



# **DEDER GENERAL HOSPITAL**

## **A STRATEGY TO ENCOURAGE THE RATIONAL USE OF MEDICATIONS AND MITIGATING IRRATIONAL USE**

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## **1. Introduction**

Rational use of medicines is a cornerstone of effective and efficient healthcare delivery. According to WHO, over 50% of all medicines globally are prescribed, dispensed, or sold inappropriately. Irrational practices—such as polypharmacy, unnecessary antibiotics, and misuse of injectables—contribute to adverse drug events, antimicrobial resistance, wastage of resources, and poor health outcomes. This document outlines a structured, multi-pronged mechanism tailored for **Deder General Hospital** to promote rational drug use (RDU) and systematically mitigate irrational practices.

## **2. Rationale for Rational Drug Use**

### **Rational drug use ensures:**

- Improved clinical outcomes
- Reduced risk of adverse effects
- Minimized antimicrobial resistance
- Lower patient and institutional cost
- Efficient use of limited drug supply

## **3. Definitions**

- **Rational Drug Use:** Appropriate, evidence-based use of medicines in correct dosage, duration, and cost.
- **Irrational Drug Use:** Use of medicines inconsistent with best clinical practices or guidelines.
- **Essential Medicines:** Drugs that satisfy priority healthcare needs of the population.

## **4. Core Objectives**

1. Institutionalize rational prescribing practices.
2. Strengthen monitoring of prioritized medicines.
3. Identify and act on irrational drug use patterns.
4. Build prescriber and dispenser capacity.
5. Engage patients and communities in drug use education.

## **5. Strategic Pillars and Components**

This section outlines the key pillars of the Rational Drug Use Strategy and describes the critical systems and interventions required to promote evidence-based prescribing, improve medication safety, and mitigate irrational medication use across all clinical and support departments.

### **A. Governance and Leadership**

Strong governance is foundational for effective implementation of Rational Drug Use (RDU) initiatives. This begins with the activation and empowerment of a functional Drug and Therapeutics Committee (DTC).

#### **Key Actions:**

##### **1. DTC Reactivation:**

- + Ensure DTC meets regularly (at least monthly).
- + Membership should include physicians, pharmacists, nurses, lab staff, HMIS officers, and hospital leadership.

##### **2. Terms of Reference (TOR):**

- + Clearly define DTC roles: protocol development, drug list updates, audit reviews, supervision, and ASP oversight.
- + Include mechanisms for decision-making, documentation, and accountability.

### **3. Performance Indicators:**

- % of STG-compliant prescriptions
- % of drugs prescribed by generic name
- % of antibiotic prescriptions reviewed by DTC
- % of essential drugs available

### **B. Policy and Regulatory Framework**

A clear policy environment ensures prescribers and dispensers operate within defined standards.

#### **Key Actions:**

- Enforce the use of Standard Treatment Guidelines (STGs), the Essential Medicines List (EML), and the facility's approved formulary.
- **Mandate prescribers to:**
  - ✚ Prescribe only from the EML unless clinically justified.
  - ✚ Use generic names only, with strict regulation against brand name prescribing unless specified for clinical need.
- Integrate STG compliance into clinical audits, performance evaluations, and supportive supervision tools.

### **C. Prioritized Drug List Monitoring**

Monitoring a selected list of high-priority drugs allows focused interventions to ensure appropriate use.

#### **Criteria for Selection:**

- Frequently used drugs (high volume)
- High-cost items with significant budget impact
- Medications prone to irrational use or resistance (e.g., antibiotics)
- Life-saving drugs prone to stockouts

#### **Example Drugs:**

- Ceftriaxone, Omeprazole, Metronidazole, Tramadol, Insulin, ORS, Amoxicillin-Clavulanic Acid

#### **Key Actions:**

- Develop a facility-specific Prioritized Drug List (PDL).
- Review monthly consumption and prescription trends.
- Flag outliers for root cause analysis and feedback.

### **D. Clinical Decision Support Systems (CDSS)**

Decision support tools ensure that prescribing aligns with the latest clinical guidelines and evidence.

#### **Key Tools:**

- Treatment algorithms for common conditions (e.g., UTI, pneumonia, hypertension)
- Pocket-size job aids and reference cards for prescribers
- Wall charts and quick-reference posters in wards and OPDs
- Integration of STGs into EMR alerts or digital prescribing templates

#### **Impact:**

- Reduces variability in clinical practice
- Facilitates quick and standardized clinical decisions
- Improves compliance with national protocols

### **E. Training and Capacity Building**

Continuous professional development is critical to address gaps in knowledge and practice regarding rational drug use.

