comprehensive patient histories, including laboratory results, medications, and treatment progress, ensuring accurate and informed decision-making.

MEDICAL SUPPLIES MANAGEMENT

The module's medical supplies management feature provides real-time visibility and efficient inventory control of Hepatitis-related supplies. This ensures timely availability of essential resources, reducing stock-outs and wastage. By optimizing supply chain management, healthcare facilities in Naseerabad and Jaffarabad can deliver uninterrupted services, improving patient care and overall operational efficiency.

PATIENTS MANAGEMENT

Effective patient management is a core component of the Hepatitis EMR Module. It enables healthcare providers to track and monitor patient progress, treatment adherence, and follow-up visits. The module generates automated reminders for appointments, ensuring continuity of care. By streamlining patient management processes, healthcare facilities can enhance treatment outcomes and provide personalized care tailored to individual patient needs.

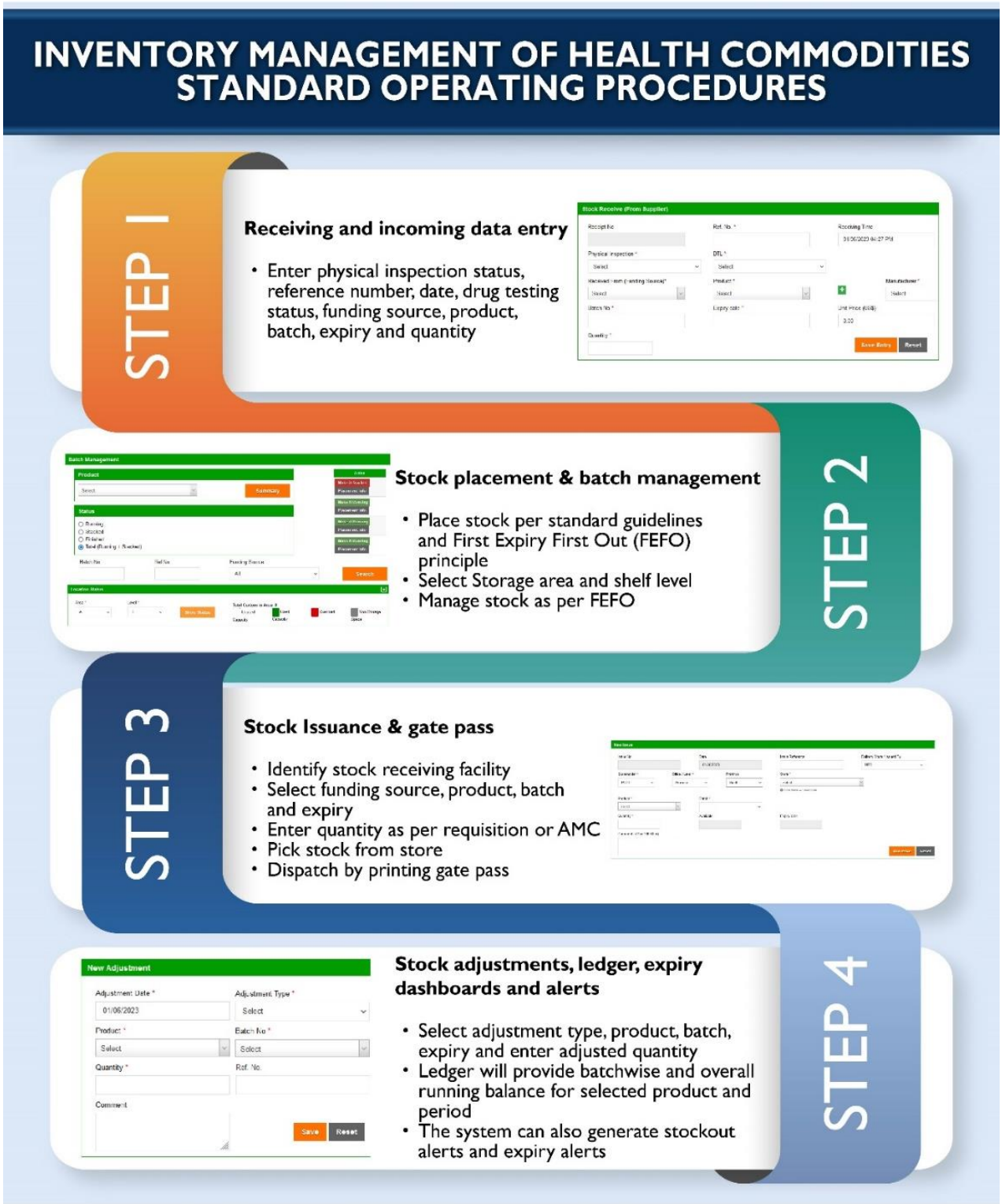
LAB MODULE FOR 33 NOTIFIED DISEASES

The module incorporates a comprehensive lab module that covers all 33 notified diseases, including Hepatitis. It allows for seamless integration with laboratory information systems, facilitating efficient sample tracking, result recording, and data analysis. By automating the lab processes, healthcare providers can access timely and accurate test results, enabling prompt diagnosis and appropriate treatment.

APRI SCORE CALCULATIONS

An innovative feature of the Hepatitis EMR Module is the APRI score calculations. The module calculates the APRI score for Hepatitis patients, providing valuable insights into disease severity and progression. Based on the APRI score, the module generates signals to data operators, indicating the appropriate duration (12 or 24 weeks) for issuing medication to patients. This ensures precise treatment regimens aligned with the patient's condition, improving therapeutic outcomes.

MIS GUIDELINES AT GLANCE



CHAPTER 12: MONITORING & EVALUATION GUIDELINES

INTRODUCTION

Monitoring and Evaluation (M&E) is a process of continual gathering of information and assessment of the collected information to measure the progress of any project in accordance with the pre- defined goals and objectives. Moreover, this process helps the managers in assessing whether there are unintended effects from the project and its activities.

M&E KEY CONCEPTS

Monitoring: Monitoring refers to the systematic collection of performance indicator data to track and measure progress towards a program objective. It is a routine process which occurs throughout the lifecycle of a program. It includes:

- Following the day-to-day activities during the implementation process to track progress
- Routine follow up to ensure activities are proceeding as planned
- Identifying problems during implementation and addressing them

Evaluation: Evaluation is the periodic assessment to determine if project activities are relevant, effective, and efficient at addressing objectives. It includes:

