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Performance Audit Report on Provision of Patient Meals

MAY 2017

PERFORMANCE AUDIT REPORT
ON
PROVISION OF PATIENT MEALS
MAY 2017

DISCLAIMER NOTE

The audit was conducted in accordance with the Performance Audit Guidelines. The review was confined to documents and data obtained related to patient diets. The audit was based on the audit objectives and criteria determined in the audit plan and program prepared by the RAA and the findings are based on the information and documents made available by the audited agencies.

This is also to certify that the auditors during the audit had neither yielded to pressure, nor dispensed any favour or resorted to any unethical means that would be considered as violation of the Royal Audit Authority's Oath of Good Conduct, Ethics and Secrecy.

རྒྱལ་གཞུང་རྩིས་ཞིབ་དབང་འཛིན།
ROYAL AUDIT AUTHORITY
Bhutan Integrity House
Reporting on Economy, Efficiency & Effectiveness in the use of Public Resources

RAA /TAD-PM /2017/ *1390* **Date: May 8, 2017**

Hon'ble Secretary
Ministry of Health
Thimphu

Subject: Report on Performance Audit of Provision of Patient Meals

Sir,

Enclosed herewith please find a copy of the draft report on the ***Performance audit of Provision of Patient Meals.*** The audit was conducted in line with the mandates of the Royal Audit Authority as enshrined in the Constitution of Kingdom of Bhutan and Audit Act of Bhutan 2006, and following the auditing procedures outlined in the Performance Audit Guidelines 2011.

The overall audit objective of the audit was to ascertain value for money in provision of patient meals focusing on nutrition and management of patient food service system. The audit also aimed to ascertain whether meals provided meet the nutritional requirement of the patients for fast recovery and overall health improvement and to evaluate the quality, safety and hygiene of food for in-patients. Further, the audit aimed to assess whether hospital provides conducive environment encouraging in-patients to eat and enjoy their meals.

The draft report was issued on 10th March 2017 to Monggar Regional Referral Hospital, Trashigang District Hospital, Samdrup Jongkhar District Hospital, Central Regional Referral Hospital, Gelegphu, Phuentsholing General Hospital, Jigme Dorji Wangchuk National Referral Hospital and Department of Medical Services for factual confirmation and comments. However, the RAA received responses from Central Regional Referral Hospital, Gelegphu. The responses have been incorporated in the report and appended as "Appendix I".

The final report has been prepared based on our reviews of available documents, analysis of data, and discussions with relevant officials of six hospitals. The report highlights achievements and best practices as well as discusses shortcomings and deficiencies noted by the RAA. The Ministry of Health has developed a guideline for inpatient food service system in 2013. Dieticians were appointed in major hospitals to help in nutrition and menu planning. Moreover, the RAA noted that all cooks in six visited hospitals were trained in safe food handling.

While acknowledging the positive accomplishments, the RAA also observed shortcomings that need further improvement. These deficiencies are discussed in detail in *'Part 3.2, Chapter 3' of* the report and some important findings are highlighted below:

i. Patient meals were not provided based on nutritional requirements or disease conditions of the patients;

ii. The food indenting process in the hospitals was found to be inefficient and uneconomical;
iii. The food intake by patients was found to be suboptimal mainly caused due to consumption of meals by the attendants, meals for patients brought from home, patients treated with food from hawkers and restaurants;
iv. Poor knowledge of food safety in practice by kitchen staff;
v. Lack of principles of protected and favourable mealtimes discouraging patients to eat; and
vi. Daily nutrient intakes by patients as per Ration Scale do not generally meet the WHO Recommended Daily Requirement for adults.

The report also contains a series of recommendations, which are provided to enhance efficiency and effectiveness in provision of patient meals.

In line with the directives of the Parliament, the RAA has instituted a system to fix the accountability on the officials responsible to implement recommendations provided in the Performance Audit Reports. Therefore, we would request the hospitals to identify official who should be responsible for implementation of each recommendation and submit duly completed and signed Accountability Statement (attached) to the RAA. In the event of non-submission of the Accountability Statement, the RAA shall fix the responsibility for implementation of the recommendations on the Head of the Agency. The RAA will follow up implementation of the recommendations based on the Accountability Statement and failure to comply will result in taking appropriate actions, which may include suspending audit clearances to the accountable official(s).

The RAA would appreciate receiving actions taken as well as an Action Plan Report for implementation of audit recommendations from the aforementioned hospitals with definite timeframe on or before **7th August 2017** along with the signed Accountability Statement.

The RAA acknowledges the kind co-operation and assistance extended to the audit team by the officials and staff of the Department of Medical Services and six hospitals.

Yours sincerely,

(Tshering Kezang)
Auditor General of Bhutan

Copy to:
1. The Hon'ble Lyonchhen, Royal Government of Bhutan, Thimphu for kind information;
2. The Hon'ble Dasho Zimpon, Office of the Gyalpoi Zimpon, Thimphu for kind information;
3. The Hon'ble Speaker, National Assembly of Bhutan, Gyalyong Tshogkhang, Thimphu for kind information;
4. The Hon'ble Chairperson, National Council of Bhutan, Thimphu for kind information;
5. The Hon'ble Chair, Public Accounts Committee, Parliament of Bhutan, Thimphu for kind information;
6. The President, Jigme Dorji Wangchuk National Referral Hospital (JDWNRH), Thimphu.

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7. The Director General, Department of Medical Services, Ministry of Health, Thimphu;
8. The Medical Superintendent, Eastern Regional Referral Hospital, Monggar;
9. The Medical Superintendent, Central Regional Referral Hospital, Gelephu;
10. The Chief Medical Officer, Trashigang General Hospital;
11. The Chief Medical Officer, Samdrup Jongkhar General Hospital;
12. The Medical Officer In-Charge, Phuentsholing General Hospital; and
13. Office copy

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ACCOUNTABILITY STATEMENT

PERFORMANCE AUDIT OF PROVISION OF PATIENT MEALS

NO.	RECOMMENDATIONS	Personal Accountability		Supervisory Accountability	
		Name & Design.	EID No.	Name & Design.	EID No.
1.	Hospitals should ensure that hospital food meets the recommended daily nutrient				
2.	Hospitals should implement the different types of diet and introduce nutrient dense or fortified foods as per the patient requirement				
3.	Hospitals should include nutritional screening as part of their healthcare standards				
4.	Hospitals should review the current food indenting process and institute effective system				
5.	Adequate monitoring system should be instituted in food service system				
6.	Hospitals should set up a food safety and food hygiene programme				
7.	Hospitals should practice protected mealtime principles in wards				
8.	Hospital should provide awareness and education on nutrition to in-patients and staff involved in in-patient food service system				
9.	Hospitals should propose realistic budget based on historical data and trends				
10.	Hospitals should perform periodic reconciliation of food stocks				

(s/d)

Secretary
Ministry of Health

TITLE SHEET

a)	Title of the Report	:	Performance Audit Report on Provision of Patient Meals
b)	Audit Identification Number	:	14441
c)	Audited Entities	:	Department of Medical Service, Ministry of Health, Monggar Regional Referral Hospital Trashigang District Hospital SamdrupJongkhar District Hospital Central Regional Referral Hospital, Gelegphu Phuentsholing General Hospital, and Jigme Dorji Wangchuck National Referral Hospital
d)	Schedule of Audit	:	September 12, 2016 to November 30, 2016
e)	Audit Team	:	Sonam Delma, Dy. Chief ICT Officer, Team Leader Kinley Tshering, Sr. Audit Officer, Team Member Kinley Zam, Sr. ICT Officer, Team Member
f)	Supervising Officer	:	Chandra Bdr. Gurung, Assistant Auditor General, Thematic Audit Division
g)	Head of Department	:	Chimi Dorji, Deputy Auditor General Department of Performance & Commercial Audits

LIST OF ACRONYMS/ABBREVIATIONS

CRRH	Central Regional Referral Hospital
DoMS	Department of Medical Services
JDWNRH	Jigme Dorji Wangchuck National Referral Hospital
MoH	Ministry of Health
MRRH	Monggar Regional Referral Hospital
PM	Patient Meals
RGoB	Royal Government of Bhutan
RAA	Royal Audit Authority
WHO	World Health Organization

TABLE OF CONTENTS

EXECUTIVE SUMMARY

About the Report

As mandated by the Constitution of the Kingdom of Bhutan and Audit Act of Bhutan 2006, the Royal Audit Authority (RAA) conducted the "Performance Audit on Provision of Patient Meals". The overall objective of the audit was to ascertain the value for money in patient meals focusing on nutrition and management of patient diets.

It has been proven by research that good nutrition helps in fast recovery and well-being of patients. Thus, providing well-balanced and nourished meals are important part of hospital's treatment. Hospitals have a major role in providing better nutritional care apart from medical treatments. Hospitals therefore give attention to meals provided in hospitals so that nutritional requirements of the patients are met appropriately through proper and well-balanced meals. Since efficient and effective in-patient food service system have the potential to improve the health outcomes of patients and minimize burden to the overall healthcare system, the RAA conducted the audit of provision of patient meals in six main hospitals.

The findings contained in this report are mainly based on field visits to six hospitals sampled for the audit as well as information and data collected from these hospitals.

Positive initiatives and Best Practices

The RAA noted positive developments initiated by the Ministry of Health (MoH) and hospitals for better management of patient meals. Important initiatives are briefly mentioned below:

- The Ministry developed a guideline for inpatient food service system in 2013.
- Dieticians were appointed in major hospitals and they were also engaged in menu planning.
- In all hospitals, cooks were trained in food handling and safety.
- Additionally, provision of patient meals in hospitals has not only benefitted patients coming from far flung villages but also those people with economically backward backgrounds;
- SamdrupJongkhar hospital has instituted a system of distributing tokens to in-patients interested to eat hospital meals so that actual number of patients is intended for hospital meals.
- Jigme Dorji Wangchuk National Referral Hospital (JDWNRH) has also initiated to develop a proposal for introducing tray system in patient food service including three different types of diets.

