Malnutrition in Canada
The Policy Context

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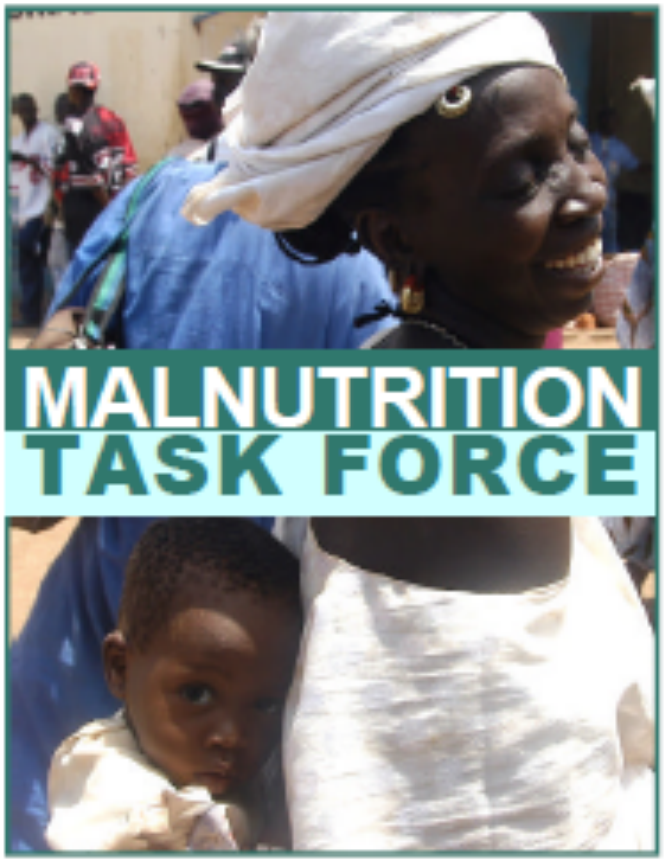
Malnutrition Globally …



International Union of
Nutritional Sciences
(IUNS)

- Malnutrition contributes to 60% of deaths of children under-five, so reducing malnutrition is vital in child survival strategies

Malnutrition – from a global policy perspective

- Malnutrition continues to be one of the world's most serious development problems.
- malnutrition contributes to about 6 million deaths annually of children under 5 and exacerbates the consequences of infectious disease
- While low- and middle-income countries (LMICs) bear the brunt of the problem, malnutrition affects both rich and poor countries, particularly the poorest in each nation.
  - In developed countries, obesity and resultant diet-related noncommunicable diseases (NCDs), such as diabetes and heart disease, have become widespread, reducing productivity and increasing health care costs.
  - Increasingly, LMICs suffer from a "double burden" of pervasive undernutrition and deficiencies in key vitamins and minerals (micronutrients) along with growing rates of obesity and NCDs.

➢ WHO/FAO efforts on malnutrition remains focused on the prevention and treatment of childhood malnutrition, particularly in developing countries

National Nutrition Policy for Canada

- *Nutrition for Health: An Agenda for Action* (1996)
  - *The purpose was to ensure integration of nutrition considerations into health, agriculture, education, social and economic policies and programs.*
  - Was built on the World Health Organization (WHO) and the Food and Agriculture Organization (FAO), *World Declaration on Nutrition* (Rome, 1992)
  - provided a model to address nutrition issues in communities across Canada
    - Never mentioned malnutrition in Canada except in the context of international aid

Do we have policies in Canada regarding malnutrition?

- Not really
- But the problem has been recognized since the 1950's within our national nutrition surveys

Malnutrition in Canada – since the 1950's ….

