Clinical Nutrition
Fellowship Program

Tehran University of Medical sciences

School of Nutritional Sciences & Dietetics

Clinical Nutrition Department

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1. Description

The importance of proper nutrition and prevention of malnutrition and nutrient deficiencies in inpatients and outpatients has always been raised as a fundamental issue that intervenes in the process of treatment and recovery of patients in all countries. The high rate of malnutrition in hospitalized patients and insufficient attention to the nutritional needs of patients and the timely implementation of nutritional interventions are among the common problems in managing the treatment of patients. The increase in malnutrition and the occurrence of micronutrient deficiencies in patients can increase the duration of hospitalization, cause disability and death of patients, and impose adverse social and economic consequences on the society. Therefore, the correct and appropriate implementation of the nutritional care program for patients, in addition to ensuring that nutritional needs are met, causes faster recovery, better response of the patient to treatment methods, reduction of disease complications, hospitalization time and treatment costs. Thus, it is necessary to pay attention to nutritional care in hospitalized patients. The Division of Clinical Nutrition at the Tehran University of Medical Sciences is pleased to offer

advanced clinical nutrition fellowship training program to provide optimal and specialized services for nutritional management of diseases and respond to the complex problems of the patients.

2. Objective

The goal of this fellowship program is to provide training experience at a sufficient level for the fellow to acquire competency in the field of clinical nutrition including nutritional screening, assessment, management, and ongoing support of patients, ranging from critically ill inpatients to ambulatory outpatients of all ages.

3. Program Information

A. Number of positions available per year: Depends on the adequacy of clinical capacity, number of faculty, and other resources.

B. Training site: General hospital

C. Duration: 12 months

4. Reasons for the need to launch this course

A. Less familiarity of health care practitioners with nutritional therapy in an inpatient setting.

B. Clinical nutrition is currently in high demand.

5. Availability of the proposed program at any of the prestigious universities in the world

Site address accessible for the program course	Country
https://medicine.uchicago.edu/sections/gastroenterology-hepatology-nutrition/training-programs/non-acgme-fellowships/clinical-nutrition/	USA
https://www.rch.org.au/uploadedFiles/Main/Content/gastro/Fellowship%20Program%20in%20Gastroenterology%20and%20Clinical%20Nutrition%20April%202021%20SA.pdf	Australia

http://nbpns.org/university-of-alabama-at-birmingham/	USA
http://nbpns.org/university-of-california-at-los-angeles/	USA
https://www.ualberta.ca/department-of-medicine/divisions/gastroenterology/fellowship-programs/nutrition-fellowship/index.html	Canada

6. Admission requirements

A. To be eligible for training in the clinical nutrition, trainees must have completed one of the following degrees:

a. PhD in Nutritional Sciences

b. Doctor of Medicine (MD)

B. Evidence of English proficiency

C. Candidates are selected based on the following:

a. Interview
b. Up to Date Curriculum vitae (CV)
c. Overall fit for program

D. Timeline: There is no formal application deadline and interested candidates should contact the program director. Applications are encouraged at least one year prior to the proposed start date.

7. Required resources

A. Personnel

a. Program Director: There must be one faculty member appointed as program director responsible for the overall program.

1) Qualifications of the program director:

- Have expertise in clinical nutrition as well as documented educational and administrative abilities
- Have at least three years of clinical experience in patients' nutritional care in an inpatient setting.
- Be engaged in ongoing research in the field of clinical nutrition.
- Be certified by the Clinical Nutrition Department of Tehran University of Medical Sciences.

2) Responsibilities of the program director:

- Organize the activities of the educational program at all sites participating in the program
- Supervision of fellows
- Fellow education in the context of patient care
- Ensure that the faculty appropriately supervises the fellow.
- Ensure the program's compliance with the sponsoring institution's policies

b. Faculty: At each participating institution, there must be a sufficient number of faculty with documented qualifications to instruct and supervise the fellows in the program. Although the number of faculty members will vary, at least five faculty members (including fellowship program director) are required. Decision on the number of fellow positions, recruitment and selection of fellows, and faculty members' approval for participation in the fellowship program education are made in Clinical Nutrition Department in accordance with institutional and departmental policies.

1) Responsibilities and Qualifications of the Faculty members

- Faculty members must be highly qualified and possess appropriate clinical and teaching skills, support of the goals and objectives of the program.

- Each faculty member must have at least three years of clinical experience in patients' nutritional care in an inpatient setting.
- Each faculty member must be certified by the Clinical Nutrition Department of Tehran University of Medical Sciences.
- Faculty members teach fellows how to care for patients ensuring that patients receive the highest quality of care.

c. Other personnel: The program must ensure the availability of necessary personnel for the effective administration of the program.

