



# DEDER GENERAL HOSPITAL

## Standard Operating Procedure (SOP) for Sustaining Improvement in ICU Enteral Feeding

**BY: HSQU**

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**Deder, Eastern Ethiopia**



## SMT SOP APPROVAL

### SOP for ICU Enteral Feeding

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## **1.0 PURPOSE**

To establish a standardized, multidisciplinary process for the initiation, management, and monitoring of enteral feeding in the Intensive Care Unit (ICU) to **implement and sustain** a compliance rate of >80%, optimize nutritional support, and contribute to reduced patient morbidity and mortality.

## **2.0 SCOPE**

This SOP applies to all healthcare providers involved in the care of ICU patients at Deder General Hospital, including but not limited to: ICU physicians, nurses, nutritionists, pharmacists, and the quality improvement team.

## **3.0 DEFINITIONS**

- **Enteral Feeding (EN):** The delivery of nutrients directly into the stomach or small intestine via a feeding tube.
- **Feeding Protocol Compliance:** The percentage of eligible ICU patients for whom the enteral feeding protocol is correctly followed (right patient, right formula, right rate, right time).
- **Multidisciplinary Nutrition Round:** A daily patient review led by the ICU physician involving a nurse and nutritionist to assess and plan nutritional support.
- **Gastric Residual Volume (GRV):** The volume of fluid aspirated from the stomach before a feeding; measured to assess tolerance.
- **PDSA Cycle (Plan-Do-Study-Act):** A systematic series of steps for gaining valuable learning and knowledge for the continual improvement of a process or product. Used for implementing and testing changes on a small scale before broad implementation.

## **4.0 IMPLEMENTATION PLAN (PDSA CYCLE)**

Prior to full-scale rollout, the implementation of this revised SOP will be guided by PDSA cycles to test and adapt the changes.

**Objective:** To successfully implement the revised enteral feeding protocol across the ICU, achieving sustained compliance >80%.

<b>PDSA Element</b>	<b>Details</b>
<b>Plan</b>	<p><b>Questions:</b></p> <ol style="list-style-type: none"><li>1. Will the new protocol and daily rounds be followed consistently by all staff?</li><li>2. Will the weekly audit and feedback process be feasible and effective?</li><li>3. What difficulties will we experience with documentation and resource availability?</li></ol> <p><b>Predictions:</b></p> <ol style="list-style-type: none"><li>1. Consistency may be challenging initially; resistance to change is expected.</li><li>2. The audit process will be feasible but may require simplification after the first trial.</li><li>3. Documentation time and availability of nutritionists for daily rounds may be initial barriers.</li></ol> <p><b>Who:</b> ICU QI Team, Lead ICU Physician, Charge Nurse, Nutritionist.</p> <p><b>What:</b> Training on new protocol, introduction of audit tools, initiation of daily rounds.</p> <p><b>When:</b> Initial pilot: [Start Date]. Full implementation: [Date after</p>

	<p>successful pilot].</p> <p><b>Where:</b> Deder General Hospital ICU.</p>
<b>Do</b>	Conduct the first PDSA cycle with a small pilot group (e.g., one ICU team for 1-2 patients). Implement the procedures outlined in Section 6.0. Train involved staff. Begin weekly audits.
<b>Study</b>	Analyze data from the pilot cycle (compliance rates, audit findings, staff feedback). Compare results to predictions. Did the process work as expected? What were the unforeseen challenges?
<b>Act</b>	Based on findings, refine the protocol, training materials, or audit tools. Then, proceed with implementation across the entire ICU. Continue using PDSA cycles for ongoing improvement.