### **Key Activities:**

- Continuing Medical Education (CME) sessions on rational prescribing, AMR, pharmacovigilance, and use of STGs
- Onboarding training for new staff with a dedicated module on medication safety and prescribing policies
- Simulation-based training for clinical decision-making, especially in the Emergency and OPD settings

### **Topics to Cover:**

- Interpretation and application of STGs
- Antibiotic stewardship practices
- Handling drug interactions and ADRs
- Use of the EML and local formulary

## **F. Community and Patient Engagement**

Patients and communities play a vital role in promoting rational use by demanding appropriate care and complying with prescriptions.

### **Key Actions:**

- Distribute Information, Education, and Communication (IEC) materials on proper medicine use, antibiotic resistance, and completing prescribed treatments.
- Provide routine counseling at OPD, inpatient discharge, and pharmacy points.
- Conduct community-based awareness campaigns using local media, community health workers, and health extension programs.

### **Expected Outcomes:**

- Reduction in self-medication
- Improved adherence to prescribed regimens
- Informed demand for evidence-based care

## **G. Prescription Audit & Feedback**

Regular audits provide critical insight into prescriber behavior and help identify irrational practices for corrective action.

### **Key Tools:**

#### **WHO Prescribing Indicators:**

-  % of prescriptions with antibiotics
-  % of prescriptions with injections
-  Average number of drugs per encounter
-  % of drugs prescribed by generic name
-  % of drugs from the EML

-  Monthly audit reports with prescriber-specific data and feedback
-  Action planning based on audit results during departmental review meetings

### **Benefits:**

-  Promotes accountability
-  Reinforces good practice
-  Identifies training needs

## **H. Pharmacovigilance and Adverse Drug Reaction (ADR) Reporting**

Monitoring and reporting of ADRs ensure drug safety and help update protocols accordingly.

### **Key Actions:**

-  Train clinicians, nurses, and pharmacists on:
  -  How to identify ADRs
  -  How to complete national ADR reporting forms
-  Establish a clear reporting flow from clinical areas to the DTC and national pharmacovigilance system
  -  Include ADR trends in monthly DTC reviews

## **Tools:**

- ADR reporting forms (paper or digital)
- SOPs on detection and reporting
- Facility-level pharmacovigilance register

## **I. Antimicrobial Stewardship (AMS)**

AMS is a structured effort to promote responsible antibiotic use and curb antimicrobial resistance (AMR).

### **Key Components:**

1. Policy enforcement on restricted antibiotics (e.g., carbapenems, vancomycin)
2. Resistance tracking via culture and sensitivity tests (in partnership with the lab)
3. Treatment de-escalation protocols based on clinical improvement and lab results
4. Prospective audit and feedback by the AMS team

### **AMS Team:**

- Infectious disease physician (if available)
- Pharmacist
- Microbiologist or lab focal
- Nursing lead
- DTC representative

### **Expected Outcomes:**

- Reduction in inappropriate antibiotic prescriptions
- Improved patient outcomes
- Data-informed revision of hospital formulary

**Table 1: Summary of Strategic Components and Their Primary Outcome Targets**

<b>Component</b>	<b>Primary Outcome Target</b>
Governance (DTC)	100% functional with monthly reviews
Policy & Regulation	100% adherence to STGs and EML
PDL Monitoring	Monthly reports on top 10 drugs
Decision Support	100% OPD & ward coverage with STG tools
Training	100% clinical staff trained annually
Community Engagement	75% patient education coverage
Audit & Feedback	Monthly prescriber feedback loops
Pharmacovigilance	≥2 ADR reports/month submitted
AMS	100% pre-authorization for restricted antibiotics

## **6. Prioritized Drug Monitoring**

Prioritized drug monitoring is a core component of rational drug use strategies aimed at identifying specific medications with a high potential for misuse, resistance development, safety concerns, or economic burden. These medications are subject to enhanced scrutiny and continuous review using a structured framework to inform timely intervention, clinical governance, and stewardship.

This section outlines the rationale for prioritization, the monitoring frequency, methods of data collection, and suggested actions for selected medications.

### **6.1 Objectives of Prioritized Drug Monitoring**

- To ensure appropriate, safe, and cost-effective medication use.
- To reduce the risk of antimicrobial resistance (AMR) and medication errors.
- To inform timely interventions by clinical and pharmacy units.
- To promote accountability and continuous quality improvement.

## 6.2 Criteria for Drug Prioritization

**Table 2:** Medications are prioritized based on the following criteria

<b>Criteria</b>	<b>Explanation</b>
High volume of use	Frequently prescribed medications that may be overused or misused.
High cost	Medicines that consume significant budgetary resources.
High risk	Drugs with abuse potential or serious adverse effects.
High public health impact	Medications vital for disease prevention or emergency response (e.g., ORS).
Evidence of irrational use	Past audits or anecdotal reports of non-compliance with guidelines.
AMR potential	Antibiotics prone to misuse and resistance development.

