1.0 INTRODUCTION

"A functional design can promote skill, economy, conveniences, and comforts; a non-functional design can impede activities of all types, detract from quality of care, and raise costs to intolerable levels."

... Hardy and Lammers

The design process incorporates direct input from the owner and from key hospital staff early on in the process. The designer also has to be an advocate for the patients, visitors, support staff, volunteers, and suppliers who do not generally have direct input into the design. Good hospital design integrates functional requirements with the human needs of its varied users.

The design of buildings requires the integration of many kinds of information into an elegant, useful, and durable whole. An integrated design process includes the active and continuing participation of users and community members, code officials, building technologists, contractors, cost consultants, civil engineers, mechanical and electrical engineers, structural engineers, specifications specialists, and consultants from many specialized fields. The best buildings result from continual, organized collaboration among all players throughout the building's life cycle.(http://www.wbdg.org/design/engage_process.php)

The main kitchen in a hospital prepares a tremendous amount of food for distribution among the patients as well as for serving to the employees and patients' visitors. The foodservice facilities are a great way to satisfy hospital staff as well as patients and their visitors. To achieve satisfaction there needs to be a good deal of variety and quality in the food offerings. Good food is an important aspect in the treatment of patient and is a

part of total care, adequate nutrition during hospitalization enables the patient to recover early.

The main goal of Hospital Dietary Service will be to maintain quality characteristics including desirable temperature of food, Ensure microbial safety of the food to the consumer, save steps and energy**,** Reduce labor time and costs. The various functions of dietary services in a hospital are Procurement, storage & accounting of food items in all its forms, Issue of rations for daily cooking, Issue of rations for daily cooking, Preparation of modified diets

The following points were taken into consideration while planning kitchen, the Average number of meals served per day, the type of food to be served, the location of cafeterias and Pantries, the staffing of the department, the storage space for equipments and waste disposal.

1.1.2 Title of the Project:

A Descriptive Study On Planning And Organization Of Hospital Dietary Services at Al Abeer Educity, Malappuram.

1.12 General Objective:

To organise and plan the dietary services at Al Abeer Educity.

1.1.3 Specific Objectives:

- To select Consultant for the Planning of Dietary Service Department.
- To plan the Infrastructure and Equipments of Dietary Service Department.
- To determine the Manpower requirement of Dietary Service Department.
- To plan process flow of work in the Dietary Service Department.

1.2. LITERATURE REVIEW

According to Indian Health Facility guidelines, The Hospital Dietary Service shall provide food service for staff, inpatients, outpatients, and ambulatory patients as appropriate. The patient food service will include catering for the special dietary needs of patients, food service to VIP rooms and provision of nourishment and snacks between scheduled meal services. Provision of food services for visitors and staff may include cafeterias, kiosks, or vending machine dispensing areas, particularly for after-hours access. Food preparation systems require space and equipment for receipt, storage, preparing, cooking and baking.

The Catering unit may be designed to accommodate a Cook-Serve food preparation system. Cook-Serve refers to the process where food, fresh or frozen is prepared, cooked, plated and served immediately. Variations of the Cook-Serve process include:

- Hot plating, delivery and serving
- Delivery of hot bulk food, then plating and serving.

Functional Areas

- The Catering Unit may include the following Functional Areas:
- Food preparation areas
- Cooking facilities
- Plating areas
- Dishwashing and pot washing areas
- Refrigerator/s, cool rooms and freezers of adequate size to store perishable foodstuffs
- Storage areas for dry goods
- Parking and cleaning areas for food distribution trolleys

- Staff Dining Room
- Access to staff amenities

Food Distribution:

A cart distribution system shall be provided with spaces for storage, loading, distribution,

Receiving, and sanitising of the food service carts. The cart traffic and the cleaning and sanitising process shall be designed to eliminate any danger of cross-circulation between outgoing food carts and incoming, soiled carts. Cart traffic shall not be through food processing areas. The distribution service must ensure food is delivered to the patient hot or cold as required.

Garbage Disposal:

Provision shall be made for regular wet and dry garbage storage, removal and disposal in accordance with Waste Management Guidelines. All garbage, and in particular wet garbage, shall be stored in sealed bins. Provision shall be made for the storage and cleaning of bins. For large hospitals, Refrigerated wet waste storage and Special equipments are used to reduce the water content of wet waste.

Staff Amenities:

Staff toilets and locker spaces shall be provided for the exclusive use of the catering staff. These shall not open directly into the food preparation areas, but must be in close proximity to them.

Storage:

Food storage components shall be grouped for convenient access from receiving and to the food preparation areas. All food shall be stored clear of the floor. The lowest shelf shall be not less than 300 mm above the floor or shall be closed in and sealed tight for ease of cleaning. Storage space for at least a four day supply of food shall be provided.

Separate space will be required for refrigerated (cold and frozen) storage, dry foods storage and crockery, utensils and cutlery storage.

