



College of Dietitians of Ontario

Knowledge and Competency Assessment Tool (KCAT) Preparation Guide

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Please note: If you print a copy of this guide, periodically refer to the electronic version available on the College of Dietitians of Ontario website to ensure you have the most updated version.

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What is the purpose of the KCAT Preparation Guide?

The KCAT Preparation Guide was developed by the College of Dietitians of Ontario (CDO). The purpose of this guide is to provide internationally educated applicants with information about the Knowledge and Competency Assessment Tool (KCAT).

This is the only KCAT preparation guide that has been approved by the College of Dietitians of Ontario (CDO). No other preparation guide has been authorized, reviewed for reliability, or in any way confirmed to be representative of the KCAT questions in style, content, or format. Adequate preparation is the responsibility of each candidate. The CDO assumes no responsibility for information about the KCAT obtained from unauthorized sources.

What is the KCAT?

The Knowledge and Competency Assessment Tool (KCAT) is a multiple-choice exam designed to assess the foundational knowledge and competency of internationally educated applicants as compared to Canadian standards. CDO will utilize the KCAT results to help direct applicants to one of two pathways:

1. A Performance Based Assessment (PBA) pathway: A practical assessment that will include oral and written components to assess competency compared to standards for dietetic practice in Canada.

OR

2. Additional education and/or practical training recommended by CDO.

The KCAT is one part of a multi-stage process to assess knowledge and competency as compared to Canadian standards.

Visit <http://www.collegeofdietitians.org/applicants/registration-requirements/education-and-training/plar-process.aspx> for an overview of the full competency assessment process.

How was the KCAT developed?

In collaboration with Touchstone Institute (www.touchstoneinstitute.ca), competency evaluation experts, CDO recruited subject matter experts to determine the scope and blueprint (i.e. content areas that will appear on the exam) of the KCAT, and to develop question items.

Question items undergo thorough and multiple screenings to ensure they measure knowledge and competency, reflect current dietetic practice, and are national in scope.

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Subject matter experts involved in the development of the KCAT (e.g. scoping, blueprinting and item writing) included:

- Stakeholder groups from all areas of practice (nutrition care, population/public health and management)
- A Project Partners and Advisory Committee (PPAC) involved in the development of the larger competency assessment project
- CDO Registration Committee members
- University educators
- Representatives from the Internationally Educated Dietitians Pre-registration Program (IDPP)
- Internationally Educated Dietitians (IEDs)

How do I apply to write the KCAT?

Visit <http://www.collegeofdietitians.org/applicants/registration-requirements/education-and-training/plar-process.aspx> for details on the application process to write the KCAT.

If you are deemed eligible to write the KCAT, you will be provided with instructions on how to register and pay for the KCAT.

It is important that you keep the CDO informed of any changes to your contact information including your email, address, or phone number in order to receive all the information needed about the exam process.

How much does it cost to write the KCAT?

The cost to write the KCAT is \$400.

When and where will I write the KCAT?

The KCAT is administered one time per year. **The next administration date and location is outlined below:**

KCAT administration date	Location
February 26, 2020	Touchstone Institute 145 Wellington St. W. Toronto ON

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How is the KCAT structured?

<p>Content</p>	<ul style="list-style-type: none"> • The KCAT assesses dietetic foundational knowledge and competency as outlined in the Integrated Competencies for Dietetic Education and Practice (ICDEP). Available at: https://www.pdep.ca/library/Accreditation-Policies-and-Standards/PDEP-ICDEP-2013-.aspx. The ICDEP are the national competency standards used for the accreditation of Canadian dietetic education programs and are used by all provincial regulatory bodies to assess the qualifications of applicants. • There are 20 foundational knowledge areas and five categories of competencies. • The ICDEP were developed and validated using a national consultation process in 2010-2013 through the Partnership for Dietetics Education and Practice (PDEP). • See page 6 for details on what is assessed in the KCAT.
<p>Format</p>	<ul style="list-style-type: none"> • The KCAT is a multiple-choice exam that is completed on a computer tablet. • Orientation on how to use the computer tablet will be provided on the day of the exam.
<p>Number and type of questions</p>	<p>There are two components to the KCAT:</p> <ul style="list-style-type: none"> • The knowledge-based component of the exam consists of 92 multiple-choice questions. All knowledge-based questions are independent questions. • The competency-based component of the exam consists of 17 case scenarios and a series of 5-6 multiple-choice questions per case, for a total of 98 multiple-choice questions. • See Appendix B and C for knowledge-based and competency-based sample questions.
<p>Length</p>	<ul style="list-style-type: none"> • The knowledge component of the exam is written in the morning and the competency component is written in the afternoon. • You have 2 hours and 30 minutes to write the knowledge component and 2 hours and 35 minutes to write the competency component of the exam with a one hour break in between.
<p>Cognitive category</p>	<p>Knowledge-based component of the exam:</p> <ul style="list-style-type: none"> • Includes knowledge, application and critical thinking questions <p>Competency-based component of the exam:</p> <ul style="list-style-type: none"> • Includes application and critical thinking questions

What is assessed in the KCAT?

The KCAT assesses dietetic foundational knowledge and competency and is based on an exam blueprint. A blueprint outlines the content areas that will appear on the exam. There is one blueprint for the knowledge-based component of the exam and one for the competency-based component of the exam.

Blueprint for knowledge-based component of the exam:

The blueprint for the knowledge-based component of the exam is based on the foundational knowledge areas outlined in the Integrated Competencies for Dietetic Education and Practice (pg. 28-32). Available at: <https://www.pdep.ca/library/Accreditation-Policies-and-Standards/PDEP-ICDEP-2013.aspx>.

The distribution of questions within each foundational knowledge area is shown below.

Foundational Knowledge Area	Number of Exam Questions
Anatomy and Physiology	
<ul style="list-style-type: none"> Structure of the human body at the macro and cellular level 	4 (one per foundational topic listed)
<ul style="list-style-type: none"> Role, function and regulation of the integumentary, musculo-skeletal, nervous, endocrine, cardio-respiratory, urinary, lymphatic and digestive systems in health and disease 	
<ul style="list-style-type: none"> Homeostasis including fluid-electrolyte and acid-base balance 	
<ul style="list-style-type: none"> Genetics and nutrigenomics 	
Biochemistry	
<ul style="list-style-type: none"> Foundations of chemistry and biochemistry 	4 (one per foundational topic listed)
<ul style="list-style-type: none"> Major metabolic pathways 	
<ul style="list-style-type: none"> Foundations of cellular and molecular biology 	
<ul style="list-style-type: none"> Mechanisms of metabolic regulation 	
Communication	
<ul style="list-style-type: none"> Opportunities for and barriers to communication 	6 (one per foundational topic listed)
<ul style="list-style-type: none"> Communication channels and techniques, and their appropriate usage 	
<ul style="list-style-type: none"> Strategies for effective written communication 	
<ul style="list-style-type: none"> Strategies for effective oral communication 	
<ul style="list-style-type: none"> Strategies for effective interpersonal communication 	
<ul style="list-style-type: none"> Medical and dietetics-related terminology 	

Foundational Knowledge Area	Number of Exam Questions
Counselling	
<ul style="list-style-type: none"> • Counselling theories 	3 (one per foundational topic listed)
<ul style="list-style-type: none"> • Counselling strategies and techniques 	
<ul style="list-style-type: none"> • Counselling processes 	
Food	
<ul style="list-style-type: none"> • Physical properties and chemical composition of food 	6 (includes a sampling from the foundational topics listed)
<ul style="list-style-type: none"> • Food preservation, storage and packaging 	
<ul style="list-style-type: none"> • The role of ingredients and their interaction in food preparation 	
<ul style="list-style-type: none"> • Household food preparation 	
<ul style="list-style-type: none"> • Application of dietary requirements, guidelines, and guidance tools to food planning 	
<ul style="list-style-type: none"> • Food modification to address therapeutic, textural or other needs 	
<ul style="list-style-type: none"> • Sensory evaluation of food 	
<ul style="list-style-type: none"> • Religious and cultural food practices 	
<ul style="list-style-type: none"> • Food labeling 	
<ul style="list-style-type: none"> • Food-borne illness 	
Food Service Systems	
<ul style="list-style-type: none"> • Purchasing, receiving, storage, inventory control and disposal activities 	6 (includes a sampling from the foundational topics listed)
<ul style="list-style-type: none"> • Menu planning 	
<ul style="list-style-type: none"> • Institutional menu modification to address therapeutic, textural, cultural or other needs 	
<ul style="list-style-type: none"> • Recipe development, standardization and evaluation 	
<ul style="list-style-type: none"> • Quantity food production and distribution 	
<ul style="list-style-type: none"> • Cost control 	
<ul style="list-style-type: none"> • Human resource, financial, technical and equipment needs 	
<ul style="list-style-type: none"> • Hazard Analysis and Critical Control Points (HACCP) 	
<ul style="list-style-type: none"> • Food service facility design 	
<ul style="list-style-type: none"> • Emergency planning 	
Health System in Canada	
<ul style="list-style-type: none"> • Organization and delivery of care 	3 (one per foundational topic listed)
<ul style="list-style-type: none"> • Issues and trends 	
<ul style="list-style-type: none"> • Political influence 	

Foundational Knowledge Area	Number of Exam Questions
Human Nutrition across the Lifespan	
<ul style="list-style-type: none"> • Ingestion, digestion, absorption, metabolism and excretion of nutrients 	6 (includes a sampling from the foundational topics listed)
<ul style="list-style-type: none"> • Biochemical utilization of nutrients and energy 	
<ul style="list-style-type: none"> • Nutrient and energy requirements 	
<ul style="list-style-type: none"> • Physical activity and energy balance 	
<ul style="list-style-type: none"> • Nutrition recommendations and guidelines 	
<ul style="list-style-type: none"> • Effect of deficiencies and toxicities of nutrients 	
<ul style="list-style-type: none"> • Food sources of nutrients and dietary supplements 	
<ul style="list-style-type: none"> • Role of nutrients and other food components in health 	
<ul style="list-style-type: none"> • Dietary practices 	
Interprofessional Collaboration	
<ul style="list-style-type: none"> • Patient/client/family/community-centred care 	4 (one per foundational topic listed)
<ul style="list-style-type: none"> • Interprofessional role clarification, including the role of the dietitian 	
<ul style="list-style-type: none"> • Team functioning 	
<ul style="list-style-type: none"> • Interprofessional conflict resolution 	
Management	
<ul style="list-style-type: none"> • Financial management 	4 (one per foundational topic listed)
<ul style="list-style-type: none"> • Human resource management 	
<ul style="list-style-type: none"> • Strategic and operational planning including needs assessment, goal setting and outcome assessment 	
<ul style="list-style-type: none"> • Quality improvement 	
Microbiology	
<ul style="list-style-type: none"> • Classification of microbes 	4 (includes a sampling from the foundational topics listed)
<ul style="list-style-type: none"> • Microbes in food safety 	
<ul style="list-style-type: none"> • Host-vector spread of infection and risk management 	
<ul style="list-style-type: none"> • Microbes in food production including prebiotics and probiotics 	
<ul style="list-style-type: none"> • Microbiome in human health 	
Nutrition Assessment	
<ul style="list-style-type: none"> • Food and nutrient intake of individuals and populations 	6 (one per foundational topic listed)
<ul style="list-style-type: none"> • Environmental and individual factors affecting food intake 	
<ul style="list-style-type: none"> • Anthropometric data collection and interpretation 	
<ul style="list-style-type: none"> • Biochemical parameter interpretation 	
<ul style="list-style-type: none"> • Clinical data collection and interpretation 	
<ul style="list-style-type: none"> • Surveillance and monitoring data collection and interpretation 	

Foundational Knowledge Area	Number of Exam Questions
Nutrition Care Process and Medical Nutrition Therapy	
<ul style="list-style-type: none"> • Etiology and pathophysiology of nutrition-related diseases 	6 (includes a sampling from the foundational topics listed)
<ul style="list-style-type: none"> • Nutrition-related disease management strategies 	
<ul style="list-style-type: none"> • Use of assessment, diagnosis, intervention, monitoring, evaluation (ADIME) in medical nutrition therapy 	
<ul style="list-style-type: none"> • Calculation of energy and nutrient requirements for conditions/diseases 	
<ul style="list-style-type: none"> • Goal setting and outcome measurement in nutrition therapy 	
<ul style="list-style-type: none"> • Oral, enteral, and parenteral nutrition support 	
<ul style="list-style-type: none"> • Feeding assessment, including identification of chewing, swallowing and feeding problems 	
<ul style="list-style-type: none"> • Complementary and alternative nutrition therapies 	
Pharmacology	
<ul style="list-style-type: none"> • Drug classifications relevant to nutrition and their modes of action 	4 (includes a sampling from the foundational topics listed)
<ul style="list-style-type: none"> • Common medication side effects and contraindications relevant to nutrition 	
<ul style="list-style-type: none"> • Drug-nutrient interactions 	
<ul style="list-style-type: none"> • Nutrients and nutraceuticals as pharmacological agents 	
<ul style="list-style-type: none"> • Natural health products 	
Population Food Systems and Food Security	
<ul style="list-style-type: none"> • Food production, preparation, processing, distribution and waste management 	6 (includes a sampling from the foundational topics listed)
<ul style="list-style-type: none"> • Global and local food systems and factors affecting the supply of food 	
<ul style="list-style-type: none"> • Sustainable food practices 	
<ul style="list-style-type: none"> • Food markets and marketing of food 	
<ul style="list-style-type: none"> • Factors affecting access to food 	
<ul style="list-style-type: none"> • Disaster planning 	
<ul style="list-style-type: none"> • Food consumption patterns and trends 	
Professional Practice in Dietetics	
<ul style="list-style-type: none"> • Federal, provincial / territorial requirements 	6 (includes a sampling from the foundational topics listed)
<ul style="list-style-type: none"> • Practice in a regulated health profession 	
<ul style="list-style-type: none"> • Ethical conduct 	
<ul style="list-style-type: none"> • Reflective practice 	
<ul style="list-style-type: none"> • Professional development 	
<ul style="list-style-type: none"> • Decision making 	
<ul style="list-style-type: none"> • Time and workload management 	

Foundational Knowledge Area	Number of Exam Questions
<ul style="list-style-type: none"> • Role of research and new knowledge • Evidence informed practice • Literature search strategies • Technological applications used in practice • Appropriate and secure documentation practices • Strategies for assessing and enhancing approaches to practice • Advocacy 	
Population and Public Health	
<ul style="list-style-type: none"> • Frameworks for population and public health • Strategies for public and population health including health promotion, education, advocacy, community development and partnerships • Policies, standards and guidelines for public health nutrition • Values and philosophy of public and population health • Program planning in public and population health • The determinants of health 	<p>6 (one per foundational topic listed)</p>
Social and Psychological Foundations	
<ul style="list-style-type: none"> • Behavioural theories relevant to eating and food choice • Social and psychological aspects of eating and food choice, in health and disease • Relationship between mental health and nutrition • Social justice, diversity and equity in society • Cultural competence 	<p>4 (includes a sampling from the foundational topics listed)</p>
Teaching and Learning	
<ul style="list-style-type: none"> • Theories of teaching and learning • Strategies to assess teaching and learning needs • Development and assessment of learning outcomes • Strategies to address the teaching and learning needs of individuals and populations • Learning resource selection and development 	<p>4 (includes a sampling from the foundational topics listed)</p>

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Blueprint for competency-based component of the exam:

The competencies outlined in the Integrated Competencies for Dietetic Education and Practice (pg. 5-27) were used as the basis for developing the blueprint for the competency-based component of the exam. Available at: <https://www.pdep.ca/library/Accreditation-Policies-and-Standards/PDEP-ICDEP-2013-.aspx>.

The distribution of cases and questions within each competency area is shown below.

Competency area	Number of cases	Number of exam questions
Nutrition Care	<p>Ten cases on the following topics (may include comorbidities):</p> <ol style="list-style-type: none"> 1. Energy balance and body weight 2. Cardiovascular disease 3. Upper gastrointestinal tract diseases 4. Lower gastrointestinal tract diseases 5. Liver, gallbladder and pancreatic diseases 6. Renal disease 7. Neurological disease and disorders 8. Neoplastic disease 9. Food allergies/intolerances 10. Malnutrition 	<p>6 questions addressing:</p> <ol style="list-style-type: none"> 1. Assessment 2. Planning 3. Implementation 4. Evaluation 5. Communication and Collaboration 6. Professional Practice
Population and Public Health	<p>Three cases on the following topics:</p> <p>TWO cases related to:</p> <ol style="list-style-type: none"> 1. Population level programming intervention and monitoring (with attention to priority groups if applicable) <ul style="list-style-type: none"> • Subtopics may include one of the following: <ol style="list-style-type: none"> i. Frameworks for population and public health ii. Strategies for population and public health including health promotion, education, advocacy, community development and partnerships iii. Policies, standards and guidelines for public health nutrition 	<p>6 questions addressing:</p> <ol style="list-style-type: none"> 1. Assessment 2. Planning 3. Implementation 4. Evaluation 5. Communication and Collaboration 6. Professional Practice

Competency area	Number of cases	Number of exam questions
	<ul style="list-style-type: none"> iv. Values and philosophy of population and public health v. Program planning in population and public health vi. The determinants of health <p>ONE case related to:</p> <p>2. Food systems and food security (with attention to priority groups if applicable)</p> <ul style="list-style-type: none"> • Subtopics may include one of the following: <ul style="list-style-type: none"> i. Food production, preparation, processing, distribution and waste management ii. Global and local food systems and factors affecting the supply of food iii. Sustainable food practices iv. Food markets and marketing of food v. Factors affecting access to food vi. Disaster planning vii. Food consumption patterns and trends 	
Management	<p>Four cases on the following topics:</p> <p>1. Food services systems management with a focus on menu planning.</p> <ul style="list-style-type: none"> • Subtopics may include one of the following: <ul style="list-style-type: none"> i. Institutional menu modification to address therapeutic, textural, cultural or other needs ii. Religious and cultural food practices iii. Food modification to address therapeutic, textural or other needs 	<p>5 questions¹ addressing:</p> <ul style="list-style-type: none"> 1. Assessment 2. Planning 3. Implementation 4. Communication and Collaboration 5. Professional Practice

¹ The Management cases only include 5 questions: Assessment, Planning, Implementation, Communication and Professional Practice. The Evaluation question is omitted since evaluation is integrated in the ICDEP Management competencies.