The Canadian Medical Association Journal

Vol. 63 JULY, 1950 No. 1

SIGNS OF MALNUTRITION IN CANADA

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NO simple system has yet been devised for the assessment of malnutrition. A record of foods ingested gives little indication of the probable results because individuals vary in their requirements and in their ability to adapt themselves to altered conditions. They also vary in the extent to which they utilize a seemingly adequate intake of food. Biochemi-

The frequency with which certain of these unspecific signs of malnutrition have been encountered among some 6,000 Canadians, is listed, together with other information. Since these Canadians were examined in regions that were not statistically random in selection, these figures do not represent "national average" results, but they do illustrate both a method of procedure, and the kind of results that may be encountered.

The pendulum is swinging away from the preoccupation with vitamins and returning to emphasis on sufficient (but not over-abundant)

Malnutrition in 6000 Canadians using diet histories (1949)

TABLE IV.

Showing the prevalence of malnutrition on diets that approached adequacy (conditioned malnutrition) among Canadians, as well as among those on clearly inadequate diets. Figures give the percentage in each group on whom a definite or probable diagnosis was made.

Diagnosis	*Diet inadequate (1,070 persons)*		*Diet fairly adequate (3,701 persons)*	
	Indians	*Whites*	*Indians*	*Whites*
	%	%	%	%
1. Thinness	9.1	13.8	6.0	10.2
2. Low hæmoglobin	0	6.8	17.6	6.2
3. Riboflavin deficiency	27.3	26.7	22.5	9.7
4. Past rickets	0	14.5	8.3	11.8
5. Vitamin A deficiency	9.1	12.8	7.3	3.6
6. Ascorbic acid deficiency	0	3.6	0	1.2
7. Protein deficiency	0	0.3	0	0.2
8. Niacin deficiency	0	0.3	0.2	0.03

Food Insecurity

Table A

Prevalence of food insecurity, by selected characteristics, household population aged 12 or older, Canada, 2000/01

	Estimated food-insecure population	
	'000	%
Total	3,739	14.7
Sex		
Male	1,679	13
Female	2,060	16
Age group		
12-17	428	18*
18-24	537	19*
25-44	1,659	18*
45-64	859	12
65+	256	7*
Household income		
Low	388	44*
Lower-middle	741	42*
Middle	1,256	24*
Upper-middle	882	11*
High	248	4*
Missing	223	9*
Family type		
Couple with child(ren) <25	1,584	13*
Couple without child(ren) <25	544	9*
Lone mother with child(ren) <25	625	33*
Lone father with child(ren) <25	80	18*
Unattached individual	812	19*
Other	44	15
Aboriginal status		
Yes	252	31*
No	3,448	14

- Younger age groups
- Low household income
- Lone mother with children
- Aboriginal