### 6.3. Prioritized Drug Monitoring Table

**Table 3: Prioritized Drug Monitoring Table**

N o.	Drug Name	Reason for Prioritization	Monitoring Frequency	Key Focus Areas
1	<b>Phenobarbitone</b>	Commonly used anticonvulsant with sedation risk and narrow therapeutic index	<b>Monthly</b>	Pediatric dosing, adverse effects, alternative agents
2	<b>Morphine</b>	Strong opioid; risk of underuse in palliative care and overuse in non-cancer pain	<b>Monthly</b>	Storage security, proper documentation, pain assessment linkage
3	<b>Chlorpromazine (CPZ)</b>		<b>Monthly</b>	
4	<b>Pethidine</b>	High potential for CNS toxicity, now discouraged in many guidelines	<b>Monthly</b>	Replacement with safer opioids, surgical/OBGYN use, duration control
5	<b>Ceftriaxone</b>	High empirical use; AMR concern	<b>Monthly</b>	Culture and sensitivity result linkage, empirical use justification
6	<b>Tramadol</b>	Misuse for mild pain, risk of dependence and CNS effects	<b>Monthly</b>	Indications, prescribing departments, warning signs of abuse
7	<b>Vancomycin</b>	Reserve antibiotic; risk of nephrotoxicity and resistance	<b>Monthly</b>	Culture confirmation, therapeutic indication, dose monitoring
8	<b>Insulin Lente</b>	Cold chain requirement, dosing errors common	<b>Monthly</b>	Storage logs, diabetic protocol linkage, hypoglycemia tracking
9	<b>Normal Saline (NS)</b>	Most frequently used IV fluid; overuse risk in non-hypovolemic conditions	<b>Monthly</b>	Surgical and emergency use appropriateness, volume accuracy
10	<b>Ciprofloxacin</b>	Overuse for UTI and GI infections; AMR concern	<b>Monthly</b>	Indication accuracy, resistance surveillance, renal dose adjustment

11	<b>Propylthiouracil (PTU)</b>	Risk of hepatotoxicity; needs thyroid function monitoring	<b>Monthly</b>	Liver monitoring, indication for hyperthyroidism, ADR surveillance
12	<b>Salbutamol Inhaler</b>	Underuse due to poor technique; overuse without controller meds	<b>Monthly</b>	Inhaler technique training, frequency review, COPD/asthma linkage
13	<b>Augmentin</b>	Broad-spectrum antibiotic; high cost; often overprescribed	<b>Monthly</b>	De-escalation practices, culture guidance, affordability issues
14	<b>Spironolactone</b>	Risk of hyperkalemia and endocrine side effects	<b>Monthly</b>	K <sup>+</sup> and renal function monitoring, use in CHF/cirrhosis contexts
15	<b>Amoxicillin</b>	Overuse in viral infections, particularly in OPD	<b>Monthly</b>	Fever syndrome prescriptions, education on viral vs bacterial
16	<b>Azithromycin</b>	Frequent use in self-limited URTIs; AMR and cost issues	<b>Monthly</b>	Short-course prescriptions, alternative antibiotic availability
17	<b>Ringer's Lactate</b>	Misuse in conditions contraindicating lactate; electrolyte impact	<b>Monthly</b>	Surgical/trauma protocols, renal function compatibility
18	<b>D5W (5% Dextrose in Water)</b>	Overused in diabetic and cerebral edema cases	<b>Monthly</b>	Protocol adherence, glucose monitoring, clinical appropriateness
19	<b>Cephalexin</b>	Widely used for skin, soft tissue, and dental infections	<b>Monthly</b>	Allergy tracking, short-course validation, resistance watch

## 6.4 Monitoring Approach and Methodology

**Table 4:** Monitoring Approach and Methodology

Component	Description	Tools/Methods Used	Frequency	Responsible Body
<b>Prescription Audit</b>	Review of prescriptions for appropriateness, adherence to STG, and completeness	Prescription audit sheets (paper/electronic); WHO indicators	<b>Bi-annually</b>	DTC, Pharmacy Unit, OPD Directors
<b>Stock Movement Analysis</b>	Comparison of stock issuance vs patient-level drug administration	Bin cards, stock register, dispensing log vs patient chart	<b>Monthly</b>	Pharmacy Head, Store Manager
<b>Antimicrobial Use Surveillance</b>	Focused tracking of priority antimicrobials to monitor trends and misuse	Antimicrobial use dashboard; Culture & sensitivity pattern tracking	<b>Monthly</b>	DTC, Lab Unit, IPC Team
<b>ADR and Pharmacovigilance Review</b>	Reporting and analyzing adverse drug reactions	National ADR forms; internal reporting checklist; review committee	<b>Monthly (if reported from case teams)</b>	Pharmacist, Clinical Department Heads
<b>Training and Capacity Monitoring</b>	Evaluate knowledge gaps and training needs based on audit findings	Post-training assessments; clinical observation checklists	<b>Quarterly</b>	HR Unit, Training Committee

