Nutrition & Weight loss in Older adults

Nov 5, 2019

Heather Keller RD, PhD, FDC, FCAHS

Schlegel-University of Waterloo Research Institute for Aging

Faculty/Presenter Disclosure

- Faculty: Heather Keller
- Relationships with commercial interests:
  - Grants/Research Support: in-kind/matching funding, Abbott Nutrition
  - Speakers Bureau/Honoraria: Nestlé Health Sciences, Abbott Nutrition
  - Consulting Fees: None

Baycrest

Project ECHO Baycrest Ontario

North East Specialized Geriatric Centre
Centre gériatrique spécialisé du Nord-Est

Project ECHO North East Specialized Geriatric Centre Ontario

ONTARIO CLRI Centres for Learning, Research & Innovation in Long-Term Care
BAYCREST • BRUYÈRE • RIA

Disclosure of Financial Support

- This program has NOT received financial support other than the support of the MOHLTC
- This program has NOT received in-kind support
- Potential for conflict(s) of interest: None to be disclosed

Mitigating Potential Bias

The information presented in this CME program is based on recent information that is explicitly ‘‘evidence-based’’.

This CME Program and its material is peer reviewed and all the recommendations involving clinical medicine are based on evidence that is accepted within the profession; and all scientific research referred to, reported, or used in the CME/CPD activity in support or justification of patient care recommendations conforms to the generally accepted standards

Baycrest

Project ECHO Baycrest Ontario

North East Specialized Geriatric Centre
Centre gériatrique spécialisé du Nord-Est

Project ECHO North East Specialized Geriatric Centre Ontario

ONTARIO CLRI Centres for Learning, Research & Innovation in Long-Term Care
BAYCREST • BRUYÈRE • RIA

What is Malnutrition (undernutrition)?

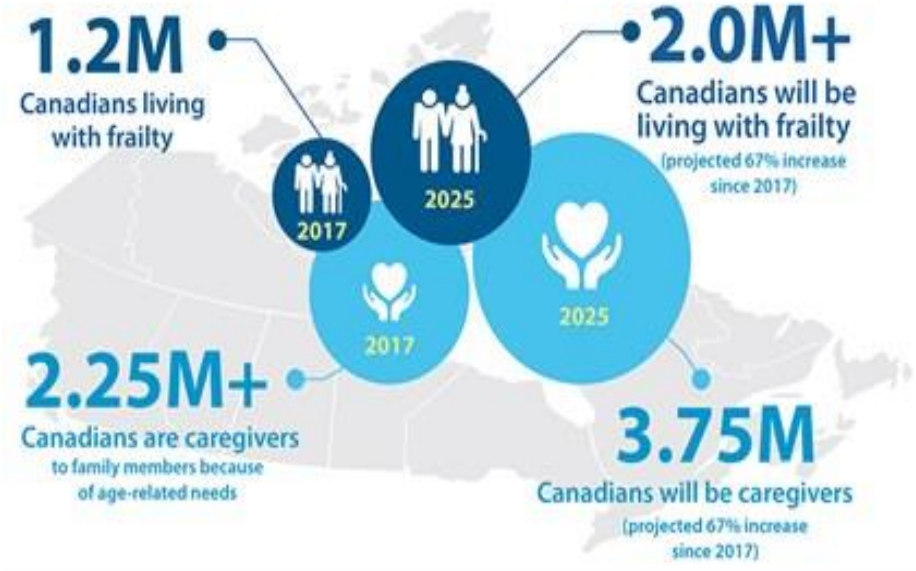
- Inadequate intake or assimilation of energy, protein and/or micronutrients
- Sustained inadequate intake/assimilation leads to functional change in tissues of the body e.g. muscle loss, weakness, immune function, capacity for recovery, cognition

CMTF website adapted from: AW McKinlay: Malnutrition: the spectre at the feast. *J R Coll Physicians Edinb* 2008:38317–21.

Conceptual Relationship of Nutrition Risk and Malnutrition (Keller, 2019)

What is frailty?