## 5.0 RESPONSIBILITIES

- **ICU Head/Lead Physician:** Ultimately responsible for protocol adherence. Leads daily nutrition rounds and monthly performance reviews. Champions the implementation.
- **ICU Nurses:** Responsible for the safe preparation, initiation, and administration of enteral feeds as per protocol. Monitor patient tolerance and document intake.
- **Nutritionist/Dietitian:** Calculates nutritional requirements, recommends formula type and rate, and participates in daily rounds.
- **Pharmacist:** Ensures the availability of feeding formulas and reviews for drug-nutrient interactions.
- **Quality Directorate (QI Team):** Manages the PDSA implementation cycles, conducts weekly audits, compiles monthly data, and facilitates feedback sessions.

## **6.0 PROCEDURE**

### **6.1 Initial Patient Assessment & Feeding Plan (Within 24h of Admission)**

1. The **admitting ICU physician** identifies patients who are unable to meet their nutritional needs orally.
2. The **nutritionist** calculates caloric and protein requirements and recommends an appropriate enteral formula and initial infusion rate.
3. An **NG/OG tube** is inserted by a trained nurse or physician following aseptic technique.
4. Tube placement is confirmed via auscultation and pH testing of aspirate before initiating feeds.
5. The feeding plan (formula, rate, target volume) is documented in the patient's chart and the EMR.

### **6.2 Daily Preparation and Administration of Feeds**

1. **Feeds are prepared** in the designated nutrition preparation area using the dedicated blender and refrigerator.
2. Nurses administer feeds **as per the prescribed protocol:**
  - ☒ Initiate feeds within 24-48 hours of admission if no contraindications exist.
  - ☒ Check Gastric Residual Volume (GRV) every 4 hours.
  - ☒ Follow the unit's algorithm for managing high GRV (e.g., hold feeds for GRV >500ml, notify physician).
  - ☒ Elevate the head of the bed to  $\geq 30$  degrees during and for 1 hour after feeding.
3. **Intake and tolerance** (e.g., vomiting, distension, diarrhea) are documented on the fluid balance chart every shift.

### **6.3 Daily Multidisciplinary Nutrition Round**

1. The **ICU Lead Physician** conducts a daily round at a set time (e.g., 9:00 AM).
2. The **bedside nurse, nutritionist, and pharmacist** (where available) participate.
3. Each patient on enteral feeds is reviewed:
  - o Progress toward caloric/protein targets.
  - o Tolerance issues (e.g., high GRV, diarrhea).
  - o Need for rate adjustment or formula change.
4. Decisions and adjustments are documented in the patient's chart.

### **6.4 Weekly Audit and Feedback Session**

1. The **QI Team** audits the charts of all patients on enteral feeding in the past week using the **Process Audit Tool** (Annex 2).
2. A **weekly feedback session** is held with the ICU staff to present audit findings, discuss challenges, and celebrate successes. Minutes and action plans are recorded in the **Audit Log** (Annex 3). This session serves as a "**Study**" phase of the ongoing PDSA cycle.

### **6.5 Data Monitoring & Performance Review (Monthly)**

1. The **QI Team** compiles data from the weekly audits to calculate the monthly compliance rate and other KPIs.
2. The **ICU Head** leads a **Monthly Performance Review Meeting** to:
  - ☒ Review the monthly enteral feeding compliance rate and trend (**Study** the data).
  - ☒ Review ICU mortality data as a balancing measure.
  - ☒ Discuss systemic challenges and plan corrective actions (**Act** on the findings).

## **7.0 DOCUMENTATION**

- ☒ PDSA Cycle Implementation Logs
- ☒ Enteral Feeding Process Audit Tool (Annex 2)
- ☒ Weekly Audit & Feedback Log (Annex 3)
- ☒ Monthly QI Monitoring Report (Annex 4)
- ☒ Monthly Performance Meeting Minutes

## **8.0 REVIEW OF SOP**

This SOP shall be reviewed **annually** by the ICU Head, Nutritionist, and Quality Directorate to ensure its ongoing effectiveness and relevance. PDSA cycles will be used for any future revisions

## **ANNEX**

### **Tool 1: PDSA Cycle Implementation Log**

*This log is used to plan, document, and learn from each test cycle during the implementation of the new protocol.*

