

Review**Development of Competency Framework
on Clinical Nutrition in the Philippines**

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ABSTRACT A competency framework designed for practicing clinical dietitians and educators was developed to help strengthen human resource capacity in the Philippine healthcare system. The framework consists of competency domain areas categorised as core and technical competencies specific to clinical dietitians. Competencies were identified from interviews of key persons practicing clinical nutrition. Additional data were collected from the existing literature and curricular programs on clinical nutrition. The framework can serve as valuable tool for developing curriculum program in the higher education; assessing ability and performance of clinical dietitians; and designing competency based training programs on clinical nutrition. The framework is recommended to be used by the dietary services/departments, healthcare institutions, and higher education institutions.

Keywords: clinical nutrition, competency, healthcare system, Philippines

INTRODUCTION

The Philippines is one of the many countries burdened by both communicable and non-communicable diseases. There is an increasing trend in the morbidity and mortality of non-communicable diseases which are preventable. The high cost of health care including nutrition care, poor health outcomes and low interaction with the healthcare system are contributing to the increasing prevalence of morbidity and mortality. The need to strengthen healthcare system to protect Filipinos especially the poor, marginalized, and vulnerable from high cost of health care; attain the best possible health outcomes with no disparity; and improve interactions with the healthcare system as respected, valued and empowered remains a priority (1).

Poor diet, unhealthy lifestyle and risky behaviours are known determinants of chronic degenerative diseases. The pronounced effects of chronic diseases in most organ systems on food intake and metabolism which caused nutrition-related health problems are associated to morbidity leading to death (2). Nutrition has a vital role in life and in the prevention, control, and management of diseases. Studies have shown that proper diet and best nutrition practices have improved patient outcomes and reduced health care costs (3-5). Moreover, it has been recognized that nutrition care is valuable before, during, and after hospitalization to help prevent and treat malnutrition, avert hospital-acquired conditions, reduce hospital readmissions, lower infection and complications rates, and shorten hospital stays (6).

Clinical nutrition has emerged as a relevant discipline in medicine (7). It deals with the application of nutrition strategies to prevent and manage nutritional and metabolic changes related to acute and chronic diseases and conditions caused by a lack or

excess of energy and nutrients (2,7). It can be guided by other biological sciences such as biochemistry, pharmacology and physiology; and its scientific principles and theories are applied through nutrition care process to address nutrition-related problems and provide safe and effective quality nutrition care (8).

Academic institutions can contribute to the improvement of health and nutrition situation through nutrition education either formal or non-formal strategies. However, for more than five decades since the nutrition and dietetics profession was established in the Philippines, there were only few universities that offer advanced program on clinical nutrition that strengthen the skills and competencies of Registered Nutritionist-Dietitians (RNDs). Though the practice of clinical nutrition is not totally new, there is no nationally recognized competency framework on clinical nutrition despite the rising demand for this specialization. The professional development of RNDs in clinical nutrition requires competency based education to increase their ability in the scope of the patient-health care provider interaction (8). Hence, this study aimed to identify the gaps in the competencies of RNDs on clinical nutrition; determine if there is a demand for higher education on clinical nutrition; and develop a competency framework on clinical nutrition. The framework is expected to serve as a reference for developing standards required for clinical nutritionists to competently undertake their roles in providing nutrition care in the healthcare system. The proposed framework can also serve as tool for developing curricular program in the higher education; assessing ability and performance of employees; and designing training programs as part of continuing professional development program to enhance human resource capacity, producing competent professionals that will contribute in improving the health and well-being of Filipinos.

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METHODOLOGY

Data collection

A mix of data collection methods, namely, survey and desk review, was used to identify the competencies on clinical nutrition and develop the competency framework on clinical nutrition.

Three separate surveys were done on different groups of respondents, namely, new graduates of Bachelor of Science in Nutrition and Dietetics (BSND) from different universities nationwide; practicing RNDs in private and government hospitals; and existing employers of RNDs in various sectors such as private and government hospitals, academe, government agencies and food industries using a cross sectional study design and a purposive sampling technique. A total of 509 participants responded in the three surveys. Majority of the respondents answered the survey face to face and online through google link sent via email. Meanwhile, existing employers of RNDs from various sectors were all interviewed through a scheduled phone interview. These participants were purposely chosen for their relevant inputs in the identification of competencies on clinical nutrition.