"… a state of health where the person's overall well-being and ability to function independently are reduced and vulnerability to deterioration are increased"



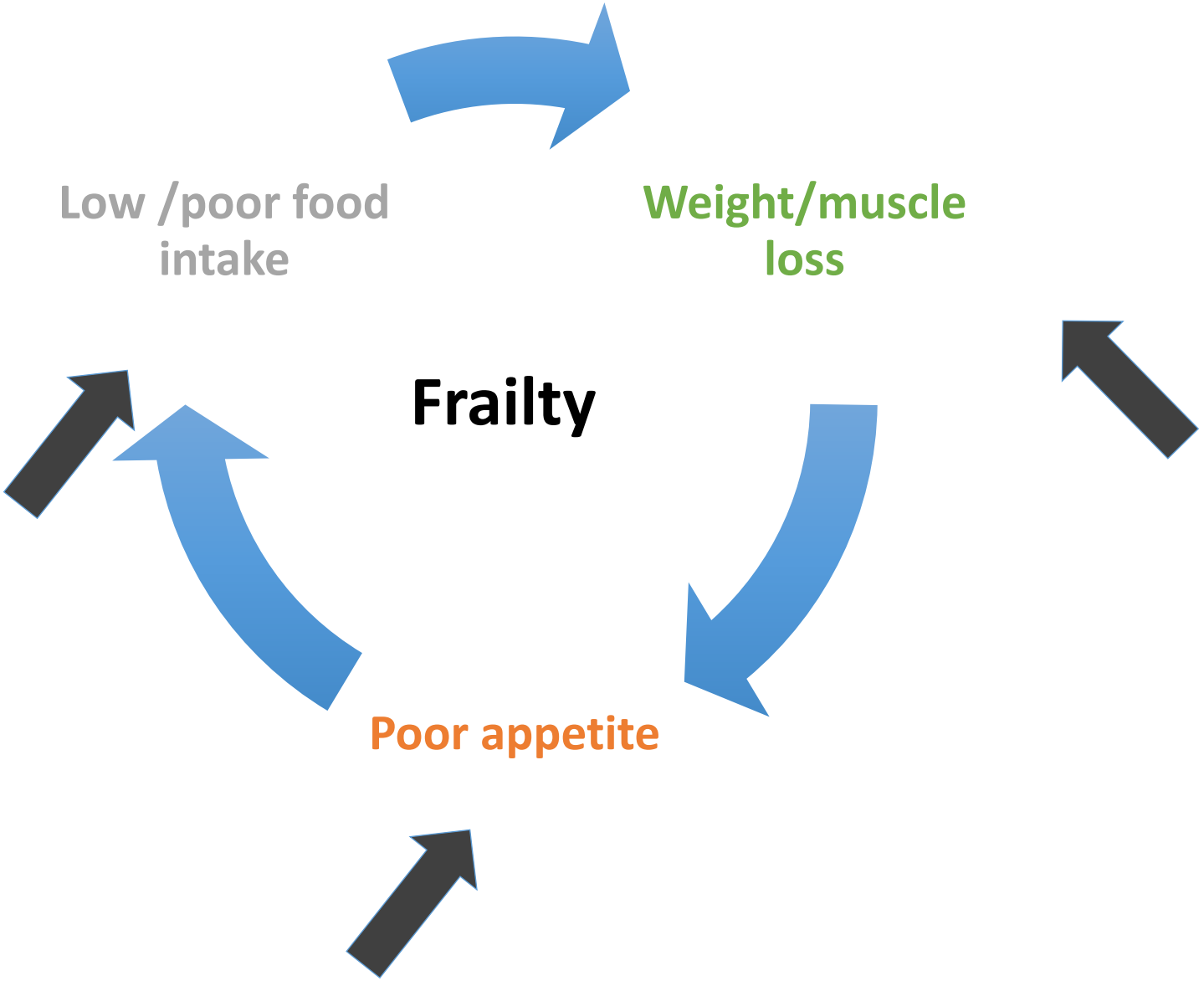
Canadian Frailty Network
cfn-nce.ca

Overlap between Malnutrition and Frailty

(Laur et al., 2017)

- Common symptoms: weight loss, exhaustion, weakness, and slowness (Fried et al. 2001)
- Common risk factors: socio-demographic, physical, and cognitive (Boulos et al. 2016)
- Overlap in prevalence
  - ~98% non-frail = well-nourished
  - ~50% frail = malnourished (Bollwein et al. 2013)
  - Malnutrition/risk = 4x increase in risk of frailty **(Boulos et al. 2016)**
- Combination of frailty and malnutrition risk has highest incidence of poor QOL, dependence in IADL/ADL, mortality (Wei et al., 2018)

