

Nutrition Care Process: Nutrition Assessment & Diagnosis

S3470C Nutrition Care Process

Lesson 3

Learning Outcomes

Briefly list what knowledge and skills learners will gain:

- Conduct a dietetic interview that demonstrates effective communication skills using ethical behaviour.
- Demonstrate data collection using the ABCD framework.
- Interpretation and assessment of client's Anthropometric, Biochemical data, Clinical data and Dietary intake (ABCD framework).

Nutrition Care Process (NCP)

- 1. Nutrition Assessment**
- 2. Nutrition Diagnosis**
- 3. Nutrition Intervention**
- 4. Nutrition Monitoring & Evaluation**

1. Nutrition Assessment

- Adopt the A-B-C-D framework

Data to collect	
A – Anthropometric measurements	<ul style="list-style-type: none"> - Height - Weight - Weight history - Body Mass Index (BMI) - Body fat composition - Length - Weight - Head circumference - Skinfold thickness - Waist circumference
B – Biochemical Data	<p>Laboratory indicators</p> <ul style="list-style-type: none"> - Diabetes Mellitus profile - Lipid profile - Liver function test - Hematology - Kidney profile - Urinalysis - Inflammatory markers - Blood pressure
C – Clinical History	<ul style="list-style-type: none"> - Past and present medical history - Family history
D – Dietary Assessment	<ul style="list-style-type: none"> - Dietary habits/patterns - Energy intake

C – Clinical History

- Important to obtain a complete and accurate client history
- This can begin with the reason the client was referred for nutrition assessment
- Determine current health concerns and might include:
 - Recent acute illnesses or surgery
 - Changes in appetite or intake
 - Weight changes (intentional or unintentional)
 - Usual weight
 - Changes in ability to eat
 - Functional status
 - Appetite
 - Psychosocial stressors

C – Clinical History

- Social history should also be obtained and this includes:
 - socioeconomic status
 - role in the family
 - housing availability
 - Transportation
 - availability of support
 - educational level
- This information can help in planning nutrition intervention for the client
- Nutrition education might need to be adjusted depending on health and nutrition literacy level of the client
- Recommendations for services would be appropriate for patients/clients who are eligible based on income or other criteria
- Information regarding meal planning or food purchasing also depend on resources available in the home

Filtering (1) Nutrition Assessment Information

Component	Example	Nutrition Focus
Personal history	Age	<ul style="list-style-type: none"> -Nutrition needs vary with age -The very young and very old may require help in meal preparation and consumption
	Gender	<ul style="list-style-type: none"> -Nutrients requirements are different
	Socioeconomic status	<ul style="list-style-type: none"> -Income level -Family structure and roles in meal preparation -Availability of social support
	Educational level	<ul style="list-style-type: none"> -Literacy and suitability of materials
	Race/ethnic group	<ul style="list-style-type: none"> -Cultural food choices -Language Barrier

Filtering (1) Nutrition Assessment Information

Component	Example	Nutrition Focus
Main Nutritional Concern	Reason the client was referred. This can be obtained through the client or through the care provider	<ul style="list-style-type: none"> -Important to assess client's understanding on the impact of nutritional status -Good to include source of referral and future follow-up
Past Medical and Nutritional History	History of chronic and acute health conditions since childhood	<ul style="list-style-type: none"> -Focus on conditions that have impact on food choices and nutrition status -Take note of weight history and client's understanding of the impact of weight on overall health
Family History	Health concerns or any causes of death of family members (including siblings, parents and grandparents)	<ul style="list-style-type: none"> -Take note of strong familial component -Include nutrition concerns associated to inherited conditions

Personal Data and Social History

Personal Details & Social History	
Name of Client:	Date:
Date of Birth:	Contact Number:
Race:	Age:
Occupation:	Gender:
Learner:	Living Arrangement:

- Identifiable information need to be collected.
- Learner refers to who is the one being educated – caregiver or client?
- Living arrangement is important to decide on level of food preparation facilities