#### **PDSA CYCLE LOG**

**Project: Implementing Revised ICU Enteral Feeding Protocol**

**Cycle Number:** \_\_\_\_\_

**Date:** \_\_\_\_\_

<b>PLAN (Objective &amp; Plan)</b>
<b>Objective for this cycle:</b> <i>What are we testing or trying to accomplish? (e.g., Test the new audit tool with one nurse for one patient)</i>
<b>Questions:</b> 1. 2.
<b>Predictions (What do we expect to happen?):</b>
<b>Plan (Who? What? When? Where?):</b>
<b>DO (Execution &amp; Observations)</b>
<b>What happened?</b> <i>Describe what was actually done and any observations during the test.</i>
<b>Any unexpected problems or successes?</b>
<b>Data collected:</b>
<b>STUDY (Analysis &amp; Learning)</b>
<b>What did we learn?</b> <i>Compare results to predictions. Were the questions answered? What surprises were there?</i>
<b>ACT (Decisions &amp; Next Steps)</b>
<b>What will we do next?</b> <i>Adopt the change? Adapt and run another cycle? Abandon the change?</i>
<b>Plan for the next cycle:</b>

### **Tool 2: Enteral Feeding Process Audit Tool**

Used weekly to audit compliance with the key steps of the enteral feeding protocol for all patients on EN.

#### **Enteral Feeding Process Audit Tool**

**Week of:** \_\_\_\_\_

**Auditor:** \_\_\_\_\_

**Sample Size:** All patients on EN during the week (N= \_\_\_\_)

Patient ID	Feed started within 48h? (Y/N)	Daily Nutrition Round Done? (Y/N)	Head of Bed Elevated? (Y/N)	GRV Checked Q4h? (Y/N)	Prescribed Volume Achieved? (>80%) (Y/N)	Overall Compliant? (Y/N)
% Compliance	__%	__%	__%	__%	__%	__%

### Tool 3: Weekly Audit & Feedback Log

Item	Details				
Date of Feedback Session:	_____				
Facilitator:	_____				
Attendees (Roles):	1.	2.	3.	4.	
Summary of Weekly Audit Findings (Based on the Enteral Feeding Process Audit Tool)	<p><b>Strengths:</b>            1. _____            2. _____</p> <p><b>Areas for Improvement:</b>            1. _____            2. _____</p>				
Action Plan	Action Item	Responsible Person	Deadline	Status	

## Tool 4: Monthly QI Monitoring Report

A comprehensive report compiled monthly to track performance indicators, process adherence, and guide the monthly review meeting.

### QI Team Monitoring Tool

**Department:** Intensive Care Unit (ICU)

**Project:** Sustaining ICU Enteral Feeding Compliance

**Reporting Month:** \_\_\_\_\_

**Prepared by:** \_\_\_\_\_

**Reviewed by:** \_\_\_\_\_

### 1. Key Performance Indicators (KPIs)

Indicator	Definition	Target	Current Month	Status
<b>Enteral Feeding Compliance Rate</b>	% of eligible patients for whom the full EN protocol was correctly followed	>80%	____ %	
<b>Protocol Initiation Rate</b>	% of eligible patients with feeds started within 48h of admission	100%	____ %	
<b>Daily Round Conducted</b>	% of days the multidisciplinary nutrition round was held	>90%	____ %	
<b>ICU Mortality Rate</b>	Number of deaths / Total ICU discharges	≤ Baseline*	____ %	

\*Baseline established from pre-improvement data.