Vicious and destructive cycle…



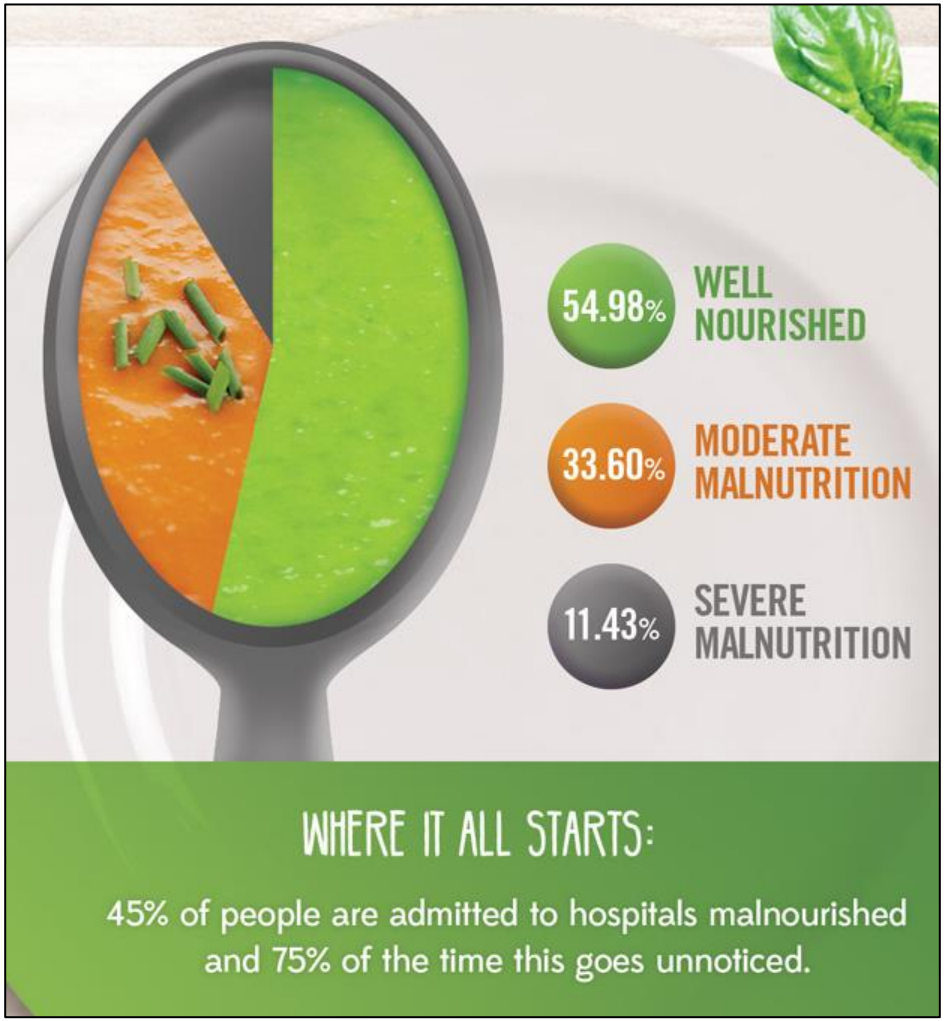
Weight loss as root cause of frailty

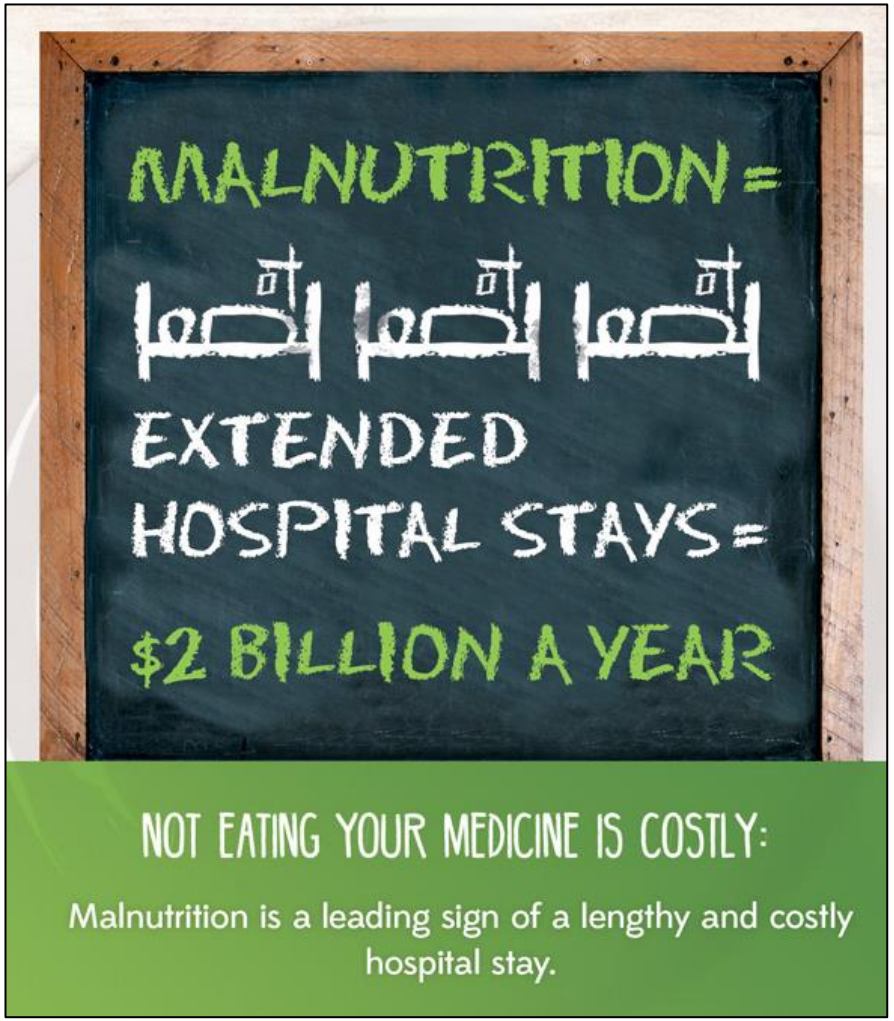
(Abrahamsen et al., 2014; Scott et al., 2015; International Working Group on Sarcopenia, 2009)

- Weight loss includes muscle and fat
  - Greater loss of muscle perhaps in OA?
- Sarcopenia= loss of muscle mass and strength
  - A component of frailty (weakness, slowness, exhaustion)
    - Weakness is the most common criteria reported (Fernández-Garridoa et al. 2014)
  - Leads to disability
- Many root causes of sarcopenia: hormonal, metabolic, inflammatory, low protein diet, lack of exercise

Canadian Malnutrition Task Force

n=1022, 18 academic & community hospitals, 8 provinces (Allard, Keller et al., 2015; Curtis et al., 2016)





Hospital malnutrition

(Allard et al., 2015; 2016; Keller et al., 2017; Laur et al., 2018; McNicholl et al., 2018)

Who are these malnourished patients?

- Older*
- Live alone
- Less likely to have a post secondary education
- More likely to have adult child do groceries*
- Used oral nutritional supplements before admission
- Admitted 2+ times in past 5 years
- Greater comorbidity*
- Current cancer
- Weaker (Handgrip)

Hospital Malnutrition Starts in the Community

* Significant in regression analysis

In the community

CCHS (2008/9; n= 15,669)