B. Facilities/Training site

a. General hospital (at least one affiliated hospital must be involved)

1) Must have its own in-house kitchen and clean room for preparing gavage formulation.
2) Must have its own in-house pharmacy filled with dietary supplements, enteral formulations, and parenteral solutions.

b. Skill lab or a room for practical training

c. Outpatient Clinic

d. Classroom for theoretical teaching

C. Equipment

Required equipment for practical training are listed below:

Devices and tools	**Required number**
Bioelectrical impedance analysis device*	1
Portable body composition analyzer*	1
Indirect calorimetry*	1
Weight scale	1
Stadiometer	1
Portable bed scale*	1

Gravity feeding bag*	1
Enteral Feeding Pump*	1
Caliper*	1
Handgrip dynamometer*	1
Measuring tape	1

* Optional

8. Program Curriculum

A. Expected Outcomes

By the end of the program the fellow will be able to perform the following as part of an interdisciplinary nutrition support team or group:

a. Nutritional Assessment

1) Be aware of evidence-based methods for nutritional screening and assessment of patients hospitalized in the intensive care unit and inpatient wards as well as in outpatient clinics.
2) Understand and experience anthropometry and methods for body composition
3) Be familiar with the interpretation of laboratory values

b. Nutritional Therapy

1) Determine nutritional/metabolic requirements based on findings of subjective and objective nutrition assessment
2) Be familiar with disease-specific diets and dietary recommendations, enteral formulations, and parenteral solutions
3) Designs/recommends patient-specific feeding formulation/prescription
4) Understand the issues with the composition of different formulas and complications of therapy
5) Be familiar with the indications and delivery of enteral and parenteral nutrition
6) Select the appropriate formula/formulation and route for administration of specialized nutrition support based on patient's disease process and compatibility with route of access.

c. Ongoing support

1) Be able to modify diet plan based on disease complications.

2) Be able to plan long term home enteral or parenteral nutrition therapy for patients considering long term complications of therapy.
3) Teaches/educates patients and caregivers on nutrition care plan

d. Research

1) One research project during the fellowship is required. The goal of the research project will be to present findings in a peer reviewed journal or meeting.

B. Table of the Courses*

Title of the Course	Learning strategy/ Training site
Basic nutrition	Self-study, Lecture/ Classroom
Nutritional status assessment of patients	Self-study, Lecture, Case-based teaching, Bedside teaching/ Classroom and/or Skill lab, Bedside, Clinic
Application of various nutritional tools and instruments in patients' nutritional assessment and anthropometric measurements	Self-study, Lecture, Case-based teaching, Bedside teaching/ Classroom and/or Skill lab, Bedside, Clinic
Nutrition Focused Physical Exam (NFPE)	Self-study, Lecture, Case-based teaching, Bedside teaching/ Classroom and/or Skill lab, Bedside, Clinic
Meal planning	Self-study, Lecture, Case-based teaching, Bedside teaching/ Classroom and/or Skill lab, Bedside, Clinic
Basic concepts of fluid and electrolyte management	Self-study, Lecture, Case-based teaching / Classroom and/or Skill lab
Common types of intravenous fluids and their uses	Self-study, Lecture, Case-based teaching / Classroom and/or Skill lab
Medical nutrition therapy for weight management	Self-study, Lecture, Case-based teaching/ Classroom and/or Skill lab, Bedside, Clinic
Medical nutrition therapy in endocrine disorders	Self-study, Lecture, Case-based teaching, Bedside teaching / Classroom and/or Skill lab, Bedside, Clinic
Medical nutrition therapy in cardiovascular diseases	Self-study, Lecture, Case-based teaching, Bedside teaching / Classroom and/or Skill lab, Bedside, Clinic

Medical nutrition therapy in renal diseases	Self-study, Lecture, Case-based teaching, bedside teaching / Classroom and/or Skill lab, bedside, Clinic
Medical nutrition therapy in gastrointestinal diseases	Self-study, Lecture, Case-based teaching, Bedside teaching / Classroom and/or Skill lab, Bedside, Clinic
Medical nutrition therapy in brain and nervous system disorders	Self-study, Lecture, Case-based teaching, bedside teaching / Classroom and/or Skill lab, bedside, Clinic
Nutritional support of critically ill patients	Self-study, Lecture, Case-based teaching, Bedside teaching / Classroom and/or Skill lab, Bedside
Indications, principles, and techniques of enteral nutrition	Self-study, Lecture, Case-based teaching, Bedside teaching / Classroom and/or Skill lab, Bedside
Indications, principles, and techniques of parenteral nutrition	Self-study, Lecture, Case-based teaching, Bedside teaching / Classroom and/or Skill lab, Bedside
Medical nutrition therapy in cancer	Self-study, Lecture, Case-based teaching, Bedside teaching / Classroom and/or Skill lab, Bedside, Clinic
Medical nutrition therapy in surgeries and transplantations	Self-study, Lecture, Case-based teaching, Bedside teaching / Classroom and/or Skill lab, Bedside, Clinic
Medical nutrition therapy in high risk pregnancies & gestational diabetes mellitus	Self-study, Lecture, Case-based teaching, bedside teaching / Classroom and/or Skill lab, bedside, Clinic
Medical nutrition therapy in pediatrics	Self-study, Lecture, Case-based teaching, bedside teaching / Classroom and/or Skill lab, bedside, Clinic
Drug nutrient interaction	Self-study, Lecture, Case-based teaching / Classroom and/or Skill lab, bedside, Clinic