A desk review regarding curricular programs on clinical nutrition in selected universities in the Philippines and other countries was made. Sixty (60) universities from various countries offering a total of 66 clinical nutrition and other related masteral degree programs were reviewed. These universities were from the Philippines, Asia, US, Canada, Europe, and Australia. Features of courses offered, including the number of credits/units, and requirement of thesis and/or practicum were also noted. Other relevant policies in developing competency framework on clinical nutrition such as guidelines for implementation of Nutrition Care Process in hospitals (Administrative Order: 2019- 0033) and the ASEAN University Network framework, regionalization and standardization of professional qualifications in the region were also checked.

Data analysis

Descriptive statistics was used to summarize and analyse the survey results. Gaps in competencies as identified by graduates and employers were also identified. The results of the desk review were summarized according to themes. On the other hand, the competency framework was developed from the analysis of data collected. The review of existing competency framework related to clinical nutrition, existing curricula on clinical nutrition from different universities, and conducted surveys were used in constructing a proposed structure for clinical nutrition competency framework. Key features of reviewed competency framework related to clinical nutrition were identified and adapted (9-12). The identified competencies were categorised as competencies common to all members of the healthcare team, and core and technical competencies on clinical nutrition designed for practicing RNDs. Core competencies are the basic knowledge, skills, judgment and attitudes required for a clinical dietitian to function effectively in the healthcare system as work environment. On the other hand, technical competencies are the knowledge, skills, judgement and attitudes needed for a specialized role of clinical dietitian.

RESULTS

Profile of Respondents

The respondents' age ranged from 20 to 29 years old; were mostly female; and with bachelor's degree as highest educational attainment (Table 1). Some respondents who are interested to pursue a graduate program on clinical nutrition are practicing or currently employed RNDs. There were also 22 interviewed employers from government and private hospitals, academe, fitness centres, government agencies, food service and food manufacturing companies.

Table 1. Profile of respondents

Classification	New Graduates	BSND	Practicing RNDs in Various Sectors		Total	
	n =165	%	n =344	%	N = 509	%
Age (years)						
20 – 29	164	99	213	62	377	74
30 – 39	1	1	68	19	69	14
40 – 49	-	-	33	10	33	6
50 and above	-	-	21	6	21	4
*not indicated	-	-	9	3	9	2
Sex						
Male	27	16	54	16	81	16
Female	138	84	290	84	428	84
Educational Attainment						
Bachelor degree	165	100	279	81	444	87
Masteral degree	-	-	56	16	56	11
Doctoral degree	-	-	9	3	9	2

Gaps and Demands for Clinical Nutrition Course

The gaps in clinical nutrition are limited up-to-date evidence-based clinical nutrition knowledge; deficient skills and strategies in providing effective nutrition care for optimum patient outcomes; few clinical nutrition course offerings in the higher education; and limited competency-based trainings

needed for continuous professional development among the practicing clinical dietitians and educators.

There is a demand for a specialization on clinical nutrition amid the increasing prevalence of nutrition-related health problems and growing conflict of information on nutrition making nutrition practice

more complex for healthcare providers (7). The increasing number of healthcare facilities in the Philippines to cater the increasing need for health services escalates opportunities for clinical dietitians. The Nutrition and Dietetics Law of 2016 regulates the practice of the profession requiring hospitals to hire a minimum of one RND in every 25 to 75 bed capacity (Republic Act No. 10862). There is a demand for continuing professional education on clinical nutrition. This is in accordance to the government's movement towards promotion of human capacity development mandating an act strengthening the continuing professional development (CPD) program requiring all regulated professions in the Philippines to continually gain advanced knowledge, skills and ethical values in a post-licensure specialization or in an inter-or multidisciplinary field of study, for assimilation into professional practice, self-directed research and/or

lifelong learning in the Philippines (Republic Act No. 10912).

The gap between the demand for highly trained clinical nutritionists and supply of clinical nutritionists needs competency-based trainings or/and clinical nutrition course offerings in the higher education program in order to continue to produce competent clinical nutritionist. Results of the survey showed that majority (80%) of the respondents exhibited interest to enroll for a graduate program on clinical nutrition. Most of the respondents preferred a program with practicum to gain upgraded knowledge and skills in clinical nutrition and to further hone personal development. Majority were interested to gain up-dated knowledge on medical nutrition therapy on specific diseases, enhance skills in diet counseling, enhance communication and become equally competent as other members of the healthcare team (Table 2).