Deficiencies and shortcomings

Besides positive developments and best practices observed in hospitals, the RAA also noted shortcomings that need further improvement. Some of these shortcomings are briefly discussed below:

i. Patient meals were not provided based on nutritional requirements or disease conditions of the patients. In other words, all in-patients are provided with regular meals regardless of clinical conditions. This could result in not meeting the specific nutritional needs of patients thereby deteriorating their disease condition and prolonging hospital stay as well as their recovery;

ii. The food indenting process in the hospitals was found to be inefficient and uneconomical wherein the hospitals account all patients admitted for hospital meals irrespective of whether they want to eat or not;

iii. The food intake by patients was found to be suboptimal raising doubts on the acceptability of hospital meals. Suboptimal intake was caused mainly due to consumption of meals by the attendants, meals for patients brought from home, patients treated with food from hawkers and restaurants;

iv. The knowledge of food safety in practice by all kitchen staff was poor despite having availed the food handlers training provided by Bhutan Agriculture and Food Regulatory Authority (BAFRA);

v. The principles of protected and favourable mealtimes were lacking wherein mealtimes coincided with clinical and non-clinical activities such as ward and medicine rounds, and cleaning. Lack of protected mealtimes will result in patients not being able to eat leading to low nutrient intake which might ultimately affect clinical outcomes.

vi. Daily nutrient intakes by patients as per Ration Scale do not generally meet the WHO Recommended Daily Requirement for adults. Inadequate nutrient intakes could develop into malnutrition or nutrient deficiencies, which might deteriorate the disease conditions of the patients; and

vii. There were no nutrient criteria for preparing menu and menus were never analysed for nutritional content. Moreover, there was lack of standardized recipes and menus were repeated, which have resulted in ineffective planning of hospital meal menu.

Recommendations

The RAA provides a set of recommendations in *Chapter 4* to improve provision of patient meals and some of these are also highlighted below:

i. Hospitals should ensure that patient meal meets the recommended daily nutrients by defining a minimum recommended daily nutrient for a hospitalised patient, analyse menus for nutritional content, specify ration scale appropriately, increase variety of fruits and vegetables, avoid repetition of food item too often, and standardise recipes to minimise nutrient losses;

ii. Since patients have varying medical conditions and different dietary requirements, hospitals should implement different types of diets and also introduce nutrient dense or fortified foods;

iii. The MoH should develop procedures that includes nutritional screening as part of their healthcare standards as nutritional screening could help to identity patients with nutrient deficiencies that need appropriate care and attention;

iv. The current food indenting process should be reviewed and improved in order to avoid wastage of resources;

v. Hospitals should set up a food safety and hygiene programme so that food handlers are more aware of safe food handling, health check-ups of food handlers are conducted periodically, health clearances are issued annually, and food handling practices are monitored properly; and

vi. Hospitals should introduce protected mealtime principles and create conducive environment to ensure that patients are not disturbed during meals so as to increase food intake by the patients.

Conclusion

The RAA recognizes that health professionals are faced with complex and competing clinical duties and providing greater nutritional care to patients has often become a difficult role to play. Since benefits of nutritional care out-shadow the costs, nutritional interventions are vital and necessary. However, the RAA observed that nutritional care often received lesser priority as compared to clinical activities.

The RAA also understands the criticality of clinical care; nonetheless, hospital management needs to fully acknowledge the clinical importance of nutrition and crucial role of healthy foods in patient's recovery and overall health improvement. Thus, there is a need to change the hospital culture of considering nutrition less significant than any other medical treatments.

CHAPTER 1: ABOUT THE AUDIT

1.1. Mandate

The Royal Audit Authority (RAA) conducted the audit of patient meals as mandated by the Constitution of the Kingdom of Bhutan and Audit Act of Bhutan 2006 under the following Article and Section:

a. Article 25 (1) of the Constitution of the Kingdom of Bhutan and Section 3 of the Audit Act of Bhutan 2006 provide, "There shall be a Royal Audit Authority to audit and report on the economy, efficiency, and effectiveness in the use of public resources".
b. Section 38 (b) of the Audit Act of Bhutan 2006, under the 'functions of the RAA' states that, the Authority shall, "Conduct Performance Audit to ascertain and report on the economy, efficiency and effectiveness of the operations of agencies audited".

1.2. Objectives of the audit

The RAA conducted the audit with an overall objective of ascertaining the value for money in provision of patient meals focusing on nutrition and management of patient meals. In order to meet the broad objective, the audit also focused on the following sub-objectives:

i. To ascertain the efficiency in the food service system of providing patient meals;
ii. To ascertain whether meals provided meet the nutritional requirement of the patients for fast recovery and overall health improvement;
iii. To ascertain whether quality and safety of food for in-patients are maintained;
iv. To assess whether food items are stored properly; and
v. To assess whether hospital environment encourages inpatients to eat and enjoy their meals.

1.3. Audit scope and limitations

Since patient meals are provided in District Hospitals, Regional Referral Hospitals and the National Referral Hospital, the following District Hospitals and Referral Hospitals were selected for field visits. The selection was also primarily based on the number of occupancy beds and number of inpatient cases.

Sl. No.	Hospital	Number of beds
1	Jigme Dorji Wangchuck National Referral Hospital	350
2	Monggar Regional Referral Hospital	80
3	Central Regional Referral Hospital, Gelegphu	60
4	Phuentsholing General Hospital	50
5	Trashigang District Hospital	45
6	SamdrupJongkhar District Hospital	45

Table 1.1: Showing the hospitals selected for audit with number of beds in 2015 (Source: Annual Health Bulletin 2016, MoH)

The audit was conducted emphasizing on management of patient meals with a particular focus on nutrition. In addition, the audit opinions or observations expressed

in this report are limited to information made available to the team and pictorial evidence collected during the field visits to six hospitals.

1.4. Audit Methodology

The RAA applied the following methodologies to gather information, analyze data and derive opinions:

1. Interview of key/relevant officials to collect ground information with regard to patient diets/meals;
2. Interview of patients using a set of questionnaires;
3. Documentary review procedures, process, guidelines, manual, or any other related documents;
4. Field visits were made to selected sample hospitals; and
5. Analytical Review of any statistical data provided by the agencies;

CHAPTER 2: INTRODUCTION

2.1. Background

Bhutan has been practicing traditional medicine since the seventh century and it was only in 1961, the modern medicine was introduced with established of two hospitals and 11 dispensaries in 1961[1]. Bhutan has always given priority to health and its services were provided to all citizens for free. Bhutan now has numerous health facilities providing both traditional and modern medicines comprising of 31 hospitals, 235 Basic Health Units, 52 Indigenous Units, and 562 Outreach Clinics.

Hospitals have important roles in preventing illness and maintaining the health of patients. Apart from clinical treatments, nutrition is also a key factor determining the health outcomes of patients. Thus, hospitals should also give specific attention to foods provided by the hospitals so that adequate nutrition or balanced diet crucial for health and recovery of the patients is provided. Further, nutritionally sound food for patients can result in faster recovery, shorter hospital stays, and reduce hospitals costs. A proper diet combined with aftercare and nutritional education may influence the quality of the patient's future health and life.

Thus, recognizing the significance of hospital and food, the Ministry of Health, with an aim to improve the health conditions and recovery of patients, started providing meals in hospitals and Grade I BHUs.

2.2. Provision of Patient Meals

Patient meals are provided at Basic Health Unit (BHU) grade 1s, District Hospitals, Regional Referral hospitals and the National Referral Hospital.

The in-patient food service system in Bhutan can be called a **"BULK TROLLEY SYSTEM"** where the foods are prepared and cooked onsite in bulk and distributed to in-patients. The foods are then served on trolleys by kitchen staff. Most of the patients are provided with regular diet and patients who are on enteral tube are given porridge prepared by dieticians. Additionally, supplements are also provided to those patients who require high calorie and high protein.

The food indenting process starts at the wards. The ward in-charge fills up a **Diet Request Form** containing a list of in-patients in each respective ward every evening. The next morning, the diet request form is submitted to the store in-charge who then consolidates the list and issues rations to the kitchen for preparation of meals for the day. The issuance of raw materials for cooking is based on a prescribed quantity standard as shown in table 2.1. The food indenting process is illustrated in figure 2.1 as detailed in guidelines for in-patient food service system 2013.

Description	Normal diet	Therapeutic Diet	Soft Diet
Rice (Raw)/head	250 gm/day	200 gm/day	200 gm/day
Dal (Raw)/head	100 gm/day	100 gm/day	100 gm/day
Milk powder/head	22 gm/day	22 gm/day	22 gm/day
Sugar/head	24 gm/day	12 gm/day	12 gm/day
Tea leaves*	500 gm/day		

[1]Annual Health Bulletin 2016, Ministry of Health.