- Whether the inputs lead to planned outputs
- If there are more efficient ways to reach planned objectives

Baseline: It refers to the measurement of the situation prior to the start of any activity or program. It is necessary to establish a baseline to measure any change in indicators.

Objective: Specific and measurable statement describing the desired accomplishments or results of an intervention or program.

Indicator: Specific, measurable and observable data point which helps in tracking and measuring progress toward planned results that a project or program is intended to achieve within the stipulated time period.

M&E plan: The M&E plan refers to the indicator matrix and data collection plant that is critical for planning and monitoring program wellbeing. It also provides guidance regarding indicator data collection, analysis and reporting etc.

Quantitative data: Quantitative data is based on numerical measurements. It involves analysis using specific statistical techniques to answer questions like how much, what, where, when, how many, and how often.

Qualitative data: Qualitative is based on descriptive data that isn't quantified such as interviews, documents, observations, etc.

Inputs: Input are type or set of resources needed required to implement a program or activity including funds, policies, personnel, facilities, supplies, etc.

Process: it refers to a set of activities and interventions (including training, supervision, reporting) which are used as part of project activities.

Outputs: Outputs are the results of project activities and are obtained after implementation of an activity at the program level. They are tangible and immediate results and intended products of an activity (examples include the number of people trained, and M&E materials developed and available for use).

Outcomes: These are ultimate changes caused by a program or activity at the ground level in the program (examples include an increased number in trained staff who can monitor and evaluate warehouses effectively).

Impact: It refers to long-term results or outcomes of project intervention also achieved at the population level (examples include reduction in the overall number of stockouts at the facility level because of successful commodity management at the warehouse).

Feedback: Presentation of actionable information to decision makers or personnel, based on information including outputs, outcomes, and impact.

TYPE OF MONITORING

Based on the mode of monitoring, we can divide the monitoring activity into two categories: desk monitoring and field monitoring. The table given below describes the concepts of both types of monitoring.

DESK MONITORING

It refers to in-depth review and examination of collected data through M&E data source and checklist from target population. It includes various analysis techniques such as trend analysis etc. This is also called passive monitoring.

FIELD MONITORING

It refers to the process of collecting first-hand data from the field by adopting a systematic approach and tools.