Supplies Receival:

An area shall be provided for the receiving and control of incoming food supplies such as a loading dock. This area shall be separated from the general loading dock areas used for access to garbage areas and body holding rooms.

The receiving area shall contain the following:

- A control station
- A breakout for loading, un-crating, and weighing supplies.
- These areas may be shared with clean dock areas.

Types of Diet:

- General full diet
- Soft diet
- Liquid diet
- High protein diet
- High calorie diet
- Nephritic diet
- Diabetic diet
- Liquid diet

Environmental Needs:

- Light
- Solid stainless floors
- Continuous water supply
- Steam
- Gas pipeline
- Garbage disposal

- Adequate ventilation

Shockey (2003) described patients as more demanding, specifically, wanting high quality services in the hospital. Upgrading hospital services and showing appreciation to patients influence patients' overall perceptions of quality of care, increases their nutritional intake, and enhances their satisfaction (Freil et al., 2006). Thus, hospital administrators need

to shift their services from provider convenience to customer-oriented services and ensure they meet patients' future demands.

Traditionally, there were four types of foodservice systems used in healthcare facilities: (a) cook-serve, (b) assembly-serve, (c) cook-freeze-serve, and (d) cook-chill-serve. The cook-serve production system, also known as conventional or "traditional," was the common system used in hospital foodservice operations (Spears & Gregoire, 2006; Sullivan & Atlas, 1998). The raw foods were purchased, prepared on the premises, and served directly after preparation, either plated or in bulk (Edwards & Hartwell, 2006; Payne-Palacio & Theis, 2001; Spears & Gregoire). Although, food preparation in this system was classified as on-site, not all foods were prepared from scratch. Payne-Palacio and Theis stated shortages of labor, high labor costs, and access to convenience food led to changes in the conventional system (Payne-Palacio & Theis). Hospital foodservice teams might purchase pastry items and pre-processed (canned or frozen) fruits and vegetables instead of preparing raw foods on-site

(Spears & Gregoire; Sullivan & Atlas).

In hospital facilities, meal assembly was another step between production and service in the foodservice system. Using centralized or decentralized meal assembly, food was served to the patients on trays. In centralized meal assembly, before the food was delivered to the patients, the trays were assembled close to the production area and distributed by carts or conveyors to patient units. Food was delivered in bulk for

decentralized meal assembly (Spears & Gregoire, 2006). Schirg (2007) described a cook-serve system as one in which, using a 1- or 2-week standard cycle menu, food is assembled and served immediately, with a specific type of temperature control to the patients.

Hospitals and some healthcare institutions were noted as prime users of assembly serve systems in their respective foodservice operations (Payne-Palacio & Theis, 2001). Sullivan and Atlas (1998) described assembly-serve as a convenience production system that requires minimal cooking. Basically, most of the foods are outsourced from commercial establishments, bought in a prepared frozen state in bulk form, and packaged in disposable pans. Spears and Gregoire (2006) noted that the food is purchased in three forms: bulk, pre-portioned, and pre- plated (requiring less preparation). Processed food items are purchased, stored, assembled, heated, and served (Payne-Palacio & Theis; Spears & Gregoire). Related to the assembly-serve production system, entree meals require thawing, plating, and assembling processes. Moreover, frozen dessert items require only minimal food preparation process: food is thawed and portioned before delivery to patients (Sullivan & Atlas). However, for patients who require special diets, some of the readily available items may not always fit with their dietary requirements. Therefore, for hospitals utilizing this system, a combination system may be needed such that some of the menu items are prepared using conventional methods (Spears & Gregoire).

Spears and Gregoire (2006) stated that ready-prepared foodservices in hospitals consist of cook-freeze-serve and cook-chill production systems. In these systems, menu items are not produced for immediate service. Fundamentally, in a cook-freeze-serve system, food is prepared on-site, is bulk packaged (although sometimes individual-portion packaging is used), blast frozen, preserved, stored in a frozen state, thawed in advance,

assembled, distributed cold-plated to wards, rethermalized on wards, and delivered to patients as meals (Payne-Palacio & Theis, 2001; Spears & Gregoire; Sullivan & Atlas, 1998). In the cook-chill meal system, the cooks prepare the food in a traditional way in advance of service, then bring

the food down to the appropriate temperature, and store it under refrigeration until ready for use. A rethermalization system is used to reheat the food before serving to the patients (Payne-Palacio & Theis; Schirg, 2007; Sullivan & Atlas).

In Lambert et al.'s (1999) study, three sets of questionnaires were delivered to 395 patients with specific traits, 161 employees, and 19 foodservice directors in 19 healthcare facilities that used different types of meal delivery service. Results indicated food quality was higher with meal delivery by foodservice employees than with meal delivery by nursing employees. There were no differences in employees' ratings among the four of types of meal distribution, but least satisfaction was shown in foodservice directors' ratings on meals served by nursing employees compared to others. The authors concluded that to implement new meal delivery service, health care facilities need to consider various aspects, such as energy, time, and resources, to improve patients' satisfaction.