Cooking oil/head	20 gm/day	10 gm/day	10 gm/day
Egg/head	1 pc/day	1 pc/day (unless specified)	1 pc/day (unless specified)
Bread	1 pkt for 4 persons daily		
Chilli powder*	200 gm/day		
Haldi*	100 gm/day		
Jeera powder*	100 gm/day		
Fruits	4 times/week		
Vegetable/head	200 gm/day	200 gm/day	
Meat	100 gm/person (if available)		

Table 2.1: Showing ration scale for a patient (Source: Guidelines for inpatient food service system in Bhutan, 2013)

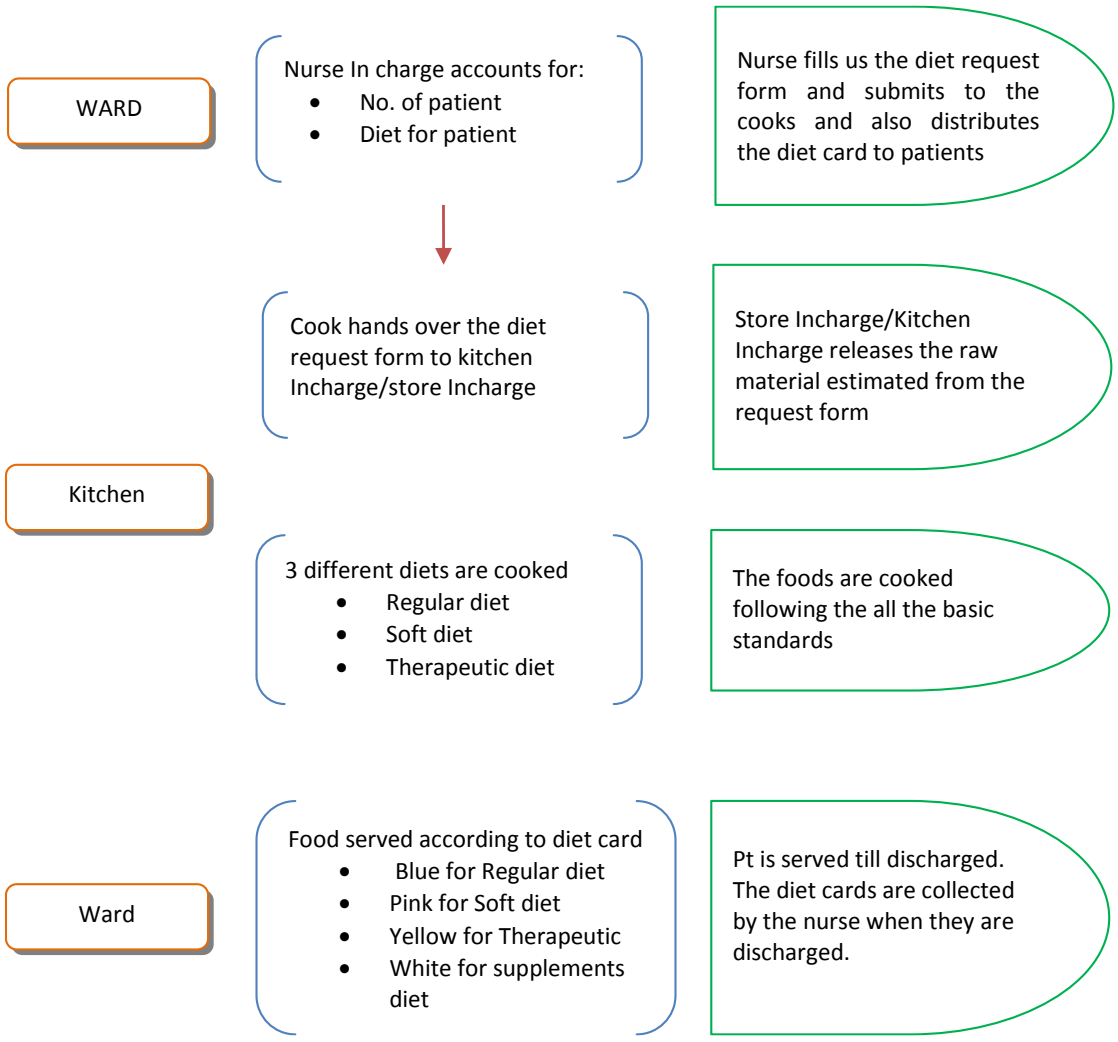


Figure 2.1: Showing food indentation and distribution process in hospitals (Source: Guidelines for inpatient food service system in Bhutan, 2013)

2.3. Budget and Expenditure

Budget and expenditure for inpatient meals served at six hospitals for the last three fiscal years amounted to Nu.31.772 million and Nu.31.695 million respectively as tabulated below in *Table 2.2* and figure 2.2.

Hospital	Budget (in millions)			Total	Expenditure (in millions)			Total
	2013-2014	2014-2015	2015-2016		2013-2014	2014-2015	2015-2016	
Monggar	2.500	2.500	2.100	7.100	2.498	2.500	2.100	7.098
Trashigang	0.618	0.786	0.650	2.054	0.618	0.786	0.650	2.054
SamdrupJongkhar	0.411	0.314	0.384	1.109	0.410	0.313	0.384	1.107
Phuentsholing	1.020	1.096	0.898	3.014	1.020	1.096	0.898	3.014
Gelegphu	1.830	1.100	1.101	4.031	1.777	1.097	1.087	3.961
JDWNRH	5.251	5.133	4.080	14.464	5.249	5.133	4.079	14.461
Grand Total:				**31.772**				**31.695**

Table 2.2. : Showing budget & expenditure for patient meals in six hospitals for last three fiscal years

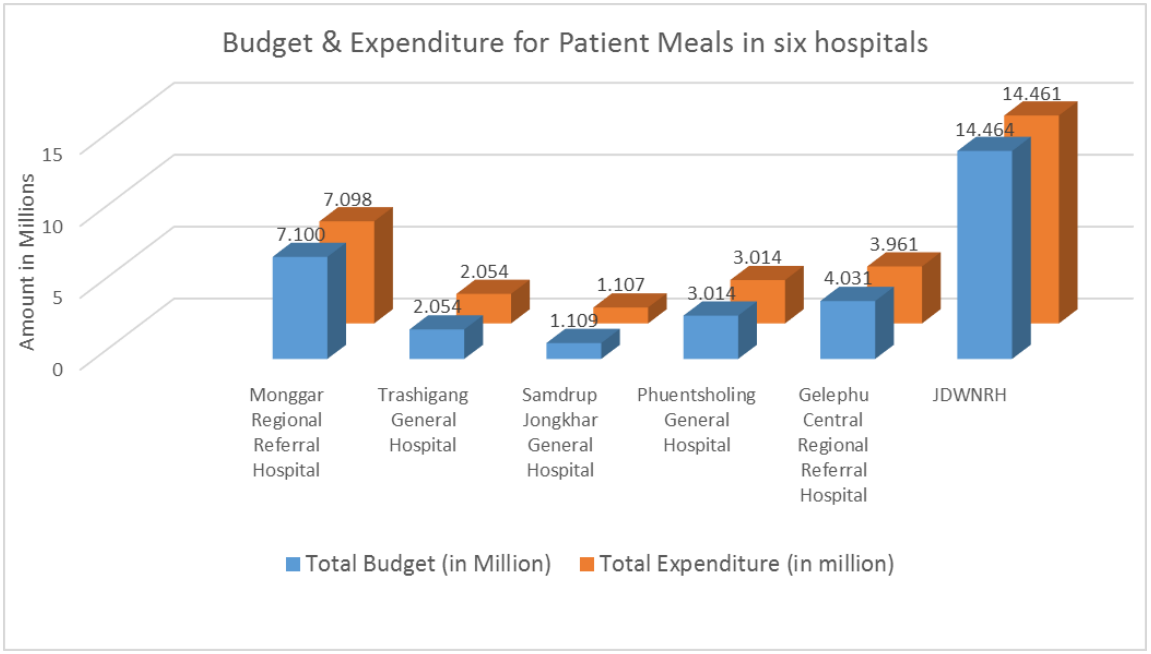


Figure 2.2: Showing budget & expenditure for patient meals for three financial years

CHAPTER 3: AUDIT FINDINGS

This chapter is divided into two parts. **Part 3.1** highlights the achievements and best practices in improving the provision of patient meals. **Part 3.2** discusses deficiencies and shortcomings observed by the RAA.

3.1. Achievements and good practices

The RAA noted noble initiatives undertaken by the Ministry of Health (MoH) to improve patient meals and also observed notable good practices in some hospitals visited by the team that are worth mentioning in this report. These initiatives and good practices are summarized as follows:

a) In order to enhance efficiency of inpatient food services, the MoH developed a guideline for inpatient food service system in 2013;
b) Appointment of dieticians in hospitals and engagement of dieticians in menu planning, ensuring food safety, and cleanliness of kitchens, and quality control of patient meals;
c) Other relevant staff such as store in-charge, head cook, nursing superintendent, and management were involved to garner strong support and foster implementation of in-patient food service system;
d) Most of the hospitals have good storage facilities with a separate cold storage for perishables indicating the importance the hospital management places on food safety and hygiene;
e) Hygiene and cleanliness are maintained in the kitchens of the hospitals;
f) Two wards in JDWNRH record the number of patients interested to consume hospital meals and those arranging their own meal; and
g) SamdrupJongkhar hospital has instituted a system of distributing tokens to in-patients interested to eat hospital meals so that actual number of in-patients to be provided with meals is ascertained.

3.2. Deficiencies and shortcomings

Apart from the good practices and achievements noted, the RAA also observed shortcomings in the management of patient meals, which require further improvements. These shortcomings are discussed below:

3.2.1. Patient meals are not provided based on nutritional requirement of the patients

Appropriate patient meals with balanced diet are an essential part of hospital treatment that is crucial for patients' fast recovery. Inpatient food service system should be flexible enough to provide a good choice of nutritious meals that can accommodate patients' medical conditions, specific dietary requirements and preferences.

Even the guideline for inpatient food service system 2013 specify different types of diets–regular, soft, therapeutic diets, and special supplements to be provided to inpatients based on their disease and nutritional requirements. Colour coded cards are then distributed to each patient depending on the type of diet.

However, during field visits to six hospitals, the RAA found ***that none of the hospitals*** provide therapeutic diets due to low acceptance of therapeutic diets since these diets

have dietary restrictions such as low sodium, cholesterol and lower overall carbohydrate content. The RAA also noted that JDWNRH has prepared a new proposal for revamping the patient food service system in terms of introducing all three diets as well as tray system instead of trolley. However, the current management indicated that getting sufficient budget and resources are the biggest hurdles in implementing the new proposal.

Furthermore, only ***two out of six hospitals*** provided soft diet i.e. blended food to those patients who need enteral or tube feeding but not catered to patients with low appetite, who cannot swallow, and have difficulty eating solid foods.

Similarly, supplements such as milk substitute for infants, extra egg for those needing high protein, and milk to tuberculosis patients were provided in all hospitals but other special supplements prescribed were provided based on availability and not based on requirement. Since there were no differences in meals between patients admitted in different wards, it can be deduced that regular diet was catered to almost all the patients irrespective of their disease conditions. It can also be assumed that almost all the hospitalised patients are "*nutritionally well*" whose nutrient requirements are in-line with healthy balanced diet.

Picture 3.1: Regular diet being served to patients

Providing regular meals for patients diagnosed with specific clinical conditions could result in not meeting the specific nutritional needs, which could further deteriorate their disease condition and prolong their recovery.