DIFFERENCE BETWEEN DESK AND FIELD MONITORING

The table below shows the difference between desk and field monitoring:

Desk monitoring	Field monitoring
Requires review of records available.	Requires collection of first-hand information and data through direct observation.
Relies on already available data (monthly reports, stock registers, MIS logistics reports etc.) For an effective desk monitoring the available data must be reliable and accurate.	New data is collected by the monitor using standardized data collection tool. Data accuracy and reliability is cross verified by using Data Quality Assessment tools.
Incomplete data availability may not reflect the actual picture of performance and may not be useful for decision making process.	Additional data in the form of monitors' observations is made use of while making any decision.
Requires less resources in terms of time, financial resources, and human efforts.	Requires additional resources such financial and human resources.

KEY MONITORING ACTIVITIES

PERFORMANCE TRACKING AND MONITORING

Performance tracking and monitoring is the major area of concern for the district level staff who are responsible for managing warehousing and distribution of commodities to the HFs (Health facilities).
It includes:

- Monitoring and analyzing trends of contraceptive and essential medicines availability through the program life cycle.
- Analyzing and identifying issues in product consumption trends (incline or declined) in particular health facility.
- Analyzing products stockouts and availability trend to improve commodity availability for communities.

HR PERFORMANCE MONITORING

The district manager needs to assess the HR performance involved at each level of supply chain including conducting Training need assessment and proposing capacity building plan for workforce as per need assessment findings and observations. Following workforce assessment could be carried out:

- Assessment of availability of trained storekeepers in all districts, sub-district and HFS level stores.
- Assessment of availability of trained MIS operators at least at the district level for ensuring timely collection, compilation, analysis, and reporting of logistics data at all levels of district supply chain.
- Assessment of supply chain staff turnover ratio in district.
- Sources of data include HR records, staff daily attendance records, HRM MIS reports (if implemented) and workforce server and assessment.

DATA QUALITY ASSESSMENT AND VALIDATION VISITS

Data quality assessment and validation visits are essential components of monitoring at the district level, which helps to validate findings and observations recorded during ongoing monitoring of program. This is carried out by conducting field visits to the selected HFs. In the existing healthcare system, all the HFs report on pre-defined indicators. The HFs share their reports with the respective authorities in the districts through standardized protocols defined by the concerned departments and programs. Based on the analysis of the monthly reports, the district authorities may plan their field monitoring visits.
This becomes especially relevant in the case of logistics data because the district authorities need to assess and validate the stock levels and its data being reported in monthly performance reports by HFs.
The purposes of field monitoring visits include:

- Stock Monitoring
- Performance assessment (HR, supply chain system, reporting)
- Data Quality Assessment (Data Availability, Accuracy and Timeliness)
- Observations of storage warehousing conditions and practices
- Training needs assessments
- Identification of challenges and gap areas
- Supportive supervision and On the Job Training (OJTs) where required

MONITORING TOOLS AND CHECKLIST

After determining the purpose and method of monitoring, and the data collection approach, the monitor requires a standard data collection tool for conducting monitoring visits. Because monitoring often involves different data collection approaches, it frequently requires different types of data collection tools, qualitative, quantitative, or a combination of both. The data collection tool is used to gather the data required to report on indicators selected for overall assessment of system performance. Existing monitoring tools and checklists can be used, or a new tool can be developed.

A sample monitoring and data collection tool for performance assessment and logistics performance is given as Annexures – B & C

STEPS INVOLVED IN PLANNING DQA VISITS

Field monitoring must be carried out in a systematic way for better utilization of time, efforts and resources involved in field activity. Major steps involved in field monitoring are described in the figure given below:

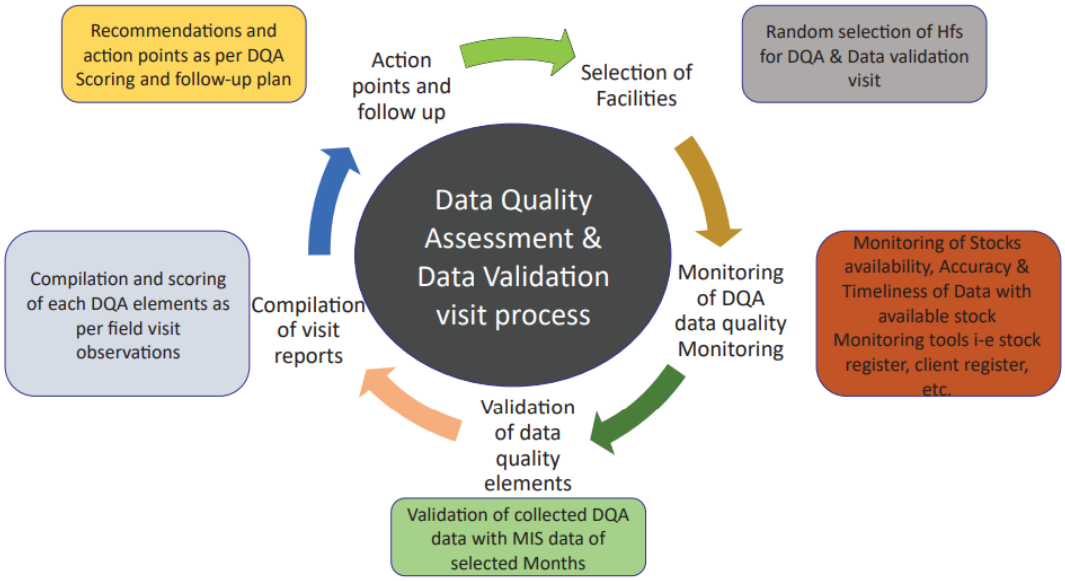


Figure 25:Field monitoring visit process

Selection of HFs

The first step includes the selection of HFs to be monitored during DQA visit. This selection will be made through random/convenient sampling method, depending upon the availability of time and resources including financial and human resource. Generally, at least 5% of the HFs of the districts must be monitored during DQA on a monthly basis**.**

A stepwise practical guideline for planning and executing the monitoring field visit is given in Annexure-D

Monitoring of DQA elements

During the monitoring visit, the quality of supply chain components (receiving, storage, distribution, reporting) is being monitored, that generate critical information for decision makers, which is helpful to ensure commodity security in the district and HF level. During the DQA visit to selected HFs following DQA elements are being monitored.

i. **Data Availability**: monitoring of the availability of contraceptive and medicine at HF.
ii. **Data Accuracy:** comparison of physical stock register entries with physical counts of contraceptive and medicines in HF.
iii. **Data Timeliness:** rating the timeliness of reporting by accessing the last three previous months from MIS and rating it as per their reporting rate into MIS.

Scoring of each DQA element

The field monitoring results must include commentary on the quality of data being reported and can be presented in the form of numbers, tables, bar diagrams, charts, pie charts, etc. Gaps in the data quality must clearly be identified along with possible reasons for these gaps.

Recommendations and action points

The monitoring activity becomes futile without the recommendations put forth for addressing the issues and challenges. The recommendations must objectively and clearly indicate the actions to be taken. Examples of recommendations include:

- The district storekeeper requires training on recording of logistics data in daily activity registers.
- The HF XYZ store is overstocked with anti-malarial medicines so stocks must be relocated to nearest HF ABC where stocks of anti-malarial medicines are insufficient.
- Desktop computer at the District Store needs to be replaced.

MONTHLY PROGRESS REVIEW MEETINGS

As mentioned earlier, monitoring is a continuous process and different approaches for monitoring are adopted for this purpose. One of the important strategies is to hold monthly meetings of the relevant staff. This is a routine practice in the department of health and vertical programs and includes the field staff at provincial and district levels on a monthly and quarterly basis. These meetings not only provide an opportunity for field staff to interact with the higher authorities but also provide a forum for performance review.

The agenda of monthly review meetings must be clearly defined and must be objective to maximize the output of this activity. Some of the agenda points may be review of implementation status of decisions taken in earlier monthly meetings, periodic performance review, and compilation of reports during intra- and inter-district meetings, providing feedback, and conveying instructions and distribution of commodities and supplies.

Review of logistics data reports must be an essential agenda point for these meetings. The district level managers must ensure recording of meetings minutes and sharing of these minutes with participants and relevant authorities within the district. A simplified template is shared below for recording meeting minutes.