Competency area	Number of cases	Number of exam questions
	<ul style="list-style-type: none"> iv. Application of dietary requirements, guidelines, and guidance tools to food planning <p>2. Food services systems management with a focus on purchasing, receiving, storage, inventory, control and disposal services.</p> <ul style="list-style-type: none"> • Subtopics may include one of the following: <ul style="list-style-type: none"> i. Recipe development, standardization and evaluation ii. Quantity food production and distribution iii. Cost control iv. Human resource, financial, technical and equipment needs v. Hazard Analysis and Critical Control Points (HACCP) vi. Food service facility design vii. Emergency planning <p>3. Management with a focus on human resource management</p> <p>4. Management</p> <ul style="list-style-type: none"> • Subtopics may include the following: <ul style="list-style-type: none"> i. Financial management ii. Strategic and operational planning including needs assessment, goal setting and outcome assessment iii. Organizational behavior and development iv. Project management v. Regulations, policies and procedures vi. Marketing vii. Quality improvement 	

Other information

Practice settings

The following outlines the possible practice settings used in the KCAT:

- Hospital acute care institutions (adult and pediatric)
- Hospital chronic care institutions (adult and pediatric) and rehabilitation centres
- Long-Term Care homes
- Home based care
- Community based settings (e.g. diabetes education centre, community health centre, public health department)
- Primary health care settings
- Schools
- Government/institutions
- Industry
- Private practice
- Non-governmental organizations (NGOs)
- Correctional facilities
- Educational institutions

Practice settings are defined in the KCAT. For example, if “Long-Term Care home” appears on the KCAT, it will include the following definition:

A Long-Term Care home is a facility where adults with chronic conditions live with assistance for daily activities, nursing and personal care.

While the setting may help to provide context, you are being assessed on your knowledge and competency, not your knowledge of the practice setting.

Clients

The clients presented in the KCAT may be:

- An individual client
- A group of clients
- Colleagues, staff members, family members
- An employer, employee, organization
- A community, population etc.

Language use and cultural context

The KCAT underwent a review to ensure clarity of language use and minimal cultural bias. Any questions that require knowledge of the Canadian cultural context are assessed at entry-level dietetic practice and not beyond.

Foods

Some foods that may be commonly unfamiliar to internationally educated applicants are defined in the KCAT.

Dietetics-related terminology

Dietetics-related terminology is not defined in the KCAT.

How do I read exam questions?

Each multiple-choice question has three to four response options. Only one option is the correct answer. The other two to three options are incorrect, otherwise known as “distractors”.

Distractors are designed to:

- Reveal faulty knowledge, comprehension of knowledge or critical thinking.
- Be plausible with faulty reasoning, or inappropriate assumptions.
- Be plausible with inadequate reading (i.e. pay attention to key words, such as ‘what is the first step’).
- Lack comprehensiveness (i.e. may be accurate, but not comprehensive in nature).

When will I receive my results?

You will receive your KCAT results within 8-10 weeks of the exam date from CDO.

What will the results tell me?

CDO will utilize the KCAT results to help direct applicants to one of two pathways:

1. A Performance Based Assessment (PBA) pathway: A practical assessment that will include oral and written components to assess competency compared to standards for dietetic practice in Canada.

OR

2. Additional education and/or practical training recommended by CDO.

What KCAT policies should I be aware of?

KCAT policies and procedures are available on the CDO website. Click here to view:
<http://www.collegeofdietitians.org/programs/registration/plar-policies.aspx>.

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Appendix A: Suggested resources

The purpose of the KCAT is to assess your current knowledge and competency as compared to the standards of dietetics practice in Canada. Your formal education, practical training and work experience should have helped to prepare you for the KCAT. To help you determine what and how much additional preparation is required, we strongly recommend that you:

1. Review the blueprints for the knowledge- and competency-based components of the KCAT found in this Preparation Guide

- The blueprints identify the distribution of test items within each knowledge and competency area that will be assessed in the KCAT.
- You may also wish to review the foundational knowledge areas and competencies in the Integrated Competencies for Dietetic Education and Practice (ICDEP), which are the foundation for the KCAT blueprints. Available at: <https://www.pdep.ca/library/Accreditation-Policies-and-Standards/PDEP-ICDEP-2013-.aspx>.

2. Visit and complete the Canadian Dietetic Practice Orientation and Self-Assessment Tool (OSAT) available at www.dietitiansselfassessment.ca

- The OSAT will provide you with an orientation to Canadian Dietetic Practice, and assist you in reflecting on your knowledge and skills compared to the standards required to practice dietetics in Canada. This website is for informational purposes only and is offered free of charge.
- It is recommended that you read all the content of the website, then sign up to “**Complete My Self-Assessment**”. The Self-Assessment section builds on the content described in the website.
- Once you have completed your self-assessment, you will find resources within the website that may help you further explore dietetic practice in Canada. Please see the “**Resources**” section for further detail. The resources provided may be used in Canadian dietetic education and training programs, as well as in Canadian bridging programs and processes. Please keep in mind that this list is not exhaustive and is for general reference only.

Any specific information you enter on this website will not be available to any provincial dietetic regulatory body. Only summarized anonymous data on the website’s usage will be collected for monitoring and evaluation purposes. Your self-assessment survey has no impact on the KCAT or the registration process.

3. Review suggested learning resources

Once you have noted any learning needs or areas you may need to strengthen, you may wish to consult learning resources as needed. It is your responsibility to find suitable resources that address your specific learning needs.

You may wish to review textbooks, websites, practice guidelines, etc. used in nutrition and food undergraduate education programs and in dietetic practical training.

Please note: The following learning resource list provides some examples of publications which may be used in Canadian dietetic education and training programs. This is not an exhaustive list and is for general reference only. These learning resources are not necessarily the only materials available, nor necessarily the sources of KCAT exam questions.

Public reference libraries or university libraries may have resources for your preparation. You may wish to consult library catalogues online first. Generally, university libraries are publicly accessible and visitors can browse the print collection and may use materials onsite.

Anatomy and Physiology

Martini, F.H., Nath, J.L., Bartholomew, E.F. (2015). Fundamentals of Anatomy and Physiology (10th Ed.). Pearson Canada.

Biochemistry

Hardin, C.C., Knopp, J.A. (2013). Biochemistry: Essential Concepts. Oxford University Press, Online version.

Microbiology

Prescott, L.M., Harley, J.P., Klein, D.A. (2005). Microbiology (6th Ed.). Dubuque, IA: McGraw-Hill Higher Education.

Santos, D.M. (2012). Recent Advances in Microbiology. Toronto, ON: Apple Academic Press Inc.

Food

Scheule, B., Bennion, M. (2015). Introductory Foods. (14th Ed.). Upper Saddle River, NJ: Pearson Education, Inc.

Metabolism and Human Nutrition

Brown, J.E. (2011). Nutrition through the lifecycle (4th Ed.). Belmont, CA: Wadsworth, 2011.

Gropper, S.S., Smith, J.L., Groff, J.L. (2013). Advanced Nutrition and Human Metabolism (6th Ed.). USA: Wadsworth Cengage Learning.

Rolfes, S.R., Pinna, K., Whitney, E. (2009). Understanding normal and clinical nutrition (8th Ed.). Belmont, CA: Wadsworth.

Human Nutrition across the lifespan

Health Canada. (2007). Choosing foods: Canada's Food Guide. Retrieved from <http://www.hc-sc.gc.ca/fn-an/food-guide-aliment/choose-choix/index-eng.php>

Health Canada. (2011). Prenatal Nutrition. Related Resources for Pregnant Women. Retrieved from <http://www.hc-sc.gc.ca/fn-an/nutrition/prenatal/index-eng.php>

Health Canada, Canadian Paediatric Society, Dietitians of Canada, and Breastfeeding Committee for Canada. (2014). Nutrition for healthy term infants: Recommendations from birth to six months. Retrieved from <http://www.hc-sc.gc.ca/fn-an/nutrition/infant-nourisson/recom/index-eng.php>

Otten, J.J., Hellwig, J.P., Meyers, L.D. (2006). Dietary Reference Intakes: The essential guide to nutrient requirements. Washington, DC: The National Academies Press.

Smolin, L.A., Grosvenor, M.B. (2012). Nutrition: Science and Applications. (3rd Ed.). New York: Wiley.

Nutrition Care

Academy of Nutrition and Dietetics. (2013). Determining the Severity of Unintended Weight Loss. Retrieved from http://www.andeal.org/files/Docs/ON%20Determining%20Severity%20of%20UWL_07032013.pdf

American Society for Parenteral and Enteral Nutrition. (2015). Clinical Guidelines. Retrieved from https://www.nutritioncare.org/Guidelines_and_Clinical_Resources/Clinical_Guidelines/

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Appendix B: Knowledge-based sample questions

Below is a sample of twenty-nine knowledge-based sample questions. See page 39 for answers and rationales.

1. One of your clients has had surgery, which resulted in the need to take supplementary forms of amylase and lipase. Which organ was most likely operated on?

- a. The stomach
- b. The pancreas
- c. The liver
- d. The colon

2. Your client has been following a low carbohydrate (CHO) diet daily for the past six months. She has been consistently consuming less than 80 grams of CHO per day. What is the primary endogenous component contributing to gluconeogenesis for this client?

- a. Free fatty acids
- b. Glucose
- c. Amino acids
- d. Either amino acids or fatty acids

3. You are a dietitian working at a community health centre*. You are counselling your client on the importance of taking a folic acid supplement when planning to become pregnant. What is the best way to help your client make an informed decision about taking a folic acid supplement?

**An organization that delivers primary healthcare services in the community.*

- a. Ask your client to review an information pamphlet about folic acid to determine the amount she should take as a daily supplement
- b. Describe to your client how folic acid has a role in cell division, and synthesis of amino acids and nucleic acids in DNA
- c. Explain why folic acid is essential in the early stages of pregnancy
- d. Suggest your client take more than 1000 mcg of folic acid if she has a family history of neural tube defects

4. You are a dietitian working as a Food Service Manager for a university cafeteria. You have been asked to determine the potential labour savings of closing the cafeteria on weekends. Currently the cafeteria is staffed for 15 hours on Saturdays and 15 hours on Sundays. A full time position in the department is paid for 37.5 hours per week. What is the reduction in full-time equivalents (FTEs) if the cafeteria were closed on weekends?

- a. 0.4 FTE
- b. 0.8 FTE
- c. 1.0 FTE
- d. Cannot calculate the reduction in FTE based on information provided

5. You are meeting with a client for an initial assessment to discuss ways to increase his physical activity. The client reports he has been gathering information about group exercise classes offered in his neighbourhood to see what options suit his current schedule. He has also purchased a pedometer (a step counter) recently, although he has not started to use it yet. According to the Transtheoretical Model (Stages of Change), what stage is this client in with respect to starting a physical activity routine?

- a. Preparation
- b. Precontemplation
- c. Action
- d. Contemplation

6. The Food Service Department at a Long Term Care home* has a Dietary Aide who has been trained to prepare all of the foods that are required for therapeutic diets, including thickened products. The following standardized recipe below is used to prepare a thickened strawberry and banana puree (nectar consistency). This thickened product is used for residents with dysphagia.

Strawberries, fresh	450 grams	Puree the banana with the strawberries until the desired nectar consistency is achieved.
Banana, fresh	1 each	

The recipe has always produced consistent and acceptable results. However, when the Dietary Aide prepared the recipe according to the quantities required, she produced a product that was too thin and not suitable for diets requiring nectar consistency. What is the likely reason for the undesirable consistency?

**A Long-Term Care home is a facility where adults with chronic conditions live with assistance for daily activities, nursing and personal care.*

- a. The Dietary Aide does not know how to properly identify nectar consistency
- b. Too much banana was added and therefore, the standardized recipe was not followed
- c. The product was not allowed to set for a sufficient period of time
- d. The fresh strawberries have a high water content

7. Your client is a 35-year-old female with no known medical concerns. Her aim is to increase the healthy options in her diet, while maintaining her current weight. She is currently not physically active. You assess her 3-day diet history and your analysis reveals a dietary pattern consisting of: 2000 kcal with 620 kcal coming from

carbohydrate, 740 kcal coming from protein and 640 kcal coming from fat. Based on your assessment, how would you guide your client with respect to food choices based on the overall macronutrient distribution of her diet?

- a. Increase carbohydrate intake and maintain protein intake
- b. Maintain current intake of carbohydrate, protein and fat
- c. Increase carbohydrate intake and decrease fat intake
- d. Increase carbohydrate intake and decrease protein intake

8. You are a dietitian working in a Long Term Care home.* You review the 7 day non-selective puree diet menu cycle and determine that one of the days is low in overall protein. Which of the following foods would be appropriate to consider adding?

**A Long-Term Care home is a facility where adults with chronic conditions live with assistance for daily activities, nursing and personal care.*

- a. Vanilla yogurt (175 grams)
- b. Fried egg (1)
- c. Cheddar cheese (15 grams)
- d. Applesauce (125 mL)

9. The Food Service Manager has reviewed patient satisfaction ratings at an acute care hospital*. The Regular Menu received a “poor” rating on its variety. As the dietitian, you have been asked to make recommendations regarding the menu in order to improve this rating. You begin by reviewing hospital statistics. You determine that the average patient length of stay for all units except the Transitional Care Unit** is 5 – 7 days. The average length of stay for the Transitional Care Unit (TCU) is 4 weeks. What should your recommendation be to improve the variety of the Regular Menu while being cost effective and minimizing wastage?

**Hospital-based health care for short-term or severe health issues.*

***A Transitional Care Unit is the unit where patients stay when they are waiting to move from one healthcare setting to another or back home.*

- a. Provide all units except TCU with a non-selective menu. Provide TCU with a 7 day cycle selective menu.
- b. Provide all units except TCU with a non-selective menu. Provide TCU with a 21 day cycle selective menu.
- c. Provide all units except TCU with a static (restaurant) style menu. Provide TCU with a non-selective menu.
- d. Provide all units except TCU with a static (restaurant) style menu. Provide TCU with a 21 day cycle selective menu.

10. An acute care hospital* is planning for major renovations. The Food Service Manager is considering changing from the current centralized meal assembly system to a decentralized meal assembly system. What is the most likely effect on staffing hours if the hospital changes to decentralized meal assembly?

**Hospital-based health care for short-term or severe health issues.*

- a. An increase in staffing hours
- b. A decrease in staffing hours
- c. No change in staffing hours

11. An acute care hospital* is planning to build a 30 bed maternity ward. The proposal includes a cafeteria style dining room to provide food services to the patients on this ward. The equipment costs are estimated to be \$50,000. The cafeteria will have Food Service staff from 7 a.m. to 7 p.m. daily. The annual staffing costs are projected to be \$70,000. Patients will not be charged for their meals, however visitors and staff will be. The annual revenues are projected to be \$20,000. Based on the projections, what is your estimate for the capital budget?

**Hospital-based health care for short-term or severe health issues.*

- a. \$ 50,000
- b. \$ 70,000
- c. \$100,000
- d. \$120,000

12. You are responsible for coordinating and delivering a nutrition screening program for pre-school aged children (2.5-4 years) to detect nutrition and health issues. What planning tool will best convey the program's resources, activities and expected outcomes to stakeholders involved in the nutrition screening program?

- a. A logic model
- b. A problem-solution tree
- c. A stakeholder analysis

13. In addition to Vitamin B6, which micronutrients are priorities for a 72-year-old male client?

- a. Vitamin B12, Vitamin D, Protein
- b. Vitamin D, Calcium, Iron
- c. Vitamin B12, Calcium, Vitamin D
- d. Vitamin B12, Calcium, Vitamin A

14. You are a dietitian working in a Rehabilitation Facility*. One of your clients has been receiving nasogastric tube (NG) feeding for the past month after his stroke. The client continues to require this feeding route following assessments by the speech language pathologist (SLP). When you visit the client today, he tells you that he feels better and has been independently drinking sips of juice and pureed fruit provided by his family members. He tells you that he is not coughing and feels confident that he can start eating foods orally in addition to his tube feeds. How should you proceed?

**An organization that delivers services to those with physical impairments or disabilities in order to improve and/or restore functional ability and quality of life.*

- a. Let the client know that he should never be started on thin fluids before trialing thickened fluids first
- b. Watch the client swallow the juice and pureed fruit to make your own assessment of his swallowing ability
- c. Contact the SLP to re-assess the client's swallowing ability
- d. Let the client know that he will receive one pureed food option per meal to assess if he can safely swallow this texture before proceeding further

15. The Hospital Board and Hospital President have developed a 10 year strategic plan for the acute care hospital*. You are the dietitian working as the Food Service Manager. What should you develop to align the Food Service Department's operations with the hospital's strategic plan?

**Hospital-based health care for short-term or severe health issues.*

- a. A business plan that will include analysis of current departmental strengths and weaknesses
- b. A standing operational plan that will include policies and procedures related to the strategic plan
- c. An executive summary that will include a brief summary of Food Service initiatives that can support the strategic plan
- d. An evaluative summary of departmental performance

16. You are a dietitian working as a Food Service Manager in a rehabilitation facility*. You are working towards the goal of implementing an effective continuous quality improvement program for patient meal delivery because patient surveys indicate that improvements to various aspects of meal delivery are needed. How should you establish clear and concise objectives to address this issue?