As a result of not providing different types of diets, the colour coded card system was not followed in the hospitals. Instead, all the patients were given the blue colour card on admission in most hospitals indicating regular diet.

It was also noted that lack of resources in terms of financial and staffing were common causes of not providing diets based on nutritional needs or disease status of patients.

The CRRH Gelegphu expressed that they cannot implement all three types of diets because of man-power and equipment shortage at the moment but this system will be considered in the new hospital in the future. At the same time, the Hospital also mentioned that they do provide soft diet like porridge and mashed rice with vegetables, pulses, and eggs to those patients who are not able to take solid foods. Moreover, amount of salt, cooking oil, spices are monitored in the kitchen in order to make the food nutritious and palatable.

The RAA agrees on the man-power and equipment shortages pointed out by the hospital. Nevertheless, instituting appropriate system to provide diets based on nutritional needs would make a greater difference in the improvement of patients overall health.

3.2.2. Inefficient food indenting process

The in-patient food service system should be cost effective yet efficient enough to provide nutritious meals to patients. A good practice is to issue rations and prepare meals based on the number of in-patients interested to eat hospital meals, which could

ave hundreds of ngultrums. Furthermore, bringing food to relatives, friends and family admitted in the hospital is ingrained in the Bhutanese culture and so; many of the in-patients do not consume meals provided by the hospital. Thus, it is important to obtain the number of in-patients interested to eat patient meals for food indenting purpose.

The current food service system in all the hospitals starts with filling up the diet sheet or diet request form containing a list of in-patients in each ward by the respective ward in-charge every evening and submitting it to the store in-charge on daily basis. The store in-charge then consolidates the list and issues rations to the kitchen for preparation of meals for the day. This process is in line with the guidelines for inpatient food service system 2013.

Upon the review of indenting process, the RAA observed a good practice in two of the wards (Medical and Maternity wards) in JDWNRH wherein the ward in-charge record and segregate the number of in-patients wanting to eat hospital meals and arranging their own food for the day in the diet request form/sheet. Additionally, SamdrupJongkhar hospital has also instituted a system of distributing coin shaped tokens to in-patients interested to eat hospital meals so that actual number of in-patients to be provided with meals is ascertained.

Despite these good practices, the present food service system in most of the wards in the hospitals do not determine the actual number of patients who want to consume hospital meals but lists all patients admitted in the hospital regardless of whether they want to eat or not. It was apparent from the interviews conducted with in-patients that hospital staff seldom come to ascertain whether they want to eat hospital meal or not. This was also evident from the blue colour coded card given to all patients on admission. Specific instances are outlined in case study 1.

Case Study 1: Actual number of patients determined for patient meals in 5 wards in JDWNRH

In order to ascertain whether the diet sheets submitted to the hospital store contains the actual number of patients who are consuming meals from the hospitals, the RAA carried out the indenting process of Orthopedic Ward in JDWNRH for a particular day. The RAA visited five Wards including Patient Guest House on 28th November 2016 and interviewed patients admitted to these wards. As per the diet sheet (dated 28/11/2016), 134 patients were admitted and all these patients were indented for hospital meals. Although 45 patients did not give any responses, the RAA, through the interview, found that only 48 out of 89 patients constituting 36% were eating from the hospitals for that particular day as shown below. On the other hand, the RAA also noted that 17 attendants from five visited wards were consuming hospital meals.

S/n	Units	Regular Diet	Patient Intake	Atten-dant	Not at all	No response
1	Medical Ward	15	9	2	1	*5*
2	Surgical Ward	32	7	4	14	*11*
3	Orthopedic Ward	32	11	7	15	*6*
4	ENT Ward and Medical Extension	31	11	3	6	*14*
5	Patient Guest House	24	10	1	5	*9*
Totals		**134**	**48**	**17**	**41**	**45**
% to total			**35.82%**	**12.69%**	**30.60%**	**33.58%**

From the case study presented above, it can be transpired that the staff on duty fills the diet form/sheet merely based on patient occupancy not the actual number of patients who want to consume hospital meals and thus leading to wastage of resources.

Similarly, the RAA also made another visit to Patient Guest House on 20th January 2017 and found that only 5 out of 26 patients admitted on that day consumed hospital meal. Yet, the diet sheet for that day also showed 26 patients indented for hospital meal. Since the Patient Guest House was provided with cooking facilities, patients from PG house hardly consume meals served by the hospital.

On the other hand, it was made known to RAA by the ward in-charges that several in-patients claim to be interested to consume hospital meals merely to have tea, bread, and lentils and also for their attendants' consumption. They also stated that at times, in-patients who claimed to be uninterested to eat hospital meals go to receive the said meal later on. As such, obtaining the exact number of interested in-patients is a persistent problem for the ward staff which was evident from observations and discussions.

Moreover, sometimes patients included in the diet form to receive meals get discharged before the meal is served. While occasionally, patients are admitted after the diet form has been sent to the store. Such unplanned admissions and discharges further aggravate and impede the efficiency of food indenting process.

All of these posed challenge and difficulty in obtaining the exact number of patients for hospital meals. As a consequence, the ward in-charges entered the diet request form/sheet based on patient occupancy which is uneconomical and could lead to wastage of food in terms of leftover unserved food. Surprisingly in practice, the RAA, during the visits to hospitals, noted that there was no unserved food wastage indicating that these foods were consumed either by attendants or the store issued less quantities of rations.

The CRRH Gelegphu responded that the hospital will follow food indenting process by issuing the diet card upon admission. In addition, the hospital mentioned that even if the patient is unable to eat, the attendants from far off places eat the food, which is preferred and liked by them.

Although some of the attendants from far flung places are benefitted by the hospital meals, the hospital should be mindful that the hospital meals are only meant for in-patients for faster recovery. Hospital management should make the food indenting process more effective and economical.

3.2.3. Suboptimal food intake by patients

"Food is your medicine – hence let your medicine be your food".
- Hippocrates 400 BC

Adequate meal consumption is vital part of patient's recovery. There is a body of evidence that supports the premise that poor oral intake rather than clinical treatment or medical disease is responsible for daily nutrient requirements not being met.

Patient meals provided in the hospitals are meant to aid recovery and avoid malnourishment of patients admitted in the hospitals. Thus, it is imperative to encourage food intake for patients as it dictates their health outcome.

Nevertheless, during the visits to hospital wards, the RAA observed that food intake in most cases was suboptimal as most patients do not consume complete meals leading to plate wastes. Less consumption of hospital meals raises doubts on the acceptability of hospital food by patients. Yet, it may also be attributed by other factors listed below:

i. Meals were mostly consumed by the attendants as they come from remote and far flung villages. This was seen especially in hospitals located in the east i.e., Monggar, Trashigang, and Samdrup Jongkhar hospitals;
ii. In some cases, the meal for one patient was shared with attendant, which means that patients were eating only half portion of the meal provided;
iii. Often times, home cooked foods were brought in for patients;
iv. Occasionally, patients were treated with food from hawkers and restaurants by attendants. This is a big concern as to the nutritional value of foods consumed from hawkers and restaurants;
v. Some patients have difficulty eating, been experiencing tiredness and poor appetite due to clinical condition.
vi. The ward rounds sometimes clash with mealtimes and patients were interrupted while eating as they put aside their plates to interact with doctors

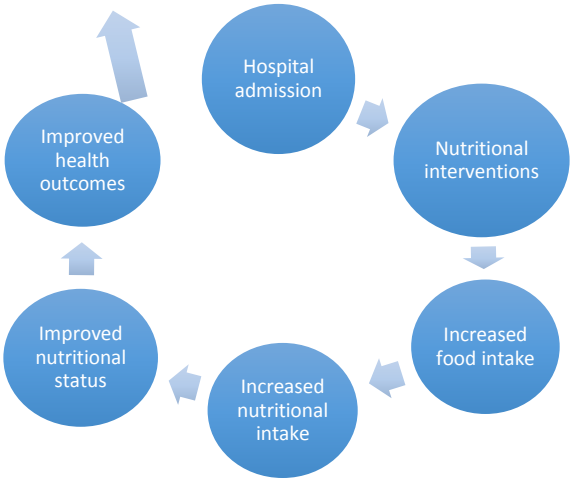
and nurses. In most cases, patients could not continue eating after the interruption and end up not wanting to finish the meal.

All of these factors were commonly cited by patients and hospital staff which contributed to suboptimal intake of food by patients. In addition, fluid intake should also be encouraged as it is essential for bodily functions. However, the responsibility of encouraging and monitoring food and fluid intake is basically left up to the attendants as nurses and ward staff work in a "techno-medical" model wherein the focus is more on clinical duties.

Scenario 1: Consequences of suboptimal food intake

Further, there is a danger of surmising less consumption of hospital food to be normal consumption because the indenting for meals is carried out by listing all the hospitalized patients. The consequences of suboptimal food intake are illustrated in the scenario 1.

With reduced intake of food, there will be deficiency of macro- and micronutrients. There would be risk of poor health outcomes driven by decline in nutritional status due to daily nutrient requirements not being met. This will impede recovery and prolong hospital stays and ultimately leading to repeated hospital admissions. This cycle will keep repeating which will lead to higher utilisation of health services resulting in more hospital costs.



Scenario 2: Patients are encouraged to increase food intake

Conversely, as presented in scenario 2, increase consumption due to nutritional interventions will lead to increased nutritional intake consequently leading to improved nutritional status of the patient ultimately the overall health condition of the patient would likely improve. This will result in less probability of hospital readmissions.

Therefore, in-patients should be encouraged to increase their food consumption through implementation of effective nutritional intervention, which could consequently improve health outcomes of in-patients and reduce hospital costs to the government.

3.2.4. Lack of protected mealtimes and mealtime environment

Protected Mealtimes are periods on a hospital ward when non-urgent clinical activity stops so that patients are able to eat without being interrupted[2].Research shows that patients who receive appropriate service and support during mealtimes and not

[2] Better Hospital Food NHS Estates 2005

interrupted during meals are more relaxed and able to eat more[3]. In this way, patients will receive better nutrition and are more likely to recover earlier. Thus, protected mealtime and a mealtime environment conducive to increase food intake of patients is a nutritional intervention that should be implemented in all hospitals providing in-patient meals.