<b>Patient Outcome Review</b>	Linking medication use with patient outcome data	Mortality/morbidity records, readmission analysis	<b>Quarterly</b>	M&E Team, Clinical Audit Committee
<b>Patient satisfaction survey</b>	Collect feedback on rational drug use from patients and community	Exit interviews, suggestion boxes, IEC material tracking	<b>Quarterly</b>	Health Education Team, QI Team
<b>Laboratory Integration</b>	Cross-check prescription of antimicrobials with lab culture reports	EMR cross-validation; lab result and prescription reconciliation	<b>Monthly</b>	Lab Team, DTC, Prescriber
<b>Compliance to Facility Formulary</b>	Ensure prescribed drugs are within approved formulary	Cross-check with formulary list; EMR alert on non-formulary drugs	<b>Annually</b>	Pharmacy Unit, DTC

## 6.5 Drug-Specific Actions and Interventions

<b>Drug</b>	<b>Identified Issue</b>	<b>Intervention</b>	<b>Responsible Unit</b>	<b>Timeline</b>
<b>Ceftriaxone</b>	Overuse, empirical use without confirmation	Implement culture-based prescribing; restrict use to specific indications	Pharmacy & Clinical Audit Team	<b>Monthly</b>
<b>Ciprofloxacin</b>	Resistance emergence, non-adherence to STG	Audit compliance to STG; clinician training	DTC, Pharmacy	<b>Monthly</b>
<b>Azithromycin</b>	Overprescription for viral URTIs	Public awareness; prescriber reminders; chart reviews	Medical Director, IEC Team	<b>Monthly</b>
<b>Amoxicillin</b>	Excessive OPD use, STG deviations	Update wall charts; audit prescriptions	OPD Head, Pharmacy	<b>Monthly</b>
<b>Augmentin</b>	Empirical broad-spectrum use	Limit to second-line cases; clinician sensitization	Pharmacy Unit	<b>Monthly</b>
<b>Cephalexin</b>	Use without culture/sensitivity	Enforce STG and restrict use to defined infections	DTC, Pharmacy	<b>Monthly</b>
<b>Vancomycin</b>	Reserve antibiotic, risk of resistance	Use only for confirmed MRSA cases; DTC pre-approval	DTC, Lab, Pharmacy	<b>Monthly</b>
<b>Salbutamol puff</b>	Overuse due to improper asthma classification	Enforce diagnosis-based prescribing; patient inhaler technique training	OPD/Pediatrics	<b>Monthly</b>
<b>Normal Saline</b>	Unjustified overuse	Review IV fluid indications; track stock-patient ratio	Pharmacy + Ward Nurses	<b>Monthly</b>

<b>Ringer's Lactate</b>	Inappropriate volume administration	Conduct IV fluid use audits; training for emergency staff	Emergency Department	<b>Monthly</b>
<b>D5W</b>	Incorrect usage in diabetic patients	Enforce STG guidelines; clinician reminders	Internal Medicine	<b>Monthly</b>
<b>Morphine</b>	Underutilization due to fear of addiction	Train on palliative care protocols; safe use SOP	Pharmacy, Palliative Care Team	<b>Monthly</b>
<b>Tramadol</b>	High abuse potential	Limit OPD prescribing; patient follow-up; pharmacy alert system	OPD/Pharmacy	<b>Monthly</b>
<b>Pethidine</b>	High risk of addiction	Enforce restriction to inpatient use only; prescriber accountability	Inpatient Dept., DTC	<b>Monthly</b>
<b>Phenobarbitone</b>	Use in seizure patients, risk of long-term dependency	Review neurology cases; dosing standardization	Pediatrics, IPD	<b>Monthly</b>
<b>Insulin Lente</b>	Improper administration technique	Nurse training; patient glucose monitoring SOPs	Medical Ward, OPD	<b>Monthly</b>
<b>PTU</b>	Limited use monitoring	Ensure lab thyroid function follow-up system	Pharmacy + Lab	<b>Monthly</b>
<b>Spironolactone</b>	Electrolyte monitoring lacking	Enforce lab monitoring with prescription; SOP for diuretics	Internal Medicine + Lab	<b>Monthly</b>

## 6.6 Indicators for Monitoring Performance

**Table 5: Indicators for Monitoring Performance**

Monitoring Area	Performance Indicator	Definition / Description	Target / Benchmark	Data Source
Prescribing Practices	% of prescriptions adhering to Standard Treatment Guidelines (STG)	Proportion of total prescriptions that match STG recommendations	≥ 90%	Prescription audit sheet, EMR
	Average number of drugs per prescription	Total number of drugs prescribed divided by total prescriptions reviewed	≤ 2	Prescription audit sheet
	% of encounters with antibiotics prescribed	Antibiotic use across all patient encounters	≤ 30% (WHO standard)	Prescription review, EMR
	% of prescriptions with injection drugs	Measures overuse or unnecessary use of injectable medications	≤ 10%	OPD/IPD patient charts
Formulary Compliance	% of prescribed drugs from Essential Medicines List (EML) or facility formulary	Degree of adherence to the approved EML or formulary	≥ 95%	Dispensing log, audit reports
Antimicrobial Use	% of priority antibiotics used based on culture sensitivity	Rational use based on lab findings	≥ 80%	Lab register, patient chart
	Defined Daily Dose (DDD) per 100 bed-days for selected antibiotics	WHO-defined antimicrobial consumption indicator	Benchmark per drug	Pharmacy records, DTC report