Angelillo IF et al carried out a Survey was done to determine adherence to Hazard Analysis and Critical Control Points (HACCP) methods and to evaluate knowledge, attitudes, and practices of food-services staff with regard to food hygiene in hospitals. Among Hospital medical directors and food-services staff of 36 hospitals in Calabria, Italy. A questionnaire about hospital characteristics, food-services organization, and measures and procedures for the control and prevention of food- borne diseases was sent to medical directors; a questionnaire about demographic and practice characteristics, knowledge, attitudes, and behaviours about control and prevention of food- borne diseases was sent to food-services staff. Multiple logistic regression

analysis was performed. Only 54% of the 27 responding hospitals were using the HACCP system and, of those using HACCP, 79% adopted a food-hygiene-practice manual; more than one half already had developed written procedures for food storage, personal hygiene, cleaning and disinfection; one half or less performed microbiological assessment of foods and surfaces. Of the 290 food-services staff who responded, 78.8% were aware of the five leading food- borne pathogens; this knowledge was significantly higher among those with a higher educational level and those who worked in hospitals that had implemented the HACCP system. Younger staff and those who had attended continuing educational courses about food hygiene and hospital food- borne diseases had a significantly higher knowledge of safe temperatures for food storage. A positive attitude toward food- borne-diseases prevention was reported by the great majority, and it was significantly higher in older respondents and in those working in hospitals with a lower number of beds. Only 54.9% of those involved in touching or serving unwrapped raw or cooked foods routinely used gloves during this activity; this practice was significantly greater among younger respondents and in those working in hospitals using HACCP. The study concluded that Full implementation of the HACCP system and infection control policies in hospital food services are needed.

Alicia Núñez , Francisco Ramis, Liliana Neriz conducted a study in Chile, the use of costing systems in the public sector is limited. The Ministry of Health requires hospitals to manage themselves with the aim of decentralizing health care services and increasing their quality. However, self-management with a lack of accounting information is almost impossible. On the other hand, nutrition department costs have barely been studied before, and there are no studies specifically for activity based costing (ABC) systems. ABC focuses on the process and traces health care activities to gain a more accurate measurement of the object costs and the financial performance of an organization. The results show positive effects on the reduction of costs for the nutrition

department after implementing ABC/ABM. Therefore, there are opportunities to improve the profitability of the area and the results could also be replicated to other areas in the hospital. ABC shed light on the amount of nutritionist time devoted to completing paperwork, and as a result, system changes were introduced to reduce this burden and allow them to focus on more relevant activities. Additional efficiencies were achieved through the elimination of non-value adding activities and automation of reports. ABC reduced the cost of the nutrition department and could produce similar results in other areas of the hospital. This is a practical application of a financial management tool, ABC, which would be useful for hospital managers to reduce costs and improve the management of the unit. This paper takes ABC and examines its use in an area, which has had little exposure to the benefits of this tool.

Amany M. Abdelhafez at el. Conducted a study to determine the factors affecting satisfaction level of patients with food services in a sample of general hospitals in Makkah, Saudi Arabia. A cross sectional study was carried out in four general hospitals including 250 patients. Interview questionnaire was used for measuring satisfaction of the patients with food and food services. Results showed that (78.8%) of patients were satisfied overall with quality of food services in hospitals. Positive correlation was detected between the overall satisfaction level and the different aspects related to food and food services, the first three variables that had the strongest correlation with overall satisfaction were the taste of foods, being served with the favourite food and food appearance. Logistic regression analysis revealed that low monthly income, taste and temperature of food, attitude of staff serving food, and absence of disturbance inside, and outside the room were associated with satisfaction with hospital food and food services ($p < 0.05$) .Increasing the quality of foods and hospital food services increases the level of overall satisfaction with foods and food services. Ongoing education and

communication with patients and dieticians is important in improving satisfaction with foodservice.

1.3 METHODOLOGY

A descriptive study was carried for a period of 64 days (March 02, 2016-May 14, 2016) at Al Abeer Educity, Kerala. Al Abeer Educity is an upcoming 750 bedded hospital which is under construction.

Data collection tools used is Check-list guiding documents i.e. guidelines, norms and standard published by various organization and government of different countries.

Guiding documents used include:

1) NABH
2) JCI
3) HACCP
4) IHFG
5) HAAD
6) FGI guidelines, USA

These all documents were thoroughly read and the requirements were taken into consideration while planning for Dietary services at the hospital. All the points were incorporated in the plan.

The Main bulk Kitchen was not constructed so planning was only done for the design and Process flow of the department.

Limitation of the study:

This study cannot be generalized since the study is carried out taking into consideration the requirements of Al Abeer Educity.