34% at risk

~ 1 million Canadians

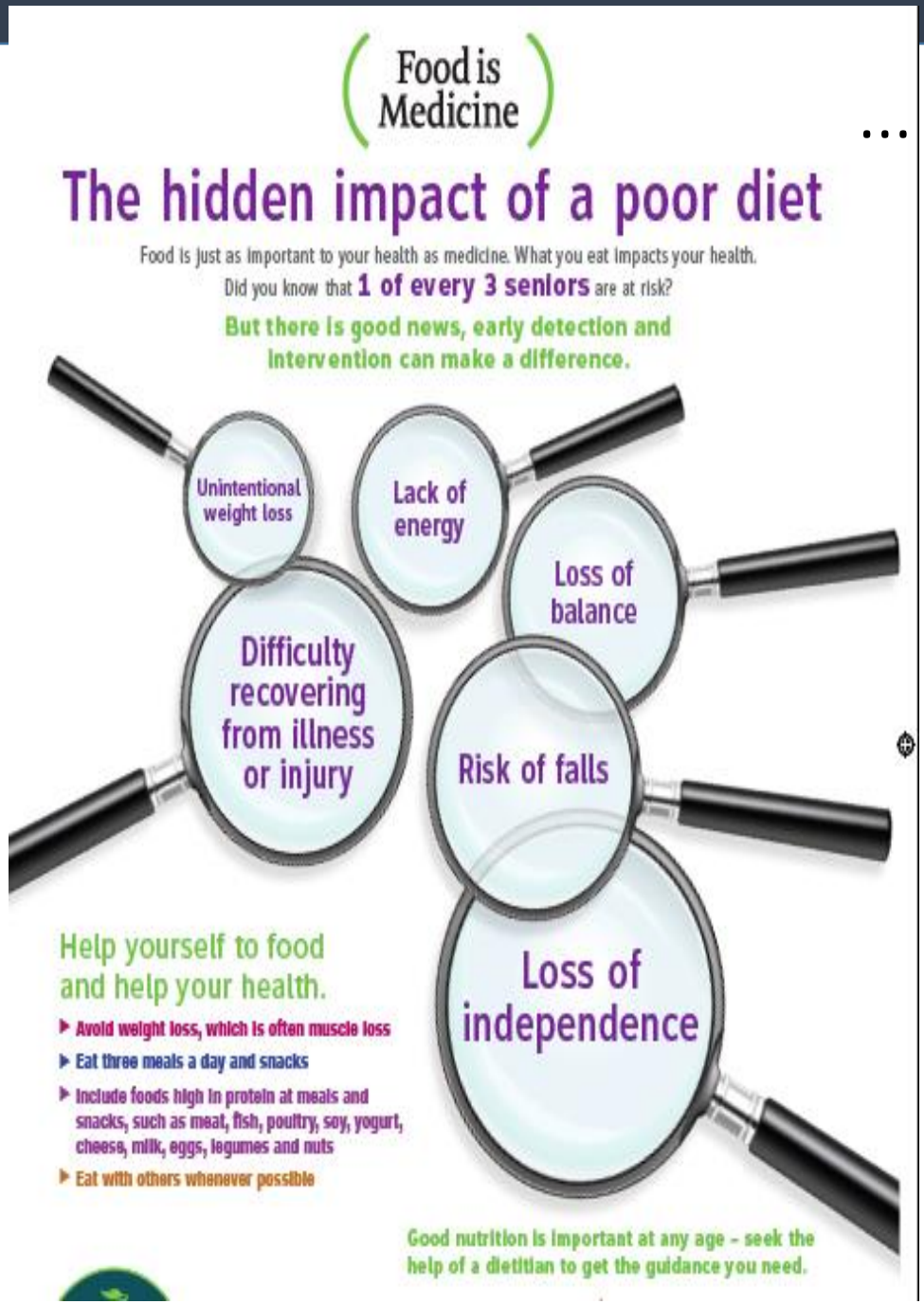
Women, 75+ yoa, low income, live alone, low social participation and support, depressed, disabled, polypharmacy, poor oral health

CLSA (2015; n= 24,549)

33% at risk

Comorbidity, depression, lower life satisfaction

(Ramage-Morin et al., 2013, 2017; Morrison et al., 2019)



… in the community

Nutrition risk significantly associated with health outcomes (history of fall, hospitalization, ER admission; self-reported poor health/low satisfaction)

2-3 year follow-up in CCHS, at nutrition risk…

Hospitalization HR 1.2 (1.1, 1.4)
Mortality HR 1.6 (1.3, 2.0)

(Ramage-Morin et al., 2013, 2017; Morrison et al., 2019; Mazur et al., 2016; Neyens et al, 2013;Ho et al., 2014 ;Keller &Østbye, 2004; Tek, 2018)

Why Poor Food Intake/Malnutrition Occurs in Older Adults

- Food apathy
- Reduced physical ability
- Restricted income
- Depression, social isolation, neglect
- Medication use
- Cognitive impairment
- Dentition
- Multi-morbidity
- Other priorities

- Older Adults in Canada (CCHS, 2008)
  - 42% in lowest income
  - 49% living alone
  - 49% with low social support
  - 43% infrequent social participation
  - 42% don't drive
  - 62% report depression
  - 44% report disability
  - 54% 5+ medications
  - 46% poor oral health