**An organization that delivers services to those with physical impairments or disabilities in order to improve and/or restore functional ability and quality of life.*

- a. Ensure that the objectives are written solely by the individual who has established the goal, in this case the Food Service Manager
- b. Ensure the objectives are achievable in one year
- c. Ensure the objectives are specific and measurable
- d. Ensure the objectives are written with input from all members of the Food Service Department

17. An acute care hospital* outsources patient meals. Fully cooked individual meals are received chilled, and reheated immediately prior to patient service. The Public Health Inspector** has performed a random inspection and determined that the meals are not being reheated to acceptable standards. The Inspector reviews the daily temperature recording sheets and notices that a standard for the acceptable temperature for reheating and serving hot meals is not indicated. You are asked to revise the temperature recording sheets to include the correct standard. What should you include on the temperature recording sheets?

**Hospital-based health care for short-term or severe health issues.*

***Public Health Inspectors are certified inspectors that inspect various premises (including hospitals etc.) in order to ensure compliance with relevant legislation.*

- a. Reheat meals to a minimum internal temperature of 64°C – referencing the hospital’s website
- b. Reheat meals to a minimum internal temperature of 74°C – referencing Health Canada’s website
- c. Reheat meals to a minimum internal temperature of 60°C – referencing Health Canada’s website
- d. Reheat meals to a minimum internal temperature of 165°F – referencing United States federal standards

18. You have received a referral from a physician to assess a male client for unintentional weight loss after a recent diagnosis of gastric cancer. The client’s body weight three weeks ago was 253 lb (115 kg); this was his usual body weight. He now weighs 238 lb (108 kg). He is 5’8” (173 cm) tall. How should you interpret this information?

- a. The client’s current BMI is 36.1 kg/m². He has had an unintentional weight loss of 6% of his usual body weight in three weeks, which represents severe weight loss.
- b. The client’s current BMI is 36.1 kg/m². He has had an unintentional weight loss of 6% of his usual body weight in three weeks.
- c. The client has had an unintentional weight loss of 15 lb (7 kg) in three weeks. This weight loss is not concerning since his BMI is in the obese range.
- d. The client has had an unintentional weight loss of 15 lb (7 kg) in three weeks. This is concerning since he has been diagnosed with gastric cancer.

19. You are meeting with a client with End Stage Renal Disease (ESRD) for an initial assessment. In addition to her ESRD, she has also been living with Type 2 Diabetes for 25 years.

Her blood values are as follows: The normal reference range values are added in parenthesis.

- Potassium: 5.4 mmol/L (3.5-5 mmol/L)
- Phosphate: 1.6 mmol/L (0.8-1.5 mmol/L)
- Fasting blood glucose: 7.5 mmol/L (3.3-5.8 mmol/L)
- Sodium: 130 mmol/L (135-145 mmol/L)

Which blood value should you address first in your counselling session?

- a. Potassium
- b. Phosphate
- c. Fasting blood glucose
- d. Sodium

20. Your client is a 78-year-old male who was recently admitted to hospital with a myocardial infarction. He is currently stable and awaiting discharge to a rehabilitation facility*. He just finished his lunch and you notice that he has not eaten the piece of chicken or bread roll from his meal tray. He tells you that he has new dentures that are not fitting properly and it is difficult to chew harder foods. A denturist has been consulted. You determine from his medical chart that his weight has been relatively stable. What should you do?

**An organization that delivers services to those with physical impairments or disabilities in order to improve and/or restore functional ability and quality of life.*

- a. Suggest that the Speech Language Pathologist (SLP) assess the client for swallowing difficulties
- b. Change the client's diet to pureed textures and thickened fluids
- c. Ask the client what type of foods he was tolerating at home
- d. Change the client's diet to minced texture and regular fluids

21. Your client has been receiving nasogastric (NG) tube feeding for the past two weeks. Her feeds are running continuously for 24 hours per day and she is tolerating them well. She recently developed a urinary tract infection and is scheduled to start ciprofloxacin (an antibiotic) twice daily via intravenous route. What should you do?

- a. Stop her tube feeds for 2 hours pre- and post-administration of the ciprofloxacin because there is risk of interaction between the antibiotic and the enteral formula

- b. Ask the physician if it is possible to provide a different antibiotic because there is a risk of interaction between the antibiotic and enteral formula
- c. Do not change her tube feeding schedule because there is no need
- d. Let the client know that she will be starting on this antibiotic and to tell you if it affects her tolerance to her tube feeds

22. You are conducting a literature review on the vegetable and fruit intake of school-aged children (aged 5-14 years). You would like to know more about the consumption patterns of children in your particular public health unit* jurisdiction. What information source is most appropriate to determine the self-reported vegetable and fruit intake in this population?

**A health agency located in an urban or rural municipality that provides community-based health promotion and disease prevention programs.*

- a. Statistics of vegetable and fruit sales across the province
- b. Regional survey results on vegetable and fruit intake consumption patterns of school-aged children
- c. A survey of vegetable and fruits available in elementary school cafeterias
- d. Canada-wide survey results on vegetable and fruit intake consumption patterns of school-aged children

23. You are a dietitian delivering a diabetes group education session in the community and notice that many participants seem uninterested in the information you are presenting. The participants give you feedback that the sessions seem long and include too much information. For your own continuous learning, what is the best strategy to help you address the feedback provided by participants?

- a. Advocate for increased funding to purchase more attractive food models and other engaging teaching tools
- b. Review your education session plan and confirm you are providing all the necessary information to meet participants' needs
- c. Reflect on what you might do differently in order to focus on the key messages for your audience and encourage better participation
- d. Conduct a pre- and post-survey to determine if participants have learned the most critical information about diabetes management

24. A nurse asks you to deliver a workshop to new mothers about introducing solid foods to their babies. The nurse tells you that many of the mothers have expressed interest in vegetarian options for their babies. Which iron-rich solid foods are appropriate vegetarian options for the babies?

- a. Well-cooked mashed eggs, tofu, lentils or beans

- b. Well-cooked mashed sweet potato and squash, soft-cooked pieces of broccoli and carrot
- c. Full fat yogurt and cow's milk, fortified with Vitamin D

25. You work for a provincial government agency that includes delivering services focused on cancer prevention and treatment. You would like to influence public attitudes about increasing fibre consumption as a way to lower the risk of colorectal cancer. What is the best health promotion strategy to meet this objective?

- a. Plan a social marketing campaign for the general public that identifies the protective health benefits of fibre
- b. Develop an educational workshop for seniors living in the community about the protective health benefits of fibre, since they are at greater risk for colorectal cancer
- c. Advocate for a tax on convenience foods which have low fibre content (less than 2 grams per serving)
- d. Conduct grocery store tours to educate the general public on reading the Nutrition Facts Panel to increase fibre consumption

26. You are part of a team of health practitioners who are evaluating the impact of a health and well-being program for at-risk pregnant women. The program has been running for five years. The program's goal is to increase the number of mothers who carry their infants to term and have a healthy pregnancy, with limited complications. Your stakeholders are considering renewing the funding for the program and want to learn more about the impact of the program. What type of evaluation should you conduct?

- a. Formative evaluation
- b. Summative evaluation
- c. Process evaluation
- d. It is too soon to conduct an evaluation

27. You are a dietitian working with immigrant and refugee populations in a community health centre*. You are conducting a situational assessment to advocate for more federal funding for cooking programs for immigrant and refugee populations across Canada. You would like to include information about the prevalence and degree of reported food insecurity (i.e., mild, moderate, severe) in the last year in Canada to demonstrate why this is an important public health issue. Where should you find the most relevant information to support your situational assessment?

**An organization that delivers primary healthcare services in the community.*

- a. Ask your clients to self-identify the degree of food insecurity they have experienced on a monthly basis

- b. Ask your female clients how often they cook from scratch
- c. Review the most recent scholarly literature on the proportion of Canadians who experience household food insecurity in the last year
- d. Review local food bank survey findings to determine the proportion of the population who experience household food insecurity in the last year

28. You have been asked to develop a written information pamphlet for employees in a factory who do shift work*. The focus of the resource is how to pack healthy meals and snacks while working. What are the most important messages to include in the pamphlet?

**Shift work refers to work done in recurring time periods in which different groups of workers do the same jobs in rotation (e.g. throughout a full 24-hour period). It can involve overnight shifts, early morning shifts etc.*

- a. The challenges of eating healthy while working shifts, and practical tips that address these challenges which are realistic and achievable to promote nutritional well-being
- b. The challenges of working shifts instead of a regular job, and the negative impact of shift work on nutritional well-being
- c. The importance of following Canada's Food Guide and eating a variety of foods from the four food groups.
- d. The importance of limiting fat intake while working overnight shifts since metabolism slows down during the nighttime, and practical tips on how to limit fat intake

29. You are delivering an osteoporosis prevention workshop in the community for older adults who identify with a specific ethnocultural group. You are not sure whether the group consumes Milk and Milk Alternatives as part of their daily diet. How should you best address this issue during the workshop?

- a. Share recent scholarly literature about the importance of Milk and Milk Alternatives as the best sources of calcium and vitamin D
- b. Discuss recent media reports about the importance of being physically active outdoors to increase bone strength and to get adequate exposure to sunlight, which provides Vitamin D
- c. Ask the group to discuss their food preferences prior to discussing calcium and vitamin-D rich foods
- d. Present Canada's Food Guide and talk about the serving sizes of Milk and Milk Alternative products

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Answers to knowledge-based sample questions

1. One of your clients has had surgery, which resulted in the need to take supplementary forms of amylase and lipase. Which organ was most likely operated on?

- a. The stomach
- b. The pancreas
- c. The liver
- d. The colon

	Correct? Y/N	Rationale
a.	N	See rationale for b.
b.	Y	Both lipase and amylase are pancreatic enzymes that often require supplementation post pancreatic surgery.
c.	N	See rationale for b.
d.	N	See rationale for b.

Foundational knowledge area
Anatomy and Physiology <ul style="list-style-type: none"> • Role, function and regulation of the integumentary, musculo-skeletal, nervous, endocrine, cardio-respiratory, urinary, lymphatic and digestive systems in health and disease

2. Your client has been following a low carbohydrate (CHO) diet daily for the past six months. She has been consistently consuming less than 80 grams of CHO per day. What is the primary endogenous component contributing to gluconeogenesis for this client?

- a. Free fatty acids
- b. Glucose
- c. Amino acids
- d. Either amino acids or fatty acids

	Correct? Y/N	Rationale
a.	N	While dietary fat can sometimes be used in gluconeogenesis, glycerol is released from the oxidation of a fat molecule, not the free fatty acids.
b.	N	Gluconeogenesis is the formation of glucose from non-carbohydrate sources.
c.	Y	Amino acids are the primary substrate used in gluconeogenesis.
d.	N	See rationale for a.

Foundational knowledge area
Biochemistry <ul style="list-style-type: none"> • Major metabolic pathways

3. You are a dietitian working at a community health centre*. You are counselling your client on the importance of taking a folic acid supplement when planning to become pregnant. What is the best way to help your client make an informed decision about taking a folic acid supplement?

**An organization that delivers primary healthcare services in the community.*

- a. Ask your client to review an information pamphlet about folic acid to determine the amount she should take as a daily supplement

- b. Describe to your client how folic acid has a role in cell division, and synthesis of amino acids and nucleic acids in DNA
- c. Explain why folic acid is essential in the early stages of pregnancy
- d. Suggest your client take more than 1000 mcg of folic acid if she has a family history of neural tube defects

	Correct? Y/N	Rationale
a.	N	This is not a good strategy to support your client's informed decision making because it limits the ability for dialogue and asking questions.
b.	N	This is an inappropriate strategy and does not support a client's informed decision making process.
c.	Y	Describing the benefit of taking folic acid for the client in a meaningful way helps to facilitate a client's informed decision making.
d.	N	Not appropriate or evidence-based.

Foundational knowledge area
Communication <ul style="list-style-type: none"> • Strategies for effective interpersonal communication

4. You are a dietitian working as a Food Service Manager for a university cafeteria. You have been asked to determine the potential labour savings of closing the cafeteria on weekends. Currently the cafeteria is staffed for 15 hours on Saturdays and 15 hours on Sundays. A full time position in the department is paid for 37.5 hours per week. What is the reduction in full-time equivalents (FTEs) if the cafeteria were closed on weekends?

- a. 0.4 FTE
- b. 0.8 FTE
- c. 1.0 FTE
- d. Cannot calculate the reduction in FTE based on information provided

	Correct? Y/N	Rationale
a.	N	Only takes into account 1 of the weekend days.
b.	Y	(15 hours per day x 2 days) / 37.5 hours per week.
c.	N	Not correct.
d.	N	Not correct.

Foundational knowledge area
Communication <ul style="list-style-type: none"> • Medical and Dietetics Related Terminology

5. You are meeting with a client for an initial assessment to discuss ways to increase his physical activity. The client reports he has been gathering information about group exercise classes offered in his neighbourhood to see what options suit his current schedule. He has also purchased a pedometer (a step counter) recently, although he has not started to use it yet. According to the Transtheoretical Model (Stages of Change), what stage is this client in with respect to starting a physical activity routine?

- a. Preparation
- b. Precontemplation
- c. Action
- d. Contemplation

	Correct? Y/N	Rationale
a.	Y	People in the preparation stage are gathering information and resources to start a change in behaviour in the very near future.
b.	N	People in the precontemplation stage are not intending to take action in the near future.
c.	N	People in the action stage have already started to make specific changes.
d.	N	People in the contemplation stage intend to make changes in the next 6 months. In this case, the client is looking at his current schedule and has purchased a pedometer in anticipation of use, both of which are indications of the preparation stage.

Foundational knowledge area
Counselling <ul style="list-style-type: none"> • Counseling strategies and techniques

6. The Food Service Department at a Long Term Care home* has a Dietary Aide who has been trained to prepare all of the foods that are required for therapeutic diets, including thickened products. The following standardized recipe below is used to prepare a thickened strawberry and banana puree (nectar consistency). This thickened product is used for residents with dysphagia.

Strawberries, fresh	450 grams	Puree the banana with the strawberries until the desired nectar consistency is achieved.
Banana, fresh	1 each	

The recipe has always produced consistent and acceptable results. However, when the Dietary Aide prepared the recipe according to the quantities required, she produced a product that was too thin and not suitable for diets requiring nectar consistency. What is the likely reason for the undesirable consistency?

**A Long-Term Care home is a facility where adults with chronic conditions live with assistance for daily activities, nursing and personal care.*

- The Dietary Aide does not know how to properly identify nectar consistency
- Too much banana was added and therefore, the standardized recipe was not followed
- The product was not allowed to set for a sufficient period of time
- The fresh strawberries have a high water content

	Correct? Y/N	Rationale
a.	N	There is no evidence to support this. The Dietary Aide has been trained to prepare all foods required for therapeutic diets.
b.	N	Too much banana would result in a product that is too thick in consistency. Question stem indicates the Dietary Aide prepared the recipe according to quantities required.
c.	N	The recipe does not indicate that product has to set to reach the desired consistency.
d.	Y	Fruit varies in water content depending on growing conditions and freshness. Variations can result in differing product consistency.

Foundational knowledge area
Food <ul style="list-style-type: none"> • The role of ingredients and their interaction in food preparation

7. Your client is a 35-year-old female with no known medical concerns. Her aim is to increase the healthy options in her diet, while maintaining her current weight. She is currently not physically active. You assess her 3-day diet history and your analysis reveals a dietary pattern consisting of: 2000 kcal with 620 kcal coming from carbohydrate, 740 kcal coming from protein and 640 kcal coming from fat. Based on your assessment, how would you guide your client with respect to food choices based on the overall macronutrient distribution of her diet?

- Increase carbohydrate intake and maintain protein intake
- Maintain current intake of carbohydrate, protein and fat
- Increase carbohydrate intake and decrease fat intake
- Increase carbohydrate intake and decrease protein intake

	Correct? Y/N	Rationale
a.	N	See option d.
b.	N	See option d.
c.	N	See option d.
d.	Y	<p>The first step would be to determine the percentages from each macronutrient i.e.:</p> <p>620/2000 = 31% CHO</p> <p>740/2000 = 37% protein</p> <p>640/2000 = 32% fat</p> <p>And then compare them to the AMDRs below:</p> <p>The Dietary Reference Intakes (AMDRs) recommend that a macronutrient distribution for healthy adults 19 years of age and older is 45-65% carbohydrate, 10-35% protein and 20-35% fat.</p>

Foundational knowledge area
Food
<ul style="list-style-type: none"> Application of dietary requirements, guidelines and guidance tools to food planning

8. You are a dietitian working in a Long Term Care home.* You review the 7 day non-selective puree diet menu cycle and determine that one of the days is low in overall protein. Which of the following foods would be appropriate to consider adding?

**A Long-Term Care home is a facility where adults with chronic conditions live with assistance for daily activities, nursing and personal care.*

- Vanilla yogurt (175 grams)
- Fried egg (1)
- Cheddar cheese (15 grams)
- Applesauce (125 mL)

	Correct? Y/N	Rationale
a.	Y	Correct consistency – good source of protein
b.	N	Not suitable for a pureed diet
c.	N	Not suitable for a pureed diet
d.	N	Correct consistency – not a good source of protein

Foundational knowledge area
Food
<ul style="list-style-type: none"> Food modification to address therapeutic, textural or other needs.

9. The Food Service Manager has reviewed patient satisfaction ratings at an acute care hospital*. The Regular Menu received a “poor” rating on its variety. As the dietitian, you have been asked to make recommendations regarding the menu in order to improve this rating. You begin by reviewing hospital statistics. You determine that the average patient length of stay for all units except the Transitional Care Unit** is 5 – 7 days. The average length of stay for the Transitional Care Unit (TCU) is 4 weeks. What should your recommendation be to improve the variety of the Regular Menu while being cost effective and minimizing wastage?

**Hospital-based health care for short-term or severe health issues.*

***A Transitional Care Unit is the unit where patients stay when they are waiting to move from one healthcare setting to another or back home.*

- a. Provide all units except TCU with a non-selective menu. Provide TCU with a 7 day cycle selective menu.
- b. Provide all units except TCU with a non-selective menu. Provide TCU with a 21 day cycle selective menu.
- c. Provide all units except TCU with a static (restaurant) style menu. Provide TCU with a non-selective menu.
- d. Provide all units except TCU with a static (restaurant) style menu. Provide TCU with a 21 day cycle selective menu.

