

Review of Guidelines of Screening for
Nutrition Related Conditions



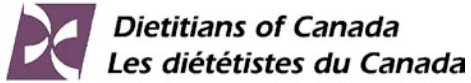
Nutrition in
Primary Health



Dietitians of Canada
Les diététistes du Canada

Review of Guidelines of Screening for Nutrition Related Conditions

Prepared for:
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Interdisciplinary Nutrition Services in Family Health Networks/Primary Care Model Sites: A Demonstration Project

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Review of Guidelines of Screening for Nutrition Related Conditions

Purpose

The purpose of this paper is to summarize recommendations regarding screening for nutritional disorders (or their prevention) from the major clinical guidelines Registered Dietitians in North America. In addition to screening, recommendations for interventions have been included so that practitioners will have related information readily at hand, in one document.

Process

For the purpose of this document, screening refers to information necessary for diagnosis, as for gestational diabetes or cystic fibrosis; but also refers to assessment of nutrient intake, which will lead to subsequent counselling or educational interventions, as in obesity.

A group of experts agreed that the most frequently used guidelines regarding nutrition screening were produced by the following groups: Canadian Task Force on Preventative Health Care (CTFPHC), the US Preventative Services Task Force (USPSTF) and the Canadian Diabetes Clinical Guidelines (CDCG). Each of their guidelines was reviewed for quality using the AGREE tool (2001); all were assessed as “strongly recommend”. Each is based on a thorough systematic review of the literature.

Subsequently, we reviewed each guideline related to nutrition screening, and extracted recommendations, along with a grade of the recommendation and strength of the supporting evidence. Recommendations for interventions were also abstracted from the guidelines. As different grading of recommendations and levels of evidence are utilized for different guidelines, a decision was made to utilize the Canadian Task Force on Preventative Health Care grades for recommendations (Table 1) and a composite grading of levels of evidence, as included in Table 2.

It is intended that clinicians will use the table for finding recommendations related to screening and assessment; then suggested interventions are included, taken from the same guidelines, with the level of evidence, in order to facilitate decisions regarding treatment.

Results

The results are presented according to age group divisions of prenatal to six years (Table 3), children (Table 4), and adults (Table 5). The recommendations for screening are bolded, and other nutrition related recommendations are also included for guidance in clinical practice.

Conclusion

While several screening recommendations are based on expert consensus and not research evidence (not doing routine screening of asymptomatic adults for diabetes, not screening all adults for total cholesterol levels); there are several recommendations that can be made about screening for nutritional issues that are based on high quality evidence: 1) screening newborns with capillary blood tests for PKU before discharge from hospital, but not screening siblings for case finding for PKU; 2) not screening newborns for cystic fibrosis, but screening their siblings for carrier status; 3) hemoglobin screening high risk pregnant women; 4) assessing BMI for all adults; 5) screening women over 65 for osteoporosis; 6) not screening all asymptomatic adults with fasting blood sugar.

Table 1. Grading of Recommendations

(Canadian Task Force on Preventative Health Care, 1997)

Grade	Recommendations
A	The Canadian Task Force (CTF) concludes that there is good evidence to recommend the clinical preventive action.
B	The CTF concludes that there is fair evidence to recommend the clinical preventive action.
C	The CTF concludes that the existing evidence is conflicting and does not allow making a recommendation for or against use of the clinical preventive action, however other factors may influence decision-making.
D	The CTF concludes that there is fair evidence to recommend against the clinical preventive action.
E	The CTF concludes that there is good evidence to recommend against the clinical preventive action.
I	The CTF concludes that there is insufficient evidence (in quantity and/or quality) to make a recommendation, however other factors may influence decision-making.



Table 2 Comparison of Levels of Evidence Utilized by Different Guidelines.

Note –level of evidence utilized in Tables 3-5 below, are those in the far left column. Where there are studies for each recommendation, the studies have been evaluated for their strength of design and quality.