Referral Reasons

Referral:		
Referral Reason 1:		Others:
Referral Reason 2:		
Referral Reason 3:		

- Reasons for referral is important
- Referral usually from doctor or healthcare provider.
- Allows for planning on biochemistry and dietary assessment.
- Complexity of data collection increases as reason for referral increases.
- “Others” may include reasons like food allergies, food intolerances, etc

D - Dietary assessment

- Types of dietary assessment:
 - 24-hour food recall
 - Food frequency table
 - Food record
 - Food diary

D - Dietary assessment

24-hour food recall

- Interview client and recall what he/she ate in the last 24-hour
- Start with “first meal of the day”
- Ask in great details
 - Time of meal
 - Type of food
 - Place food was purchased/cooked
 - Portion size of food vs *portion of food eaten
 - Cooking method
 - Additional gravy/sauces/paste
 - + Beverages/dessert

D - Dietary assessment

24-hour food recall – sample open-ended questions

- What time do you normally have breakfast, lunch, dinner, or a snack?
- What did you have for breakfast this morning?
- How is your appetite
- How much of your meals do you normally consume? Half or more?
- How many times during the day do you have something to eat?
- How much rice do you eat at lunch/dinner?
- How is the chicken cooked? Is it braised or fried?
- Who prepares the food at home?
- How many times do you have beer / whiskey or other alcoholic beverages during a week, if any?
- How often do you eat out? What do you normally order when you eat out?

D - Dietary assessment

- **Pros of 24-hour food recall:**
 - Short administration time
 - Low cost
 - Negligible risk for client
- **Cons of 24-hour food recall:**
 - May not reflect typical eating patterns
 - Client dependent so compliance may be low
 - Highly dependent on client's memory

Dietary Assessment: How To Perform a 24-hour Recall
<https://www.youtube.com/watch?v=fCVna5Q0OpE>

D - Dietary assessment

Food Frequency Questionnaire (FFQ)

- Data collected is representative of usual intake over longer period of time than over a few days.
- Food is organized into groups.
- Client indicate frequency & quantity of specific food is consumed in per day, week or month.

D - Dietary assessment

- **Pros of FFQ:**
 - Self-administered
 - Can be assessable by software.
 - Inexpensive and quick method
 - Does not alter client's usual intake
- **Cons of FFQ:**
 - Self-administered may also have lower response rate
 - Food list may be restrictive, e.g. may not include child-appropriate or ethnic food.

Food Frequency Questionnaire

PLEASE PUT A TICK (✓) ON EVERY LINE

FOODS AND AMOUNTS	AVERAGE USE LAST YEAR								
DRINKS	Never or less than once/month	1-3 per month	Once a week	2-4 per week	5-6 per week	Once a day	2-3 per day	4-5 per day	6+ per day
Tea (cup)								✓	
Coffee, instant or ground (cup)						✓			
Coffee, decaffeinated (cup)	✓								
Coffee whitener, eg. Coffee-mate (teaspoon)	✓								
Cocoa, hot chocolate (cup)							✓		
Horlicks, Ovaltine (cup)	✓								
Wine (glass)	✓								
Beer, lager or cider (half pint)	✓								
Port, sherry, vermouth, liqueurs (glass)	✓								
Spirits, eg. gin, brandy, whisky, vodka (single)	✓								
Low calorie or diet fizzy soft drinks (glass)	✓								
Fizzy soft drinks, eg. Coca cola, lemonade (glass)							✓		
Pure fruit juice (100%) eg. orange, apple juice (glass)									
Fruit squash or cordial (glass)									

Food frequency questionnaire

D - Dietary assessment

Food Record

- May record up to 7-days, but typically 3-days
- Self-administered, or recorded by main-carer.
- Captures most recent short-term dietary intake
- Important for assessment of calorie and macronutrients.
- Records captured in real time while eating, e.g. weighed, portioned, photo taking, etc.
- Measurement error is low, but very tedious
- Portion size is estimated with food models/pictures
- Or measured with scales or volume measures
- Trained interviewer reviewing records
- Compliance is low if motivation level is low