	Correct? Y/N	Rationale
a.	N	Non-selective menus will not increase patient satisfaction for variety and a 7 day cycle menu will be too short for patients with an average length of stay of 4 weeks.
b.	N	Non-selective menus will not increase patient satisfaction for variety. However, the 21 day cycle selective menu is appropriate for an average 4 week length of stay.
c.	N	A static (restaurant) style menu would be suitable for patients with an average length of stay of 5 days. However, a non-selective menu for a 4 week average stay would not provide the variety required.
d.	Y	A static (restaurant) style menu would be suitable for patients with an average length of stay of 5 days. A 21 day cycle menu would provide the variety required for a 4 week average length of stay.

Foundational knowledge area
Foodservice Systems
<ul style="list-style-type: none"> • Menu planning

10. An acute care hospital* is planning for major renovations. The Food Service Manager is considering changing from the current centralized meal assembly system to a decentralized meal assembly system. What is the most likely effect on staffing hours if the hospital changes to decentralized meal assembly?

**Hospital-based health care for short-term or severe health issues.*

- a. An increase in staffing hours
- b. A decrease in staffing hours
- c. No change in staffing hours

	Correct? Y/N	Rationale
a.	Y	Less efficient as food is assembled remotely (in pantries) throughout the

		hospital.
b.	N	More staff are required to assemble food and so you cannot take advantage of synergies within a centralized location.
c.	N	Decentralized meal assembly will result in an increase in staffing hours.

Foundational knowledge area
Foodservice Systems <ul style="list-style-type: none"> Quantity food production and distribution

11. An acute care hospital* is planning to build a 30 bed maternity ward. The proposal includes a cafeteria style dining room to provide food services to the patients on this ward. The equipment costs are estimated to be \$50,000. The cafeteria will have Food Service staff from 7 a.m. to 7 p.m. daily. The annual staffing costs are projected to be \$70,000. Patients will not be charged for their meals, however visitors and staff will be. The annual revenues are projected to be \$20,000. Based on the projections, what is your estimate for the capital budget?

**Hospital-based health care for short-term or severe health issues.*

- a. \$ 50,000
- b. \$ 70,000
- c. \$100,000
- d. \$120,000

	Correct? Y/N	Rationale
a.	Y	The only capital costs identified are the equipment costs.
b.	N	The only capital costs identified are the equipment costs. Staffing costs are included in the operating budget not capital budget.
c.	N	The only capital costs identified are the equipment costs. Staffing costs are included in the operating budget.
d.	N	The only capital costs identified are the equipment costs. The revenues and staffing are calculated into the cash and operating budgets.

Foundational knowledge area
Foodservice Systems <ul style="list-style-type: none"> Human resource, financial, technical and equipment needs.

12. You are responsible for coordinating and delivering a nutrition screening program for pre-school aged children (2.5-4 years) to detect nutrition and health issues. What planning tool will best convey the program's resources, activities and expected outcomes to stakeholders involved in the nutrition screening program?

- a. A logic model
- b. A problem-solution tree
- c. A stakeholder analysis

	Correct? Y/N	Rationale
a.	Y	A logic model is a detailed tool that provides an overview of a program and identifies the necessary components of a program to support its coordination and delivery.

b.	N	Not an appropriate tool to help coordinate and deliver a program. This provides information on the issue that needs to be addressed and possible ways to address the issue.
c.	N	Not an appropriate tool to help coordinate and deliver a program. This provides an analysis of key persons, communities and organizations that should be involved with, or are impacted by, the program.

Foundational knowledge area
Health systems in Canada <ul style="list-style-type: none"> Organization and delivery of care

13. In addition to Vitamin B6, which micronutrients are priorities for a 72-year-old male client?

- Vitamin B12, Vitamin D, Protein
- Vitamin D, Calcium, Iron
- Vitamin B12, Calcium, Vitamin D
- Vitamin B12, Calcium, Vitamin A

	Correct? Y/N	Rationale
a.	N	Protein is not a micronutrient.
b.	N	Vitamin C requirements do not generally increase with age.
c.	Y	Vitamin D, Calcium: Needs generally increase after the age of 50; Vitamin B12: rates of absorption tend to decline after the age of 50.
d.	N	The DRI for vitamin A does not change with increasing age.

Foundational knowledge area
Human nutrition across the lifespan <ul style="list-style-type: none"> Nutrient and energy requirements

14. You are a dietitian working in a Rehabilitation Facility*. One of your clients has been receiving nasogastric tube (NG) feeding for the past month after his stroke. The client continues to require this feeding route following assessments by the speech language pathologist (SLP). When you visit the client today, he tells you that he feels better and has been independently drinking sips of juice and pureed fruit provided by his family members. He tells you that he is not coughing and feels confident that he can start eating foods orally in addition to his tube feeds. How should you proceed?

**An organization that delivers services to those with physical impairments or disabilities in order to improve and/or restore functional ability and quality of life.*

- Let the client know that he should never be started on thin fluids before trialing thickened fluids first
- Watch the client swallow the juice and pureed fruit to make your own assessment of his swallowing ability
- Contact the SLP to re-assess the client's swallowing ability
- Let the client know that he will receive one pureed food option per meal to assess if he can safely swallow this texture before proceeding further

	Correct? Y/N	Rationale
a.	N	This is not accurate information. Thin fluids may be safe in this case, but that would need to be assessed.

b.	N	In this case, there is a designated health professional who has conducted the initial swallowing assessment and follow-up and they should be contacted for further assessment. Dysphagia assessment and management is within a dietitian's scope of practice if the dietitian possesses the appropriate education and experience. Legislation differs provincially and practice may vary across Canada.
c.	Y	The SLP provided the initial assessment and should be consulted for reassessment prior to making any changes.
d.	N	This is not a safe method of proceeding without a SLP assessment.

Foundational knowledge area
Interprofessional collaboration <ul style="list-style-type: none"> • Patient/client/family/community-centred care

15. The Hospital Board and Hospital President have developed a 10 year strategic plan for the acute care hospital*. You are the dietitian working as the Food Service Manager. What should you develop to align the Food Service Department's operations with the hospital's strategic plan?

**Hospital-based health care for short-term or severe health issues.*

- A business plan that will include analysis of current departmental strengths and weaknesses
- A standing operational plan that will include policies and procedures related to the strategic plan
- An executive summary that will include a brief summary of Food Service initiatives that can support the strategic plan
- An evaluative summary of departmental performance

	Correct? Y/N	Rationale
a.	Y	A business plan is developed to align with the strategic plan of the hospital which will include a current analysis of the department in order to determine what will and will not have an impact on the new strategic direction.
b.	N	A standing operational plan serves as the basis for daily recurring departmental functions.
c.	N	This would be developed to summarize the business plan.
d.	N	An evaluation summary would be the final phase of a business plan.

Foundational knowledge area
Management <ul style="list-style-type: none"> • Strategic and operational planning including needs assessment, goal setting and outcome assessment

16. You are a dietitian working as a Food Service Manager in a rehabilitation facility*. You are working towards the goal of implementing an effective continuous quality improvement program for patient meal delivery because patient surveys indicate that improvements to various aspects of meal delivery are needed. How should you establish clear and concise objectives to address this issue?

**An organization that delivers services to those with physical impairments or disabilities in order to improve and/or restore functional ability and quality of life.*

- Ensure that the objectives are written solely by the individual who has established the goal, in

- this case the Food Service Manager
- Ensure the objectives are achievable in one year
 - Ensure the objectives are specific and measurable
 - Ensure the objectives are written with input from all members of the Food Service Department

	Correct? Y/N	Rationale
a.	N	Input should be received by stakeholders.
b.	N	The timeframe needs to be consistent with measuring outcomes.
c.	Y	Well written objectives should be specific and measurable.
d.	N	Input should be received by stakeholders including those outside the Food Service Department.

Foundational knowledge area
Management <ul style="list-style-type: none"> Quality Improvement

17. An acute care hospital* outsources patient meals. Fully cooked individual meals are received chilled, and reheated immediately prior to patient service. The Public Health Inspector** has performed a random inspection and determined that the meals are not being reheated to acceptable standards. The Inspector reviews the daily temperature recording sheets and notices that a standard for the acceptable temperature for reheating and serving hot meals is not indicated. You are asked to revise the temperature recording sheets to include the correct standard. What should you include on the temperature recording sheets?

*Hospital-based health care for short-term or severe health issues.

**Public Health Inspectors are certified inspectors that inspect various premises (including hospitals etc.) in order to ensure compliance with relevant legislation.

- Reheat meals to a minimum internal temperature of 64°C – referencing the hospital’s website
- Reheat meals to a minimum internal temperature of 74°C – referencing Health Canada’s website
- Reheat meals to a minimum internal temperature of 60°C – referencing Health Canada’s website
- Reheat meals to a minimum internal temperature of 165°F – referencing United States federal standards

	Correct? Y/N	Rationale
a.	N	Incorrect internal temperature, referencing the hospital’s website is irrelevant.
b.	Y	Correct internal temperature and standards are set nationally.
c.	N	Incorrect internal temperature.
d.	N	Correct internal Fahrenheit temperature but American standards are not used in Canada.

Foundational knowledge area
Microbiology <ul style="list-style-type: none"> Microbes in food safety

18. You have received a referral from a physician to assess a male client for unintentional weight loss after a recent diagnosis of gastric cancer. The client’s body weight three weeks ago was 253 lb (115 kg); this was his usual body weight. He now weighs 238 lb (108 kg). He is 5’8” (173 cm) tall. How should you interpret this information?

- The client's current BMI is 36.1 kg/m². He has had an unintentional weight loss of 6% of his usual body weight in three weeks, which represents severe weight loss.
- The client's current BMI is 36.1 kg/m². He has had an unintentional weight loss of 6% of his usual body weight in three weeks.
- The client has had an unintentional weight loss of 15 lb (7 kg) in three weeks. This weight loss is not concerning since his BMI is in the obese range.
- The client has had an unintentional weight loss of 15 lb (7 kg) in three weeks. This is concerning since he has been diagnosed with gastric cancer.

	Correct? Y/N	Rationale
a.	Y	This provides a BMI and a percent weight loss upon which we can assess severity of weight loss.
b.	N	This information is correct, but does not provide an assessment of the weight loss severity.
c.	N	This option does not provide a percent weight loss. Weight loss should be expressed in terms of percent body weight to provide context and a universal method of assessing the degree of weight loss. An unintentional weight loss in the presence of disease is not favourable regardless of starting weight.
d.	N	This option does not provide a percent weight loss. Weight loss should be expressed in terms of percent body weight to provide context and a universal method of assessing the degree of weight loss. The terminology used (i.e. "this is concerning") is not an objective method of assessment and is open to subjective interpretation.

Foundational knowledge area
Nutrition Assessment
<ul style="list-style-type: none"> Anthropometric data collection and interpretation

19. You are meeting with a client with End Stage Renal Disease (ESRD) for an initial assessment. In addition to her ESRD, she has also been living with Type 2 Diabetes for 25 years.

Her blood values are as follows: The normal reference range values are added in parenthesis.

- Potassium: 5.4 mmol/L (3.5-5 mmol/L)
- Phosphate: 1.6 mmol/L (0.8-1.5 mmol/L)
- Fasting blood glucose: 7.5 mmol/L (3.3-5.8 mmol/L)
- Sodium: 130 mmol/L (135-145 mmol/L)

Which blood value should you address first in your counselling session?

- Potassium
- Phosphate
- Fasting blood glucose
- Sodium

	Correct? Y/N	Rationale
a.	Y	Abnormal potassium levels have priority. There are potential risks due to the deleterious effects of hyperkalemia (i.e. cardiotoxicity).
b.	N	See above for rationale.
c.	N	See above for rationale.
d.	N	See above for rationale.

Foundational knowledge area

Nutrition Care Process and Medical Nutrition Therapy

- Etiology and pathophysiology of nutrition-related diseases

20. Your client is a 78-year-old male who was recently admitted to hospital with a myocardial infarction. He is currently stable and awaiting discharge to a rehabilitation facility*. He just finished his lunch and you notice that he has not eaten the piece of chicken or bread roll from his meal tray. He tells you that he has new dentures that are not fitting properly and it is difficult to chew harder foods. A denturist has been consulted. You determine from his medical chart that his weight has been relatively stable. What should you do?

**An organization that delivers services to those with physical impairments or disabilities in order to improve and/or restore functional ability and quality of life.*

- Suggest that the Speech Language Pathologist (SLP) assess the client for swallowing difficulties
- Change the client's diet to pureed textures and thickened fluids
- Ask the client what type of foods he was tolerating at home
- Change the client's diet to minced texture and regular fluids

	Correct? Y/N	Rationale
a.	N	From the information provided, this doesn't appear to be a swallowing issue. There is no need for an SLP referral at this time.
b.	N	There is no rationale for to change to this texture and especially not for the thickened fluids.
c.	Y	This option assesses the client's tolerance with the aim of making a dietary change based on his current needs.
d.	N	There is no rationale for a change without determining what the client is tolerating first.

Foundational knowledge area

Nutrition care process and medical nutrition therapy

- Feeding assessment, including identification of chewing, swallowing and feeding problems

21. Your client has been receiving nasogastric (NG) tube feeding for the past two weeks. Her feeds are running continuously for 24 hours per day and she is tolerating them well. She recently developed a urinary tract infection and is scheduled to start ciprofloxacin (an antibiotic) twice daily via intravenous route. What should you do?

- Stop her tube feeds for 2 hours pre- and post-administration of the ciprofloxacin because there is risk of interaction between the antibiotic and the enteral formula
- Ask the physician if it is possible to provide a different antibiotic because there is a risk of interaction between the antibiotic and enteral formula
- Do not change her tube feeding schedule because there is no need
- Let the client know that she will be starting on this antibiotic and to tell you if it affects her tolerance to her tube feeds

	Correct? Y/N	Rationale
a.	N	There is no risk of interaction between ciprofloxacin and the enteral formula if the medication is given intravenously.
b.	N	There is no need to switch the medication because it is being provided intravenously.

c.	Y	Although there is a risk of interaction between ciprofloxacin and enteral formula, this is only a factor if it is given orally. In this case it is being given via intravenous, which would not have any interaction.
d.	N	This medication would not change the tolerance to feeds, particularly if provided intravenously.

Foundational knowledge area
Pharmacology <ul style="list-style-type: none"> • Drug nutrient interactions

22. You are conducting a literature review on the vegetable and fruit intake of school-aged children (aged 5-14 years). You would like to know more about the consumption patterns of children in your particular public health unit* jurisdiction. What information source is most appropriate to determine the self-reported vegetable and fruit intake in this population?

**A health agency located in an urban or rural municipality that provides community-based health promotion and disease prevention programs.*

- Statistics of vegetable and fruit sales across the province
- Regional survey results on vegetable and fruit intake consumption patterns of school-aged children
- A survey of vegetable and fruits available in elementary school cafeterias
- Canada-wide survey results on vegetable and fruit intake consumption patterns of school-aged children

	Correct? Y/N	Rationale
a.	N	Would not give you vegetable and fruit consumption patterns; it would give you sales data.
b.	Y	Would give you the most valid vegetable and fruit consumption data that can be extrapolated to your jurisdiction.
c.	N	Would not give you vegetable and fruit consumption patterns; it would give you availability data.
d.	N	A national data source could be used in the event that jurisdictional data is not available.

Foundational knowledge area
Population food systems and food security <ul style="list-style-type: none"> • Food consumption patterns and trends

23. You are a dietitian delivering a diabetes group education session in the community and notice that many participants seem uninterested in the information you are presenting. The participants give you feedback that the sessions seem long and include too much information. For your own continuous learning, what is the best strategy to help you address the feedback provided by participants?

- Advocate for increased funding to purchase more attractive food models and other engaging teaching tools
- Review your education session plan and confirm you are providing all the necessary information to meet participants' needs
- Reflect on what you might do differently in order to focus on the key messages for your audience and encourage better participation

- d. Conduct a pre- and post-survey to determine if participants have learned the most critical information about diabetes management

	Correct? Y/N	Rationale
a.	N	It's important to reflect first to determine the reason for participants' lack of interest before taking action to advocate for increased program funding.
b.	N	This is not a strategy for continuous learning since you are confirming the content of the session and not necessarily the relevance to the population.
c.	Y	Principles of reflection are integral to dietetic practice. Reflecting on strategies to improve the delivery of the session will best help address participant's feedback.
d.	N	Not appropriate for improvement of participants' interest.

Foundational knowledge area
Professional practice in dietetics <ul style="list-style-type: none"> • Reflective practice

24. A nurse asks you to deliver a workshop to new mothers about introducing solid foods to their babies. The nurse tells you that many of the mothers have expressed interest in vegetarian options for their babies. Which iron-rich solid foods are appropriate vegetarian options for the babies?

- Well-cooked mashed eggs, tofu, lentils or beans
- Well-cooked mashed sweet potato and squash, soft-cooked pieces of broccoli and carrot
- Full fat yogurt and cow's milk, fortified with Vitamin D

	Correct? Y/N	Rationale
a.	Y	These are vegetarian, iron-rich foods, which should be introduced first.
b.	N	These are vegetarian, but not iron-rich.
c.	N	These are vegetarian, but not the best source of iron-rich foods.

Foundational knowledge area
Professional practice in dietetics <ul style="list-style-type: none"> • Evidence informed practice

25. You work for a provincial government agency that includes delivering services focused on cancer prevention and treatment. You would like to influence public attitudes about increasing fibre consumption as a way to lower the risk of colorectal cancer. What is the best health promotion strategy to meet this objective?