Table 2. Expected knowledge, skills and attitude to be gained by the prospective students from a graduate program on clinical nutrition

	New Graduates	BSND	Practicing RNDs in Various Sectors		Total	
	n = 119	%	n = 193	%	N = 312	%
Knowledge						
1. Medical Nutrition Therapy for Renal Diseases	92	77	151	78	243	78
2. Medical Nutrition Therapy for Cardiovascular Diseases	86	72	135	70	221	71
3. Medical Nutrition Therapy for Cancer	86	72	140	73	226	72
4. Medical Nutrition Therapy for Chronic Obstructive Pulmonary Diseases	62	52	116	60	178	57
5. Medical Nutrition Therapy for Gastro-Intestinal Diseases	66	55	136	70	202	65
6. Nutrient-Drug Interaction	79	66	140	73	219	70
7. Nutrition Support	69	58	142	74	211	68
8. Management of Dietary Services	73	61	118	61	191	61
9. Pharmaconutrition	82	69	123	64	205	66
10. Sport nutrition/Wellness	90	76	133	69	223	71
11. Nutrition Care Process	66	55	119	62	185	59
12. Medico-Legal Matters	60	50	85	44	145	46
13. Nutrigenetics	37	31	90	47	127	41
14. Others	3	3	10	5	13	4
Skills						
1. Diet Counseling	91	76	143	74	234	75
2. Conduct Research	76	64	99	51	175	56
3. Administering Nutrition Support	72	61	141	73	213	68
4. Administrative Clinical Management	79	66	138	72	217	70
5. Dietary Calculations	79	66	123	64	202	65
6. Diet Prescriptions	74	62	124	64	198	63
7. Management of Sports Nutrition	84	71	117	61	201	64
8. Meal Planning	70	59	114	59	184	59
9. Nutrition Assessment in Hospitals	80	67	136	70	216	69
10. Others	0	0	2	1	2	0
Attitudes/values						
1. Leadership	98	82	148	77	246	79
2. Communication	106	89	161	83	267	86
3. Networking/linkaging	92	77	122	63	214	69
4. Ethics	90	76	130	67	220	71
5. Service Oriented	95	80	131	68	226	72
6. Equally Competent as Other Members of the Healthcare Team	100	84	155	80	255	82

*multiple answer

The competencies needed are composed of interdisciplinary competencies to be developed to strengthen the knowledge and skills of RNDs in clinical nutrition (Table 3). There are competencies on human nutrition sciences and medicine that are related and relevant to development of competencies on clinical nutrition for RNDs (8).

Masteral Degree Program on Clinical Nutrition in the Philippines and Other Countries

Majority of the programs included in the review focused on clinical nutrition, nutrition, and nutrition and dietetics. Some focused on nutritional sciences and public health nutrition. Most of the programs required thesis instead of practicum. The range of equivalent units was from 12 to 60 units or 150 to 180 in terms of equivalent credits.

Table 3. Competency domains identified from reviewed course curricula and literature, and interviewed prospective students and employer.

Competency domain	Course curricula	Interviewed employer	Prospective students
Core Healthcare Professional Competencies			
Communication and Coordination	✓	✓	✓
Ethics and Professionalism	✓	✓	✓
Safety and Risk Management	✓		
Core Clinical Nutrition Competencies			
Nutritional Biochemistry	✓		✓
Nutritional Physiology and Metabolism	✓		✓
Nutrient-Drug Interaction	✓	✓	✓
Nutrition Care Process	✓	✓	✓
Nutrition Counseling and Education	✓		✓
Technical Clinical Nutrition Competencies			
Medical Nutrition Therapy for Diabetes	✓	✓	✓
Medical Nutrition Therapy for Cancer	✓	✓	✓
Medical Nutrition Therapy for Renal Diseases	✓	✓	✓
Medical Nutrition Therapy for Cardiovascular Diseases	✓	✓	✓
Medical Nutrition Therapy for Gastro-Intestinal Diseases	✓	✓	✓
Medical Nutrition Therapy for Chronic Obstructive Pulmonary Diseases	✓	✓	✓
Weight Management	✓		✓
Management of Malnutrition	✓	✓	✓
Sports Nutrition	✓	✓	✓
Nutrition Support	✓	✓	✓
Pediatric Nutrition	✓		
Nutrition in Aging	✓		

In the Philippines, only one university offers a masteral degree program on clinical nutrition (13). The rest of the universities are offering masteral degree programs in Nutrition, Applied Nutrition, Nutrition and Dietetics, and Public Health Nutrition (14-17). The MSc in Nutrition and MSc in Applied Nutrition were designed to prepare professionals for more advance work by providing in depth knowledge and research skills in nutrition in general; and to broaden perspective and increase effectiveness in the application of scientific knowledge and enhance competencies in applied research in food and nutrition and related fields, respectively. A masteral program on nutrition and dietetics has been drafted by the Technical

Committee on Nutrition and Dietetics Education in the Commission on Higher Education, but public consultation has been put on hold. The said curriculum is a vertical articulation of the BSc Nutrition and Dietetics curriculum and will set the minimum standards for a masteral program.