D - Dietary assessment

Food Diary

- Commonly 3-day food diary – 2 weekday + 1 weekend
- Self-administered, usually records food intake at end of the day
- Records food intake with no exact measurements
- Records details such as:
 - Type of food (eaten portion)
 - Time of meal
 - Place food was purchased/cooked
 - Cooking method
 - Additional gravy/sauces/paste
 - Emotions during and after eating
 - Medications
 - beverages/dessert

D - Dietary assessment

- **Pros of Food Record/Diary:**

- Does not rely on client's memory to recall intake
- More representative of client's typical eating patterns

- **Cons of Food record/Diary:**

- Validity issues if client alters intake or misrepresent intake proportion
- Substantial burden on client, hence compliance may be low

D - Dietary assessment

Tips of doing food diary/record

- 3-day food diary/record as a start. 2 weekdays + 1 weekend.
- Write as they go. Do not try to recall at end of day.
- As detailed as possible, e.g. toppings, additional portions, sauces, dips, etc.
- Write down the types of beverages including plain water.
- Estimate portion sizes using standard measuring portion like cups, 1 small bowl, $\frac{1}{2}$ plate etc.
- Other useful estimates are like 'palm size' pieces of meat, 'baseball size' ice cream, fistful of fruits etc.

Food Recall & FFQ

- Combination of 24-hour food recall and FFQ
- Generic questions:
 - What time is the first meal of the day?
 - Who prepares the food at home?
 - How is your appetite?
 - How many times during the day do you have something to eat?
 - How much rice/noodles do you eat at lunch/dinner?
 - How is the chicken/meat cooked?
 - How much vegetables do you eat each meal?
 - How many servings of fruits do you consume per day?
 - Do you snack, if yes, on what and how much and how frequent?
 - How often do you eat out? What do you normally order when you eat out?
 - How many times do you have beer/alcoholic beverages during a week, if any?
- Other disease specific questions in the excel sheet.

Diet History				
Day 1				
Meals	Time	Food / Beverages (to include any additions e.g. sugar or creamer to beverage or sauce to food)	Amount	Description of the food/other remarks
Breakfast				
Snack				

Nutrition Care Process (NCP)

- 1. Nutrition Assessment**
- 2. Nutrition Diagnosis**
- 3. Nutrition Intervention**
- 4. Nutrition Monitoring & Evaluation**

Nutrition Diagnosis

- Critical step between nutrition assessment (Step 1) and nutrition intervention (Step 3).
- Identification of an existing nutrition problem, by using the data collected during the nutrition assessment
- Identify the cause (s) that will lead to suitable nutrition intervention
- Creates a standardized nutrition diagnosis language to describe nutrition problems consistently.
- Different from a medical diagnosis.

Nutrition Diagnosis

- 3 general domains to look at:

Definition of Categories of Nutrition Diagnoses*	
Category	Definition
Intake	Too much or too little of a food or nutrient compared to actual or estimated needs
Clinical	Nutrition problems that relate to medical or physical conditions
Behavioral – Environmental	Knowledge, attitudes, beliefs, physical environment, access to food, or food safety

*American Dietetic Association. International Dietetics and Nutrition Terminology (IDNT) Reference Manual, 2nd ed. Chicago: ADA; 2009

Types of Nutrition Diagnosis (1)

1) Intake analysis:

To be able to identify the key nutrients according to medical condition, e.g.

- Diabetic clients, nutrients in focus are carbohydrates, sugar intake, fat and fibre intake.
- To analyze the adequacy or limitations of client's diet, e.g. too much carbohydrates/simple sugar intake could be an indication of poorly controlled blood sugar level.