CAPACITY BUILDING ON DATA USE AND ANALYSIS

Each staff member performs a specific function pertaining to the establishment of a smooth supply chain system in their jurisdiction. Some of the staff members will be assigned to compile and analyze the logistics data from the HFs at regular intervals and others may be involved with the storage and distribution of supplies. Hence each staff member needs to fully understand their roles and must be capable of performing the assigned function. Roles and responsibilities of district and subdistrict level staff dealing with supply chain management are mentioned as below:

Level	Designation	Responsibilities related to supply chain Management	Capacities required
District	DHO and DPWOs	• Arrangement of commodities • Analysis of consolidated logistics data and reports of the district to assess stock sufficiency in the district • Conduct desk and field monitoring • Providing feedback • Capacity building of the staff • Conducting monthly review meetings	• Understanding of procurement rules and regulations • Understanding of data quality assurance elements • Understanding of standard monitoring procedures and protocols • Skills to operate LMIS independently • Data analysis skills • Training skills
District	District storekeeper	• Ensure implementation of standard warehousing and storage practices • Inventory management • Maintaining stock ledgers • Capacity Building of Tehsil and HF level storekeepers • Monitoring of district and sub-district level stores	• Understanding of best storage practices • Inventory management skills • Training skills • Understanding of standard monitoring procedures and protocols • Understanding of MIS
District	District MIS operators	• Compilation of monthly reports shared by HFs • Ensure visibility of logistics data through MIS • Training of MIS operators working at sub-district level stores and HFs	• Hands on experience in operating MIS • Training skills
HF	HF in charge	• Ensure timely submission of monthly stock status reports • Monitoring of store located within the HF for best storage practices and inventory management • Regular review of stock status of commodities available in the store • Capacity building of the staff on best storage and inventory management practices	• Understanding of data quality assurance elements • Understanding of standard monitoring procedures and protocols • Skills to operate LMIS independently • Data analysis skills • Training skills
Sub-District Level (Tehsils and HFs)	Sub-district level storekeepers	• Ensure implementation of standard warehousing storage practices • Inventory management (Receiving supplies from district store and issue to the clients) • Maintaining stock ledgers • Ensure timely requisition of supplies	• Understanding of best storage practices • Inventory management skills • Understanding of MIS
Sub-District Level MIS Operator	Data entry operators	• Generation of monthly reports for the respective store and HF • Ensure visibility of logistics data through MIS	• Hands on experience in operating MIS

It is evident from the table given above that each staff member has a defined role and there is a set of skills required to perform that role efficiently. It is the responsibility of the managers to assess the training needs and ensure the capacity of staff. The capacity building can be conducted through formal training sessions and workshops, informal training during monthly review meetings, and on the job training during supportive supervision field visits. All key monitoring activities are summarized in the poster attached as Annexure-E.

ANNEXURES

ANNEXURE A: ACTION PLAN

Date of meeting:

Agenda points:

Sr. No	Identified Issues	Action Point	Person Responsible	By When	Comments/Updates
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					

ANNEXURE – B LOGISTICS MONITORING TOOL FOR DISTRICT STORE

Name of Storage Facility: _____District: _____
Department (Health, PPHI, and PWD, any other): _____ Facility Type: _____
Visit Date_____ Monitoring Officer _____
Name of facility In-charge: _____Name of store-keeper: _____
Name of LMIS Operator:_____Date / Year of training received: _____

Human Resource – Data entry operator Observe if the DEO is:	**Observation**	**Comments**
Able to log into the system independently. (Username and password)	**Yes/No**	
Able to browse through the application independently.	**Yes/No**	
Able to enter issuance data independently.	**Yes/No**	
Able to validate data from the system and stock register independently.	**Yes/No**	
Ask about the support mechanism to use LMIS? (If yes, name the concerned support person)	**Yes/No**	

Storage Condition:

Storage	**Observations**	**Comment**
Is there adequate space available for the storage of commodities?	Yes/No	
Is storage space cleaned properly?	Yes/No	
Direct sunlight observed	Yes/No	
Pallets/racks available	Yes/No	
Good cross ventilation	Yes/No	
Thermometer hanged on wall and temperature chart maintained	Yes/No	
Supplies properly stacked[32]	Yes/No	
FEFO[33] methodology followed	Yes/No	

Inventory Control (Based on Observations of bin cards/stock cards and LMIS forms)