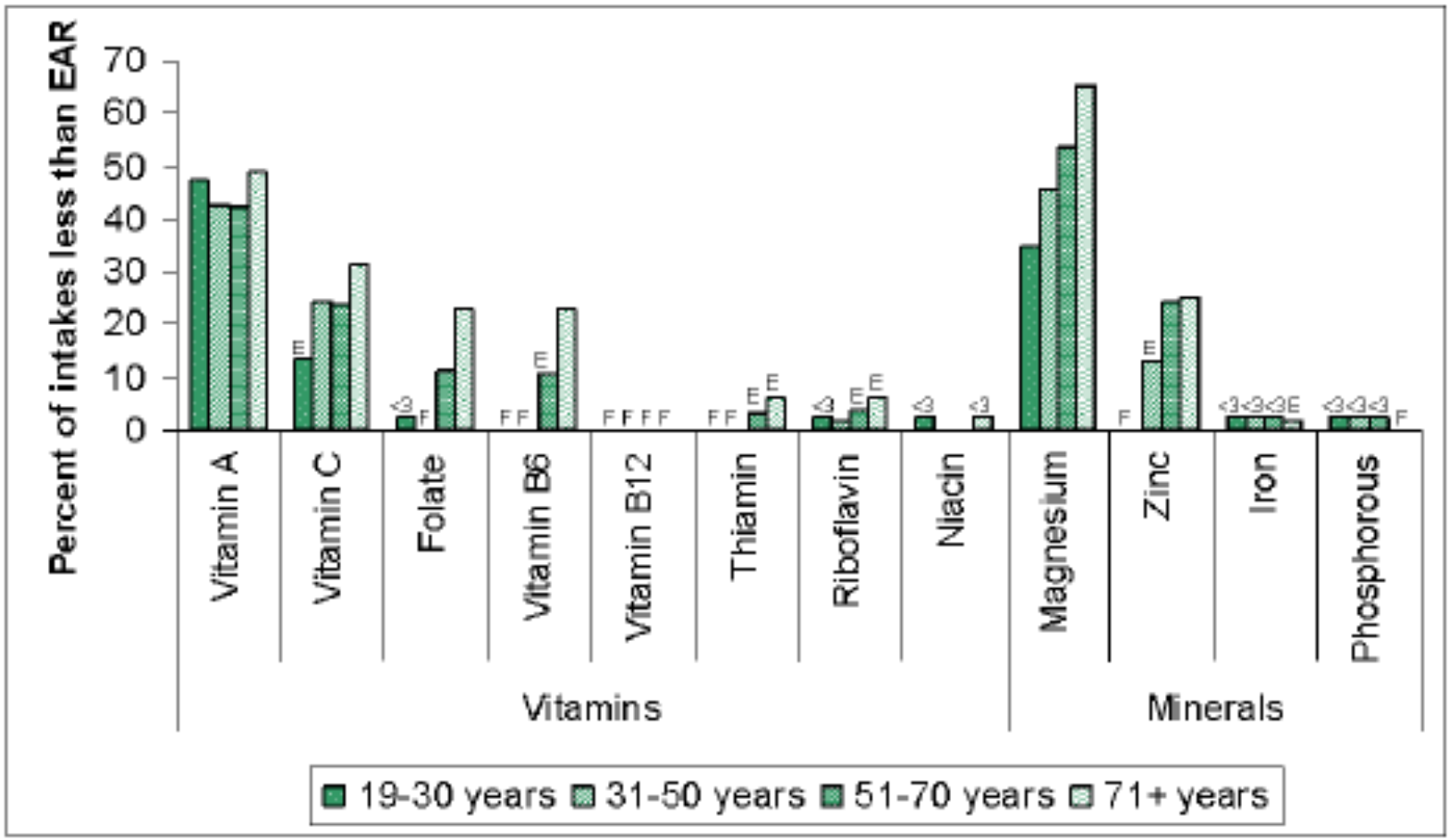
From: Ledrou & Gervais *Food Insecurity*. Statistics Canada Health Reports (May 2005)

Proportion of adults with macronutrients below the AMDR

Table 1. Proportion of Canadian adults 19 years and older with macronutrient intakes below, within or above the Acceptable Macronutrient Distribution Ranges (AMDR) (2004)