- Plan a social marketing campaign for the general public that identifies the protective health benefits of fibre
- Develop an educational workshop for seniors living in the community about the protective health benefits of fibre, since they are at greater risk for colorectal cancer
- Advocate for a tax on convenience foods which have low fibre content (less than 2 grams per serving)
- Conduct grocery store tours to educate the general public on reading the Nutrition Facts Panel to increase fibre consumption

	Correct? Y/N	Rationale
a.	Y	A social marketing campaign is the best strategy to influence the general public's attitudes.

b.	N	This strategy is focused on a specific population only.
c.	N	Not appropriate as the first strategy. Policy is not the primary way to influence public attitudes.
d.	N	Not appropriate as first strategy. Label reading is not the primary way to influence public attitudes.

Foundational knowledge area
Population and public health <ul style="list-style-type: none"> Strategies for population and public health including health promotion, education, advocacy, community development and partnerships

26. You are part of a team of health practitioners who are evaluating the impact of a health and well-being program for at-risk pregnant women. The program has been running for five years. The program's goal is to increase the number of mothers who carry their infants to term and have a healthy pregnancy, with limited complications. Your stakeholders are considering renewing the funding for the program and want to learn more about the impact of the program. What type of evaluation should you conduct?

- Formative evaluation
- Summative evaluation
- Process evaluation
- It is too soon to conduct an evaluation

	Correct? Y/N	Rationale
a.	N	The program has been running for five years and would have collected data on impact/outcomes. A formative evaluation is better suited for process-based evaluation.
b.	Y	A summative evaluation measures outcomes with respect to impact.
c.	N	This type of evaluation focuses on determining whether program activities were implemented as intended.
d.	N	A five year timeframe would provide substantial evaluation data.

Foundational knowledge area
Population and Public Health <ul style="list-style-type: none"> Program planning in public and population health

27. You are a dietitian working with immigrant and refugee populations in a community health centre*. You are conducting a situational assessment to advocate for more federal funding for cooking programs for immigrant and refugee populations across Canada. You would like to include information about the prevalence and degree of reported food insecurity (i.e., mild, moderate, severe) in the last year in Canada to demonstrate why this is an important public health issue. Where should you find the most relevant information to support your situational assessment?

**An organization that delivers primary healthcare services in the community.*

- Ask your clients to self-identify the degree of food insecurity they have experienced on a monthly basis
- Ask your female clients how often they cook from scratch
- Review the most recent scholarly literature on the proportion of Canadians who experience household food insecurity in the last year
- Review local food bank survey findings to determine the proportion of the population who experience household food insecurity in the last year

	Correct? Y/N	Rationale
a.	N	This local strategy is not appropriate to support a funding request at the national level.
b.	N	Not relevant information to determine degree of food insecurity.
c.	Y	Most appropriate data source at the national level to apply to the Canadian population.
d.	N	Provides local data on food insecurity that may not be extrapolated across Canada.

Foundational knowledge area
Population and public health <ul style="list-style-type: none"> The determinants of health

28. You have been asked to develop a written information pamphlet for employees in a factory who do shift work*. The focus of the resource is how to pack healthy meals and snacks while working. What are the most important messages to include in the pamphlet?

**Shift work refers to work done in recurring time periods in which different groups of workers do the same jobs in rotation (e.g. throughout a full 24-hour period). It can involve overnight shifts, early morning shifts etc.*

- The challenges of eating healthy while working shifts, and practical tips that address these challenges which are realistic and achievable to promote nutritional well-being
- The challenges of working shifts instead of a regular job, and the negative impact of shift work on nutritional well-being
- The importance of following Canada’s Food Guide and eating a variety of foods from the four food groups.
- The importance of limiting fat intake while working overnight shifts since metabolism slows down during the nighttime, and practical tips on how to limit fat intake

	Correct? Y/N	Rationale
a.	Y	Most appropriate and within scope of dietetic practice. This recognizes contextual issues related to diversity.
b.	N	Not appropriate and out of scope of dietetic practice. It does not recognize the social determinants of health.
c.	N	Not specific to the current population’s needs. It does not recognize the social determinants of health.
d.	N	Not the most important aspect to recognize when developing the written piece.

Foundational knowledge area
Social and psychological foundations <ul style="list-style-type: none"> Social justice, diversity and equity in society

29. You are delivering an osteoporosis prevention workshop in the community for older adults who identify with a specific ethnocultural group. You are not sure whether the group consumes Milk and Milk Alternatives as part of their daily diet. How should you best address this issue during the workshop?

- Share recent scholarly literature about the importance of Milk and Milk Alternatives as the best sources of calcium and vitamin D

- b. Discuss recent media reports about the importance of being physically active outdoors to increase bone strength and to get adequate exposure to sunlight, which provides Vitamin D
- c. Ask the group to discuss their food preferences prior to discussing calcium and vitamin-D rich foods
- d. Present Canada’s Food Guide and talk about the serving sizes of Milk and Milk Alternative products

	Correct? Y/N	Rationale
a.	N	This strategy does not recognize the client as the best source of information.
b.	N	This strategy is irrelevant. Limited emphasis on diet.
c.	Y	This strategy recognizes the client as the best source of information.
d.	N	This strategy focuses on serving sizes, which does not address the issue of client food preferences. It considers only foods from one food group.

Foundational knowledge area
Social and psychological foundations <ul style="list-style-type: none"> • Cultural competence

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Appendix C: Competency-based sample cases and questions

Below are six sample cases and related questions. See page 70 for answers and rationales.

Nutrition Care Case #1

You are a dietitian working in a pediatric hospital outpatient clinic*. You are meeting a client for an initial assessment. The client is a 14-year-old female named Rena. She is coming to the appointment with her parents. Rena's pediatrician recently diagnosed her with Type 1 diabetes (T1DM) and subsequently referred her to your clinic. She and her family received basic nutrition information from the physician and diabetes nurse educator on your team before meeting with you.

Rena has begun a Multiple Daily Injection (MDI) regimen of basal and bolus insulin therapy and has been using this regimen for the past two weeks. After starting insulin therapy, her fasting blood glucose is averaging 7.5 mmol/L and her 2-hour post prandial blood glucose levels average 9.1 mmol/L.

Rena is 152 cm tall (5'0"). She currently weighs 45 kg (99 lbs). Her mother tells you that she weighed 49 kg (108 lbs) at her doctor's appointment three months ago.

Rena appears to be quite nervous about her recent diagnosis. She tells you that she has been reading about the complications of diabetes and is afraid to lose her eyesight or have her legs amputated.

**An outpatient clinic provides care to patients who are not admitted, but come in periodically for treatments.*

1. From the information provided above, what is your interpretation of Rena's medical history?

- a. Rena's fasting blood glucose is within an acceptable range
- b. Rena's medication should include an oral hypoglycemic agent (OHA)
- c. Rena's 2 hour postprandial blood glucose levels are too high
- d. Rena's recent weight loss may be related to her recent diagnosis of T1DM

2. At your first appointment with Rena, you review a 3-day food record that Rena has prepared with her parents' help. You determine that Rena is consuming approximately 1800 kcal/day and that 35% of her total energy is coming from carbohydrates. She tells you that she has been eating less bread, pasta and fruit. What is the best way to proceed with this information?

- a. Praise Rena for reducing her carbohydrate intake since this will help with her glycemic control

- b. Clarify with Rena and her parents what education they have received about nutrition and diabetes
- c. Tell Rena that she needs more carbohydrate than what she is currently consuming in order to promote her muscle growth
- d. Tell Rena that she needs more calories than she is currently eating to support her growth and maintenance

3. You are discussing self-monitoring of blood glucose (SMBG) with Rena and her parents. Which of the following is most important to recommend?

- a. Be familiar with symptoms of hypo or hyperglycemia and measure blood glucose in response to these symptoms
- b. Test blood glucose at least four times per day
- c. Test fasting as well as bedtime blood glucose to avoid overnight hypoglycemic episodes
- d. Test blood glucose before meals to know how many units of bolus insulin to inject

4. Rena and her mother come for a follow up visit two weeks after her initial nutrition assessment. Rena has lost another 2 kg (4.4 lb) and now weighs 43 kg (95 lb) with a Body Mass Index (BMI) of 18.6 kg/m². Her mother appears concerned and frustrated. She tells you that Rena continues to restrict her carbohydrate intake to control her blood sugar. Rena interrupts to say that she is the one living with diabetes and she does not want to go blind. Her mother also explains that she has had several hypoglycemic episodes over the past two weeks. What should be your priority after hearing this information?

- a. Discuss the importance of increasing overall energy intake and explain that Rena's BMI is now approaching an unhealthy range.
- b. Discuss the risks of hypoglycemia as well as how to manage it. Follow up with the nurse and/or physician about insulin dosing.
- c. Discuss the importance of adequate carbohydrate intake to ensure adequate nutrition. Review healthy sources of carbohydrate.
- d. Discuss the long term complications of diabetes to address Rena's fears. If she knows the facts, she may be less afraid.

5. Rena tells you that she is having difficulty adjusting to her recent diagnosis. She is worried about living with diabetes in adulthood and fears potential long term complications. She agrees that she has been restricting her carbohydrate intake in an effort to control her blood glucose levels. What should you let Rena know to best address her concerns?

- a. It is common for teenagers with a recent diagnosis of T1DM to have these concerns. Reinforce the importance of good nutrition.

- b. It would be best if she speaks with her parents about what she is feeling. They could be her best resource.
- c. It is common for teenagers with T1DM to have these concerns and it often helps to talk with the mental health professional on the team. Ask if she would like to be referred.
- d. There is no need for concern and you are here to help her. Make a follow up appointment with her and her parents to monitor how she progresses with her nutrition care plan.

6. Rena's father sometimes accompanies her to follow up visits with you. You have noticed that he often doesn't contribute to the discussion and seems confused about some of the concepts you are discussing. He has told you that English is not his first language and that his first language is Greek. What should you do?

- a. Do nothing because you do not want to embarrass him
- b. Ask Rena to translate some of the discussion concepts into Greek for her father
- c. Ask the father if he would like a Greek-speaking interpreter for the next appointment
- d. Wait for her father to ask for help

Nutrition Care Case #2

You are a dietitian working in a Long-Term Care home*. Ms. Suva, an 82-year-old female, has recently been admitted to the facility. She has experienced a few falls at home and her family felt it would be best for her to live in a Long-Term Care home.

Her past medical history includes hypertension, which is fairly well controlled with medication.

Ms. Suva had been living alone since her husband died 6 months ago. She has two adult children who both live in the United States. Her son has come to help her move into the Long-Term Care home and will be staying for approximately one week.

Ms. Suva is on the following medications:

- Hydrochlorothiazide – 25 mg PO daily (an antihypertensive medication)
- Amlodipine – 10 mg PO daily (an antihypertensive medication)
- A multivitamin made for women over 50 years old – 1 tab PO daily (multiple vitamin and mineral supplement)

Her current height is 155 cm (5'1"), and her weight is 50 kg (110 lbs). When you meet with Ms. Suva and her son, she tells you that she weighed 53 kg (117 lb) 6 months ago and is surprised to hear of the weight loss; it was not intentional. She tells you that she spent most of her time indoors watching television, reading or knitting.

Her typical diet prior to admission is provided below:

Breakfast:

500 mL (2 cups) of tea with 60 mL (4 Tbsp) 3.25% M.F. (milk fat) cow's milk
2 slices of whole wheat toast with 15 g (1 Tbsp) butter and 30 mL (2 Tbsp) jam

Lunch:

1 slice of whole wheat toast
30 mL (2 Tbsp) light cream cheese (a spreadable cheese)
1 can (284 mL) condensed canned tomato soup (she adds 1 cup water to prepare)
250 mL (1 cup) canned mixed fruit salad, packed in water
500 mL (2 cup) of tea with 60 mL (4 Tbsp) 3.25% M.F. (milk fat) cow's milk

Dinner:

120 g (1 cup) cooked white pasta – does not add salt
10 g (2 tsp) butter
200 g (1 cup) frozen mixed vegetables (boiled, drained)

Ms. Suva tells you that her neighbour helped her with the grocery shopping once a week. Ms. Suva cooked all her own meals, but reports that she started relying more on microwaving convenience and prepared foods.

**A Long-Term Care home is a facility where adults with chronic conditions live with assistance for daily activities, nursing and personal care.*

1. In addition to calcium, which of the following two key nutrients may be inadequate in Ms. Suva's diet?

- a. Vitamin D and fat
- b. Vitamin D and carbohydrate
- c. Zinc and protein
- d. Zinc and carbohydrate

2. In your initial nutrition assessment, you calculate that Ms. Suva has lost 6% of her body weight over the past 6 months and that her Body Mass Index (BMI) is now 20.8 kg/m². You ask Ms. Suva why she feels she may have lost this weight. She tells you that her appetite has decreased since her husband died and she did not like eating alone when she lived at home. You determine that she has good dentition and she tells you that she has no difficulty eating most foods with respect to their texture. How should you include this information in your nutrition care plan?

- a. You determine that her current BMI is within a healthy range for her age, but plan to change her diet to a minced texture. From your past experience, you know that most clients her age will eat better with this diet.
- b. You determine that her current BMI is within a healthy range for her age and she will likely start eating more now that her meals will be in a communal dining room at the Long-Term Care home.
- c. You determine that her current BMI is below a healthy range for her age and plan to include liquid nutritional meal supplements in her diet to increase her intake.
- d. You determine that her current BMI is below a healthy range for her age and plan to review her dietary preferences with her to maximize her intake.

3. In implementing a dietary plan for Ms. Suva, she tells you that she cannot tolerate drinking fluid cow's milk on its own. Additionally, she says that she dislikes yogurt and most hard cheeses. Ms. Suva asks, "Isn't it enough to just take my multivitamin?" How should you respond?

- a. Explain to Ms. Suva that it's important to increase sources of milk and milk products in her diet because this is a major food group and a multivitamin alone will not meet her needs
- b. Together with Ms. Suva, look into alternatives to milk products that Ms. Suva will enjoy
- c. Prescribe a Vitamin D supplement to help increase the absorption of her existing calcium intake
- d. Together with Ms. Suva, look into alternatives to increasing her protein intake to replace what she will be missing from avoiding milk and milk products

4. Two weeks after your first assessment, Ms. Suva's weight has remained unchanged. The dietary staff working in the dining room tell you that one third of the food on her plate is often left uneaten. When you speak with Ms. Suva, she confirms again that she tolerates the food textures and that she is enjoying the company of her fellow residents. She says, however, that her appetite sometimes fluctuates and the large portions can seem overwhelming to her. How should you proceed?

- a. Wait another few weeks before implementing any further changes. Ms. Suva is still getting adjusted to her new surroundings and you don't want to overwhelm her further.
- b. Speak to the medical team about the possibility of inserting a temporary nasogastric (NG) tube for enteral nutrition until her weight increases. You explain the severity of her weight loss and that it would not be in the client's best interest to risk more weight loss.
- c. Ask Ms. Suva if she would like to have some of her favourite snacks brought into her room to eat when she is hungry.
- d. Ask members of the dietary staff to sit with Ms. Suva until she eats all of the food provided during her meals.

5. Ms. Suva's son, who has now returned to the United States, calls the Long-Term Care home. He asks to speak with you because he is concerned about his mother's condition. How should you proceed?

- a. Inform the son about her condition. You can assume that Ms. Suva has provided consent since he was with her when she was admitted.
- b. Check Ms. Suva's chart to see whether she has provided written consent to discuss her condition with her son.
- c. Call the physician to ask if it's acceptable to discuss Ms. Suva's condition with her son.
- d. Inform the son that his mother's condition is stable. You don't want her son to worry since he's so far away from her.

6. A nurse who is on Ms. Suva's medical team approaches you and asks why you are not being more insistent about providing liquid nutritional meal supplements to Ms. Suva to help her gain weight. The nurse's own mother had lost a lot of weight when she was having treatment for oral cancer and the dietitian responsible for her care had suggested that she drink 3-4 liquid nutritional meal supplements per day. How should you respond to the nurse?

- a. Let the nurse know that you are providing the best nutritional care for Ms. Suva based on your nutrition assessment.
- b. Let the nurse know that she might be right and you will consider acting on her advice. She is part of the team and you agree that liquid nutritional meal supplements can be effective in increasing intake and weight.
- c. Let the nurse know that you cannot discuss aspects of Ms. Suva's nutritional care without her consent.
- d. Let the nurse know that liquid nutritional meal supplements may be helpful if someone is unable to chew or swallow adequately, but this is not the case with Ms. Suva, and whole foods should be encouraged first.

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Population and Public Health Case #1

You are a dietitian working for a public health department*. Parents in the community have noticed that their children (ages 5-17 years) are consuming sugar sweetened beverages more often when they participate in activities at the local community recreation centre. As a first step, you have assessed the beverage choices offered in the recreation centre's vending machines and have confirmed they are high in sugar. You also notice that there is a lack of healthier beverage options available (e.g., like water; 1 or 2% plain cow's milk; plain soy beverage etc.). The parents have asked the health department to develop a plan to support them in reducing their children's consumption of sugar-sweetened beverages.

**A public health department is responsible for the health and well-being of the residents living in a specific geographic area. Public health departments focus on protecting and promoting the health of individuals, communities and populations.*

1. What is the most appropriate next step you should take in responding to the parents' concerns about their children's increased consumption of sugar sweetened beverages?
 - a. Develop education resources on healthy beverage choices for boys since they are most likely to be consuming more sugar sweetened beverages than girls.
 - b. Visit the recreation centre and speak with the Manager. Ask the Manager to keep a copy of Canada's Food Guide near all the vending machines to encourage healthy beverage choices among boys and girls.
 - c. Coordinate a meeting with community stakeholders including parents, recreation staff members and local city councilors to explore the reasons for the limited healthy beverage options in the vending machines.
 - d. Send a letter to the recreation centre Manager to advocate to remove all vending machines in order to limit the availability of sugar sweetened beverages.