A photograph showing a handheld electronic calculator on the left and a printed food nutrition chart on the right. The calculator has a blue face with white buttons labeled with mathematical symbols and function keys like 'OFF', 'MARGIN', 'ME', 'M±', '%', '±', 'x', '÷', '−', '+', and '='. The nutrition chart lists various food items with their energy content in kcal and nutritional values for proteins, fats, carbohydrates, and fiber. A plate of colorful vegetables is visible in the background.

Food	Energy [kcal]	Proteins [g]	Fats [g]	Carbohydrates [g]	Fibre [g]
Pru	280	16	18	14	0
Pudi	90	19	2	10	0
Puffe	40	0.5	0	15.9	0
Pumpk	70	1	0.3	0	0
Rabbit a	16.6	0.6	13.2	0	0
Radish raw	2.4	0.4	57.1	0	0
Raisins	9	4.2	77.9	0	0
Raspberries raw	12	40.8	24.3	0	0
Red currents raw	19.5	21.7	0	0	0
Rhubarb raw	16	24	0	0	0
Rhubarb stewed with	9	89	0	0	0
Rice pudding canned	21.3	0	0	0	0
Rice brown (natural) raw	4.8	0	0	0	0
Rice white boiled	4.6	0.8	0	0	0
Rice white raw	6	0	0	0	0
Rice wild raw	2	0	0	0	0
Salad cream	1.7	0	0	0	0
Salami	0	0	0	0	0
Salmon steamed	0	0	0	0	0
Sardines canned in oil	0	0	0	0	0
Sardines canned tomato sauce	60	0	0	0	0
Satsumas peeled	19.9	60	0	0	0
Sauce brown	145	20	20	1	0
	200	20	24	1	0
	220	20	24	1	0
	180	35	20	1	0
	100	20	270	1	0
	270	20	320	1	0

Adopted from <https://www.precisionnutrition.com/fix-a-broken-diet>

Types of Intake Analysis

i) Qualitative analysis

- Simpler to implement and less tedious on clients to recall diet
- Looks at overall adequacy of macro- and micronutrients provision by diet
- Usually uses the “My Healthy Plate” to “check” that diet contains all food groups
- No counting of calories or nutrients
- Most commonly used

ii. Quantitative analysis

- High level of details to recall, including quantity of ingredients used in cooking, measurements of food consumed, etc.
- Literacy level of clients needs to be higher to record or recall
- Uses calorie analysis program or manual calculation

What Nutrients Should I Focus On?

	Diabetes	Hypertension	Hyperlipidaemia	Cardiovascular Disease	Malnutrition	Dysphagia	Gastrointestinal Diseases
Frequency of meals	✓	✓	✓	✓	✓	✓	✓
Carbohydrate:	✓	✓	✓	✓		✓	✓
- type	✓	✓	✓	✓		✓	✓
- GI/GL	✓	✓	✓	✓		✓	✓
- portion	✓	✓	✓	✓		✓	✓
- distribution	✓	✓	✓	✓		✓	✓
Fibre	✓	✓	✓	✓		✓	✓
Protein:			✓	✓	✓	✓	✓
- type			✓	✓	✓	✓	✓
- portion			✓	✓	✓	✓	✓
- distribution				✓	✓	✓	✓
Fats:	✓	✓	✓	✓	✓	✓	✓
- type	✓	✓	✓	✓	✓	✓	✓
- portion	✓	✓	✓	✓	✓	✓	✓
- frequency	✓	✓	✓	✓	✓	✓	✓
Water	✓	✓		✓	✓	✓	✓
Minerals - Sodium, Potassium	✓	✓	✓	✓			

Types of Nutrition Diagnosis (2)

2) Clinical analysis:

To relate clinical symptoms to nutrition problems, e.g.