1.4 RESULT

Selection of Consultant

Sr. No	DESCRIPTION	KECO	KOSHY
1	**Services**	Design	Facility planning and design
2		Project Management	Technical Assistance
3		Equipment Installation	Operational workflow
4		Operation	Future upgrading
5			Cost effective operation & post operational consultancy
6			Operating supplies for the project, which would best fit the needs
1	**Projects Completed**	Rajagiri Hospital Alwaye, Kochi.	Manor Backwater Resort– Kumarakom
2		Al Shifa Hospital Peruthalmanna	Lake Palace resort- Alleppey
3		KIMS Trivandrum.	Orchid High Lands- Munnar
4		KIMS Kochi.	Caritas Hospital- Kottayam
5		KIMS Kottyam.	Atlas Airport Hotel Apartment
6		KIMS Kollam.	Panoramic Getaway- Munnar
7		KIMS Thonnackel.	Deshabimani Press- Trivandrum
8		Chavara School Pala.	Mangala Towers- Coimbatore-2010-2011

			Sree Lakshmi Residency- Choonadu- kollam
1	**Ongoing Projects**	St. Gregorios International Cancer Care Center Parumala (Mavelikara)	Pizza Max Munnar
2		Placid School Changanasery (Kottayam)	Paloma Backwater resort and Ayurveda Center
3			Deep woods – Lakshmi estate, Munna
4			Surabi Mall, Ramanatukara, calicut
5			Golden Munnar, Hotels and resort
6			Munnar Valley- Bision valley, Munnar
1	**Operational Projects**		Backwater Ripples- Kumarakom
2			God's Own Country Ayurveda resort- Chowara- Kovalom
1	**Feasibility Report**		Dixy Chicken- India (UK Brand)
2			Coimbatore 2013

3			Tiruvalla—2012
4			Trivandrum -2011
5			South India Consultant
1	**Future Projects**	St. Johns Hospital Bangalore	

Table No: 01

Comparison of cost					
Sr. No	Particulars	KECO Consultancy	KECO Consultancy	Koshy	Koshy
1	Design of kitchen and list of equipments	5,00,000		6,50,000	
2	Main Kitchen		5,00,000		6,50,000
3	Satellite Kitchens			1,50,000	
4	Service layouts for each like civil, electrical and plumbing (Each Cost)	50,000	1,50,000		
5	Site supervision charges per month	75,000	600000		
6	Charges for visit after 8 months/ on completion of 6 site visits			5000/ visit	10000
7	Specialist charges/ taxes (except income tax)			Additional	
8	Travel and			Additional	

	Accommodation				
	Total		**12,50,000**		**6,60,000**

Table No: 02

After comparing the Profile and the cost of both consultants, Koshy's Associates was selected as the Consultant for Dietary service.

Calculating work- load of Bulk Kitchen

	Maximum	Calculated for 1 meal
No of Patents in Hospital block	750	638
No of Patents in Super- speciality block	800	680
No. Of bystanders in Hospital block	750	638
No. Of bystanders in Super- speciality block	800	680
No. Of Staffs in hospital block	3000	1000
No. Of staffs in Super- speciality block	3200	1067
Number of Medical Students	600	600
Number of Nursing students	240	240
Number of staffs in Medical college	500	167
Number of staffs in Nursing college	25	8
Number of OPD Patients	2000	600
Total	**12665**	**6318**

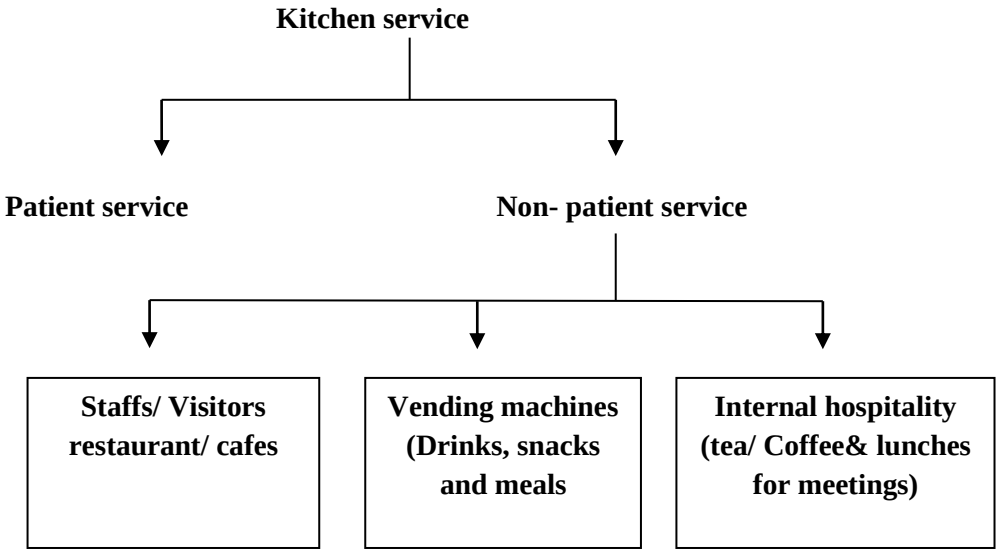
Table No: 03

The calculated meal for one time is 6318 meals, which was used for further calculations regarding the Infrastructure and equipment planning.