<b>Adverse Drug Reaction (ADR)</b>	ADR reporting rate	Number of ADR reports submitted per 1,000 patient encounters	$\geq 2/1,000$	ADR forms, Pharmacovigilance log
	% of ADR reports acted upon within 1 month	Responsiveness of the hospital to reported ADRs	100%	ADR committee minutes
<b>Training and Capacity</b>	% of clinicians trained in rational drug use and STG application	Measures capacity-building efforts	$\geq 90\%$	HR/training records
<b>Stock and inventory</b>	Stock-out rate of tracer drugs (e.g., insulin, ORS, ceftriaxone)	% of days a key drug was out of stock during the monitoring period	0%	Bin cards, stock register
	Drug wastage rate (expired/damaged stock)	Proportion of drugs wasted compared to total stock	$\leq 2\%$	Pharmacy reports
<b>Prescription Audit &amp; Feedback</b>	% of departments receiving audit feedback quarterly	Ensures regular feedback loops	100%	DTC meeting minutes, feedback forms
	% improvement in prescribing indicators post-feedback	Measure of effectiveness of feedback interventions	$\geq 10\%$ improvement	Comparative audit reports
<b>Patient-Centered Indicators</b>	% of patients counseled on medication use	Ensures patient awareness and engagement	$\geq 90\%$	Pharmacy counseling register
	% of patients reporting understanding of their prescription (exit interview)	Based on random patient survey	$\geq 85\%$	Exit survey reports

## **6.7 Feedback and Review**

- ☞ **Monthly** DTC are conduct **meetings** to:
  - ✚ Analyze trends.
  - ✚ Identify gaps.
  - ✚ Update action plans.
- ☞ **Corrective actions** include prescriber retraining, updated wall charts, and performance discussions.

## **6.8 Integration with Hospital Systems**

- ☞ Aligned with Electronic Medical Record (EMR) decision support tools.
- ☞ Incorporated into Continuous Medical Education (CME) content.
- ☞ Part of quality metrics reviewed by the hospital management team.

# **7. Problem Identification, Root Cause Analysis, and Interventions for Rational Drug Use**

## **7.1 Introduction**

Effective promotion of rational drug use (RDU) requires first recognizing and understanding the problems associated with medication use in the facility. This process involves systematic problem identification, analyzing the underlying causes driving irrational use, and designing targeted, evidence-based interventions. This section describes how Deder General Hospital or any healthcare institution can approach this critical process.

## 7.2 Problem Identification and the Need for Action

### 7.2.1 What is Problem Identification?

Problem identification is the process of detecting deviations from best practice or expected outcomes related to medication use. These problems may be uncovered through:

- ☛ Prescription audits
- ☛ Pharmacy stock and consumption records
- ☛ Patient complaints and feedback
- ☛ Clinical outcome reviews
- ☛ Adverse drug reaction (ADR) reports
- ☛ Resistance pattern surveillance

### 7.2.2 Common Problems in Medication Use

**Table 6:** Some common problems that typically warrant action include:

Problem	Description
Overprescription of antibiotics	Antibiotics prescribed for viral infections or non-bacterial conditions
Polypharmacy	Patients receiving unnecessarily high numbers of drugs
Non-adherence to Standard Treatment Guidelines (STGs)	Prescriptions that do not conform to national/local guidelines
Incomplete prescriptions	Missing dose, frequency, or duration details
Brand-name prescribing	Use of brand names instead of generic names, increasing costs
Overuse of injectables	Preference for injections when oral formulations suffice
Inadequate patient counseling	Patients unaware of correct drug use or side effects
Stockouts and supply inconsistencies	Interruptions in drug availability leading to substitution or treatment interruption
High rate of adverse drug reactions (ADRs)	Increased morbidity or mortality due to medication errors

### **7.2.3 Why Action is Needed**

- To reduce patient harm from medication errors and adverse effects.
- To control healthcare costs by minimizing unnecessary drug use.
- To combat antimicrobial resistance by ensuring appropriate antibiotic use.
- To improve therapeutic outcomes through adherence to evidence-based practice.
- To comply with national and international standards on quality of care.

### **7.3 Identification of Underlying Causes and Motivating Factors**

Understanding *why* problems occur is essential to designing effective solutions. This requires root cause analysis (RCA) and exploration of motivating factors.