Filipino RNDs can also pursue education on clinical nutrition in other countries. About 66 masteral degree programs on clinical nutrition and other related fields identified are being offered in various universities abroad. Majority of the programs offering masteral degree on clinical nutrition are in Europe and North America specifically in United Kingdom and US. The review showed that a masteral degree program on Nutrition

and Dietetics focuses on preparing students for a wide range of careers as dietitians in health care, community, and private settings; as food industry specialist in public health relations and media; and as nutrition educators in health care, community or corporate health programs (18,19). A masteral program on Clinical Nutrition is similar to that of Nutrition and Dietetics Program. On the other hand, a Public Health Nutrition Program includes approaches at community level. A masteral degree program in Nutritional Sciences is focused in broadening knowledge on nutrition sciences specifically on understanding nutrients and their relationship to metabolic pathways and physiological function to clinical nutrition practice and nutrition research.

Courses under Masteral Degree Program on Clinical Nutrition

A total of 13 masteral programs on clinical nutrition with complete details on curriculum were reviewed. These masteral programs were from Philippine Women University, New York University, University of Wisconsin-Madison, University of Hohenheim, University of Texas Southwestern Medical Center, Life University, University of Nottingham, University of College London, University of Nicosia, University of Aberdeen, University of Roehampton London, and University of Glasgow (13,18-29). The courses under the said programs were grouped according to similarity and category such as either to be taken as core/compulsory or as elective/optional. Core/compulsory courses are required courses in the curriculum. On the other hand, in the elective/optional courses, students have prerogative to select courses of interest at a specified number of units. Other programs required components were thesis and/or practicum; residency; internship; or culminating experience.

Top most required courses under core/compulsory course category were medical nutrition therapy; research; nutrition and biochemistry; nutrition and metabolism; clinical nutrition in general; and other clinical nutrition-related topics such as nutritional assessment; and communication, counselling and education. Majority of the courses grouped under medical nutrition therapy includes medical nutrition therapy in acute and chronic diseases; disease related

malnutrition; and principles of diet therapy and life cycle nutrition. Generally, these courses aim to deepen knowledge in pathophysiological mechanism of nutrition related disease and its therapeutic and preventive interventions (21). On the other hand, top most elective or optional courses were research; communication, counseling and education; sports nutrition and wellness; clinical nutrition and dietetics; weight management; and pediatric nutrition. Students have the prerogative to select courses under this category. Aside from core/compulsory courses, other supporting topics relevant to clinical nutrition are placed under this category as part of courses for selection. Masteral degree program on clinical nutrition from different universities varies, depending on the demand and how university strategize and value certain topics. Hence, there were some courses placed either under core/compulsory or elective/optional category. Some of these courses were research; sports nutrition and wellness; and communication, counseling and education.