German et al., 2011;Nykanen et al., 2013; Romero-Ortuno et al., 2011; Schilp et al., 2011; Ramage-Morin & Garriguet, 2013

Treatment Works

Counseling, didactic education, vitamin supplementation improve nutrition (Bandayrel & Wong, 2011; Saur et al., 2018)

Oral nutritional supplements (ONS), → increases body weight, function, complications, QOL, mortality (Stratton & Elia, 2007; review of reviews: Saur et al., 2018)

Dietitian counseling with/without ONS → increase body weight (Baldwin & Weekes, 2011; Cochrane review; Saur et al., 2018)

Other Types of Treatment in Primary Care

Meal programs

Social programs

Health education series

Transportation services

- Meal programs
  - reduce patient ER & admissions (Berkowitz et al., 2018; Cho et al., 2017)
  - Increase energy and protein intake (Walton et al., 2019; Buys et al 2017)
- Tele-counseling improves malnutrition risk and food intake (van Doorn-fan Atten et al, 2018)
- Education sessions improve malnutrition risk (Fernandez-Barres et al., 2017)

How to identify those who can benefit (prevent & treat)?

Nutrition Screening

Baycrest

North East Specialized Geriatric Centre
Centre gériatrique spécialisé du Nord-Est

General points…

- ✓Use a valid, reliable tool designed for community-living
- ✓Make it easy
  - tablets
  - Tool that does not require measurements
- ✓Plan how will address risk

SCREEN (14, 8, 3)- Items

- Weight change**
  - Loss/gain
  - Intentionality
  - Perception
- Skipping meals*
- Diet restrictions/difficulty
- Appetite**
- Eating alone*
- Use of meal replacements
- Intake
  - F&V*
  - Milk products
  - Meat & alternatives
  - Fluid*
- Swallowing**
- Chewing
- Grocery difficulty
- Cooking difficulty*

** 3 item version, * 8 item

Interview Version for Primary Care

Instructions: For each question, check only one box. Add up item subscripts for score.
Ask first 3 items. If score 22+, no nutrition risk. If score < 22 continue with remaining items.

1. Has your weight changed in the past 6 months?

- 0 ☐ Yes, *I gained* more than 10 pounds
- 2 ☐ Yes, *I gained* 6 to 10 pounds
- 4 ☐ Yes, *I gained* about 5 pounds
- 8 ☐ No, my weight stayed within a few pounds.
- 4 ☐ Yes, *I lost* about 5 pounds
- 2 ☐ Yes, *I lost* 6 to 10 pounds
- 0 ☐ Yes, *I lost* more than 10 pounds
- 0 ☐ I don't know how much I weigh or if my weight has changed.

2. How would you describe your appetite?

- 8 ☐ Very good
- 6 ☐ Good
- 4 ☐ Fair
- 0 ☐ Poor

3. Do you cough, choke or have pain when swallowing food OR fluids?

- 8 ☐ Never
- 6 ☐ Rarely
- 2 ☐ Sometimes
- 0 ☐ Often or always

SCORE

If Score is < 22, continue with remaining questions

4. Do you skip meals?

- 8 ☐ Never or rarely
- 4 ☐ Sometimes
- 2 ☐ Often
- 0 ☐ Almost every day

5. How many pieces or servings of fruit and vegetables do you eat in a day?
Fruit and vegetables can be canned, fresh, or frozen.

- 4 ☐ Five or more
- 3 ☐ Four
- 2 ☐ Three
- 1 ☐ Two
- 0 ☐ Less than two

6. How much fluid do you drink in a day?
Examples are water, tea, coffee, herbal drinks, juice, and soft drinks, but not alcohol.

- 4 ☐ Eight or more cups
- 3 ☐ Five to seven cups
- 2 ☐ Three to four cups
- 1 ☐ About two cups
- 0 ☐ Less than two cups

7. Do you eat one or more meals a day with someone?

- 0 ☐ Never or rarely
- 2 ☐ Sometimes
- 3 ☐ Often
- 4 ☐ Almost always

8. Which statement best describes meal preparation for you?

- 4 ☐ I enjoy cooking most of my meals.
- 2 ☐ I *sometimes* find cooking a chore.
- 0 ☐ I *usually* find cooking a chore.
- 4 ☐ I'm *satisfied* with the quality of food prepared by others.
- 0 ☐ I'm *not satisfied* with the quality of food prepared by others.