- “Mysterious” bloating after ingesting excessive spicy food for clients with GERD.
- Identifying sources of simple sugar in diet that could have potentially create spikes in blood sugar level.
- High blood pressure reading related to the frequent intake of preserved fruits and snacks
- Low bone density (osteoporosis) due to avoidance of dairy or calcium containing products



Adopted from - https://www.cartoonstock.com/directory/s/salt_intake.asp

Types of Nutrition Diagnosis (3)

3) Behavioral – environmental analysis:

Relating client's behavior to his/her environment, e.g.

- Female client as a main caregiver for children and husband, ∴ has no control over food preferences.
- Malnourished, single elderly gentlemen who stays alone in rental flat
- No cooking facilities or lack of cooking skills?
- Low socioeconomic status?

Case Study – Overweight client with hypertension

- Mdm Eileen Tan

Referred case – Mdm Eileen Tan

Name: Eileen Tan

ID: S6700001X

Age: 67

Gender: Female

Occupation: Housewife

Lives with husband

Dear staff,

**Please see the abovementioned elderly lady,
presented with high BMI and slightly elevated blood
pressure of 145/90mmHg.**

**She was started on antihypertensive meds, and
advised to cut down weight and control blood
pressure through diet.**

Yours Sincerely,

Անյանի
Dr. Anjani Pulai

Case Study A – Eileen Tan (Anthropometry)

Name: Eileen Tan
ID: S6700001X
Age: 67
Gender: Female
Occupation: Housewife
Lives with husband

Anthropometry Data:		Weight:	
Height (cm):		Weight:	
% Body Fat:		BMI: #DIV/0!	#DIV/0!
Waist Circumference (cm):		Waist-Hip Ratio: #DIV/0!	
Hip Circumference (cm):		Male: #DIV/0!	Female: #DIV/0!

Dear staff,

Please see the abovementioned elderly lady, presented with high BMI and slightly elevated blood pressure of 145/90mmHg.

She was started on antihypertensive meds, and advised to cut down weight and control blood pressure through diet.

Yours Sincerely,

Անյանի
Dr. Anjani Pulai

Lack of anthropometry data

Ask questions like:

- Do you know how much you weigh currently?
- How much did you weigh 6 months ago?
- How tall are you? (If client don't know)
- May I measure your height?
- May I measure your waist circumference?

Case Study A – Eileen Tan (Biochemistry Data)

Name: Eileen Tan
ID: S6700001X
Age: 67
Gender: Female
Occupation: Housewife
Lives with husband

Dear staff,
Please see the abovementioned elderly lady, presented with high BMI and **slightly elevated blood pressure** of 145/90mmHg.

She was started on antihypertensive meds, and advised to cut down weight and control blood pressure through diet.

Yours Sincerely,

Dr. Anjani Pulai

Lab Results:		Result Status		Lipid Profile		Result Status	
Diabetic Profile		Result Status		Lipid Profile		Result Status	
HbA1C (%):		NIL		T. Chol (mmol/L):		NIL	
Fasting Blood Glucose (mmol/L):		NIL		HDL (mmol/L):		NIL	
2 Hours Post Prandial (mmol/L):		NIL		LDL (mmol/L):		NIL	
Others		Result Status		TG (mmol/L):		NIL	
Sodium (mmol/L):		NIL					
Potassium (mmol/L):		NIL					
BP (mmHg):		Systolic	Diastolic	NIL		NIL	
Urea (mmol/L):		Male - NIL		Female - NIL			
Creatinine (μmol/L):		Male - NIL		Female - NIL			
Others:							

Biochemistry data:

Ask questions like:

- Do you know what does your blood pressure reading mean?
- Has the doctor collected blood to test for your cholesterol level or blood sugar level?

Case Study A – Eileen Tan (Clinical History)

Name: Eileen Tan

ID: S6700001X

Age: 67

Gender: Female

Occupation: Housewife

Lives with husband

Dear staff,

Please see the abovementioned elderly lady, presented with high BMI and slightly elevated blood pressure of 145/90mmHg.

She was started on antihypertensive meds, and advised to cut down weight and control blood pressure through diet.