Conversely, visits to the hospital wards showed that the principles of protected mealtimes were lacking wherein mealtimes coincided with clinical and non-clinical activities such as ward and medicine rounds, cleaning, and patients leaving the ward for diagnostic tests (*shown in the picture 3.2*). Additionally, the RAA also interviewed patients including their attendants and found that they had experienced interruptions such as cleanings and ward rounds just after receiving their meals.

It was also noted that none of the hospitals provide a separate dinning place for in-patients who are able to move and eat on their own but a few hospitals such as JDWNRH and MRRH do provide a separate dining area for attendants. Patients eat their meals on or beside the bed and not in a communal environment because there are no such facilities. Moreover, few of the patients in JDWNRH and CRRH Gelegphu complained of not being able to eat due to pungent smell from toilets.

Picture 3.2: Cleaning in the ward and healthcare officials busy with a patient during mealtimes

Lack of protected mealtimes and an unfavourable mealtime environment will result in patients not being able to eat leading to low nutrient intake which might also affect clinical outcomes. Therefore, more should be done to embed protected mealtime principles in hospital wards to encourage patients to eat and enjoy their meals ensuring sufficient dietary intake.

The CRRH Gelegphu explained that there is protected mealtime practice in the hospital by limiting visitors and avoiding unnecessary clinical ward interventions. However, they also mentioned that some emergency procedures cannot be avoided during the mealtime.

The RAA acknowledges CRRH Gelegphu for having the practice of protected mealtime in the hospital. Nevertheless, the hospital should also ensure that environment is conducive to encourage patients to enjoy their meals during mealtime.

3.2.5. Lack of formal monitoring process of hospital food services

Monitoring is a process to ensure performance and quality improvement in any process. It is crucial that hospitals also carry out monitoring functions to ensure that standards are maintained while providing meals to patients. In principle, the guideline for in-patient food service system 2013 stipulates the following:

[3] Palmer M, Huxtable S (2015) Aspects of protected mealtimes are associated with improved mealtime energy and protein intakes in hospitalized adult patients on medical and surgical wards over 2 years. Eur J ClinNutr 2015; 69:961-5

- The kitchen in charge/store in charge must inspect and monitor kitchen every day to ensure compliance and proper management.
- Dietician/ Nutritionist must do a weekly round of the kitchen and use the Check list (appendix 2) to ensure that all aspects of the Food Service System are in accordance to the guidelines. In places where the Dietician/Nutritionist is not available the Kitchen in charge/ Store in charge must do the weekly evaluation.
- The health facility management must also inspect and monitor the food service system at least twice a year.

In practice, the RAA observed limited monitoring and supervision by the said personnel. Dieticians claimed to monitor at least three times a week but there were no documents to support this claim (such as checklist for monitoring under appendix 2 in the guidelines). Some dieticians cited irrelevancy as one of reasons for not using the checklist. Likewise, even store in-charge and hospital management claimed doing monitoring but there was no evidence supporting their claims and there was no formal monitoring process in place.

Further, at the time of audit, patients in SamdrupJongkhar district hospital complained of stale dhal being served to them. This happened because the dietician was on study leave and there was no proper monitoring after the dietician left.

Not having a proper monitoring mechanism could lead to problems in quality control and assurance in hospital food services as well as resource wastage.

3.2.6. Daily nutrient intakes as per Ration Scale do not generally meet the Recommended Daily Requirement of WHO

Patient meals should provide adequate nutrients to hospitalized patients to allow them to recover and improve their health outcome. Vitamins and minerals are vital micronutrients for healthy body and mind and so, it is essential for individuals to have adequate amount of nutrients. The adequacy of nutrients can be done by checking whether the daily intake of nutrients meets the Recommended Dietary Allowance (RDA), which is a standard and benchmark for assessment.

Similarly, the RAA attempted to carry out the nutritional content analysis of food provided in hospitals (shown in *Table 3.1 below)* in order to ascertain whether the daily nutrient intake by the patients meets the recommended daily requirement of adult developed by World Health Organisation (WHO). This was conducted based on the assumption that the patient consumes the complete meal as per the ration scale specified in the guidelines set by the Ministry of Health. This assumption was made since the RAA could not determine the actual dietary intake due to lack of data and expertise in this area. Further, meat item was not considered for the analysis as it was not provided daily.

The total intake calculated from *Table 3.1* was compared with WHO minimum daily requirement of adult and the result (see *Table 3.*2) indicated that the daily intake of nutrients generally do not meet the requirement. The analysis showed that the intakes of ***Protein***, ***micronutrients such as Thiamine, Vitamin B complex, and Vitamin C*** met the daily requirement. Even so, the daily nutrient intakes did not meet the requirement in terms of ***Energy***, ***Fat, Iron, Zinc,*** and ***Riboflavin.*** Moreover, intakes of ***Iodine*** and ***Vitamin A*** were comparatively less than the recommended requirement.

The result of the analysis clearly indicates that the ration scale prescribed for patients is not adequate for providing the required quantities of nutrients. Moreover, most of the management in the hospitals have an understanding that they have to follow the

ration scale given in the guidelines. Most of them seem not to be aware of the fact that the ration scale can be adjusted as per the number of patient beds.

The nutrient intake could be even lower in reality due to suboptimal food intake by patients as mentioned in 3.2.3. Inadequate nutrients could develop into malnutrition or nutrient deficiencies, which might deteriorate the disease conditions of the patients.

This is a very serious concern as the Royal Government keeps increasing the budget and spending on patient meals every year. Not meeting the recommended nutrient intake not only results to wastage of direct cost of providing meals but also leads to delayed recovery and prolonged hospitals stays resulting in more costs for the Royal Government.

Food Commodities	Qty (gm)	Energy (Kcal)	Fat (g)	Iodine (µg)	Iron (mg)	Protein (g)	Riboflavin(mg)	Thiamine (mg)	Vit A (µg)	Vit B12 (µg)	Vit B6(mg)	Vit B9 - Folic Acid (mg)	Vit C (mg)	Zinc (mg)
Rice	100	332.000	0.400	0.000	0.800	6.700	0.030	0.110	0.000	0.000	0.300	11.800	0.000	1.300
	250	830.000	1.000	0.000	2.000	16.750	0.075	0.275	0.000	0.000	0.750	29.500	0.000	3.250
Pulses	100	338.000	1.000		9.000	28.100	0.250	0.480	12.000	0.000	0.540	0.000	4.400	4.780
	100	338.000	1.000	0.000	9.000	28.100	0.250	0.480	12.000	0.000	0.540	0.000	4.400	4.780
Oil	100	900.000	100.000	11.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	20	180.000	20.000	2.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Egg	100	128.000	8.700	53.000	1.500	12.400	0.300	0.090	225.000	2.500	0.120	29.400	0.000	1.200
	60	76.800	5.220	31.800	0.900	7.440	0.180	0.054	135.000	1.500	0.072	17.640	0.000	0.720
Milk Powder	100	70.000	3.800	0.000	0.000	1.800	0.000	0.000	0.000	0.020	42.000	10.500	0.000	0.420
	22	15.400	0.836	0.000	0.000	0.396	0.000	0.000	0.000	0.004	9.240	2.310	0.000	0.092
Sugar	100	392.000	0.000	0.000	0.300	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.100
	24	94.080	0.000	0.000	0.072	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.024
Bread	100	261.000	2.000	6.000	1.700	7.700	0.060	0.160	0.000	0.000	0.040	150.000	0.000	0.850
	89	232.003	1.778	5.333	1.511	6.845	0.053	0.142	0.000	0.000	0.036	133.335	0.000	0.756
Fresh Vegetables	100	19.000	0.200	0.000	1.000	0.800	0.130	0.050	119.000	0.000	0.110	40.800	25.710	0.490
	200	38.000	0.400	0.000	2.000	1.600	0.260	0.100	238.000	0.000	0.220	81.600	51.420	0.980
Total intake		**1804.283**	**30.234**	**39.333**	**15.483**	**61.131**	**0.818**	**1.051**	**385.000**	**1.504**	**10.858**	**264.385**	**55.820**	**10.602**

Table 3.1: Nutritional Content Analysis for Food Commodities provided in Hospitals

	Energy (Kcal)	Fat (g)	Iodine (µg)	Iron (mg)	Protein (g)	Riboflavin(mg)	Thiamine (mg)	Vit A (µg)	Vit B12 (µg)	Vit B6(mg)	Vit B9 - Folic Acid (mg)	Vit C (mg)	Zinc (mg)
Daily Nutritional Requirement for an adult (**WHO**)	2100	40	150	22	52	1.4	0.9	500	0.9	1.1	160	28	12.3
Total intake as per ration scale (regular meal without meat)	1804.2829	30.2338	39.3334	15.48313	61.13053	0.818334	1.051224	385	1.5044	10.85756	264.385	55.82	10.60197

Table 3.2: Result of Nutritional Content Analysis.

** **Red Colour** represents not meeting and G**reen colour** represents meeting the requirement*

3.2.7. Non-adherence to food safety requirements by kitchen staff

The guidelines include specific guidance relating to the provision of food safety in hospitals. Food handlers are required to have knowledge and skills in food safety and food hygiene appropriate to the activities (preparation, handling, and distribution) of in-patient food service system. This means kitchen staff should wear and use appropriate uniform consisting of clean apron, mouth cover, headgear, and clean food-grade plastic gloves, wash hands for food preparation, separate raw meat from other foods, bandage cuts on hands, etc.

Hospitals should strive to provide safe and nutritious food by ensuring that all staff involved in in-patient food service system understands the principles of food hygiene and good food handling practices.

During visits to the kitchen, the RAA found that all kitchen staff have availed the food handlers training provided by Bhutan Agriculture and Food Regulatory Authority (BAFRA). All the hospitals have good storage facilities with a separate cold storage for perishables. These indicate the importance the hospital management places on food safety and food hygiene to avoid cross-contamination and to stop diseases from spreading. It was also noted that all food handlers appear to have knowledge of food safety and food hygiene.