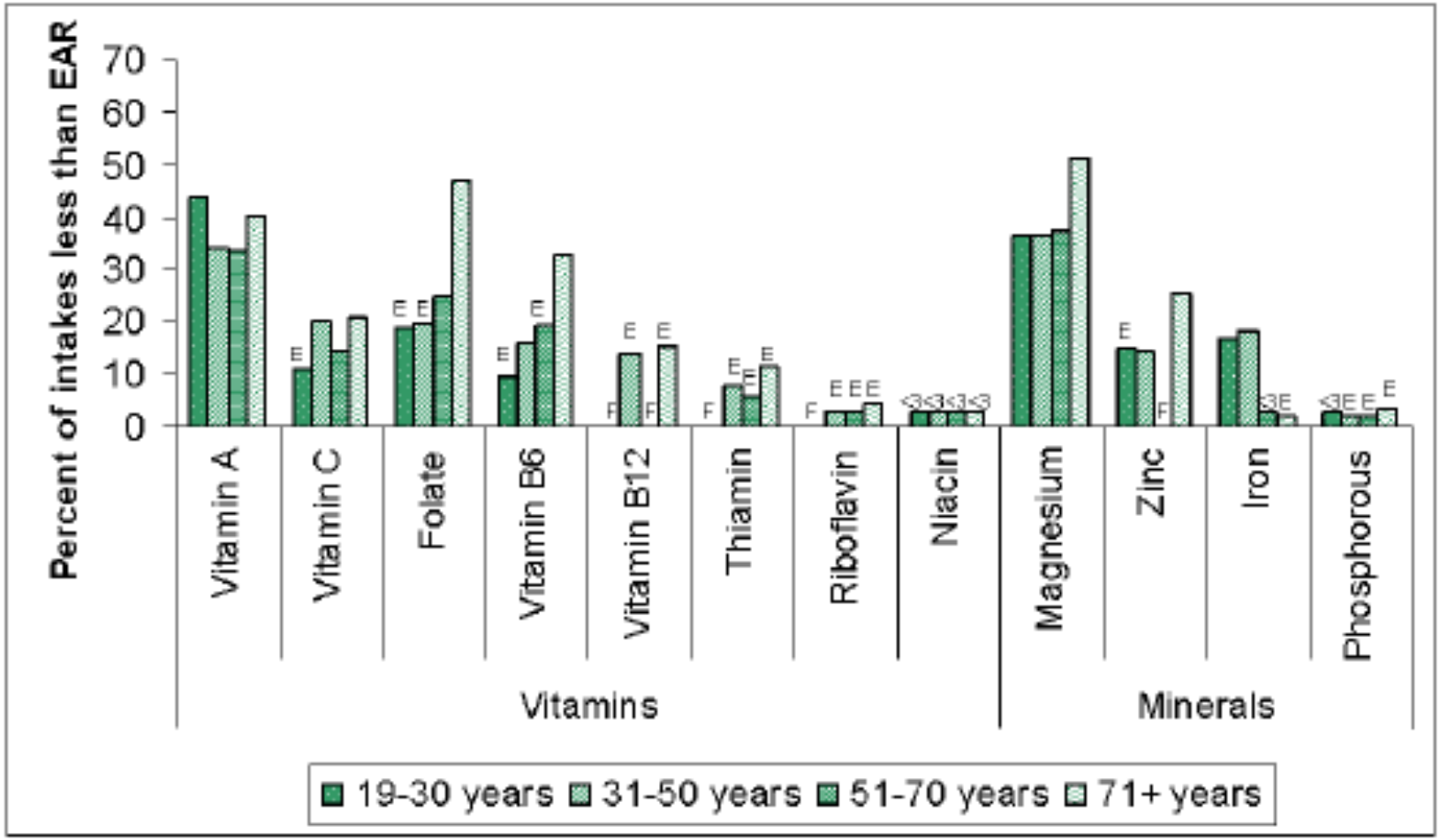
Macronutrients	% adults below AMDR		% adults within AMDR		% adults above AMDR		Dietary Reference Intake AMDR (% of total energy intake)
	Men	Women	Men	Women	Men	Women	
Total fat							
19-30 years	<3	<3	81.7	88.4	18.0 [E]	F	
31-50 years	<3	<3	71.2	71.7	27.5	28.0	25-35%
51-70 years	<3	<3	76.2	75.8	23.0	23.3	
71+ years	3.1 [E]	<3	74.6	82.3	22.3	16.6	
19+	1.2 [E]	0.6 [E]	73.9	76.5	24.8	22.8	
Protein							
19-30 years	<3	<3	99.1	99.2	0.0	<3	
31-50 years	<3	<3	98.8	99.3	0.0	0.0	10-30%
51-70 years	<3	<3	100.0	100.0	0.0	0.0	
71+ years	<3	<3	100.0	99.8	0.0	0.0	
19+	<3	<3	99.8	99.6	0.0	0.0	
Carbohydrates							
19-30 years	22.8	8.5	76.4	90.9	<3	<3	
31-50 years	35.0	29.2	64.6	70.3	<3	<3	45-65%
51-70 years	35.9	22.0	63.8	77.5	<3	<3	
71+ years	21.7	11.3 [E]	76.9	80.1	<3	<3	
19+	31.8	21.5	67.6	77.9	0.6 [E]	0.6 [E]	