#### **7.3.1 Root Cause Analysis Methods**

- 5 Whys Technique: Iteratively asking “Why?” to peel back layers of cause.
- Fishbone (Ishikawa) Diagram: Categorizing causes into domains such as People, Processes, Environment, Materials, and Management.
- Focus Group Discussions and Interviews: Gathering qualitative insights from staff and patients.

#### **7.3.2 Common Underlying Causes**

Cause Category	Examples
<b>Knowledge Gaps</b>	Lack of updated clinical knowledge, unfamiliarity with STGs, insufficient training
<b>Systemic Issues</b>	Poor documentation systems, stock management failures, absence of decision support tools
<b>Behavioral Factors</b>	Prescriber habits, fear of treatment failure, pressure to satisfy patient demands
<b>Resource Constraints</b>	Inadequate lab support for diagnostics, limited drug availability
<b>Organizational Culture</b>	Weak leadership, low accountability, poor interdepartmental communication
<b>External Influences</b>	Pharmaceutical marketing, patient misinformation

### **7.3.3 Motivating Factors for Irrational Use**

- Prescriber convenience or inertia
- Patient expectations for antibiotics or injections
- Lack of enforcement of policies
- Inadequate supervision or feedback mechanisms

### **7.4 Possible Interventions and Implementation**

Based on identified problems and causes, a tailored set of interventions should be developed. These interventions target the root causes and create sustainable improvements.

#### **7.4.1 Intervention Categories**

**Table 7:** Intervention Categories

<b>Intervention Type</b>	<b>Description</b>
Policy and Regulatory	Enforce STG adherence, generic prescribing mandates
Education and Training	Regular CME, orientation on rational prescribing
Audit and feedback	Routine prescription audits with timely feedback
Clinical Decision Support	Job aids, protocols, EMR alerts to guide prescribers
Pharmacy-led Actions	Stock monitoring, restricted drug access, patient counseling
Patient Engagement	Counseling, IEC materials, community outreach
Organizational	Strengthen DTC functionality, leadership commitment

## 7.4.2 Problem-Intervention Matrix

**Table 8: Problem-Intervention Matrix**

Problem	Root Cause	Intervention	Responsible Unit	Timeline
<b>Antibiotic overuse</b>	Knowledge gap, patient pressure	CME on AMR and STGs; Patient education posters	Pharmacy, Clinical	3 months
<b>Incomplete prescriptions</b>	Poor documentation processes	Standard prescription forms; EMR template update	HMIS, Pharmacy	2 months
<b>Brand-name prescribing</b>	Marketing influence	Enforce generic prescribing policy; staff training	DTC, Pharmacy	1 month
<b>Stockouts causing substitutions</b>	Supply chain failures	Improve LMIS accuracy; regular stock review	Pharmacy, Procurement	Ongoing
<b>ADR underreporting</b>	Lack of awareness	Train staff on ADR detection and reporting	Pharmacovigilance Unit	6 months

## 7.4.3 Implementation Steps for Interventions

### 1. Planning

- Develop detailed workplans.
- Assign roles and responsibilities.
- Set SMART (Specific, Measurable, Achievable, Relevant, Time-bound) objectives.

### 2. Capacity Building

- Conduct targeted trainings.
- Provide job aids and materials.

### **3. Monitoring and Evaluation**

- Define key indicators.
- Schedule regular audits and feedback sessions.

### **4. Sustaining Change**

- Institutionalize best practices through SOPs.
- Embed RDU in performance appraisals.
- Maintain ongoing supervision and mentorship.

## **8. Antimicrobial Stewardship Program (ASP)**

### **Core Activities:**

- Antibiotic use surveillance
- Culture-and-sensitivity support
- Restriction protocols for 3rd-gen cephalosporins
- Stewardship rounds
- Feedback to prescribers

### **ASP Team Composition:**

- ID physician
- Pharmacist
- Microbiologist
- Infection control nurse

## **9. Training and Capacity Building**

**Table 9: Annual Training Plan:**

<b>Topic</b>	<b>Target Group</b>	<b>Frequency</b>
Rational Drug Use	Prescribers	Twice/year
ADR Reporting	Nurses, Pharmacists	Once/year
STG Adherence	All clinicians	Quarterly
AMR & ASP	Clinicians	Annually

## **10. Standardization and Decision Support**

- STG booklets at each clinical station
- Printed algorithms for top 10 conditions
- Mobile-accessible guidelines
- EMR alerts for non-standard regimens

## **11. Patient and Community Engagement**

### **Key Activities:**

- Counseling at pharmacy window
- IEC posters and leaflets
- Health education in OPDs and MCH units
- Media campaigns via radio or town halls

## **12. Prescription Audit and Feedback**

### **WHO Drug Use Indicators:**

1. Average number of drugs per encounter
2. % antibiotics prescribed
3. % injectables
4. % drugs prescribed by generic name
5. % prescriptions adhering to STG