Food Service System:

Cook- Serve System will be used, where food is prepared, cooked, plated and served immediately. The hot bulk food will be delivered and then plated in the pantries.

SERVICES PROVIDED BY KITCHEN DEPARTMENT



Space Requirement:

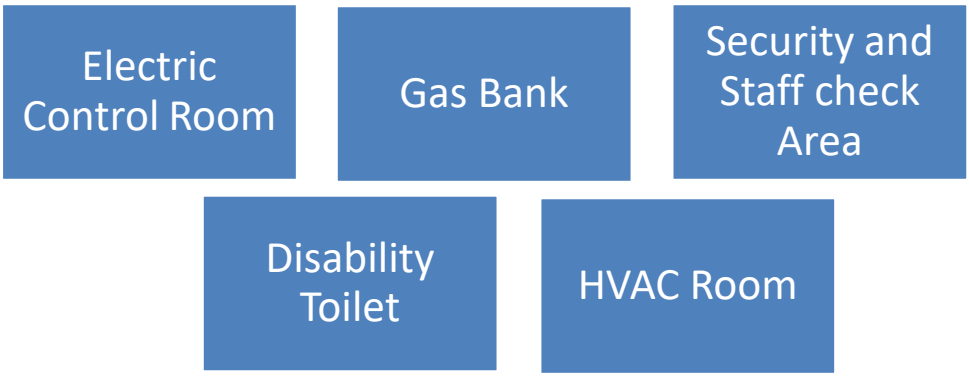
The space planned for the central kitchen is 8,000-1200 ft (UK Modil-8-10 sq ft/bed)

Infrastructure Planning

The various Physical areas required for central component are:

Administrative Area	Bulk Cooking Area	Dish Wash Area	Pot Storage
Trolley Wash Area	Trolley Bay	Food Set- up Area	Prepared food Storage
Garbage collection area	Chiller Room	Freezer Room	Dry Ration storage

Other Areas in the Bulk Kitchen



The support area of kitchen contains Electric control room, Gas bank, security and staff check area, HVAC room, disability toilet.

The Peripheral components will include Pantries, Kitchenettes, and Coffee shops.

Infrastructure planning:

General

Sr. No	Infrastructure	Description
1	Flooring	Non- slip surface with no crevices and easily cleaned.
2	Door	All doors shall have clear glazing to the top half
3	Lighting	Use of natural light to the maximum
4	MEP- Electrical	All equipment should have emergency shut off switches to prevent overheating
5	Plumbing	Basins with hands free operations with soap dispensers
6	HVAC	Air lock between kitchen and external areas, shall be fitted with a fly screen door with a self closer

7	Furniture Requirements	All benches, tables and other surfaces on which food is prepared or handled

Table No: 04

Food Preparation Area

Sr. No	Infrastructure	Description
1	Space Required	The food preparation surface, when combined shall have length equal to or greater than length of all commercial cooking equipment(FGI)
2	General Considerations	Layout: Soiled Patient and non- patient trays shall not pass through food preparation areas/ areas with open food(FGI) Hand washing area: Shall be provided within 20 feet(6.10 metres) of each food preparation or serving area.(FGI) Area will include benches, sinks, shelving and mobile trolleys for utensil. Ready access to boiling water and ice dispensing machines
3	MEP- Electrical	Special power may be required according to manufacturer's specifications, safety considerations may include power cut- off to items of equipment
4	Plumbing	Sinks: two- compartment food preparation sink with a drain- board on each side of the double sink, The drain- boards shall be the same length as the sink compartment and fabricated to NSF standards(FGI)

Table No: 05

Receiving Area

Sr. No	Infrastructure	Description
1	General Considerations	Space shall be provided for the delivery and transport equipment used, such as receiving carts/ jacks, transport carts, and returnables.
2	Location	A receiving area shall be provided at the receiving entrance to the department for breakdown of boxes and vendor storage
3	Door	minimum clear width of 4 feet(1.22 meters) and a minimum clear height of 7 feet(2.14 meters)

Table No: 06

Food and Supply Storage

Sr. No	Infrastructure	Description
1	General Considerations	Dry storage and refrigerator/ freezer space All food shall be stored clear of the floor Aisles with a minimum width of 36 inches shall be provided between storage units
2	Furniture Requirements	Require alarms when temperature is not reached or exceeded. Alarms should be automatically recorded Commercial grade refrigeration shall be provided to hold chilled and frozen food at temperatures in accordance with local, state and federal requirements(HACCP/ FDA Food Code)
3	HVAC	Room temperature should be maintained below 72 degree F (22degree C) and 55% relative humidity to minimize food spoilage.