Prevalence of inadequate intakes (Males)



Health Canada (2009) From CCHS 2.2 data

Prevalence of inadequate intakes (Females)



Health Canada (2009) From CCHS 2.2 data

Malnutrition in Long-term care facilities

- Malnutrition is prevalent in Canadian long-term care facilities (LTCFs);
- estimates of overt malnutrition range from 20% to 60% and up to 70% in the cognitively impaired elderly.
  - In comparison with well-nourished older adults, malnourished institutionalized older adults are more likely to be admitted to hospital, to have a longer stay, or to die during an acute care admission.

From: Bocock & Keller, *Hospital Diagnosis of Malnutrition- A Call for Action* Can J Diet Prac Res (2009)

Are there policies/guidelines? In hospitals …

aspen Clinical Guidelines

Guidelines for the Provision and Assessment of Nutrition Support Therapy in the Adult Critically Ill Patient:

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Updated Recommendations

Canadian Clinical Practice Guidelines **May 28th, 2009**
Summary of Topics and Recommendations

Shaded areas denote the changes that have been made with the incorporation of new studies.

#	Topic	Question	2009 Recommendation	2007 Recommendation
1.	**Enteral Nutrition vs. Parenteral Nutrition**	Does enteral nutrition compared to parenteral nutrition result in better outcomes in the critically ill adult patient?	No change from 2007	Based on 1 level 1 study and 12 level 2 studies, when considering nutrition support for critically ill patients, we **strongly recommend** the use of enteral nutrition over parenteral nutrition.
2.	**Early vs. delayed nutrient intake**	Does early enteral nutrition compared to late enteral nutrition result in better outcomes in the critically ill adult patient?	Based on 14 level 2 studies, **we recommend** early enteral nutrition (within 24-48 hours following admission to ICU) in critically ill patients.	Based on 11 level 2 studies, we **recommend** early enteral nutrition (within 24-48 hours following admission to ICU) in critically ill patients.
3.1	**Dose of EN: Use of indirect calorimetry vs. predictive equation for EN**	Does the use of indirect calorimetry vs.a predictive equation for determining energy needs result in better outcomes in the critically ill adult patient?	No change from 2007	There are **insufficient data** to make a recommendation on the use of indirect calorimetry vs. predictive equations for determining energy needs for enteral nutrition in critically ill patients.
3.2	**Dose of EN: Achieving target dose of EN** *	Does achieving target dose of enteral nutrition result in better outcomes in the critically ill adult patient?	UPGRADED from 2007 Based on 2 level 2 studies and 2 cluster randomized controlled trials , when starting enteral	Based on 1 level 2 study, when initiating enteral nutrition in head injured patients, strategies to optimize delivery of nutrients (starting at target

- Heyland DK, Dhaliwal R, Drover JW, Gramlich L, Dodek P, for the Guidelines Committee. Canadian clinical practice guidelines for nutrition support in the adult critically ill patient. JPEN 2003;27(Sep-Oct):355-373. Pubmed Abstract.

Where Next …

- Lack of national data
  1. Who are at risk for malnutrition in Canada?
     - National surveys do not measure nutritional status in "institutionalized" segments of the population
  2. Pre-disposing risk factors for malnutrition?
  3. With hospitalized patients or those in LTCF, Is malnutrition part of disease or is it lack of food leading to increased susceptibility to diseases?
     - Policies will only come after the scope and magnitude of the problem is clarified and "at risk" groups identified

Thank you very much !

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