Total Item Score:

At nutrition risk if 8 item score < 38

Example Question

How much fluid do you drink in a day?

Examples are water, tea, coffee, herbal drinks, juice, and soft drinks, but not alcohol.

4 ☐ Eight or more cups

3 ☐ Five to seven cups

2 ☐ Three to four cups

1 ☐ About two cups

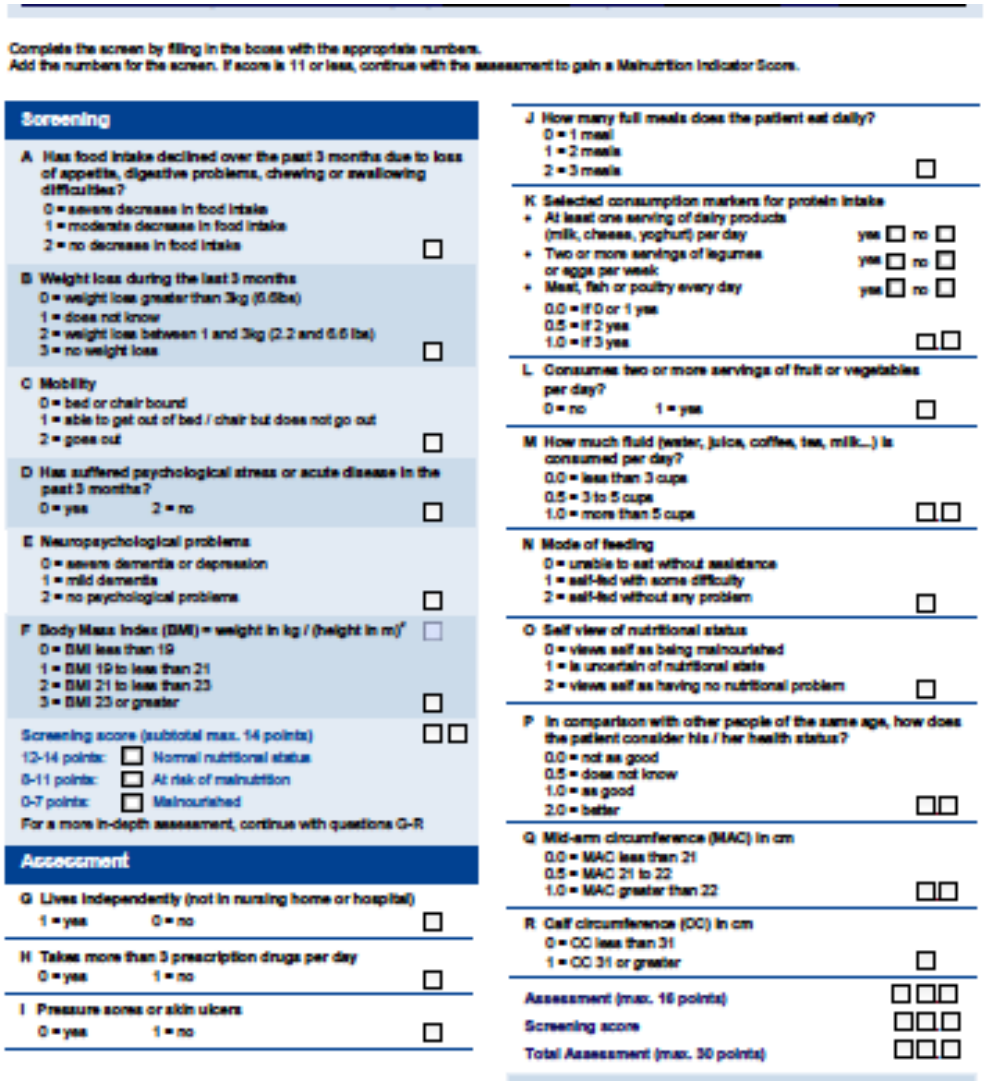
0 ☐ Less than two cups

Mini- Nutritional Assessment

- 18 items
- Short form 6 items
- BMI/calf circumference

https://www.mna-elderly.com/development_and_validation.html

Also appropriate for residential care



Complete the screen by filling in the boxes with the appropriate numbers.
Add the numbers for the screen. If score is 11 or less, continue with the assessment to gain a Malnutrition Indicator Score.