Despite this, the RAA observed that a few of them did not adhere to safety requirements and the discrepancy between knowledge and practice is presented in a unique case below.

Case of hospital acquired Tuberculosis (TB)

One of the cooks in Phuentsholing General Hospital contacted tuberculosis while serving meals to TB patients for not wearing mouth cover. He had no prior known risks for TB exposure other than working in the hospital as it was noted that he was a new TB patient and tested pulmonary positive. After his treatment, he was called back to work in the kitchen while still on medication due to shortage of staff.

This case raises the question of providing safe food when the food handler himself is infected and when the patients are already susceptible to getting infected due to their weak immune system. This peculiar case also points out the issue of level of knowledge and awareness on food safety and hygiene by kitchen staff. While the RAA acknowledges the fact the hospital workers are more at risk of getting infected due to their proximity to patients, it is also assumed that hospital workers would be more aware of such risks and its consequences.

Moreover, from the case it can be deduced that the adherence to food safety practices by the kitchen staff were sporadic. The in-patients had varying and conflicting views when interviewed about the food safety practices of the kitchen staff while serving meals. They mentioned that sometimes kitchen staff wore appropriate uniform with mouth and head cover but sometimes they do not.

Furthermore, as per the guidelines, food handlers should obtain a health clearance before being recruited, yearly after recruitment and after their recovery from an illness. However, health clearance was neither given to the cook in question to substantiate his recovery and clearance to work nor were there any health clearances issued to cooks in other hospitals before or after being employed.

Since this is a food safety risk and a cause of concern, there is a dire need for periodic health check-ups of food handlers and issuance of health clearance so as to provide safe and hygienic food. There is also a need of incident management and procedures in place to deal with such cases to ensure that correct steps are taken in the event of such incident.

The CCRH Gelegphu explained that food safety and food hygiene program is being carried out in the hospital and they will scale up in the future with three additional staff in Nutrition Unit/Diabetic Clinic.

The RAA acknowledges the initiative taken by CCRH Gelegphu in carrying out food safety and hygiene program. However, the hospital should also monitor to ensure kitchen staff adhere to food safety requirements.

3.2.8. Inadequate menu planning

Effective menu planning can have a big impact on in-patient food services as menus determine foods to be purchased and prepared, kitchen staff and equipment needed, and finally the budget required. For this reason, hospitals should ensure that menus are properly planned so that the food service system is efficient and cost effective.

Further, menus should be planned by a wide range of professionals from nutrition, clinical, nursing and administration departments who bring their own expertise to the process. The review of menu planning process revealed some good practices which are listed below.

- ✓ Menus prepared in all the hospitals for regular diets;
- ✓ Recipe prepared for soft diets in those hospitals providing tube feeding;
- ✓ Menus are being reviewed annually and changed accordingly in most hospitals;
- ✓ Dieticians are actively engaged in menu planning at all hospitals; and
- ✓ Involvement of other relevant staff such as store in-charge, head cook, nursing superintendent, and management to garner strong support and foster implementation of in-patient food service system.

Conversely, the RAA also found the following inadequacies impeding effective menu planning.

3.2.8.1. Absence of basis for preparing menus

Nutrient requirements of hospitalized patients will be higher than that of people who are not ill or malnourished and so, menus should be prepared accordingly to ensure that such needs are met. Thus, hospitals should plan menus by specifying nutrient criteria so as to maximise nutritive value of the meals provided.

Nevertheless, the RAA found that none of the hospitals had specific nutrient criteria while planning a menu. From the discussions with the dieticians, it was clear that there were no standards or guidelines for menu planning. Similarly, the RAA did not find any evidence that show the use of nutrition checklist for menu planning indicating absence of basis for preparing menus and as such, preparation of menus is left entirely up to the expertise of the dieticians.

It was noted that nutrient criteria were not used because there are no nutrient reference values for Bhutan showing the nutritive value of Bhutanese foods. Not having a basis for menu preparation could lead to difficulty in analysing the nutritional content of menus (discussed in the following subsection 3.2.8.2) which could impede assessment to ascertain whether nutritional requirements of the in-patients are being met from hospital meals.

3.2.8.2. Menus have never been analysed for nutritional content

Hospital menus should be assessed for nutritional content by dieticians to ensure that patients are provided with nutritionally sound meals. This analysis should be carried out by analysing the nutritional value of each item in the menu which should be compared against the recommended minimum nutritional content and finally carry out the analysis of the entire menu to find out whether it is nutritionally balanced.

However, the RAA found that although dieticians were engaged in menu planning, none of the hospitals have conducted nutritional content analysis of their menus. Many dieticians claimed to use the Indian standards of nutritive value of foods as it is more or less similar to Bhutanese foods. Yet, menus have not even been assessed using the Indian standards to ensure that patients' nutrient requirements are being met.

As a result, there is no validated information on whether patients are getting the required nutrients and thus, limiting opportunities for improving the quality of in-patient meals.

3.2.8.3. Lack of standardised recipes

Recipes should be prepared and standardised after a menu has been analysed for nutritional content to ensure the same nutrient content of the meal by using the same ingredients and cooking methods. As the nutrient content of food depending on the method of preparation, standard recipes should be implemented to minimise nutrient losses, ensure accurate nutrient analysis so that nutritionally analysed food is provided to patients.

The RAA noticed that none of the hospitals have standard, nutritionally assessed recipes in place. Although the menu is recommended by the committee with a dietician and the process of meal preparation is cook-fresh (meals are prepared from scratch by cooks), different preparation styles and unanalysed recipes were used which could distort the nutritional content of the meals.

This could also lead to patients not receiving nutritionally sound meals which could result in low intake of nutrients and subsequently, poor health outcomes.

3.2.8.4. Repeated menu in a one week cycle menu

A cycle menu is a series of menus planned for a specific period of time, for example, 3 weeks. The menu is different for each day during the cycle. At the end of the cycle (i.e., 3 weeks), menus are repeated again[4].

It is good practice to set a menu cycle while planning a menu to promote variety and ensure food intake. Thus, hospitals should plan the menu to provide three meals a day with no item repeated within a specific time period or in one cycle menu.

However, from the menus collected from the hospitals, the RAA noted that all hospital menus follow a one week cycle menu but with repeated menus day in and out except on days when meat is provided. For example, CRRH Gelegphu follows a menu that repeats every day in that one week cycle. CRRH Gelegphu provides tea, egg and bread for breakfast every day of the week. Similar cases were noted in other hospital menus where rice, dhal, mixed vegetable curry for lunch and dinner seems to be the norm whenever meat is not served.

[4] National Food Service Management Institute, The University of Mississippi. http://www.theicn.org/

Repeated menu results in low food variety with hospitals providing the same food items frequently. Moreover, there was not much emphasis on providing variety of vegetables and fruits which are a rich source of macro- and micronutrients. Only three (MRRH, CRRH Gelegphu, and Trashigang District Hospital) out of six hospitals have provision for seasonal fruits in their menu. Although hospital menus do provide servings of vegetables during lunch and dinner, it was noted that most vegetables provided are potatoes. In fact, a long stay patient who is oxygen dependent in MRRH commented that she is "sick of potatoes".

There is a risk of patients getting food fatigue resulting in low food intake if any food item is repeated often in one cycle menu.

3.2.8.5. Limited fluids in menus

Menus should not only meet patients' nutritional requirements, emphasise variety but should also incorporate fluid intakes as fluids such as water is needed to carry nutrients, regulate body temperature and remove wastes. Patients should receive recommended fluids based on their weight and the recommended fluid intake should be communicated to the attendant to ensure adequate fluid intake and avoid dehydration.

Upon review, it was found that there are very limited fluid sources for patients as per the menus as only tea and dhal were served. Further, there is neither monitoring of daily fluid intake nor any assessment of fluids required. The RAA noted the existence of water filters and boilers in the wards but encouraging patients to drink fluids were generally found lacking.

With limited sources of fluids and its intake, it could lead to dehydration and the resultant effect could even be fatal.

All these inadequacies in menu planning indicate a need for careful menu planning. It is vital to do so as it helps standardize hospital foodservice, saves time, control costs, and ultimately resulting in efficient and effective in-patient food service system.

3.2.9. Elderly patients are not examined for nutritional screening at the time of admission

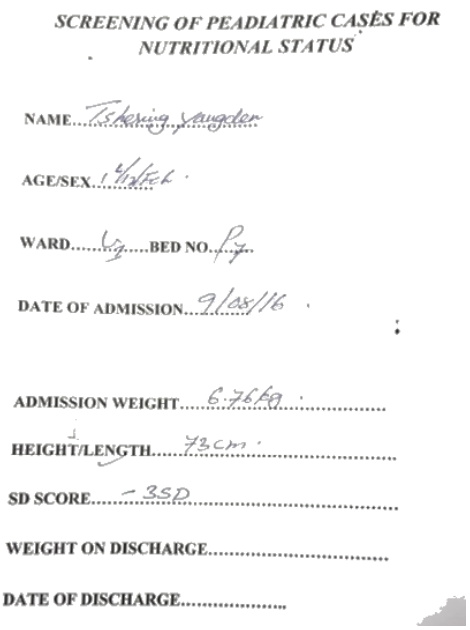
Nutritional screening should be conducted to detect potential malnourished patients using appropriate nutrition screening tool at the time of admission. It is the first step in identifying patients with significant nutritional problems or at risk of malnutrition who should then be subject to extensive nutrition assessment by a nutritionist. This will help to administer appropriate nutritional intervention for faster recovery of patients and shorter duration of hospital stays which can have a significant impact on hospital costs.

In the hospitals visited by RAA, children under five years of age are screened using Weight-for-Height/Length percentage (W/H %) or Standard Deviation score (Z-score) and children over five years are screened through observation (Clinical signs). While it was observed that only children under five years of age were screened and documented as shown in the figure 3.1, nutritional screening was not carried out for adult patients at the time of admission. Moreover, patients were not assessed for recent weight loss and reduced appetite on admission in all the hospitals.

Instead, adult patients were screened using physical appearance as the only screening parameter and then followed up with proper assessment. *For example*, GCRRH does not nutritionally screen elderly patients on admission but follows a good practice of nutrition assessment after the physician specifically instructs for one. This is depicted in Annexure A which records patient's ability to eat, BMI, etc.