Table No:07

Assembly and Distribution facilities

Sr. No	Infrastructure	Description
1	General Considerations	Space shall be provided for patient food assembly in a non-public, protected environment
2		Space shall be provided for the following functions(FGI): 1. storing carts when not in use 2. Loading carts for distribution 3. distributing meals 4. Receiving soiled carts 5. Sanitizing carts: A designated area shall be identified when a grated or sloped floor with floor drain and source of water and sanitizing agents.

Table No: 08

Ware- washing Facilities

Sr. No	Infrastructure	Description
1	Flooring	Floor drain should be provided where carts can air-dry Impervious and non- slip
2	Ceiling	Smooth, Impervious and easily cleanable
3	Wall finish	Smooth, Impervious and easily cleanable
4	Plumbing	Soak sinks to pre- soak dinnerware and utensils., stainless steel sinks Use of hot water sanitizing dish machine is

		recommended rather than a low temperature chemical washing unit A single three- compartment sink with integral sloped drain boards on both clean and soiled sides shall be provided
5	Miscellaneous	Acoustic treatment to reduce noise

Table No: 09

Retailed Food Service areas (Cafeterias/ Cafes)

Sr. No	Infrastructure	Description
1	General Considerations	Food shields(sneeze guards) shall be provided into protect non- covered and unpackaged foods.(FGI) Hot/ cold food holding and displaying equipment shall maintain internal temperature controls
2	Plumbing	Hand washing station(FGI)

Table No: 10

Dining Area

Sr. No	Infrastructure	Description
1	General Considerations	Minimum Aisle spacing and chair clearance of 3 feet(91.5 cm)(FGI)
2	Wall finish	Will require acoustic treatment, particularly to walls adjoining other departments
3	Miscellaneous	Acoustic privacy required
4	Space Required	Minimum area: .m2 per person or 9.5 m2 whichever is

		greater

Table No: 11

Support Area

Sr. No	Infrastructure	Description
1	General Considerations	The Staff Amenities shall not open directly to food preparation areas Toilet Rooms: Next to or directly accessible to the food and nutrition service department(FGI) shall not be permitted to open directly into food preparation or food storage areas(FGI) Storage for Staff: Lockers shall be provided for food and nutrition services staff(FGI)

Table No: 12

Pot Washing Area

Sr. No	Infrastructure	Description
1	General Considerations	Located with ready access to preparation and cooking areas and may be co- located with dishwashing areas
2	Flooring	impervious and non- slip
3	Ceiling	smooth, impervious and easily cleanable
4	Wall finish	smooth, impervious and easily cleanable
5	Furniture Requirements	Pot scrubbing facilities are required that incorporate emergency manual ware- washing facilities in the event of equipment failure

Table No: 13

Trolley/ cart wash

Sr. No	Infrastructure	Description
1	General Considerations	Area shall be provided for stripping, washing and disinfecting of trolleys and carts
2	Flooring	impervious and non- slip
3	Ceiling	smooth, impervious and easily cleanable
4	Wall finish	smooth, impervious and easily cleanable
5	Plumbing	Hot and cold water outlets

Table No: 14

The infrastructure planning of peripheral components are given in annexure.

Manpower Requirement

Type of staff	No.
Chief Dietician	1
Senior Dietician	1
Dietician	1
Assistant Dietician	7
Food and Beverages Manager	1
Assistant manager	1
Steward	1
Diet Clerk	1
Head cook	1
Therapeutic cooks	3
Cooks	16
Assistant cooks	10
Masalchi	10

Store attendant	2
Trolley bearer	16
Cleaner	3
Total	**75**

Table No: 15

Equipment Planning

The list of equipments for the Dietary services department will be decided in the later phase of planning.

The main lists of equipments are:

- Cutting equipments
- Chapatti making machine
- Weighing machine
- Cooking ovens
- Dish Washer
- Grinding Machine
- Mixing machine
- Distribution trolley
- Refrigerator
- Dough mixer
- Burners

Flow of work in the department:

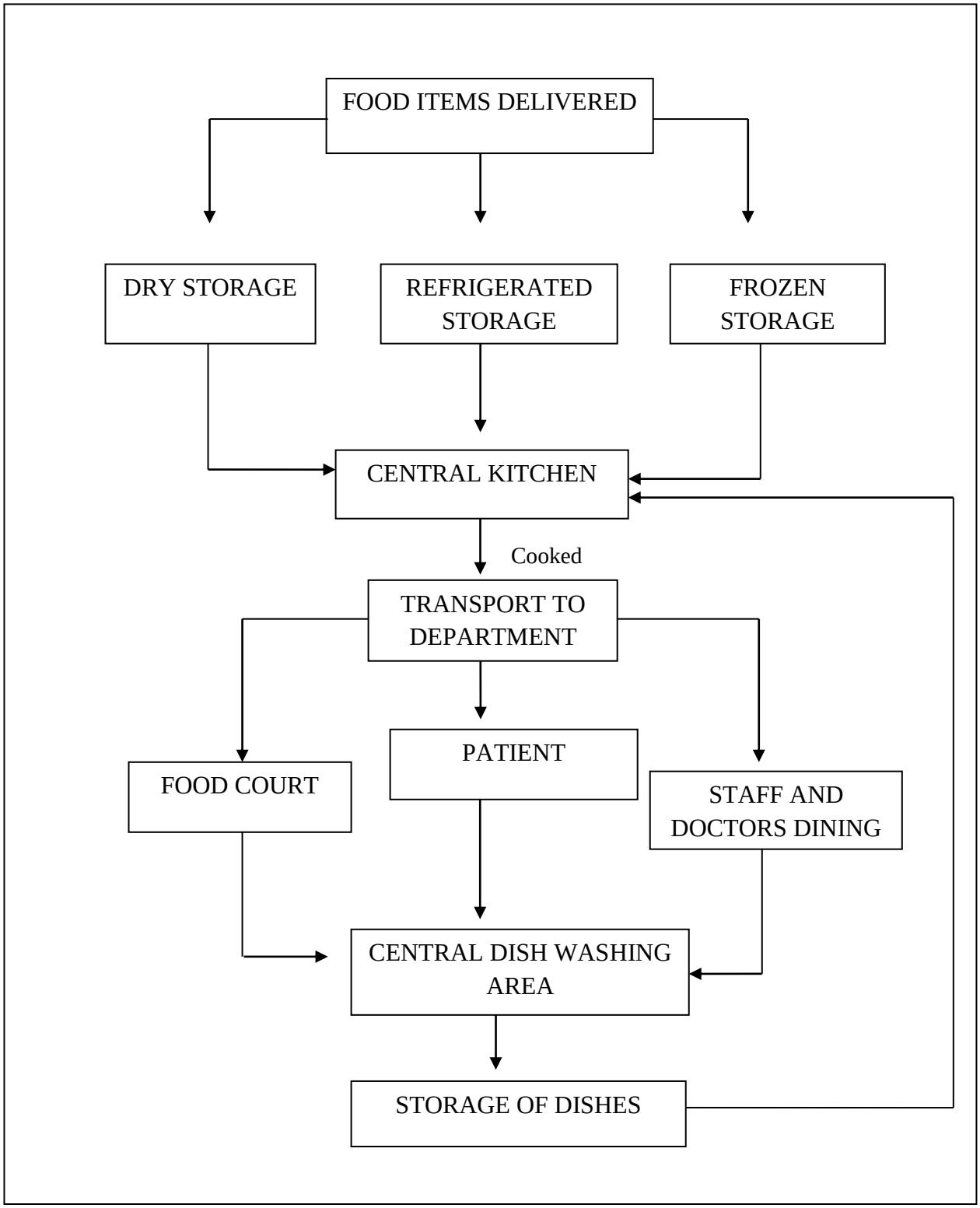


Fig No: 01

Flow of work in Hospital

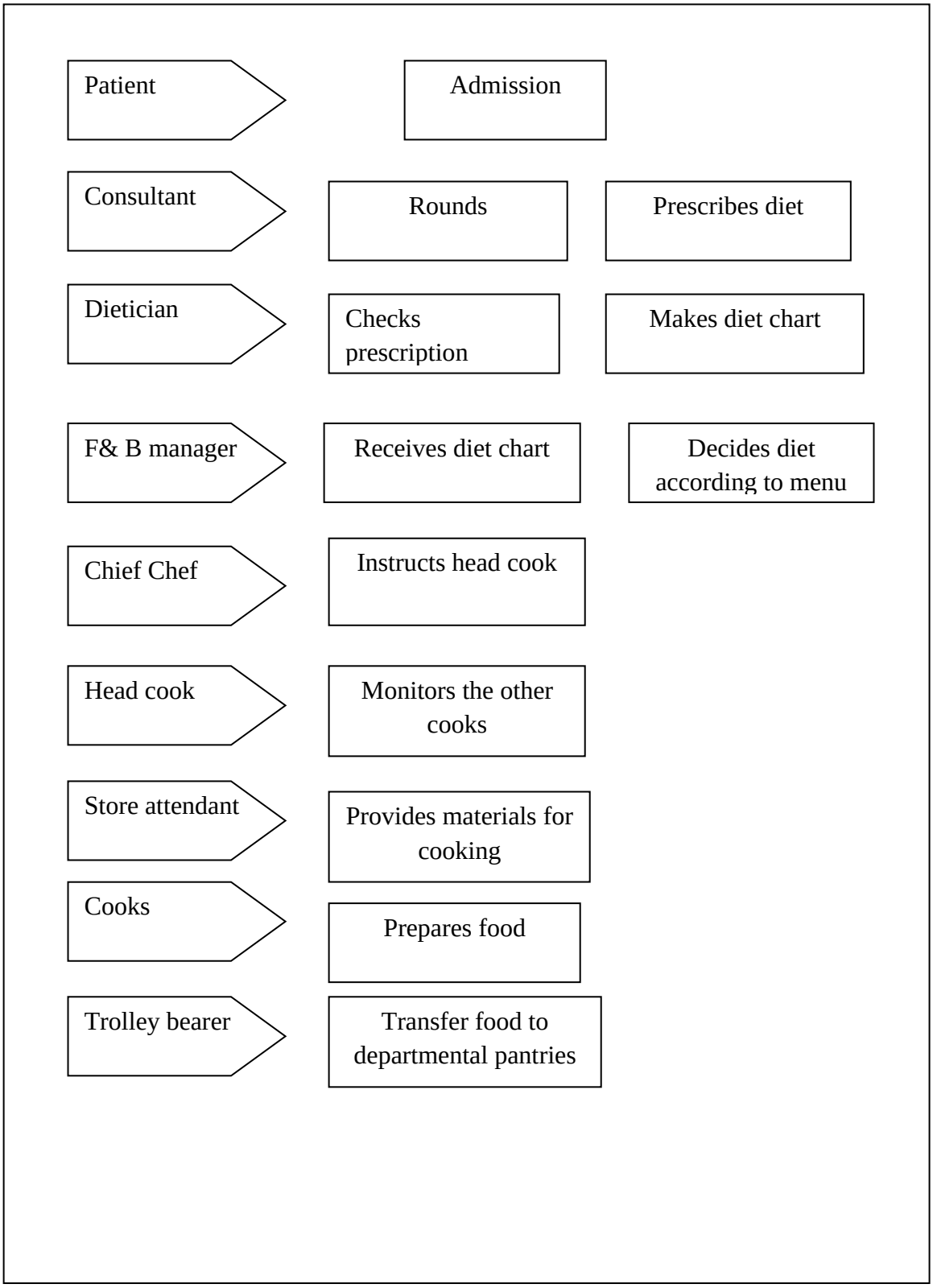


Fig No: 02

1.5 DISCUSSION

Selections of consultants

Selections of consultants were done by comparing the cost and the Profile of both teams. The profile comparison was done by comparing the Services provided, Projects completed, ongoing projects, Operational projects, Feasibility reports made, and future projects.

Cost comparison

Cost comparison was done depending on the cost taken for Design of kitchen and list of equipments, cost taken for various other services like electric, plumbing and civil, site supervision charges, and other charges.

Comparing both the Consultant's profile and Cost analysis Koshy's Associates was selected as the consultant for the Dietary services.

Work- load calculation

A proper planning cannot be successful if the work load is not calculated, work- load calculation was done by calculating number of meals for Patients, bystanders, students and staffs.

The total number of meals to be served will be 6318.

Infrastructure Planning

The main bulk kitchen will be having an administrative area for the Dietician and the Food and Beverages Manager, A bulk cooking area where the vegetarian and Non-vegetarian cooking will be done separately, Dish wash area shall be located as far as possible from food preparation and serving area, The pot washing sinks and equipments shall be located ready access to preparation and cooking areas and in close proximity to dish wash area, Trolley wash area for cleaning and sanitizing of food carrying trolleys,

Trolley bay for storing the cleaned Trolleys, Food set- up area, where the cooked food will be plated and placed in the trolleys, Prepared food storage area holds the food for a small period of time till it gets transferred to other departments, Garbage collection area, for removal and disposal of waste in accordance with waste management guidelines, Chiller room, Freezer room and a dry ration storage.

The support area of kitchen contains Electric control room, Gas bank, security and staffs check area, HVAC room, disability toilet.

The Peripheral components will include Panties for plating the food from trolleys, reheating the food, and storing the trolleys used for food distribution in each area for a short period of time, Kitchenettes are located in the Deluxe rooms for cooking and heating purpose of food and Coffee shops for providing snacks, refreshments.

Manpower Requirement

The given is the minimum requirement of staff for hospitals above 750 bedded.
Additional 10-30% staff is included for Casual Leave. At Al Abeer Educity the Dietary services will be outsourced.

Equipment Planning

The Main list and the number of required equipments will be started once the construction of building starts.

1.6 CONCLUSION

The planning for hospital dietary services department was done. The Planning stated with selection of consultants, work load calculation, Infrastructure planning of the main kitchen and the peripheral components. The planning included the planning for Infrastructure, equipment, manpower modifications to be incorporated in the main Hospital building and the process flow.