## **13. Inventory and Supply Chain Optimization**

- Link rational use data to quantification
- Improve LMIS accuracy
- Update bin cards regularly
- Conduct ABC-VEN analysis

## 14. Timeline and Milestones

Activity	Timeframe
DTC activation	Meskerem
Baseline drug use survey	Tikimt
Training on STG and RDU	Hidar-Tir
Audit tool implementation	Yekatit
Mid-year evaluation	Sene

## 15. Sustainability Plan

- Integrate RDU into performance appraisals
- Include indicators in HMIS routine reports
- Budget for job aids and training annually
- Include RDU training in CPD plans

## 16. References and Appendices

- WHO Rational Use Guidelines
- Ethiopian Standard Treatment Guidelines
- Essential Medicines List (Federal MoH)
- Sample Job Aids (see Appendix A)
- Audit Tool Templates (see Appendix B)

## Annex:

### Annex I: Prescription Audit Sheet

Department: \_\_\_\_\_

Date of Audit: \_\_\_\_ / \_\_\_\_ / \_\_\_\_

Auditor Name: \_\_\_\_\_

Patient MRN: \_\_\_\_\_

Prescribing Clinician: \_\_\_\_\_

### Section A – Prescription Details

Rx code	Prescription	Responses on review of validity of Prescriptions														Prescriber's related information		Dispenser's related information		
		Patient related information						Medicine related information				Prescriber's related information		Dispenser's related information		Prescriber's related information		Dispenser's related information		
1	252808																			
2	253658																			
3	342091																			
4	342701																			
5	345348																			
6	345348																			
7	345348																			
8	345348																			
9	345348																			
10	345348																			
11	345471																			
12	345527																			
13	345527																			
14	345580																			
15	345592																			
16	345592																			
17	345592																			

## Section B – Summary and Observations

 Total Audit Score: \_\_\_\_\_

 Prescribing Errors Identified (if any):

## Deviation from STG:

None    Minor    Major

*If major, explain:*

#### Suggestions/Recommendations for Improvement:

 For DTC Use Only

 Reviewed by (DTC Focal):

## Corrective Action Taken:

Feedback to prescriber    Training

Recommended  Referral to DTC  No action needed

○ Follow-Up Date: \_\_\_\_ / \_\_\_\_ / 20\_\_\_\_

## Instructions for Use

- Randomly select 30 prescriptions per month per department.

- 🔗 Tally compliance with standard treatment guidelines and documentation standards.

- Flag any deviations for DTC review and clinician feedback.

## 2. Antimicrobial Use Surveillance Dashboard

**Purpose:** To monitor trends of antimicrobial use and track targets in the Antimicrobial Stewardship Program.

### Annex 2.2 AMS review/Audit form

<b>Name of Hospital:</b>						
<b>I. Patient demographic and clinical information</b>						
Date of Admission:	Department:	Ward:				
Patient name (ID):	Age in Yrs:	Weight:	Sex: Male <input type="checkbox"/> or Female <input type="checkbox"/>			
Chart Number:	Allergies:					
Previous admission history for $\geq 2$ days within the last 3 months	Yes <input type="checkbox"/> No <input type="checkbox"/>					
Previous antibiotic use histories within 30 days	Yes <input type="checkbox"/> No <input type="checkbox"/>					
Immunosuppressed	Yes <input type="checkbox"/> No <input type="checkbox"/>					
CKD <sup>10</sup> / current AKI	Yes <input type="checkbox"/> No <input type="checkbox"/> , If yes serum creatinine _____					
If the patient is a neonate	Gestational age (in weeks) _____; birth weight (in kgs): _____					
<b>2. Current antibiotic prescriptions for the current indication (see below)</b>						
<b>Antibiotics prescribed</b>	Dose (mg)	Route	Interval	Start date	End date (if recorded)	
<b>3. Indication for antibiotic treatment</b>						
<b>Indication<sup>11</sup></b>	S. Prophylaxis <input type="checkbox"/>	Empirical <input type="checkbox"/>		Definitive <input type="checkbox"/>		
<b>Diagnosis</b> (it might be more than one)	Urinary tract Infection <input type="checkbox"/>	Gastrointestinal Infection <input type="checkbox"/>		Bloodstream Infection <input type="checkbox"/>		
	Pneumonia <input type="checkbox"/>	CNS/Meningitis <input type="checkbox"/>	Skin infection <input type="checkbox"/>	Bone infection <input type="checkbox"/>		
	Other (specify): _____					
<b>Diagnostic workups done</b>	Fever recorded					
	WBC with differentials					
	X-ray findings					
	<b>Cultures</b>	Sent before antibiotics <input type="checkbox"/>		Sent after antibiotics <input type="checkbox"/>	Not sent <input type="checkbox"/>	
	If sent, culture specimen source	Blood <input type="checkbox"/> Urine <input type="checkbox"/>		Sputum <input type="checkbox"/> CSF <input type="checkbox"/>	Other (specify): _____	
<b>4. Initial review of antibiotic treatment</b>						
Is indication for Antibiotic treatment documented? Yes <input type="checkbox"/> No <input type="checkbox"/>	Is antibiotic treatment prescribed according to recommended guidelines? Yes <input type="checkbox"/> → No <input type="checkbox"/> Why not? Comment			Comments		
Correct dose? Yes <input type="checkbox"/> No <input type="checkbox"/>	Appropriate route? Yes <input type="checkbox"/> No <input type="checkbox"/>		Treatment duration or review date stated? Yes <input type="checkbox"/> No <input type="checkbox"/>			
<b>5. Within 72 hours review of antibiotic treatment by physician/AMS team</b>						
Is antibiotic treatment Yes <input type="checkbox"/> No <input type="checkbox"/>						