Inventory	**Observations**	**Comments**
Are bin cards used?	Yes/No	
If yes, entries are proper	Yes/No	
FEFO[34] methodology followed	Yes/No	
Is stock register maintained till date according to prescribed procedures?	Yes/No	
Issue/receipt vouchers files are maintained?	Yes/No	
Do the supplies match the quantities received from Central/ Provincial/ district store/ Donor? (compare Monthly Report with Requisition)	Yes/No	

[32]Placed the commodities in orderly manner i.e. bottles/pack/carton placed as per direction mentioned and their batch number and expiry visible from front
[33,3] First Expiry First Out

Are the monthly inventory reports being prepared and submitted regularly?	Yes/No	
Are the commodities received regularly and from where (Provincial store/ Central warehouse)?	Yes/No	
What is the mechanism of commodity distribution?	Yes/No	
Is there any product stock out[35] during last three months?	Yes/No	
Is requisition sent for resupply of commodities on monthly/quarterly basis as per prescribed procedure? (as per Contraceptive Logistic Manual/ Standard documents)	Yes/No	
Do physical stock count[36] of commodities confirms quantity in inventory record? On the date of visit	Yes/No	

Quantities of stock observed on the date of inspection

S. No	Name of the item	Quantity available in the stock register	Quantities physically verified	Average monthly consumption (AMC)[37]	Sufficiency in number of months[38] (MOS)	Comments
1	ABC					
2	XYZ					

Comparison of LMIS with Stock Register and Monthly Report Data Month/Year: _____
(In each box write the value listed)

Sr. No	Product	Stock Register Data		Monthly Report		LMIS		Remarks
		Opening Balance	Closing Balance	Opening Balance	Closing Balance	Opening Balance	Closing Balance	
1	ABC							

Observations, Actions and Recommendations:

Area	Major Observations/Issues	Action taken/Recommendation
HR issues		
Training Needs		
Storage Conditions		
Inventory Management		
Use of LMIS		
Data Quality		
Any other		

[35] If stock available for less than a month time period
[36] Verification of actual stock present in store/warehouse with stock register
[37] Average consumption of last three non-zero months. The formula given as AMC = last three non-zero months / 3
[38] Available stock/AMC

Findings:

1)
2)
3)

Recommendations:

1)
2)
3)

ANNEXURE C: MONITORING CHECKLIST FOR SERVICE DELIVERY

Name of the facility: _____
Catchment Population: _____

Category: Tertiary care: _____DHQ: _____THQ: _____RHC: _____BHU: _____ Private/Others _____
List of monthly services: EPI_____FP _____Deliveries at HF_____ Live Births_____ Nutritional Services_____

SERVICES AVAILABLE AT HF (tick the relevant box)							
General services	OPD	Dispensary	ORT Corner	Laboratory	Radiology	Sonology	Causality
Specific services	FP	Labor Room	Dental	Operation Theatre	Indoor	Surgical Consultancy	Others
Preventive programs	EPI	MNCH	Nutrition	TB	Malaria	Hepatitis	HIV
Others (specify)							

Maternal, Neonatal & Child Health (MNCH) Services (Check Maternal Health Register and fill this section using HF data of previous month)	
Total number of ANC Visits	
Total number of PNC Visits	
Total number of deliveries conducted	
Total number of Live births during last month	
Total number of Still Births during last month	
Total number of Neonatal deaths during last month	
Total number of Infant deaths during last month	

Total number of Maternal deaths during last month				
Blood Transfusion Services Provided		Yes		No
MNCH tools available		Yes		No
Nutrition Services (Check OPD, Child Health & Stock Register and fill this section using HF data of previous month)				
Total number of children <5 years (visited the facility)				
Total number of malnourished children diagnosed				
Total number of dropped out children maintained				
Anthropometric Measurement Instrument	Available		Functional	
	Yes	No	Yes	No
EPI Services (Check EPI Register. To fill this section, use HF data of previous month)				
Total number of children <12 months fully immunized				
Total number of children received measles 1				
Total number of children received Penta 3				
Total number of women received TT1				
Cold Chain Maintained	Yes		No	
All vaccines available	Yes		No	
Permanent Register EPI available	Yes		No	
Daily Register EPI available	Yes		No	
Updated list of dropped outs available	Yes		No	
FP Services (Check Family Planning Register and fill this section using HF data of previous month)				
Number of Family Planning users	Old:	New:	Total:	
FP commodities available at the start of month	Yes	No	If "Yes" write numbers	
FP commodities available at the end of month	Yes	No	If "Yes" write numbers	
Write total number of users by methods during last month				
Condoms				