*Estimated time: 4 months

C. Procedural skills

To achieve the necessary level of expertise, fellows must be familiar with some related procedures, which include, but are not limited to, the following:

1) Determining body composition using a body composition analyzer
2) Determining basal body metabolism using indirect calorimetry
3) Assessing nutritional status of patients using appropriate tools
4) Using physical examination to assess nutritional status of patients

5) Calculating energy, macronutrients, and micronutrients needs in various diseases and conditions
6) Prescribing appropriate individualized diet regimens for patients based on the disease-specific complications
7) Designing nutrient composition of blenderized tube feeding formulas for patients on enteral nutrition
8) Identifying appropriate commercial feeding formula considering the feeding route for patients on enteral nutrition
9) Calculating intravenous (IV) nutritional fluids amounts based on the IV line for patients on parenteral nutrition

D. Rotation Schedule

1) 4 weeks: Endocrine service
2) 2 weeks: Cardiology service
3) 2 weeks: Renal care and Dialysis service
4) 4 weeks: Gastroenterology service
5) 2 weeks: Neurology service
6) 2 weeks: Gynecology service
7) 4 weeks: Intensive Care Unit
8) 4 weeks: Oncology service
9) 4 weeks: Surgery service
10) 4 weeks: Pediatric care service
11) 2 week: Food service
12) 2 hours weekly: Clinic

* If any of the above departments are not available in the reference hospital, coordination should be made with other affiliated hospitals.

9. Fellows' Tasks

1) Active participation in the educational activities held by the clinical nutrition department including theoretical and practical trainings at bedside, skill lab, classroom, clinic, etc.

2) Initial nutritional screening of the patients during hospitalization

3) Providing medical nutrition therapy for those patients identified to be at nutritional risk based on the initial nutritional screening under the supervision of the faculty advisor

4) Daily evaluation of the patient who have oral food intake, including the amount of food intake and/or ONS formulas

5) Daily follow-up of patients who are on enteral or intravenous nutrition

6) Update the nutrition care plan under the supervision of the advisor if needed.

7) Monitoring for complications related to nutrition support therapy, central catheters, enteral tubes, and endoscopic tube placements

8) Monitoring and interpreting laboratory values in conjunction with clinical status; and recommends/prescribes appropriate management/treatment for abnormalities

9) Weekly anthropometric assessment of patients

10) Coordination with the ward nurses regarding screening, providing feeding formulas, using feeding pumps, and administration of oral, enteral, and parenteral nutrition support

11) Getting list of new admissions and discharged patients

12) Educating patients and their families regarding nutritional issues, especially those are discharged with supportive nutrition

13) The fellow must attend clinics where he/she will observe care and management of patients with nutritional issues supervised by a faculty member

14) The fellow must complete daily case logs to track their clinical experiences. These logs shall be reviewed regularly with the faculty advisor.

15) The fellow will be expected to present at weekly rounds, morning reports, journal clubs, and case reports.

16) The fellow may be expected to attend one conference or external meetings to present scientific topic

17) One research project during the fellowship is required. Potential research topics will be discussed at the commencement of training

10. Professional ethics

The trainees should,

1) Observe the Patient's Bill of Rights when working with the patients.
2) Observe the Rulebook for Dress Code.
3) Carefully preserve resources and equipment.
4) Truly respect faculty members, the staff, classmates, and other students and work for creating an intimate and respectful atmosphere.
5) Observe social and professional ethical considerations in criticism.

11. Evaluation

The fellowship program must demonstrate an effective mechanism for assessing the fellow's performance throughout the program and for using the results to improve performance.

a. Attitude, interpersonal relationships, fund of knowledge, manual skills, decision-making skills, and critical analysis of clinical situations will be evaluated.
b. Written feedback is given at the end of every rotation.
c. The final evaluation must include a review of the fellow's performance during the period of education and should verify that the fellow has demonstrated sufficient professional ability to practice competently and independently.