Yours Sincerely,

Dr. Anjani Pulai

Dr. Anjani Pulai

Clinical history:

Ask questions like:

- What other medical conditions do you currently have?
- What have you recovered from previously? E.g. stroke, knee operation?

Personal Details & Social History	
Name of Client:	Date:
Date of Birth:	Contact Number:
Rate:	Age:
Occupation:	Gender:
Learner:	Living Arrangement:
Referral:	
Referral Reason 1:	Others:
Referral Reason 2:	
Referral Reason 3:	
Medications:	
Medical History:	

Case Study A – Eileen Tan (Dietary Assessment)

- How many times during the day do you have something to eat?
- What kind and how much rice/noodles do you eat at lunch/dinner?
- How much and how are the chicken/meat cooked? (Braised, fried, steamed, stir-fried?)
- Do you snack, if yes, on what and how much and how frequent?
- How often do you eat out? What do you normally order when you eat out?
- How much and how often do you deliberately add seasonings to your food?
- Other than salt, what other seasonings do you use, e.g. oyster sauce, fish sauce, dark soy sauce, tomato sauce/paste, MSG?
- What are some seasonings substitute you go for? E.g. herbs and spices like garlic, onions, chili, ginger?
- Are you willing to try out salt substitute?

Hypertension	
Dietary	
Frequency of meals	✓
Carbohydrate:	✓
- type	✓
- GI/GL	✓
- portion	✓
- distribution	✓
Fibre	✓
Protein:	
- type	
- portion	
- distribution	
Fats:	✓
- type	✓
- portion	✓
- frequency	✓
Water	✓
Minerals - Sodium, Potassium	✓

Case Study A – Eileen Tan (Dietary Assessment)

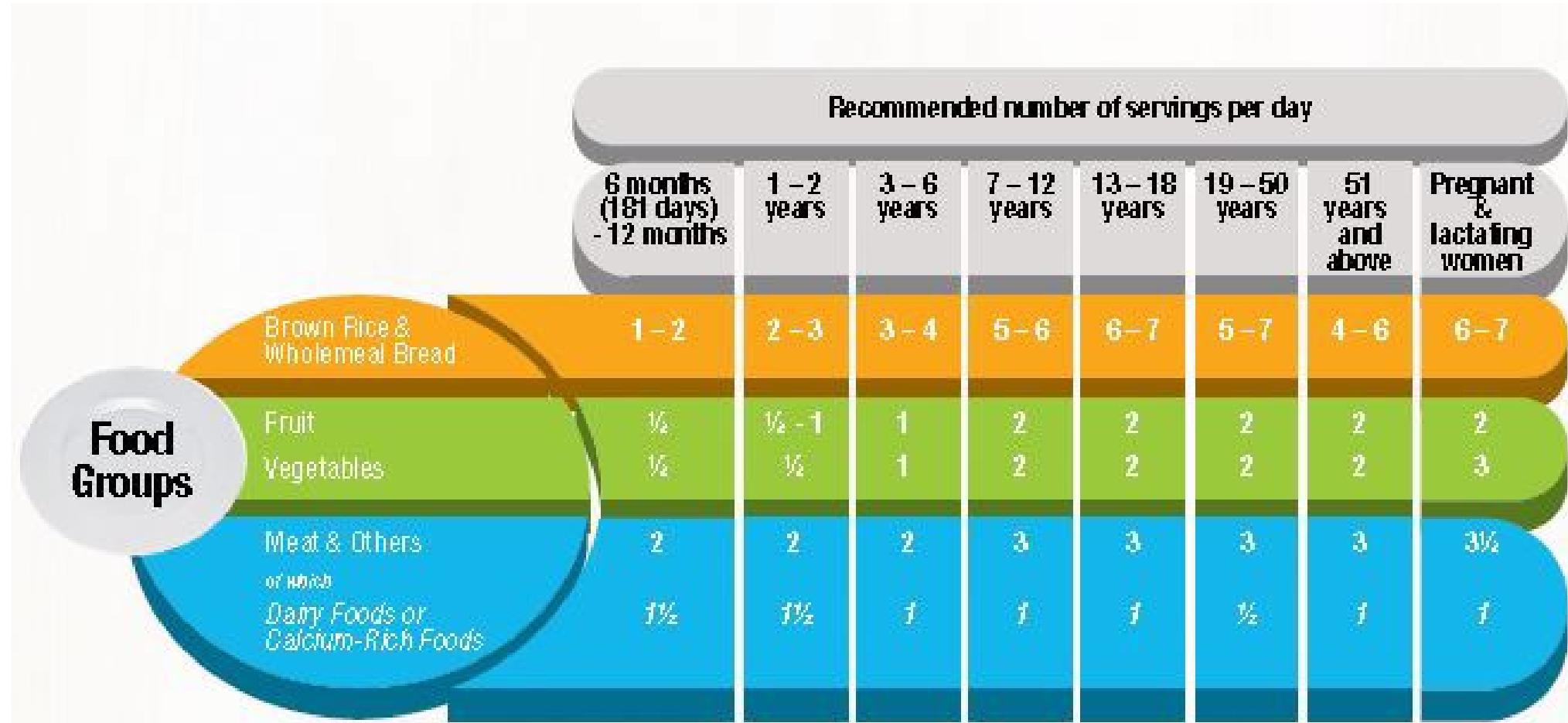
Food Frequency Questionnaire (FFQ):