COC pills	
Injectables	
IUCD (if applicable)	
Implants (if applicable)	
TL (if applicable)	
Vasectomy (if applicable)	
Emergency Contraceptive pills	

LHW Services (Check Monthly Reports of LHWs and fill this section using HF data of previous month)						
Total number of LHWs posted at HF						
Total population covered by LHWs						
% of population covered by LHWs (Total of % population covered by LHWs/HF catchment population X 100)						
Total number of registered pregnant women						
Total number of high risk pregnancies identified						
Total number of delivered women registered						
Total number of FP users						
Total number of women referred to HF by LHWs						
Total number of FP clients referred by LHWs						
Number of FP clients by methods	Condoms	Pills	Injectables	Implants	IUCD	
Number of FP clients for surgical services	Tubal ligation				Vasectomy	

COMMENTS & RECOMMENDATIONS
Signature of Monitoring Officer:
Name & Designation:
Date of Visit:

ANNEXURE – D: STEP WISE APPROACH TO MONITORING FIELD VISIT

Field monitoring visit guidelines

I. Before starting monitoring field visit:

- Identify the objectives of the field monitoring and categories of health commodities to be studied (contraceptives, vaccines, medicines etc.).
- Secure financing for all the study teams' costs, including travel and accommodations.
- Standardize monitoring tool available to meet the objectives of filed monitoring visit as well as to meet ongoing monitoring needs.
- Determine the appropriate sample size and develop the sampling frame of the facilities to be visited. The main purpose of the sampling design is to avoid a convenient sample. Randomly select the facilities as much as possible.

II. Calculating the sample size and selecting visit sites:

- Compile a list of the total number of facilities in the district.
- Document the total number of each type of facility (warehouse, hospital, service delivery point) and the location and distribution of facilities.
- For a statistically significant sample, use a standard sampling formula, which often yields a large sample size. In case of resource constraints, visit a default number of a minimum of 5 percent of HFs.

III. During monitoring:

- Review completed data validation records to clarify any data inconsistencies. This is a very important step to ensure that the monitor is collecting complete and accurate data.
- Enter the data collected into the chosen database or spreadsheet for further analysis.

IV. Following the assessment:

- Conduct data analysis.
- Present the preliminary results, conclusions, and recommendations based on the field monitoring.
- Write the report of results, conclusions, and recommendations.
- Disseminate the final report to key stakeholders.

ANNEXURE – E: MONITORING AND EVALUATION BEST PRACTICES

BEST MONITORING & EVALUATION PRACTICES FOR IMPROVED COMMODITY SECURITY

Monitoring Activity	Details	Purpose	Frequency	Tools	Responsible
Performance tracking & reporting	Tracking & reporting of supply chain KPIs related to stock status i.e stock outs, under stock, over stock & stock according to plan	To ensure commodity availability & security at district & SDP levels through regular tracking & reporting of stock status	Quaterly & as per need basis	MIS dashboards & stock summary reports	MIS operator & storekeeper
Data quality assessment & validation visits	Random data quality assessment & validation visits to be planned & carried out to ensure data validity, data accuracy & data timeliness of data reported	To promote data use, its analysis & data driven decision making through availability of quality data	Monthly (visit to 5% of SDPs through purposive sampling)	Field monitoring visit tool	DHO/DPWO staff
Monthly progress review meeting	Monthly progress review meetings to be scheduled & conducted with district and health facilities staff to discuss & review performance & challenges	Monthly progress review meeting will help to improve overall performance & will improve coordination among the team hence ensuring commodity security	Monthly	Meeting minutes	DHO/DPWO & facilities staff
Capacity building on data use & analysis	Capacity building of storekeeper & MIS operator through refreshers, workshops & on the trainings on use of data & its analysis	To enhance capacities of existing workforce to use data stats for data driven decision making & preemptive action to perform in more efficient way	As per need basis	Certificates of training	DHO/DPWO & facilities staff

ACRONYMS **KPIs:** Key Performance Indicators, **SDP:** Service Delivery Points, **MIS:** Management Information System, **DHO:** District Health Office, **DPWO:** District Population Welfare Office

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