2. What is an appropriate goal to address the issue of increased consumption of sugar sweetened beverages by children and youth (ages 5-17 years) when participating in the recreation centre's programs?
 - a. Remove all vending machines from the recreation centre to decrease children and youth's consumption of sugar sweetened beverages
 - b. Ensure 75% of all children and youth will no longer consume sugar sweetened beverages
 - c. Reduce the consumption of sugar sweetened beverages in children and youth participating in recreation centre activities
 - d. Increase the availability of healthier beverage choice options in the recreation centre vending machines by 75%

3. You have developed a new social marketing campaign to encourage healthy beverage consumption for children and youth who attend programming at the recreation centre.

The social marketing campaign includes an interactive website as well as printed posters available throughout the recreation centre. One of the campaign's key messages is to promote drinking water as the first choice to quench thirst. First, you plan to train the recreation centre's staff on how to implement the social marketing campaign. What strategy should you use to deliver the training to the staff?

- a. Send staff information about the new social marketing campaign in an email and tell them to email you back if they have any questions
- b. Tell the staff to share the social marketing website with parents so they can teach their children about healthy beverages at their convenience
- c. Use an interactive group training session to engage the staff about the social marketing campaign material and encourage them to ask questions
- d. Deliver the printed posters to each staff member's office and ask them to hang them around the recreation centre

4. Recreation staff have implemented the social marketing campaign to encourage healthy beverage consumption. You would like to evaluate the effectiveness of the intervention in reaching its goal. Which of the following indicators would help measure the impact of the social marketing campaign?

- a. The number of visitors to the social marketing campaign website
- b. The BMIs of all the children and youth attending the recreation centre programming
- c. The number and type of community partners (e.g., youth health coalition) engaged in the social marketing campaign
- d. The number of children and youth identifying a change in view about limiting the consumption of sugar sweetened beverages

5. When speaking to parents at the recreation centre about healthier beverage options for children and youth, some parents mention that they would like to learn more about healthy snack ideas they could prepare at home. What should you suggest to parents to learn more about healthy snack ideas?

- a. Suggest searching the Internet for healthy snack recipe ideas for children and youth
- b. Offer your private practice fee-for-services to parents for one-to-one follow-up about their specific questions
- c. Provide parents with a webpage on the public health department's website dedicated to healthy meal and snack ideas
- d. Encourage parents to speak with the recreation centre's Manager about offering a program about healthy snack ideas

6. A parent sends you an email. She is concerned that children attending the recreation centre are being encouraged to consume cow's milk as a healthier beverage option. The

parent believes that cow's milk can cause asthma in growing children. How should you respond?

- a. Tell the parent to search her question on the Internet and come back to you with information about the link between asthma and consumption of cow's milk for further exploration
- b. Reply to the parent with information that addresses her concern using nutrition evidence, and welcome her to call you for further discussion
- c. Disregard the parent's email as you are unaware of any evidence that suggests there is a link between asthma and consumption of cow's milk
- d. Email Canada's Food Guide to the parent and inform her that Canada's Food Guide recommends cow's milk as one of the options in the Milk and Alternatives food group

Acknowledgment: This case study was adapted from the College of Dietitians of British Columbia's Competency Self-Assessment Process (CSAP).

Population and Public Health Case #2

You are a dietitian working in a large public health department.* You have recently started working with a team of health professionals within the department to provide services for at-risk pregnant women and their infants. You will be leading the planning and delivery of a program, which includes weekly workshops for this client population. The workshops are designed to promote positive birth outcomes for both the mothers and their babies, including breastfeeding support.

**A public health department is responsible for the health and well-being of the residents living in a specific geographic area. Public health departments focus on protecting and promoting the health of individuals, communities and populations.*

1. Before you begin planning the program for at-risk pregnant women, how should you become familiar with existing programs, services and resources available for this population?

- a. Set up a meeting with the team of health professionals (e.g., nurses, social workers) who work with this population as part of your situational assessment
- b. Outline the resources required to support the delivery of the program's weekly workshops
- c. Identify the goals and objectives of the program as part of developing a logic model

2. The goal of the overall program is to decrease the incidence of Low Birth Weight (LBW) infants by encouraging healthy eating during pregnancy. What health promotion strategy is most appropriate to support this specific goal?

- a. Advocate for public policy. Write a letter to your Member of Provincial Parliament on behalf of your health department to increase the minimum employee wage so that this population can afford healthier food options.
- b. Support personal skill development. Provide education about the essential nutrients for a healthy pregnancy and economical ways to eat healthy while pregnant.
- c. Develop a health communication campaign. Create informative posters that creatively show the importance of consuming high-fibre foods, including vegetables and fruit, during pregnancy.
- d. Advocate for organizational change. Advocate for the adoption of practices that encourage breastfeeding by local community businesses (e.g., in public spaces like restaurants).

3. The development of the program has been completed in collaboration with program partners and stakeholders. Each week, there is a public health nurse, lactation consultant and community food advisor available to help deliver the program workshops for the pregnant women. What should you do first to successfully implement the weekly workshops?

- a. Ask participants to complete a 5-minute satisfaction survey at the end of each weekly workshop
- b. Maintain ongoing communication with the program partners and stakeholders to ensure their interests are represented in the program's delivery
- c. Review program resources and determine if additional student volunteers would be helpful to support the workshop delivery
- d. Delegate roles to the team members to ensure weekly workshop objectives are achieved and workshop tasks are completed

4. You have collected participant feedback through a survey and have summarized the results. Several participants wanted to learn more tips on how to purchase healthy foods. How should you incorporate the participant survey results in your program logic model for the next time the program is delivered?

- a. Update program activities to include a session on Canada's Food Guide serving sizes and the cost per serving size
- b. Explore available program resources to determine if there may be additional funding for food vouchers for program participants
- c. Update program activities to include a local grocery store tour facilitated by a Registered Dietitian
- d. Update program activities to include distribution of an information sheet with credible online resources about purchasing healthy foods for further self-exploration

5. During a weekly workshop, one of the participants tells you that she occasionally drinks a glass of wine or beer when she feels stressed about having a baby. What should you do to address this situation?

- a. Demonstrate empathy and understanding for how stressful pregnancy can be and explain why drinking alcohol can lead to poor health outcomes for her infant
- b. Explain that drinking alcohol is a very risky behaviour during pregnancy and could lead to poor health outcomes for her infant
- c. Ask other participants how often they consume alcohol to determine if you should address the topic of alcohol consumption during pregnancy for the whole group
- d. Demonstrate empathy and understanding for how stressful pregnancy can be and reassure the client that drinking alcohol occasionally during pregnancy is safe, but the client should not consume more than 1 drink per week

6. As part of your role, you work with other health professionals to develop clear and helpful written resources that promote healthy eating during pregnancy. You have been asked to write a new information sheet about budget-friendly, healthy meal planning tips. What should be your first step in determining whether the information sheet is ready to be distributed to your client population?

- a. Ask your client population to provide you with grocery store shopping receipts to see if your meal planning tips are appropriate for their budget
- b. Ask for feedback from family and friends to evaluate whether the information sheet is written in plain language
- c. Ask for feedback from a dietitian who works at an outpatient heart health clinic since dietitians are the best professionals to create healthy eating material
- d. Ask for feedback from the health professionals on your program team to explore whether the information sheet is realistic and targeted to your population's needs

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Management Case #1

You are a dietitian working at a Long-Term Care home*. Ten residents in the Long-Term Care home became sick after a few hours from eating a coconut cream pie**. The residents ate the pie at an outdoor summer gathering near the Long-Term Care home. The residents experienced nausea, vomiting and abdominal cramps. Food Service staff had prepared the pie from raw ingredients a few hours before the event. The pie was kept cold in the refrigerator at less than 4°C.

The staff physician at the Long-Term Care home determined that the residents experienced foodborne illness due to staphylococcus aureus. The most probable cause was unsafe food handling by the Food Service staff.

**A Long-Term Care home is a facility where adults with chronic conditions live with assistance for daily activities, nursing and personal care.*

***A single crust pie topped with whipped cream and made with custard (a cooked mixture of milk, cream and eggs).*

1. What information is most important for you to consider when assessing the foodborne illness issue?
 - a. The date of the last public health inspection, including the recommendations from the public health inspector
 - b. The food handling practices of Food Service staff, including the date of the last staff education session, and the staff attendance record
 - c. The hand washing practices of the Food Service staff member who made the coconut cream pie on the day of the foodborne illness outbreak
 - d. The number of Food Service staff who were sick on the day of the foodborne illness outbreak

2. What training topics related to safe food handling practices should be reviewed with all of the Food Service staff?
 - a. Proper procedures for thermometer use, avoiding cross-contamination, as well as all Standard Operating Procedures
 - b. Proper procedures for hand washing, thermometer use, as well as all Standard Operating Procedures
 - c. Proper procedures for hand washing, temperature control, and avoiding cross-contamination

3. In addition to reviewing safe food handling practices, what further steps should be taken in order to reduce the risk of foodborne illness in the Long-Term Care home?
 - a. Review all recipes to ensure proper identification of Critical Control Points (CCP's)
 - b. Review all recipes to ensure proper identification of Standard Operating

Procedures (SOP's)

- c. Review all recipes to ensure identification of proper handwashing procedures prior to handling raw ingredients
 - d. Review all recipes to ensure Hazard Analysis and Critical Control Points (HACCP) principles are incorporated
4. A day after the foodborne illness outbreak, a Food Service staff member tells you that she is feeling ill, and has nausea and cramps. She reports eating a piece of the coconut cream pie. The staff member asks you for advice. How should you respond?
- a. Tell the staff member she has foodborne illness since she ate the pie and has the symptoms
 - b. Refer the staff member to the occupational health department for an assessment
 - c. Tell the staff member she should go home immediately after her workstation is thoroughly sanitized
 - d. Assign the staff member to duties that do not involve food preparation until she feels better
5. The daughter of a resident of the Long-Term Care home leaves a message on your phone. Her father has dementia and the daughter has been appointed to make healthcare decisions on his behalf. She is upset after hearing about the foodborne illness outbreak and would like to discuss what is being done to prevent this from occurring again in the future. How do you communicate with her?
- a. Do not call her back. It's more important to focus on addressing the problem within the Long-Term Care home and you also want to avoid a lawsuit (legal action by the daughter).
 - b. Return her call and listen to her concerns. Provide an update on corrective actions in the Long-Term Care home and document the conversation.
 - c. Email her a general response about the foodborne illness outbreak that has been helpful in similar situations in the past.

Management Case #2

You are the dietitian working as a Food Service Manager at an acute care hospital,* which has 300 beds. The Food Service Department provides in-patient meal service using a conventional (traditional) production system and centralized meal assembly. Over the past six months, you have been noticing an unexplained rise in food costs. You suspect that it may be the result of theft.

**Hospital-based health care for short-term or severe health issues.*

1. You begin your investigation by calculating the monthly food inventory turnover rates for each of the previous 6 months. You compare your results to the industry standard of 2 - 4 times per month. You determine that the inventory turnover is too low. Based on

this information, what is likely contributing to the higher food costs?

- a. Food is remaining in inventory too long and is expiring before being used
- b. Food is being used too quickly resulting in the need to substitute with other more costly items
- c. Theft is occurring by food service staff
- d. Theft is occurring however there is no evidence to determine who is stealing

2. You continue to investigate other possible reasons for the rising food costs. You develop a plan to systematically review all policies and procedures related to the receiving and storage of goods for the department. Which of the following is an appropriate receiving and storage practice to decrease the risk of theft?

- a. The person responsible for purchasing goods for the department should be the same person receiving the goods
- b. Suppliers should assist the receiver to quickly move foods into storage
- c. A delivery schedule and log book should be established
- d. Staff should use the LIFO (last in first out) method of storage

3. During your investigation, you observe that the receiver, who has held the position for almost 15 years, often does not follow proper receiving procedures. You notice that goods are often received without proper inspection and/or without the appropriate follow up paperwork. What should you do?

- a. Assign the receiver to a different position, but maintain his current wage
- b. Review the receiver's employee file to determine the qualifications for the position
- c. Review all in-services the receiver has attended to ensure he has the knowledge to perform the job properly
- d. Review proper receiving procedures with the receiver and monitor his progress

4. As you review the policies and procedures relating to procurement, you find a hospital policy that states no one is permitted to accept any gift (including free products) from any supplier. It has been standard practice by the Food Service Department to accept gifts from suppliers during the holidays in December. The gifts are used as prizes at the staff holiday party. Is this an acceptable practice given the hospital policy?

- a. Yes, because the gifts are shared by the entire department
- b. No, because it is not ethical practice
- c. Yes, because the value of the gifts are minimal
- d. No, because it is unfair to employees in other departments

5. You set up a meeting with all Food Service staff to discuss your concern regarding the

rise in food costs. How should you proceed in order to ensure open and effective communication?

- a. Prior to the meeting, post an agenda and provide information regarding your suspicion of theft so staff are prepared for this discussion.
- b. Encourage staff to meet with you individually prior to the meeting to discuss your concerns.
- c. Set the meeting outside of the scheduled hours of the department in order to get better attendance and have sufficient time to meet.
- d. Encourage staff to ask questions and provide feedback during your meeting.

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Answers to competency-based sample questions

Nutrition Care Case #1

Topic: Liver, gallbladder and pancreatic diseases

You are a dietitian working in a pediatric hospital outpatient clinic*. You are meeting a client for an initial assessment. The client is a 14-year-old female named Rena. She is coming to the appointment with her parents. Rena's pediatrician recently diagnosed her with Type 1 diabetes (T1DM) and subsequently referred her to your clinic. She and her family received basic nutrition information from the physician and diabetes nurse educator on your team before meeting with you.

Rena has begun a Multiple Daily Injection (MDI) regimen of basal and bolus insulin therapy and has been using this regimen for the past two weeks. After starting insulin therapy, her fasting blood glucose is averaging 7.5 mmol/L and her 2-hour post prandial blood glucose levels average 9.1 mmol/L.

Rena is 152 cm tall (5'0"). She currently weighs 45 kg (99 lbs). Her mother tells you that she weighed 49 kg (108 lbs) at her doctor's appointment three months ago.

Rena appears to be quite nervous about her recent diagnosis. She tells you that she has been reading about the complications of diabetes and is afraid to lose her eyesight or have her legs amputated.

**An outpatient clinic provides care to patients who are not admitted, but come in periodically for treatments.*

Assessment:

1. From the information provided above, what is your interpretation of Rena's medical history?
 - a. Rena's fasting blood glucose is within an acceptable range
 - b. Rena's medication should include an oral hypoglycemic agent (OHA)
 - c. Rena's 2 hour postprandial blood glucose levels are too high
 - d. Rena's recent weight loss may be related to her recent diagnosis of T1DM

	Correct? Y/N	Rationale
a.	N	Target fasting blood glucose is 4-7 mmol/L for this age group. Rena's fasting blood glucose is 7.5 mmol/L. Therefore, her fasting blood glucose is outside of the acceptable range.
b.	N	Insulin therapy alone is used in cases of T1DM, OHAs are not used.
c.	N	A 2 hour postprandial blood glucose of 5-10 mmol/L is within an acceptable range for this age group. Rena's 2 hour postprandial blood glucose level is 9.1 mmol/L, which is NOT too high.
d.	Y	Weight loss is a common presenting factor in new cases of T1DM.

Planning:

2. At your first appointment with Rena, you review a 3-day food record that Rena has prepared with her parents' help. You determine that Rena is consuming approximately 1800 kcal/day and that 35% of her total energy is coming from carbohydrates. She tells you that she has been eating less bread, pasta and fruit. What is the best way to proceed with this information?
 - a. Praise Rena for reducing her carbohydrate intake since this will help with her glycemic control
 - b. Clarify with Rena and her parents what education they have received about nutrition and diabetes

- c. Tell Rena that she needs more carbohydrate than what she is currently consuming in order to promote her muscle growth
- d. Tell Rena that she needs more calories than she is currently eating to support her growth and maintenance

	Correct? Y/N	Rationale
a.	N	While it is advisable to control carbohydrate intake, the Canadian Diabetes Association recommends a level between 45-60% of energy intake.
b.	Y	This is the best option as it is a good starting point to start discussion and education into how to best manage diabetes nutritionally.
c.	N	Carbohydrate is not the primary macronutrient associated with growth. Additionally, 35% of 1800 kcal provides 158 g of carbohydrate, which is above the minimum threshold of 130g/day.
d.	N	Using the Harris Benedict Equation and an activity factor of 1.3 would result in 1691 kcal needed to meet Rena's needs. Additionally, 1800 kcal/day provides 40 kcal/kg, which is more than adequate.

Implementation:

3. You are discussing self-monitoring of blood glucose (SMBG) with Rena and her parents. Which of the following is most important to recommend?

- a. Be familiar with symptoms of hypo or hyperglycemia and measure blood glucose in response to these symptoms
- b. Test blood glucose at least four times per day
- c. Test fasting as well as bedtime blood glucose to avoid overnight hypoglycemic episodes
- d. Test blood glucose before meals to know how many units of bolus insulin to inject

	Correct? Y/N	Rationale
a.	N	All of the options are true on their own, but the most important recommendation is to test at least 4 times/day.
b.	Y	Regular self-monitoring blood glucose is required when a client is on multiple daily injections of insulin (≥4 insulin injections per day) in order to provide a comprehensive picture of glycemic control and to act upon the results of the blood glucose testing.
c.	N	Fasting and bedtime levels alone do not provide sufficient information about overall glycemic control.
d.	N	Pre-prandial levels alone do not provide sufficient information about overall glycemic control.

Evaluation:

4. Rena and her mother come for a follow up visit two weeks after her initial nutrition assessment. Rena has lost another 2 kg (4.4 lb) and now weighs 43 kg (95 lb) with a Body Mass Index (BMI) of 18.6 kg/m². Her mother appears concerned and frustrated. She tells you that Rena continues to restrict her carbohydrate intake to control her blood sugar. Rena interrupts to say that she is the one living with diabetes and she does not want to go blind. Her mother also explains that she has had several hypoglycemic episodes over the past two weeks. What should be your priority after hearing this information?

- a. Discuss the importance of increasing overall energy intake and explain that Rena's BMI is now approaching an unhealthy range.
- b. Discuss the risks of hypoglycemia as well as how to manage it. Follow up with the nurse and/or physician about insulin dosing.