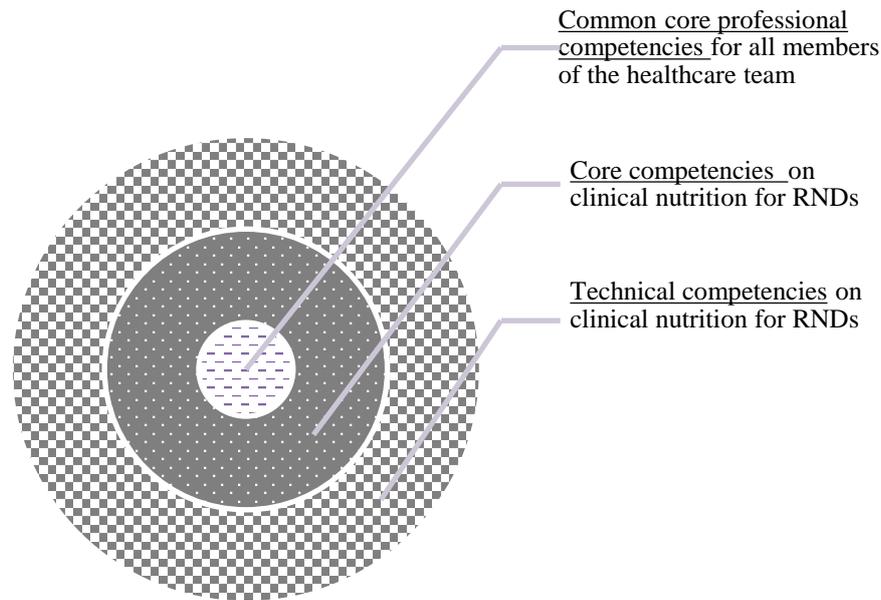
Practicum aims to provide students supervised experience in clinical dietetics through observation, practice and research in food service systems; in-patient and ambulatory nutrition care; and specialty practice settings (18,19). Students apply their academic training, furthering their competency in clinical nutrition to develop an understanding of the role of the clinical dietitian and integrate theoretical learnings in clinical nutrition as part of the healthcare team. On the other hand, thesis aims to impart knowledge on understanding applying the procedures and practices of scientific literature review and writing of a research thesis; and to provide opportunity to students to conduct a research project related to clinical nutrition (26). Majority of the programs required thesis. Thesis course normally has higher equivalent units compare to courses under core/compulsory and elective/optional because of the load of work and time needed for this course.

Competency Framework on Clinical Nutrition

Four competency framework related to clinical nutrition were reviewed and used in the development of the competency framework for Filipino RNDs (9-12). Key features of competency framework were identified as core or technical competencies (Table 4).

Table 4. Competency framework related to clinical nutrition

Framework name	Author	Competency type
Essential Practice Competencies for the Commission on Dietetic Registration's for Credentialed Nutrition and Dietetics Practitioners	Academy on Nutrition and Dietetics. Commission on Dietetic Registration	Core and Functional
An Integrated Career and Competency Framework for Dietitians	Diabetes UK. 2011	Core and Specific
Clinical Leadership Competency Framework	NHS Institute for Innovation and Improvement and Academy of Medical Royal Colleges. 2010	Core/Technical
International Competency Standards for Dietitian-Nutritionists.	International Confederation of Dietetic Associations. 2016.	Core/Technical



Competency Framework on Clinical Nutrition for Filipino RNDs

The framework organised competencies into domain. These competency domains were categorised either as core or technical competencies (9). The core competencies describe the basic knowledge, skills, judgment and attitudes required for a clinical dietitian. These are the basic expectations from a RND in the healthcare team. Meanwhile, technical competencies describe the knowledge, skills, judgement and attitudes needed for a specialized role of clinical dietitian. It often requires thorough research, training, and experience. Different job requirements were identified according to roles of clinical dietitian ranging from entry-level to supervisory positions. Job titles mentioned in the interview were clinical dietitian, therapeutic dietitian, and nutritionist-dietitian I to II for entry-level RNDs; and nutritionist-dietitian III to VI, section head, supervisor or chief dietitian for supervisory/managerial level.

There are common competencies among the members of the healthcare team that are basic but necessary to perform each job accordingly. These are communication and coordination, ethics and professionalism, and safety and risk management (9). Communication and coordination promote collaboration with other healthcare team members to achieve common goals and optimize delivery of services. Meanwhile, ethics and professionalism lead each team members to maintain respect to the code of ethics, professional obligations defined in legislation, standards and organization policies; work within the professional limitations and abilities; and applies client-centered principles in practice. The safety and risk management equip each healthcare team member to identify, analyse and manage risk; adverse event and safety to staff, client and public. Considering these categories of competency, a layered approach to building competencies common to all healthcare professional, and core and technical competencies on clinical nutrition designed for RNDs is shown in Figure 1.

CONCLUSION

The recognized important role of nutrition in the prevention, control and management of acute and chronic diseases; the expressed demand for upgraded knowledge and skills in clinical nutrition among the practicing RNDs in the healthcare facilities; and the lack of nationally recognized competency framework on clinical nutrition were the factors considered in initiating a move towards developing a competency-based approach to human resource development in the field of clinical nutrition. Hence, the Institute of Human Nutrition and Food, as one academic institution in the Philippines initiated a study to propose a competency framework on clinical nutrition specifically designed for RNDs that can serve as guide to academic and healthcare institutions in developing tools and procedure in the standardization of trainings either through formal or informal education. However, it is recognized that the proposed framework will require further review and discussion with the key institutions and beneficiaries to encourage wide adoption and use of the proposed framework.

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