Studies have indicated that the very old are at high risk of nutritional problems and this is also known from the healthcare workers in the hospitals visited by RAA that malnutrition is majorly seen in elderly patients.

Not screening elderly patients for nutritional problems leads to a host of other problems such as prolonged hospital stays, delayed recovery, increased complications, and prolonged bed rest[5] and in some cases even death.


SCREENING OF PEADIATRIC CASES FOR NUTRITIONAL STATUS

NAME...Tshering Yangden

AGE/SEX...1 4/12 F

WARD...Ward...BED NO...7...

DATE OF ADMISSION...9/05/16

ADMISSION WEIGHT...6.76kg

HEIGHT/LENGTH...73cm

SD SCORE...-3SD

WEIGHT ON DISCHARGE.....

DATE OF DISCHARGE.....

Figure 3.1: Screening form of paediatric cases

The Central Regional Referral Hospital, Gelegphu responded that only paediatric cases are screened for malnutrition and screening in other wards is done based on their disease condition.

The RAA acknowledges the initiative taken by the hospital to conduct nutritional screening for paediatric cases. Since elderly patients are also at high risk of nutrient deficiencies, the hospital should also carry out nutritional screening for elderly patients.

3.2.10. Food service satisfaction surveys not conducted

Patients are essential sources of information to evaluate quality and assess service function of in-patient food service system. Hospitals should periodically obtain patients' views through patient satisfaction surveys – a mechanism for quality improvement. Hospital should then measure patient satisfaction for patient meals in order to improve in-patient food service system.

Hospitals often administer patient satisfaction surveys but foodservice satisfaction surveys are rarely conducted. In the same way, the RAA found that patient satisfaction surveys were being administered for Hospital Administration and Management Transformation (HAMT) program and reports. However, patient satisfaction surveys containing questionnaire component relevant to satisfaction of food service was conducted in the hospitals.

The RAA conducted an independent survey in JDWNRH and CRRH Gelegphu and the survey showed that patients have very few complaints when it comes to hospital food. Overall, the perception is that patients surveyed were satisfied with the quality and quantity of hospital food and its service. Nevertheless, because of small sample size, the survey result cannot be generalized and cannot be representative of the patient population.

Thus, it is important to seek patients' views and feedback on hospital food service through a formal and proper foodservice satisfaction survey. Lack of such information could impair the hospitals' management to make informed decisions on future planning and

[5]Sullivan DH, Bopp MM, Robertson PK (2002) Protein-energy under nutrition and life threatening complications among the hospitalized elderly. J Gen Intern Med 2002; 17 (12): 923-32

development, and consequently, bring about quality improvement in in-patient food service system.

3.2.11. Inadequate control in store management

It is important to have adequate controls over store management for effective accounting and minimizing the risk of misuse and misappropriation. However, during the field visits to six hospitals, the RAA observed the following shortcomings in store management:

i. **Lack of periodic reconciliation**: Periodic reconciliation of stock balances between books and physical was not carried out by in all hospitals visited by the RAA. Absence of periodic reconciliation could result in ordering more quantities of food items than required resulting in wastage due to spoilage. Furthermore, the risk of misuse and misappropriation of food commodities purchased for patient meals cannot be mitigated if such control is not implemented.

ii. **Non-verification of stock entered or issued**: The review of stock registers for patient meals in visited hospitals revealed that verification was not done by any responsible person while entering in the stock register or issuing to the kitchen. In absence of such check and balance, there is high risk of manipulation of quantities of food commodities issued from store.

3.2.12. Lack of equipment in the kitchen and stores leading to inefficiency in providing patient meals

In order for the food service system to be efficient, every hospital need to have adequate equipment and utensils in kitchens and stores. Food should be stored well as the food to be consumed has already done more food miles due to the current supply chain and accessibility of market. Food that is stored, prepared, and served properly is more likely to retain its fresh quality and nutritional value.

However, in SamdrupJongkhar hospital, vegetables are kept on the floor due to non-availability of cold storage facilities. In the same hospital, the food trolley is out of order, so the cooks carry the food on his shoulder every time food is served. Pictures of the storage and equipment are shown *Picture 3.3*.

Picture 3.3: Food trolley lying idle, vegetables and food items kept on a table and on the floor

Similarly, in Phuentsholing and SamdrupJongkhar hospitals, vegetables are kept in household appliances such as refrigerator due to non-availability of large-scale cold storage facilities, as shown in *Picture 3.4.*

Non-availability of adequate storage facilities and kitchen utensils hinder the efficiency of food services especially in terms of hygiene and spoilage. This in turn leads to serving food with lesser nutrient content.

Picture 3.4: Vegetables kept in home appliances

3.2.13. Unrealistic budget estimation indirectly resulting in resource wastage.

Generally, budgetary agencies use formula-based budgeting to calculate budgets of most current expenditures. Likewise, for Patient Diets under various hospitals, budgets are proposed with formula-based budgeting approach. Patients Diets budget consists of three factors - Commodity Rates, Number of beds and Number of days.

Proposed Budget = f (Rates, No. of beds, No. of days).

For instance, taking the three factors, GCRRH proposed a budget of Nu.1,815,875.00 for fiscal year 2015-16, as shown in the figure below. Against the proposed budget, Nu.1,101,000.00 was approved that year by Department of National Budget (DNB). One important factor used by the hospital was ***the total number of beds available*** in the hospital. When the total number of beds is taken as one of the multipliers, budget is proposed for optimum capacity - 100 beds (in table 3.4) occupied fully for one whole year.

14.09 S&M - Patient Diet

Name of Item	Rate (Nu.)	No. of Beds	No. of Days	Total in a Year (Nu.)
Rice 551	7.25	100	365	264,625.00
Milk Powder	8.00	100	365	292,000.00
Dal	5.50	100	365	200,750.00
Sugar	0.95	100	365	34,675.00
Salt	0.50	100	365	18,250.00
Refined Oil	1.50	100	365	54,750.00
Tea Leaves	0.75	100	365	27,375.00
Haldi/Jeera	0.40	100	365	14,600.00
Vegetables	10.55	100	365	385,075.00
Eggs	9.85	100	365	359,525.00
Meats	2.50	100	365	91,250.00
Special Diets	20.00	10	365	73,000.00
Total				**1,815,875.00**

Table 3.4: Budget proposal of patient diet in CRRH, Gelegphu

Full occupancy of beds in hospital does not occur on a daily basis. Even if it does, the odds of in-patients willing to have hospital meals is not 100%. Factoring the total number of beds in proposed budget leads to overestimation of proposed budget.

While the overestimation has no direct impact on the wastage of food, it indirectly provides cushion for purchasing food commodities in excess than required.

Therefore, using past trends by taking an estimated number of in-patients willing to have hospital meals, instead of the total number of beds, would result in realistic budget estimation/proposal. This in turn would curtail indirect wastage and more importantly, cooking for lesser patients would lead to serving quality meals.

CHAPTER 4: RECOMMENDATIONS

With a view to improve provision of patient meals, the RAA provides the following recommendations which are primarily based on the observations that are discussed in *Part 3.2 of Chapter 3*.

1. **Hospitals should ensure that hospital food meets the recommended daily nutrient**

The RAA observed that the daily nutrient intake for energy and other micronutrients does not meet the WHO recommended requirement. Besides, there were no base nutrient criteria for preparing menus. In order to meet the recommended daily nutrients and nutritionally balanced meals, hospitals should therefore:

- define the minimum recommended daily nutrient for a hospitalised patient;
- specify ration scale accordingly;
- analyse menus for nutritional content;
- standardise recipes to minimise nutrient losses;
- follow seasonal cycle menus to control food costs and to take advantage of the available food during the season;
- not repeat any food item too often;
- increase the variety of fruits and vegetables; and
- incorporate more fluids in menus and encourage patients for more fluid intake.

2. **Hospitals should implement the different types of diet and introduce nutrient dense or fortified foods as per the patient requirement**

Currently, none of the hospitals provide the different types of diet specified in the guidelines. Patients have varying medical conditions and specific dietary requirements that should be met by the hospitals. Thus, hospitals should as far as possible implement the different types of diets as per patient requirement. Additionally, hospitals should focus on quality improvement through implementation of food service strategies and interventions, such as meal and snack fortification, texture modified diets, nutrient dense foods for nutritionally vulnerable in-patients and in-patients with low appetite.

3. **Hospitals should include nutritional screening as part of their healthcare standards**

The MoH should develop procedures or nutritional screening which should be implemented at hospitals since there is no practice of screening patients in the hospitals at the moment. Patients who are at risk of nutritional problems need be screened at the time of admission and identified or categorized into normal, at risk of malnutrition and malnourished. The vulnerable group of patients with nutritional problems should be re-assessed by a nutritionist for appropriate nutritional intervention. Nutritional screening could lead to increased food intake resulting in shorter hospital stays and lowering the hospital costs.

4. **Hospitals should review the current food indenting process and institute effective system**

The RAA noted that all hospitalised patients are included to receive hospital food regardless of whether they want to eat or not. This food indenting process was found to be uneconomical, which could result in wastage of resources. Therefore, hospitals should review the food indenting process so that actual number of patients who are interested to consume hospital meals are determined appropriately.

5. Hospitals should propose realistic budget based on historical data and trends

The RAA observed that budget for patient meals were proposed based on total number of beds in the wards leading to unrealistic budgets and indirect wastes. For this reason, realistic budget should be proposed:

- studying the past trends of expenses,
- factoring in the cost estimates from menus and standard recipes, and
- the estimate number of in-patients willing to have hospital meals based on past trends of previous years instead of the total number of beds.

Use of historical data and trends, and accurate costing would allow for meaningful comparisons of in-patient food service costs in all the hospitals for further insight and improvement.

6. Adequate monitoring system should be instituted for Patient Meals

Lack of adequate monitoring by appropriate personnel was observed in regards to provision of patient meals in the hospitals. Absence of proper monitoring and supervision could lead to poor quality of meals being served to patients, which in turn could deteriorate their health condition. Therefore, hospitals should institute adequate monitoring and supervision system to ensure quality of food is maintained and food safety is practiced by the food handlers in the kitchen.