- c. Discuss the importance of adequate carbohydrate intake to ensure adequate nutrition. Review healthy sources of carbohydrate.
- d. Discuss the long term complications of diabetes to address Rena’s fears. If she knows the facts, she may be less afraid.

	Correct? Y/N	Rationale
a.	N	While it is important to return Rena’s BMI into a healthier range, it is not the most acute priority at the moment.
b.	Y	The most acute and potentially life-threatening complication at the moment is Rena’s recent tendency towards hypoglycemia. This must be addressed first.
c.	N	While addressing her carbohydrate intake is important, it is likely to take more than a single discussion to correct this and managing her hypoglycemia as well as possible insulin adjustments are priorities.
d.	N	It is important to have a discussion about long term complications, but this might not be the best time and it might be preferable to refer Rena to another health professional to reinforce this message.

Professional Practice

5. Rena tells you that she is having difficulty adjusting to her recent diagnosis. She is worried about living with diabetes in adulthood and fears potential long term complications. She agrees that she has been restricting her carbohydrate intake in an effort to control her blood glucose levels. What should you let Rena know to best address her concerns?

- a. It is common for teenagers with a recent diagnosis of T1DM to have these concerns. Reinforce the importance of good nutrition.
- b. It would be best if she speaks with her parents about what she is feeling. They could be her best resource.
- c. It is common for teenagers with T1DM to have these concerns and it often helps to talk with the mental health professional on the team. Ask if she would like to be referred.
- d. There is no need for concern and you are here to help her. Make a follow up appointment with her and her parents to monitor how she progresses with her nutrition care plan.

	Correct? Y/N	Rationale
a.	N	While it’s correct to validate Rena’s concerns, it does not address her own concerns.
b.	N	While it is important for Rena to share her feelings with her parents, they would not be able to offer the professional counselling that a member of the team might.
c.	Y	This option validates her concerns and acts on them in an appropriate manner.
d.	N	This does not address her concerns and is not a client-centred or professional response because it does not take her feelings into account.

Communication and Collaboration:

6. Rena’s father sometimes accompanies her to follow up visits with you. You have noticed that he often doesn’t contribute to the discussion and seems confused about some of the concepts you are discussing. He has told you that English is not his first language and that his first language is Greek. What should you do?

- a. Do nothing because you do not want to embarrass him
- b. Ask Rena to translate some of the discussion concepts into Greek for her father
- c. Ask the father if he would like a Greek-speaking interpreter for the next appointment

- d. Wait for her father to ask for help

	Correct? Y/N	Rationale
a.	N	This option is not aiding in her father's understanding.
b.	N	It is not best practice for family members to interpret as information may be intentionally or unintentionally left out or misinterpreted.
c.	Y	It is important that all family members understand the necessary concepts involved in Rena's care. This option demonstrates that you have taken steps to include the family members.
d.	N	This is not the best option since the father may not realize that translated handouts or translator services are available or may not feel comfortable to ask.

Nutrition Care Case #2

Topic: Malnutrition

You are a dietitian working in a Long-Term Care home*. Ms. Suva, an 82-year-old female, has recently been admitted to the facility. She has experienced a few falls at home and her family felt it would be best for her to live in a Long-Term Care home.

Her past medical history includes hypertension, which is fairly well controlled with medication.

Ms. Suva had been living alone since her husband died 6 months ago. She has two adult children who both live in the United States. Her son has come to help her move into the Long-Term Care home and will be staying for approximately one week.

Ms. Suva is on the following medications:

- Hydrochlorothiazide – 25 mg PO daily (an antihypertensive medication)
- Amlodipine – 10 mg PO daily (an antihypertensive medication)
- A multivitamin made for women over 50 years old – 1 tab PO daily (multiple vitamin and mineral supplement)

Her current height is 155 cm (5'1"), and her weight is 50 kg (110 lbs). When you meet with Ms. Suva and her son, she tells you that she weighed 53 kg (117 lb) 6 months ago and is surprised to hear of the weight loss; it was not intentional. She tells you that she spent most of her time indoors watching television, reading or knitting.

Her typical diet prior to admission is provided below:

Breakfast:

500 mL (2 cups) of tea with 60 mL (4 Tbsp) 3.25% M.F. (milk fat) cow's milk
2 slices of whole wheat toast with 15 g (1 Tbsp) butter and 30 mL (2 Tbsp) jam

Lunch:

1 slice of whole wheat toast
30 mL (2 Tbsp) light cream cheese (a spreadable cheese)
1 can (284 mL) condensed canned tomato soup (she adds 1 cup water to prepare)
250 mL (1 cup) canned mixed fruit salad, packed in water
500 mL (2 cup) of tea with 60 mL (4 Tbsp) 3.25% M.F. (milk fat) cow's milk

Dinner:

120 g (1 cup) cooked white pasta – does not add salt

10 g (2 tsp) butter
 200 g (1 cup) frozen mixed vegetables (boiled, drained)

Ms. Suva tells you that her neighbour helped her with the grocery shopping once a week. Ms. Suva cooked all her own meals, but reports that she started relying more on microwaving convenience and prepared foods.

**A Long-Term Care home is a facility where adults with chronic conditions live with assistance for daily activities, nursing and personal care.*

Assessment:

1. In addition to calcium, which of the following two key nutrients may be inadequate in Ms. Suva's diet?

- a. Vitamin D and fat
- b. Vitamin D and carbohydrate
- c. Zinc and protein
- d. Zinc and carbohydrate

	Correct? Y/N	Rationale
a.	N	Her diet is low in Vitamin D but meets her needs for dietary fat.
b.	N	Her diet is low in Vitamin D, but she is meeting carbohydrate needs.
c.	Y	Her diet does not meet her zinc and protein needs.
d.	N	Her diet does not meet her zinc needs but meets her needs for carbohydrates.

Planning:

2. In your initial nutrition assessment, you calculate that Ms. Suva has lost 6% of her body weight over the past 6 months and that her Body Mass Index (BMI) is now 20.8 kg/m². You ask Ms. Suva why she feels she may have lost this weight. She tells you that her appetite has decreased since her husband died and she did not like eating alone when she lived at home. You determine that she has good dentition and she tells you that she has no difficulty eating most foods with respect to their texture. How should you include this information in your nutrition care plan?

- a. You determine that her current BMI is within a healthy range for her age, but plan to change her diet to a minced texture. From your past experience, you know that most clients her age will eat better with this diet.
- b. You determine that her current BMI is within a healthy range for her age and she will likely start eating more now that her meals will be in a communal dining room at the Long-Term Care home.
- c. You determine that her current BMI is below a healthy range for her age and plan to include liquid nutritional meal supplements in her diet to increase her intake.
- d. You determine that her current BMI is below a healthy range for her age and plan to review her dietary preferences with her to maximize her intake.

	Correct? Y/N	Rationale
a.	N	BMI is useful for most healthy adults up to the age of 65. A BMI of 20.8 kg/m ² is generally recognized as being below a healthy range for over 65 years of age. More importantly, it is not client-centred to change a client's diet texture without apparent need and solely based on one's opinion.
b.	N	While the anticipation of increased intake while in the company of others might be appropriate, the assumption of a healthy BMI as in option (a) is not correct. As noted above, BMI is useful for most healthy adults up to the

		age of 65. A BMI of 20.8 kg/m ² is generally recognized as being below a healthy range for over 65 years of age.
c.	N	The assessment of BMI is correct, but it is not appropriate to start on liquid supplements without attempting whole food choices first, especially given there is no problem with dentition or chewing food.
d.	Y	This option correctly assesses that her BMI is below a healthy range. It is client-centred to attempt to optimize her dietary preferences first.

Implementation:

3. In implementing a dietary plan for Ms. Suva, she tells you that she cannot tolerate drinking fluid cow's milk on its own. Additionally, she says that she dislikes yogurt and most hard cheeses. Ms. Suva asks, "Isn't it enough to just take my multivitamin?" How should you respond?

- Explain to Ms. Suva that it's important to increase sources of milk and milk products in her diet because this is a major food group and a multivitamin alone will not meet her needs
- Together with Ms. Suva, look into alternatives to milk products that Ms. Suva will enjoy
- Prescribe a Vitamin D supplement to help increase the absorption of her existing calcium intake
- Together with Ms. Suva, look into alternatives to increasing her protein intake to replace what she will be missing from avoiding milk and milk products

	Correct? Y/N	Rationale
a.	N	This response is not client-centered as the client is not willing to increase milk and milk products.
b.	Y	This response involves the client in the nutrition care plan. It considers alternate sources of nutrient-rich foods to meet her estimated needs.
c.	N	This response does not address the issue. She is likely getting recommended amounts of Vitamin D from her multivitamin. In addition, prescribing is outside of the scope of practice of a dietitian.
d.	N	This response does not address the issue of not getting enough calcium-rich foods.

Evaluation:

4. Two weeks after your first assessment, Ms. Suva's weight has remained unchanged. The dietary staff working in the dining room tell you that one third of the food on her plate is often left uneaten. When you speak with Ms. Suva, she confirms again that she tolerates the food textures and that she is enjoying the company of her fellow residents. She says, however, that her appetite sometimes fluctuates and the large portions can seem overwhelming to her. How should you proceed?

- Wait another few weeks before implementing any further changes. Ms. Suva is still getting adjusted to her new surroundings and you don't want to overwhelm her further.
- Speak to the medical team about the possibility of inserting a temporary nasogastric (NG) tube for enteral nutrition until her weight increases. You explain the severity of her weight loss and that it would not be in the client's best interest to risk more weight loss.
- Ask Ms. Suva if she would like to have some of her favourite snacks brought into her room to eat when she is hungry.
- Ask members of the dietary staff to sit with Ms. Suva until she eats all of the food provided during her meals.

	Correct? Y/N	Rationale
a.	N	She has already lost 6% body weight and has been below a healthy range for months now. It is not appropriate to wait another few weeks without further action.

b.	N	Starting enteral nutrition is not appropriate at this point as she is able to chew and swallow.
c.	Y	This option takes a client-centered approach. The client has reported that she doesn't often have an appetite at meal times, having some of her favourite snacks freely available to her may help increase her intake.
d.	N	It is not client-centred to have someone watch her and enforce her intake.

Professional Practice:

5. Ms. Suva's son, who has now returned to the United States, calls the Long-Term Care home. He asks to speak with you because he is concerned about his mother's condition. How should you proceed?

- Inform the son about her condition. You can assume that Ms. Suva has provided consent since he was with her when she was admitted.
- Check Ms. Suva's chart to see whether she has provided written consent to discuss her condition with her son.
- Call the physician to ask if it's acceptable to discuss Ms. Suva's condition with her son.
- Inform the son that his mother's condition is stable. You don't want her son to worry since he's so far away from her.

	Correct? Y/N	Rationale
a.	N	Inappropriate disclosure of client information as it breaks confidentiality. Consent cannot be assumed and it can fluctuate.
b.	Y	Takes appropriate steps to maintain confidentiality.
c.	N	Inappropriate as it is not the physician's decision whether you can speak to the son.
d.	N	Inappropriate disclosure of client information.

Communication and Collaboration:

6. A nurse who is on Ms. Suva's medical team approaches you and asks why you are not being more insistent about providing liquid nutritional meal supplements to Ms. Suva to help her gain weight. The nurse's own mother had lost a lot of weight when she was having treatment for oral cancer and the dietitian responsible for her care had suggested that she drink 3-4 liquid nutritional meal supplements per day. How should you respond to the nurse?

- Let the nurse know that you are providing the best nutritional care for Ms. Suva based on your nutrition assessment.
- Let the nurse know that she might be right and you will consider acting on her advice. She is part of the team and you agree that liquid nutritional meal supplements can be effective in increasing intake and weight.
- Let the nurse know that you cannot discuss aspects of Ms. Suva's nutritional care without her consent.
- Let the nurse know that liquid nutritional meal supplements may be helpful if someone is unable to chew or swallow adequately, but this is not the case with Ms. Suva, and whole foods should be encouraged first.

	Correct? Y/N	Rationale
a.	N	This does not demonstrate effective interprofessional collaboration or the ability to respond to feedback.
b.	N	The nurse's suggestion is not correct for your client at this time.
c.	N	The question stem confirmed that this nurse was within the client's circle of care and there is no need to withhold information.

d.	Y	This option takes into consideration a colleague’s suggestion and provides sound reasoning as to why this is not the best option for this client at this time.
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Population and Public Health Case #1

Topic: Food systems and food security (with attention to priority groups if applicable)

Subtopic: Factors affecting access to food

You are a dietitian working for a public health department*. Parents in the community have noticed that their children (ages 5-17 years) are consuming sugar sweetened beverages more often when they participate in activities at the local community recreation centre. As a first step, you have assessed the beverage choices offered in the recreation centre’s vending machines and have confirmed they are high in sugar. You also notice that there is a lack of healthier beverage options available (e.g., like water; 1 or 2% plain cow’s milk; plain soy beverage etc.). The parents have asked the health department to develop a plan to support them in reducing their children’s consumption of sugar-sweetened beverages.

**A public health department is responsible for the health and well-being of the residents living in a specific geographic area. Public health departments focus on protecting and promoting the health of individuals, communities and populations.*

Assessment:

1. What is the most appropriate next step you should take in responding to the parents’ concerns about their children’s increased consumption of sugar sweetened beverages?
 - a. Develop education resources on healthy beverage choices for boys since they are most likely to be consuming more sugar sweetened beverages than girls.
 - b. Visit the recreation centre and speak with the Manager. Ask the Manager to keep a copy of Canada’s Food Guide near all the vending machines to encourage healthy beverage choices among boys and girls.
 - c. Coordinate a meeting with community stakeholders including parents, recreation staff members and local city councilors to explore the reasons for the limited healthy beverage options in the vending machines.
 - d. Send a letter to the recreation centre Manager to advocate to remove all vending machines in order to limit the availability of sugar sweetened beverages.

	Correct? Y/N	Rationale
a.	N	Not relevant without prior assessment of the situation.
b.	N	Not an appropriate or effective first step prior to completing an assessment of the situation.
c.	Y	A situational assessment should be performed to assess the needs and assets prior to implementing any intervention.
d.	N	Not relevant without prior assessment of the situation.

Planning:

2. What is an appropriate goal to address the issue of increased consumption of sugar sweetened beverages by children and youth (ages 5-17 years) when participating in the recreation centre’s programs?
 - a. Remove all vending machines from the recreation centre to decrease children and youth’s consumption of sugar sweetened beverages
 - b. Ensure 75% of all children and youth will no longer consume sugar sweetened beverages

- c. Reduce the consumption of sugar sweetened beverages in children and youth participating in recreation centre activities
- d. Increase the availability of healthier beverage choice options in the recreation centre vending machines by 75%

	Correct? Y/N	Rationale
a.	N	Removing vending machines is not a realistic or plausible option and does not address health promotion education/capacity building in making healthier beverage choices.
b.	N	Goal is unachievable as it is not specific to recreation centres.
c.	Y	A realistic and plausible goal providing an overall direction of the population health plan.
d.	N	This is an objective of the overall goal. It addresses the specific desired change that will enable achievement of the goal.

Implementation:

3. You have developed a new social marketing campaign to encourage healthy beverage consumption for children and youth who attend programming at the recreation centre. The social marketing campaign includes an interactive website as well as printed posters available throughout the recreation centre. One of the campaign's key messages is to promote drinking water as the first choice to quench thirst. First, you plan to train the recreation centre's staff on how to implement the social marketing campaign. What strategy should you use to deliver the training to the staff?

- a. Send staff information about the new social marketing campaign in an email and tell them to email you back if they have any questions
- b. Tell the staff to share the social marketing website with parents so they can teach their children about healthy beverages at their convenience
- c. Use an interactive group training session to engage the staff about the social marketing campaign material and encourage them to ask questions
- d. Deliver the printed posters to each staff member's office and ask them to hang them around the recreation centre

	Correct? Y/N	Rationale
a.	N	This is an inappropriate strategy; it is indirect and the likelihood of reach and impact is limited.
b.	N	This is an inappropriate strategy; it is indirect and the likelihood of reach and impact is limited.
c.	Y	This strategy will engage the recreation centre staff and encourage participation; using adult learning principles.
d.	N	This is an inappropriate strategy; it is indirect and the likelihood of reach and impact is limited.

Evaluation:

4. Recreation staff have implemented the social marketing campaign to encourage healthy beverage consumption. You would like to evaluate the effectiveness of the intervention in reaching its goal. Which of the following indicators would help measure the impact of the social marketing campaign?

- a. The number of visitors to the social marketing campaign website
- b. The BMIs of all the children and youth attending the recreation centre programming
- c. The number and type of community partners (e.g., youth health coalition) engaged in the social marketing campaign

- d. The number of children and youth identifying a change in view about limiting the consumption of sugar sweetened beverages

	Correct? Y/N	Rationale
a.	N	Not appropriate to measure campaign impact/effectiveness. This is a measure of reach.
b.	N	Not appropriate, feasible or ethical to measure campaign impact/effectiveness.
c.	N	Not appropriate or feasible to measure campaign impact/effectiveness. This is a measure of reach.
d.	Y	Most appropriate impact/effectiveness indicator for a social marketing campaign.

Professional Practice:

5. When speaking to parents at the recreation centre about healthier beverage options for children and youth, some parents mention that they would like to learn more about healthy snack ideas they could prepare at home. What should you suggest to parents to learn more about healthy snack ideas?

- Suggest searching the Internet for healthy snack recipe ideas for children and youth
- Offer your private practice fee-for-services to parents for one-to-one follow-up about their specific questions
- Provide parents with a webpage on the public health department's website dedicated to healthy meal and snack ideas
- Encourage parents to speak with the recreation centre's Manager about offering a program about healthy snack ideas

	Correct? Y/N	Rationale
a.	N	Does not adequately identify services and resources relevant to parent's questions.
b.	N	Dietitians can recommend dietetic services but because the RD would personally gain from this referral, there is a conflict of interest. In this case, it would be appropriate to refer to another dietitian.
c.	Y	Provides parents with a service that is relevant to their questions.
d.	N	Does not adequately identify services and resources relevant to parent's questions.