### 2. Process Monitoring

Activity	Planned Frequency	Actual Conducted	% Achieved	Remarks
Daily Nutrition Rounds	30 per month	____	____ %	
Bi-Weekly Audits	4 per month	____	____ %	
Bi-Weekly Feedback Sessions	2 per month	____	____ %	
Monthly Review Meetings	1 per month	____	____ %	

### 3. Challenges Identified

- \_\_\_\_\_
- \_\_\_\_\_

### 4. Corrective Actions & Recommendations

Issue Identified	Corrective Action	Responsible Person	Timeline	Status

### 5. Summary & Way Forward

Overall Compliance Status This Month: \_\_\_\_\_

Next Steps / Priority Actions:

## Tool 5: Monthly Performance Meeting Minutes Template

Item	Details

<b>Project:</b>	ICU Enteral Feeding Compliance				
<b>Date of Meeting:</b>					
<b>Time:</b>					
<b>Facilitator:</b>					
<b>Attendees (Name &amp; Role):</b>					
<b>1. Review of Agenda &amp; Previous Minutes</b>	<p><b>Actions from last meeting:</b></p> <ul style="list-style-type: none"> <li>[Brief summary of follow-ups]</li> <li>[e.g., All action items were completed successfully.]</li> </ul>				
<b>2. Performance Data Review (Based on Monthly QI Monitoring Report)</b>	<p><b>Key Findings &amp; Discussion:</b></p> <ul style="list-style-type: none"> <li><b>Enteral Feeding Compliance Rate:</b> [ ____% ] - [Discuss trend, achievements, shortfalls]</li> <li><b>Other KPIs (Initiation Rate, Daily Rounds):</b> [Highlight significant points]</li> <li><b>Process Adherence (Audits, Feedback Sessions):</b> [Comment on frequency and quality]</li> <li><b>Balancing Measure (ICU Mortality):</b> [Note any changes and potential links]</li> </ul>				
<b>3. Discussion of Challenges &amp; Root Causes</b>	<p><b>Challenges Identified:</b></p> <ul style="list-style-type: none"> <li>[Challenge 1] - [Brief root cause analysis, if discussed]</li> <li>[Challenge 2] - [Brief root cause analysis, if discussed]</li> <li>[Challenge 3] - [Brief root cause analysis, if discussed]</li> </ul>				
<b>4. Decisions &amp; Action Plan</b>	<p><b>Decisions Made:</b></p> <ul style="list-style-type: none"> <li>[Decision 1, e.g., "Revise the GRV check procedure to every 6 hours for stable patients."]</li> <li>[Decision 2, e.g., "Assign a backup nutritionist for daily rounds."]</li> </ul> <p><b>Action Plan:</b></p> <table border="1"> <thead> <tr> <th>Action Item</th> <th>Responsible Person</th> <th>Deadline</th> <th>Follow-up Date</th> </tr> </thead> </table>	Action Item	Responsible Person	Deadline	Follow-up Date
Action Item	Responsible Person	Deadline	Follow-up Date		
<b>5. Next Meeting Schedule</b>	<b>Next Meeting Date:</b> _____				
<b>Meeting Adjourned at:</b>	_____				
<b>Minutes Prepared by:</b>	_____				
<b>Date Prepared:</b>	_____				

## Sustainability Checklist for ICU Enteral Feeding QI Project

<b>Domain</b>	<b>Checklist Item</b>	<b>Status (Yes/No/Partial)</b>
<b>Leadership &amp; Commitment</b>	Enteral feeding compliance is a standing agenda item in ICU meetings	
<b>Process Adherence</b>	Enteral feeding protocol is available and used for 100% of eligible patients	
<b>Process Adherence</b>	Daily multidisciplinary nutrition rounds are conducted	
<b>Resources</b>	Blender and refrigerator are functional and dedicated to feed preparation	
<b>Resources</b>	A reliable supply of enteral feeding formulas and tubes is maintained	
<b>Monitoring &amp; Evaluation</b>	Weekly audits are conducted and documented	
<b>Monitoring &amp; Evaluation</b>	Monthly compliance data is reviewed by the QI team	
<b>Patient Outcomes</b>	Enteral feeding compliance rate is maintained at >80%	
<b>Balancing Measure</b>	ICU mortality rate is monitored and remains at or below baseline	