7. Hospitals should set up a food safety and food hygiene programme

Food safety and food hygiene knowledge and practices are important in order to avoid cross-contamination, reduce the risk of food-borne diseases and ensure safe and hygienic food. The RAA observed that inadequate practices in food safety and hygiene. Thus, in order to ensure safe food handling measures that identify and handle potential mishaps and hazards, hospitals should set up a food safety and food hygiene programme wherein:

- Greater awareness are created among food handlers about food safety and hygiene requirements through trainings;
- Food safety and hygiene requirements are strictly adhered to;
- Health clearances are issued annually and also after an ailment;
- Food handling practices are monitored frequently.

8. Hospitals should embed protected mealtime principles inwards

Although healthcare officials have to work in complex environments, often struggling to prioritise with numerous competing demands, it is important to embed protected mealtimes principles. When protected mealtime policy is embraced, patients are more likely to increase their meal intake due to less interruptions and proper meal environment. Hence,

hospitals should initiate measures to create conducive environment to ensure that the patients are not disturbed during meals.

9. Hospital should provide awareness and education on nutrition to in-patients and staff involved in in-patient food service system

The RAA found that the most of the lapses can be attributed to in-patients and staff being unaware of the benefits of nutrition and nutritional interventions. Therefore, hospital management should communicate and provide awareness and education on nutrition so as to gain high acceptance of implemented nutritional strategies and interventions by both patients and staff. Staff including kitchen and ward staff should be educated on nutritional care.

10. Hospitals should perform periodic reconciliation of food stocks

Lack of periodic reconciliation of stock balances of patient meals has been observed in the hospitals. Thus, the hospital management should carry out monthly reconciliation of food commodities in order to avoid wastage by ordering what is required and also to minimize misappropriation of food stocks.

CHAPTER 5: CONCLUSION

Good nutrition, particularly provided through hospital meals, plays an important role in patient's recovery and well-being, reducing hospital stay, and minimizing hospital costs. Under-nutrition or malnutrition impairs immune system of the patients thereby increasing infection rates and mortality. Thus, appropriate patient meals with balanced diet should be provided apart from clinical treatments. Similarly, inpatient food service system should be flexible enough to provide a good choice of nutritious meals that can accommodate patients' medical conditions, specific dietary requirements and preferences. Efficient and effective inpatient food service system has the potential to improve the health outcomes of patients and bring cost-savings to hospitals which in turn can contribute towards reducing a significant burden to the overall healthcare system.

In order to improve inpatient food services, the Ministry of Health has developed a guideline for inpatient food service system in 2013 and appointed dieticians in hospitals as well as engaged them in menu planning, ensuring food safety, and cleanliness of kitchens, and quality control of patient meals. However, not undermining the initiatives of the Ministry, the RAA observed that patient meals were not provided based on nutritional conditions of the patients. The food indenting process was inefficient resulting in wastage of resources. Moreover, the daily nutrient intakes as per Ration Scale do not generally meet the WHO Recommended Daily Requirement. Menu planning was found to be ineffective and mealtimes were not made conducive to encourage patients to increase food intakes. Further, there was poor knowledge of food safety in practice.

The RAA acknowledges the fact that health professionals have complex and competing clinical duties which often makes it difficult to carry out the role of greater nutritional care. However, nutritional interventions are imperative as the benefits far outweigh the costs of interventions. The RAA observed that nutritional care often received lesser priority than clinical activities. The RAA understands the criticality of clinical care; however, hospital management also need to fully acknowledge the clinical importance of nutrition and crucial role of healthy food in patient's recovery and health. Thus, there is a need to change the hospital culture of giving less importance to nutrition than other clinical activities.

APPENDIX I

ROYAL GOVERNMENT OF BHUTAN
MINISTRY OF HEALTH
CENTRAL REGIONAL REFERRAL HOSPITAL
GELEPHU - SARPANG DZONGKHAG

No: CRRH/ADM-08/2016-2017/ 6738. *Date: 05/04/2017*

To
Deputy Auditor General
Department of Performance & Commercial
Royal Audit Authority.

Subject: **Forwarding of Feedback for Performance Audit Report on Provision of Patient Meals.**

Sir,

Kindly find attached herewith feedback for Performance Audit Report on Provision of Patient Meal which can be incorporated in the finally report

Thanking you

Yours sincerely

(Dr. Tapas Gurung) 06/04/2017
Medical Superintendent
Central Regional Referral Hospital
Gelephu

Royal Audit Authority
Thimphu : Bhutan
Dairy No...5-8033.
Date.....11/04/2017

Copy to:

1. *The Hon'ble Secretary, Ministry of Health, Thimphu for kind information:*
2. *The Director General, DMS, Ministry of Health, Thimphu for kind information:*
3. *Office copy.*

PSAD

ROYAL GOVERNMENT OF BHUTAN
MINISTRY OF HEALTH
CENTRAL REGIONAL REFERRAL HOSPITAL
GELEPHU - SARPANG DZONGKHAG

Date: 05/04/17

The Hospital Patient Diet Committee has gone through the draft report on performance audit on provision of patient meals via RRA/TAD-PM/2016-2017/770 dated 10-03-2017. We have noted the following and we would like state few observations as below for your kind information and necessary considerations:

1. We try our best to provide the required nutrients but during the calculation the meat and fruits have been missed out. We provide fruits twice a week and meat thrice a week. We advise patient about the intake of the fluid depending on the disease conditions. For the general use we have provided filters, coolers and even hot water through a hot water geyser to cater to the needs of the patients and the attendants.
2. Previously we have been giving vegetable fried rice, chana fried rice as well as bread/eggs and tea. However, most of the patients do not prefer fried rice so we have switched over to only bread, egg and tea as menu for breakfast.
3. We cannot implement all 3 types of diet because of man-power and equipments shortage at the moment but will be definitely considered in the long run and in the new hospital. However, we do provide soft diet like porridge and mashed rice with vegetables, pulses and egg etc to those patients who are not able to chew and swallow solid foods. We give extra eggs and milk to the TB patients. Generically the salt amount, type of cooking oil, spices and other taste makers etc are monitored at the kitchen to make them nutritious as well as palatable.
4. Till date, the pediatric cases are being screened for malnutrition and in other wards screening are done based on their disease conditions. If the patient is unable to sit/stand up at the time of admission then it is impossible to do the screening and take other parameters which will be carried out as soon as the patients can sit/stand up.
5. We will try to follow the food indenting process by issuing the diet card upon admission. But even if the patient is unable to eat, the attendants from far off places keep and take the food. Many attendants have preferred and liked the food of the hospital.
6. While studying the budget status it was found out as the budget has been unrealistic. It is all because of having the procurement rules and financial norms strengthened over the years. The proposal of budget has been based on past expenditure trends with just about 5 % inflation covered in the subsequent years.
7. Food safety and food hygiene program is being carried out. We will scale these up in the near future as we have 3 staff in the Nutrition Unit/Diabetic clinic.
8. There is protected mealtime in case of our hospital with limitations of visitors and avoiding unnecessary clinical ward interventions during the time. However certain emergency procedures cannot be postponed/avoided. We will also ensure protected meal

Date: 05/04/17

time during the weekends and government holidays through requests to clinicians to make rounds earlier before the lunch time.

9. We will provide awareness and education on nutrition to the staff involved in in-patient food service system. The patients and their attendants are also being advised during the ward round.

Overall, we are trying our best to provide nutritious diet to the patients including fresh vegetables on rotation, fresh meat and seasonal fruits. This too we operate within the mandate of the patient diet guidelines of the MoH and the budgetary limitations. At this juncture providing therapeutic diet at individual patient level will be challenging with limited staff, kitchen facilities, education level of the cooks etc. By and large, public in general lack adequate knowledge on nutrition as a whole and patient diet in specific. This mandate to educate the masses falls on the MoH and we will continue working on it through advocacy, awareness campaigns in the spirit of multisectoral approach, strengthening Diabetic clinics/Nutrition unit at the health institution levels etc.

We will definitely try and implement your suggestions and recommendations as far as feasible and possible which can be followed up in subsequent audit exercises.

Committee Members present during the meeting

1. Dr. Tapas Gurung, Medical Superintendent,
2. Drungtsho Tshering Penjore, Offtg. ADMO
3. Tsherltrim Zangmo, Accounts Officer,
4. Tshering Choki, Nutritionist,
5. Amber Bdr. Gurung, Nursing Superintendent.
6. Dorji, Store In-charge,
7. Dorji Gyeltshen, Clinical Nurse, Unit II,
8. Dorji Dema, Senior Staff Nurse, Unit I.
9. Ngwang Dorji, Cook.

ANNEXURE

Central Regional Referral Hospital

Gelephu Bhutan

Nutritional screening form for inpatients

Date: 8/11/16 Unit: II Bed no: P1

Name of the patient: Pinchen Yangzom Age/sex: 19/L F

Registration No: Address: Contact No:

Nutritional assessment Provisional Diagnosis:

Sl.no	Assessments	Remarks
1	**General assessment** a. Eating/feeding problems • difficult to maintain good sitting position during meals • difficulty manipulating food on plate • difficulty conveying food to mouth b. Swallowing • difficulty in chewing • difficulty coping food in mouth • difficulty swallowing c. Appetite • can eat or drink satisfactorily • poor appetite	No No Poor appetite
2	**Clinical signs** a. Physical: pallor, edema, skin, hair color, b. lab test results (if any) • s. protein/albumin (in Urine/blood) ,Hb ,RFTs, LFTs(any significant findings) • Any other signs	Hb - 5.9
3.	**Anthropometric measurement** *(to be measured during the assessment)* Body weight: 5.8 kgs Height/length: 70 cms BMI: kg/m IBW: 8.6 kgs SD score : -3 SD	Severe Chronic Malnutrition

Comments/Interventions: - Severely malnourished, Anemic.
- Refused to diet (need counseling)
Plan - F-75 to be started

Assessed By: **Designation:** Nutritionist **Signature:**

AIN: 14441

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