Screening

A Has food intake declined over the past 3 months due to loss of appetite, digestive problems, chewing or swallowing difficulties?
0 = severe decrease in food intake
1 = moderate decrease in food intake
2 = no decrease in food intake

B Weight loss during the last 3 months
0 = weight loss greater than 3kg (6.6lbs)
1 = does not know
2 = weight loss between 1 and 3kg (2.2 and 6.6 lbs)
3 = no weight loss

C Mobility
0 = bed or chair bound
1 = able to get out of bed / chair but does not go out
2 = goes out

D Has suffered psychological stress or acute disease in the past 3 months?
0 = yes 2 = no

E Neuropsychological problems
0 = severe dementia or depression
1 = mild dementia
2 = no psychological problems

F Body Mass Index (BMI) = weight in kg / (height in m)²
0 = BMI less than 19
1 = BMI 19 to less than 21
2 = BMI 21 to less than 23
3 = BMI 23 or greater

Screening score (subtotal max. 14 points)
12-14 points: Normal nutritional status
8-11 points: At risk of malnutrition
0-7 points: Malnourished
For a more in-depth assessment, continue with questions G-R

Assessment

G Lives independently (not in nursing home or hospital)
1 = yes 0 = no

H Takes more than 3 prescription drugs per day
0 = yes 1 = no

I Pressure sores or skin ulcers
0 = yes 1 = no

J How many full meals does the patient eat daily?
0 = 1 meal
1 = 2 meals
2 = 3 meals

K Selected consumption markers for protein intake
- At least one serving of dairy products (milk, cheese, yoghurt) per day — yes / no
- Two or more servings of legumes or eggs per week — yes / no
- Meat, fish or poultry every day — yes / no

0.0 = if 0 or 1 yes
0.5 = if 2 yes
1.0 = if 3 yes

L Consumes two or more servings of fruit or vegetables per day?
0 = no 1 = yes

M How much fluid (water, juice, coffee, tea, milk...) is consumed per day?
0.0 = less than 3 cups
0.5 = 3 to 5 cups
1.0 = more than 5 cups

N Mode of feeding
0 = unable to eat without assistance
1 = self-fed with some difficulty
2 = self-fed without any problem

O Self view of nutritional status
0 = views self as being malnourished
1 = is uncertain of nutritional state
2 = views self as having no nutritional problem

P In comparison with other people of the same age, how does the patient consider his / her health status?
0.0 = not as good
0.5 = does not know
1.0 = as good
2.0 = better

Q Mid-arm circumference (MAC) in cm
0.0 = MAC less than 21
0.5 = MAC 21 to 22
1.0 = MAC greater than 22

R Calf circumference (CC) in cm
0 = CC less than 31
1 = CC 31 or greater

Assessment (max. 16 points)
Screening score
Total Assessment (max. 30 points)

Some Canadian models for screening

- Mini Nutrition Assessment completed by home health HCP→ referral to dietitian in home health (Vancouver Coastal Health Authority)
- Inter-RAI used in home living and supportive living, algorithms used for case management intervention or refer to dietitian (Alberta Health Services)
- Frailty screening including nutrition screening (Primary Care Networks, Alberta Health Services)
- Flu clinics, falls screening, waiting rooms (Ocean tablets), discharge from hospital, memory clinics (Family Health Teams, Ontario)

Canadian Malnutrition Task Force

www.nutritioncareincanada.ca

MALNUTRITION ACTION CENTRE

Prevention & Awareness

CMTF has developed a number of posters, infographics and videos that have been designed for use by relevant stakeholders.

Resources & Tools

CMTF's research and leadership in the field has led to the development of a number of evidence-based tools and resources that help to prevent, detect and treat malnutrition.

Food is Medicine RESEARCH

INPAC Online Toolkit

This toolkit provides an overview of the 'what' and 'how' for making change to improve nutrition care practices in your hospital.

Summary

- Malnutrition/risk is …
  - common in older adults
  - an important health problem, costly
  - coincides with frailty
- Older adults have several risk factors that increase risk for malnutrition
- Malnutrition is treatable even in the most vulnerable
- Nutrition screening can identify those living in the community, several tools and models available