→ As client is overweight and has hypertension, FFQ will target on fibre intake, high fat and high sodium food intake.

Example:

- How much vegetables do you eat each meal?
- How much fruits do you eat in a day?
- Do you consume high fat snacks/food, e.g. potato chips (high sodium too), cookies, cakes, deep fried local snacks (dough stick, butterfly, etc)?
- How often do you consume dishes like char kway teow, hokkien mee, carrot cake, orh luak (oyster omelette), etc? (High fat, high sodium dishes)
- Do you consume preserved food (e.g. salted fish/egg/veg, black dace, belachan, etc)? If yes, how much and how often per week/month?
- Do you consume fast food? If yes, how much and how often per week/month?

Recommended Serving Sizes



1 serving of Brown Rice & Wholemeal Bread



2 slices of wholemeal bread (60g)



$\frac{1}{2}$ bowl* whole-grain noodles, beehoon or spaghetti (100g)



4 plain wholemeal crackers (40g)



$\frac{1}{2}$ bowl* of rice/brown rice (100g)



2 wholemeal chapatis (60g)



$1\frac{1}{2}$ cups** whole-grain breakfast cereal(40g)



$\frac{2}{3}$ bowl* of uncooked oatmeal (50g)

All weights listed are for edible portions only

* 1 rice bowl ** 250ml cup

1 serving of Fruits



1 small apple, orange,
pear or mango (130g)



1 wedge of papaya,
pineapple or
watermelon (130g)



10 grapes/longans (50g)



1 medium banana



$\frac{1}{4}$ cup** of dried
fruit (40g)



1 glass* pure fruit juice
(250ml)

All weights listed are for edible portions only

* 250ml glass

** 250ml cup

1 serving of Vegetables



$\frac{1}{4}$ round plate* of
cooked vegetables



150g raw leafy
vegetables



100g raw non-leafy
vegetables



$\frac{3}{4}$ mug*** of cooked
leafy (100g)



$\frac{3}{4}$ mug*** non-leafy
vegetables (100g)

All weights listed are for edible portions only

* 250ml mug ** 10 inch plate

1 serving of Meat and Others



1 palm-sized piece of
meat, fish or poultry
(90g)



2 glasses* of
reduced-fat milk
(500ml)



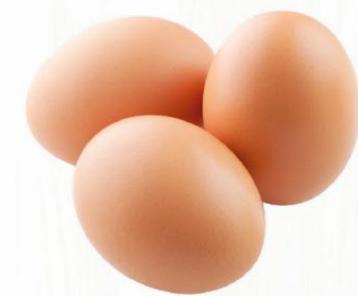
2 small blocks of
soft beancurd
(170g)