Communication and Collaboration:

6. A parent sends you an email. She is concerned that children attending the recreation centre are being encouraged to consume cow's milk as a healthier beverage option. The parent believes that cow's milk can cause asthma in growing children. How should you respond?

- Tell the parent to search her question on the Internet and come back to you with information about the link between asthma and consumption of cow's milk for further exploration
- Reply to the parent with information that addresses her concern using nutrition evidence, and welcome her to call you for further discussion
- Disregard the parent's email as you are unaware of any evidence that suggests there is a link between asthma and consumption of cow's milk
- Email Canada's Food Guide to the parent and inform her that Canada's Food Guide recommends cow's milk as one of the options in the Milk and Alternatives food group

	Correct? Y/N	Rationale
a.	N	Response does not address concern and is non-engaging.

b.	Y	Response engages, acknowledges, respects and builds rapport with the parent, a key stakeholder.
c.	N	Situation requires a response and the parents are a core stakeholder in the program.
d.	N	Response does not address the parent's concern.

Acknowledgment: The above case study was adapted from the College of Dietitians of British Columbia's Competency Self-Assessment Process (CSAP).

Population and Public Health Case #2

Topic: Population level programming intervention and monitoring (with attention to priority groups if applicable)

Subtopic: Program planning in population and public health

You are a dietitian working in a large public health department.* You have recently started working with a team of health professionals within the department to provide services for at-risk pregnant women and their infants. You will be leading the planning and delivery of a program, which includes weekly workshops for this client population. The workshops are designed to promote positive birth outcomes for both the mothers and their babies, including breastfeeding support.

**A public health department is responsible for the health and well-being of the residents living in a specific geographic area. Public health departments focus on protecting and promoting the health of individuals, communities and populations.*

Assessment:

1. Before you begin planning the program for at-risk pregnant women, how should you become familiar with existing programs, services and resources available for this population?
 - a. Set up a meeting with the team of health professionals (e.g., nurses, social workers) who work with this population as part of your situational assessment
 - b. Outline the resources required to support the delivery of the program's weekly workshops
 - c. Identify the goals and objectives of the program as part of developing a logic model

	Correct? Y/N	Rationale
a.	Y	Situational assessments are the first step in program planning and will provide an opportunity to gather necessary information about the population of interest.
b.	N	Identifying resources should occur after the situational assessment, as part of the program planning process.
c.	N	Identifying goals and objectives should occur after the situational assessment, once the priority issue(s) are identified.

Planning:

2. The goal of the overall program is to decrease the incidence of Low Birth Weight (LBW) infants by encouraging healthy eating during pregnancy. What health promotion strategy is most appropriate to support this specific goal?
 - a. Advocate for public policy. Write a letter to your Member of Provincial Parliament on behalf of your health department to increase the minimum employee wage so that this population can afford healthier food options.

- b. Support personal skill development. Provide education about the essential nutrients for a healthy pregnancy and economical ways to eat healthy while pregnant.
- c. Develop a health communication campaign. Create informative posters that creatively show the importance of consuming high-fibre foods, including vegetables and fruit, during pregnancy.
- d. Advocate for organizational change. Advocate for the adoption of practices that encourage breastfeeding by local community businesses (e.g., in public spaces like restaurants).

	Correct? Y/N	Rationale
a.	N	This will not directly support the program-specific goal. This strategy will enhance environmental factors to improve population's well being.
b.	Y	Health Education is the most appropriate strategy and will directly support the program-specific goal to improve healthy eating behaviours.
c.	N	This will not directly support the program-specific goal. This strategy may enhance awareness of healthy eating during pregnancy.
d.	N	This will not directly support the program-specific goal. This strategy will enhance environmental factors to improve population's well being.

Implementation:

3. The development of the program has been completed in collaboration with program partners and stakeholders. Each week, there is a public health nurse, lactation consultant and community food advisor available to help deliver the program workshops for the pregnant women. What should you do first to successfully implement the weekly workshops?

- a. Ask participants to complete a 5-minute satisfaction survey at the end of each weekly workshop
- b. Maintain ongoing communication with the program partners and stakeholders to ensure their interests are represented in the program's delivery
- c. Review program resources and determine if additional student volunteers would be helpful to support the workshop delivery
- d. Delegate roles to the team members to ensure weekly workshop objectives are achieved and workshop tasks are completed

	Correct? Y/N	Rationale
a.	N	This is an evaluation tool to measure participant satisfaction. It would not assist in the implementing workshop that meet's the program's goal.
b.	N	Stakeholder engagement is important in overall program planning and evaluation; it would not necessarily assist in the weekly planning of workshop activities.
c.	N	This step could be considered after roles of the project team are established.
d.	Y	As the designated lead for the program, it is most appropriate for the dietitian to assign roles and manage the project team.

Evaluation:

4. You have collected participant feedback through a survey and have summarized the results. Several participants wanted to learn more tips on how to purchase healthy foods. How should you incorporate the participant survey results in your program logic model for the next time the program is delivered?

- a. Update program activities to include a session on Canada's Food Guide serving sizes and the cost per serving size
- b. Explore available program resources to determine if there may be additional funding for food vouchers for program participants
- c. Update program activities to include a local grocery store tour facilitated by a Registered Dietitian

- d. Update program activities to include distribution of an information sheet with credible online resources about purchasing healthy foods for further self-exploration

	Correct? Y/N	Rationale
a.	N	Cost per serving sizes in Canada’s Food Guide will not address the need to learn more about purchasing healthy foods.
b.	N	Food vouchers will not address the need to learn more about purchasing healthy foods.
c.	Y	One use of the program logic model is to revisit based on evaluation feedback and update program activities as appropriate. A grocery store tour will address the need to learn more about purchasing healthy foods.
d.	N	While this may be a useful supplemental resource, it should not replace an interactive session with the dietitian as program resources allow. In addition, limited accessibility to the Internet by this population should be considered.

Professional Practice:

5. During a weekly workshop, one of the participants tells you that she occasionally drinks a glass of wine or beer when she feels stressed about having a baby. What should you do to address this situation?

- a. Demonstrate empathy and understanding for how stressful pregnancy can be and explain why drinking alcohol can lead to poor health outcomes for her infant
- b. Explain that drinking alcohol is a very risky behaviour during pregnancy and could lead to poor health outcomes for her infant
- c. Ask other participants how often they consume alcohol to determine if you should address the topic of alcohol consumption during pregnancy for the whole group
- d. Demonstrate empathy and understanding for how stressful pregnancy can be and reassure the client that drinking alcohol occasionally during pregnancy is safe, but the client should not consume more than 1 drink per week

	Correct? Y/N	Rationale
a.	Y	This option will respect the individual rights of the client and is most ethical to address a potential health risk. This option also encourages empathy.
b.	N	This option does not respect the client’s rights, dignity and uniqueness. This option also lacks empathy.
c.	N	This option asks participants to disclose behaviour that they may not feel comfortable discussing in the group.
d.	N	No amount of alcohol during pregnancy or when planning to become pregnancy is considered safe.

Communication and Collaboration:

6. As part of your role, you work with other health professionals to develop clear and helpful written resources that promote healthy eating during pregnancy. You have been asked to write a new information sheet about budget-friendly, healthy meal planning tips. What should be your first step in determining whether the information sheet is ready to be distributed to your client population?

- a. Ask your client population to provide you with grocery store shopping receipts to see if your meal planning tips are appropriate for their budget
- b. Ask for feedback from family and friends to evaluate whether the information sheet is written in plain language
- c. Ask for feedback from a dietitian who works at an outpatient heart health clinic since dietitians are the best professionals to create healthy eating material

- d. Ask for feedback from the health professionals on your program team to explore whether the information sheet is realistic and targeted to your population’s needs

	Correct? Y/N	Rationale
a.	N	Not an appropriate channel for feedback. This could be uncomfortable for clients to share.
b.	N	Not the most appropriate channel for feedback.
c.	N	While dietitians do regularly work together, it would be most valuable to seek input from health professionals on your team that focus on at-risk pregnant populations.
d.	Y	Most appropriate channel for feedback. This values interprofessional collaboration and would likely provide the most relevant feedback to suit your client population’s needs.

Management Case #1

Topic: Management

Subtopic: Human resource management

You are a dietitian working at a Long-Term Care home*. Ten residents in the Long-Term Care home became sick after a few hours from eating a coconut cream pie**. The residents ate the pie at an outdoor summer gathering near the Long-Term Care home. The residents experienced nausea, vomiting and abdominal cramps. Food Service staff had prepared the pie from raw ingredients a few hours before the event. The pie was kept cold in the refrigerator at less than 4°C.

The staff physician at the Long-Term Care home determined that the residents experienced foodborne illness due to staphylococcus aureus. The most probable cause was unsafe food handling by the Food Service staff.

**A Long-Term Care home is a facility where adults with chronic conditions live with assistance for daily activities, nursing and personal care.*

***A single crust pie topped with whipped cream and made with custard (a cooked mixture of milk, cream and eggs).*

Assessment:

1. What information is most important for you to consider when assessing the foodborne illness issue?
 - a. The date of the last public health inspection, including the recommendations from the public health inspector
 - b. The food handling practices of Food Service staff, including the date of the last staff education session, and the staff attendance record
 - c. The hand washing practices of the Food Service staff member who made the coconut cream pie on the day of the foodborne illness outbreak
 - d. The number of Food Service staff who were sick on the day of the foodborne illness outbreak

	Correct? Y/N	Rationale
a.	N	Not relevant.
b.	Y	Since the issue is related to food handling practices, it would be important to obtain data related to recent education sessions and knowledge gaps that the staff may have.
c.	N	More than one individual was involved in the preparation of the food in question

		and therefore may have resulted from the improper food handling practices of any staff member involved with ingredients and / or the preparation of the coconut cream pie.
d.	N	Not relevant.

Planning:

2. What training topics related to safe food handling practices should be reviewed with all of the Food Service staff?

- a. Proper procedures for thermometer use, avoiding cross-contamination, as well as all Standard Operating Procedures
- b. Proper procedures for hand washing, thermometer use, as well as all Standard Operating Procedures
- c. Proper procedures for hand washing, temperature control, and avoiding cross-contamination

	Correct? Y/N	Rationale
a.	N	Answer is too vague. Many standard operating procedures would not be relevant.
b.	N	Answer is too vague. Many standard operating procedures would not be relevant. Does not take into account the importance of including cross contamination as important to proper food handling.
c.	Y	Includes topics most important to food handling.

Implementation:

3. In addition to reviewing safe food handling practices, what further steps should be taken in order to reduce the risk of foodborne illness in the Long-Term Care home?

- a. Review all recipes to ensure proper identification of Critical Control Points (CCP's)
- b. Review all recipes to ensure proper identification of Standard Operating Procedures (SOP's)
- c. Review all recipes to ensure identification of proper handwashing procedures prior to handling raw ingredients
- d. Review all recipes to ensure Hazard Analysis and Critical Control Points (HACCP) principles are incorporated

	Correct? Y/N	Rationale
a.	N	Only partially correct – need to ensure all HACCP principles are incorporated not only Critical Control Points.
b.	N	Standard Operating Procedures (SOP's) are not included in the recipes. SOP's are written step by step procedures for routine tasks.
c.	N	Handwashing is a Standard Operating Procedure and therefore not included in the recipe.
d.	Y	Need to ensure all HACCP principles are incorporated to ensure food safety.

Professional Practice:

4. A day after the foodborne illness outbreak, a Food Service staff member tells you that she is feeling ill, and has nausea and cramps. She reports eating a piece of the coconut cream pie. The staff member asks you for advice. How should you respond?

- a. Tell the staff member she has foodborne illness since she ate the pie and has the symptoms
- b. Refer the staff member to the occupational health department for an assessment
- c. Tell the staff member she should go home immediately after her workstation is thoroughly sanitized
- d. Assign the staff member to duties that do not involve food preparation until she feels better

	Correct? Y/N	Rationale
a.	N	Communicates a diagnosis. Out of scope of practice.
b.	Y	Appropriate referral.
c.	N	Inappropriate. The staff member requires further assessment by a healthcare practitioner.
d.	N	Inappropriate. The staff member requires further assessment by a healthcare practitioner.

Communication and Collaboration:

5. The daughter of a resident of the Long-Term Care home leaves a message on your phone. Her father has dementia and the daughter has been appointed to make healthcare decisions on his behalf. She is upset after hearing about the foodborne illness outbreak and would like to discuss what is being done to prevent this from occurring again in the future. How do you communicate with her?

- Do not call her back. It's more important to focus on addressing the problem within the Long-Term Care home and you also want to avoid a lawsuit (legal action by the daughter).
- Return her call and listen to her concerns. Provide an update on corrective actions in the Long-Term Care home and document the conversation.
- Email her a general response about the foodborne illness outbreak that has been helpful in similar situations in the past.

	Correct? Y/N	Rationale
a.	N	Inappropriate response as it ignores the problem and avoids communication.
b.	Y	Listening to the daughter's concern is crucial and appropriate communication.
c.	N	Inappropriate response as it uses a method of communication that the sender did not necessarily authorize and does not address the problem.

Management Case #2

Topic: Food service systems management

Subtopic: Purchasing, receiving, storage, inventory control and disposal activities

You are the dietitian working as a Food Service Manager at an acute care hospital,* which has 300 beds. The Food Service Department provides in-patient meal service using a conventional (traditional) production system and centralized meal assembly. Over the past six months, you have been noticing an unexplained rise in food costs. You suspect that it may be the result of theft.

**Hospital-based health care for short-term or severe health issues.*

Assessment:

1. You begin your investigation by calculating the monthly food inventory turnover rates for each of the previous 6 months. You compare your results to the industry standard of 2 - 4 times per month. You determine that the inventory turnover is too low. Based on this information, what is likely contributing to the higher food costs?

- Food is remaining in inventory too long and is expiring before being used
- Food is being used too quickly resulting in the need to substitute with other more costly items
- Theft is occurring by food service staff
- Theft is occurring however there is no evidence to determine who is stealing

	Correct? Y/N	Rationale
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a.	Y	A low inventory turnover means food is remaining in inventory too long. Therefore it may expire before use.
b.	N	Inventory turnover would be high for this to occur.
c.	N	Inventory turnover would be high for this to occur.
d.	N	Inventory turnover would be high for this to occur.

Planning:

2. You continue to investigate other possible reasons for the rising food costs. You develop a plan to systematically review all policies and procedures related to the receiving and storage of goods for the department. Which of the following is an appropriate receiving and storage practice to decrease the risk of theft?

- a. The person responsible for purchasing goods for the department should be the same person receiving the goods
- b. Suppliers should assist the receiver to quickly move foods into storage
- c. A delivery schedule and log book should be established
- d. Staff should use the LIFO (last in first out) method of storage

	Correct? Y/N	Rationale
a.	N	The purchaser should never be the person responsible for receiving as this may increase the risk of theft.
b.	N	Suppliers should never be permitted in storage areas.
c.	Y	Proper receiving procedures.
d.	N	Due to the perishability of food, should follow FIFO (first in first out) method.

Implementation:

3. During your investigation, you observe that the receiver, who has held the position for almost 15 years, often does not follow proper receiving procedures. You notice that goods are often received without proper inspection and/or without the appropriate follow up paperwork. What should you do?

- a. Assign the receiver to a different position, but maintain his current wage
- b. Review the receiver's employee file to determine the qualifications for the position
- c. Review all in-services the receiver has attended to ensure he has the knowledge to perform the job properly
- d. Review proper receiving procedures with the receiver and monitor his progress

	Correct? Y/N	Rationale
a.	N	Does not follow appropriate disciplinary process for an employee.
b.	N	Not relevant.
c.	N	It is already apparent that the receiver does not follow procedures.
d.	Y	It is important to review procedures to ensure an understanding and then monitor to ensure proper procedures are followed.

Professional Practice:

4. As you review the policies and procedures relating to procurement, you find a hospital policy that states no one is permitted to accept any gift (including free products) from any supplier. It has been standard practice by the Food Service Department to accept gifts from suppliers during the holidays in December. The gifts are used as prizes at the staff holiday party. Is this an acceptable practice given the hospital policy?

- a. Yes, because the gifts are shared by the entire department
- b. No, because it is not ethical practice

- c. Yes, because the value of the gifts are minimal
- d. No, because it is unfair to employees in other departments

	Correct? Y/N	Rationale
a.	N	Accepting gifts from suppliers is considered unethical and in this case it also violates hospital policy. Regardless of whether the gift is of minimal value or shared by a group, the practice may lead to supplier bias or perceptions of bias.
b.	Y	Correct.
c.	N	Accepting gifts from suppliers is considered unethical and in this case it also violates hospital policy. Regardless of whether the gift is of minimal value or shared by a group, the practice may lead to supplier bias or perceptions of bias.
d.	N	Accepting gifts from suppliers is considered unethical and in this case it also violates hospital policy. Regardless of whether the gift is of minimal value or shared by a group, the practice may lead to supplier bias or perceptions of bias. The concern that it is unfair to employees in other departments is not relevant.

Communication and Collaboration

5. You set up a meeting with all Food Service staff to discuss your concern regarding the rise in food costs. How should you proceed in order to ensure open and effective communication?

- a. Prior to the meeting, post an agenda and provide information regarding your suspicion of theft so staff are prepared for this discussion.
- b. Encourage staff to meet with you individually prior to the meeting to discuss your concerns.
- c. Set the meeting outside of the scheduled hours of the department in order to get better attendance and have sufficient time to meet.
- d. Encourage staff to ask questions and provide feedback during your meeting.

	Correct? Y/N	Rationale
a.	N	This may cause defensive communication.
b.	N	This may waste time and could cause a general feeling of mistrust.
c.	N	Since food service hours of operation are varied, this may reduce the number of staff in attendance.
d.	Y	This encourages two way communication and reduces barriers.

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