CKD: chronic kidney disease, AKI: acute kidney injury, CSF: cerebrospinal fluid, CNS: central nervous system, IV: intravenous, PO:

per- oral,

<b>If yes, what action?</b>	Escalate <input type="checkbox"/>	Continue <input type="checkbox"/>	De--escalate <input type="checkbox"/>	Stop <input type="checkbox"/>	Change <input type="checkbox"/>	IV-• oral switch <input type="checkbox"/>
<b>If continue, Why is antibiotic</b>	Continuing clinical signs of infection <input type="checkbox"/>			Confirmed infection <input type="checkbox"/>		Other (comment): _____
<b>If stop, Why is antibiotic treatment being stopped?</b>	No evidence for infection <input type="checkbox"/>	Treatment duration too long <input type="checkbox"/>		Allergy <input type="checkbox"/>		Other (comment): _____
<b>If Change, Why is antibiotic treatment being Changed?</b>	Inappropriate spectrum <input type="checkbox"/>	Culture-sensitivity <input type="checkbox"/>		IV to PO <input type="checkbox"/>		Other (comment): _____
Microbiology specimens collected? <input type="checkbox"/> Date: _____	Microbiology results received? <input type="checkbox"/> Date: _____			Microbiology results acted upon? <input type="checkbox"/> Comment: _____		

<b>6. General</b>		
(Review) Date: _____	Name/signature (reviewer) _____	
<b>7. Actions based on comments/recommendation/s:</b>		
Fully accepted <input type="checkbox"/>	Partially accepted <input type="checkbox"/>	Not accepted <input type="checkbox"/>
If not accepted, Reasons: _____		

## Indications

I. Peri-operative (prophylaxis)	12. HIV related
2. Respiratory Infection (URTI, LRTI, etc. CAP HAP)	13. Malaria
3. CNS infection (Meningitis, encephalitis, brain abscess, epidural abscess etc.)	14. Relapsing fever
4. GI infection (gastroenteritis, perforated bowel, intraabdominal abscess/peritonitis etc.)	15. Visceral leishmaniosis
5. Genitourinary infection (UTI, Pyelonephritis, PID, Prostitis, cystitis, endometritis)	16. Typhoid fever
6. MSK infection (osteomyelitis, septic arthritis, prosthetic infection etc.)	17. Typhus
7. Cardiovascular infection (endocarditis, myocarditis, pericarditis, etc.)	18. Unspecified
8. Systemic viral infection (dengue, VHF, etc.)	19. LONS Neonatal sepsis
9. Skin/soft tissue infection (cellulitis, abscess, wound infection etc.)	20. Aspiration pneumonia
10. Fever of unknown origin	21. SSI- Surgical site infection
11. Febrile neutropenia	22. Line infection- IV site
	23. Prophylaxis
	24. Other (specify) _____

### 3. Stock Movement vs Patient File Analysis Tool

**Purpose:** To detect mismatches between drugs issued and actual patient use.

<b>Stock vs Patient File Audit Tool</b>	
<b>Month:</b>	_____
<b>Department:</b>	_____
<b>Drug Name:</b>	_____
<b>Quantity Issued (from pharmacy log):</b>	_____
<b>Total Documented Doses in Patient Charts:</b>	_____
<b>Variance (%):</b>	_____
<b>Possible Reasons:</b>	<input type="checkbox"/> Documentation Gap <input type="checkbox"/> Wastage <input type="checkbox"/> Theft <input type="checkbox"/> Overuse <input type="checkbox"/> Misuse
<b>Corrective Action Needed?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Remarks:</b>	_____

### 4. Drug therapy problem/DTP Form

**Purpose:** For reporting adverse events or unexpected reactions to FMHACA (now EFDA) or hospital's internal pharmacovigilance system.

Drug use problem investigation: Prescribing Indictor Date 29/5/2015							
Standard		<2	100%	20-30%	<25%	100%	100%
S/N	MRN	# Medicines	# Generics	Antibiotics 0/1*	Injection 0/1*	# on Facility List	Diagnosis (Opt)
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							

16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
34						
Total						
Average						
%						

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