5 medium prawns
(90g)



$\frac{3}{4}$ cup ** of cooked
pulses (peas, beans,
lentils) (120g)



3 eggs
(150g)

All weights listed are for edible portions only

* 250ml glass ** 250ml cup

Nutrition Diagnosis of Eileen Tan

Food Groups	BR & alt	Meat & alt	Fruits	Veg
B/fast	2	0	0	0
Lunch	1	~1 (or less)		0
Dinner	1	~1 (or less)	0	0
Snack	1	0	0	0
Total	5	<2	0	0
Recommendation	4-6	3 + 1	2	2
Lacking	Adequate	Lacking	Lacking	Lacking

Nutrition Diagnosis of Eileen Tan

Food items to “flag out” based on her referral reasons:

Overweight	Hypertension
“ga dai” coffee	Sardine/black dace fish
Peanut butter crackers	Salted egg
Kueh kueh (FFQ)	Dark soy sauce
Cream crackers	Ritz crackers
Luncheon meat	

Use the above diagnosis to formulate Nutrition Intervention (Step 3)

Clinical Diagnosis of Mdm Eileen Tan's Diet



- Mdm Tan's hypertension is in response to her high sodium intake from the preserved food.
- Her weight issue may also be related to the severe lack of fibre intake, and intake of high fat food such as luncheon meat.

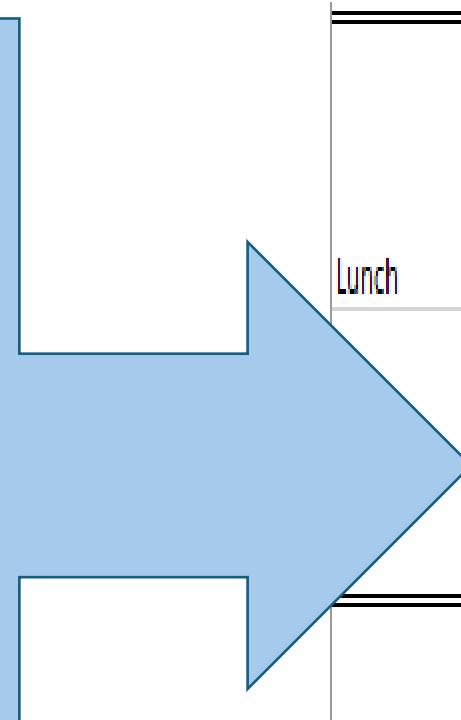
... + either sardines/black dace canned fish/salted egg/luncheon meat/minced meat with dark soy sauce

...c: Usually cook once a day - Dinner typically the same

Husband has chewing problem, cooks mostly porridge and soft/minced meat
Rarely cooks vegetables because husband dislikes

Behavioural – Environmental Diagnosis

- Mdm Tan's lack of variety and intake of fibre is due to her husband's chewing difficulty.
- The lack of variety in her diet may be due to financial difficulty, or simply because they find it cumbersome to cook too often for just two persons.



	Lunch	
	white porridge + either sardines/black dace canned fish/salted egg/luncheon meat/minced meat with dark soy sauce	
	Shared by client: Usually cook once a day - Dinner typically the same Husband has chewing problem, cooks mostly porridge and soft/minced meat Rarely cooks vegetables because husband dislikes	

Practice time

Logsheets – Task 1, 2 and 3

Note: Logsheets will be used from lesson 5 to 9 as practice, please see the highlighted tasks and the lessons related to it.

E-learning (Lesson 4)

Submit Logsheet 1 (Task 1-3) in Politemall.

Deadline: By 18 Jan

References

- Nahikian-Nelms, M. (2017). *Medical nutrition therapy: A case-study approach* (2nd ed.). Boston, MA: Cengage Learning.
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