Suggested Definitions Of Levels:

Level Of Evidence	Based on American Diabetes Association definitions (2005)	CTFPHC	USPSTF	CDCG
1. Good	<p>Clear evidence from well-conducted, generalizable, randomized controlled trials that are adequately powered, including:</p> <ul style="list-style-type: none"> -Evidence from a well-conducted multicenter trial -Evidence from a meta-analysis that incorporated quality ratings in the analysis -Compelling non-experimental evidence, i.e., “all or none” rule developed by the Center for Evidence Based Medicine at Oxford* Supportive evidence from well-conducted randomized controlled trials that are adequately powered, including: -Evidence from a well-conducted trial at one or more institutions -Evidence from a meta-analysis that incorporated quality ratings in the analysis 	I	GOOD consistent, well designed, well constructed in representative populations studies that directly assess effects on health out-comes	1A-highest quality & 2-poorer quality
2. Fair	<p>Supportive evidence from well-conducted cohort studies, including:</p> <ul style="list-style-type: none"> -Evidence from a well-conducted prospective cohort study or registry -Evidence from a well-conducted meta-analysis of cohort studies <p>Supportive evidence from a well-conducted case-control study</p>	II-1 & II-2	FAIR sufficient evidence to determine effects on outcomes, strength is limited in number, quality or consistency	1B-highest quality & 3- poorer quality
3. Poor	<p>Supportive evidence from poorly controlled or uncontrolled studies:</p> <ul style="list-style-type: none"> -Evidence from randomized clinical trials with one or more major or three or more minor methodological flaws that could invalidate the results -Evidence from observational studies with high potential for bias (such as case series with comparison with historical controls) -Evidence from case series or case reports <p>Conflicting evidence with the weight of evidence supporting the recommendation</p>	II-3	POOR evidence insufficient to assess effects on outcomes because of limited number of power of studies, design flaws, gaps in chain of evidence, gaps in information	4
4. Expert Consensus	Expert consensus or clinical experience	III		4

Table 3. Recommendations for Prenatal to Six Years.

Note a) Recommendations related to screening are in bold; treatment recommendations are not bolded.

Note b) Date reported is the date the recommendations were finalized, or last reviewed. All are available on respective websites.

RECOMMENDATIONS PRENATAL TO 6 YEARS	Publishers Of Guidelines	Grade Of Recom- menda- tions A-E, OR I	Level Of Evidence (1-4)	Special Considerations
Routine screen for gestational diabetes	Canadian Task Force Preventative Health Care (CTFPHC), 1991	I or C	3	<ul style="list-style-type: none"> • value of screening is unclear • women with risk factors for GDM should be carefully followed during pregnancy
Routine screen for gestational diabetes	3rd US Preventative Services Task Force (USPSTF), 2003	I	2	<ul style="list-style-type: none"> • a change from earlier USPSTF recommendations • insufficient evidence that screening decreases adverse outcomes to mother or infant • fair -good evidence that screening + diet + insulin decreases fatal macrosomia • magnitude of treating GDM is unknown • no good RCT
Screening newborns for PKU with automated capillary blood tests before discharge from hospital.	CTFPHC, 1994	A	1	<ul style="list-style-type: none"> • infants tested before 24 hours of age should be retested at 2 to 7 days of age.
Screening women for undiagnosed maternal PKU	CTFPHC, 1994	C	4	<ul style="list-style-type: none"> • no evidence exists to recommend for or against screening pregnant women for undiagnosed PKU.
Screening newborns for CYSTIC FIBROSIS	CTFPHC, 1994	D	2	
Screen siblings of children with cystic fibrosis for carrier status using DNA analysis.		B	2	
Screen infants using DNA analysis for case finding or to determine carrier status		D	2	



RECOMMENDATIONS PRENATAL TO 6 YEARS	Publishers Of Guidelines	Grade Of Recom- menda- tions A-E, OR I	Level Of Evidence (1-4)	Special Considerations
Screening and prevention of IRON DEFICIENCY ANEMIA IDA in children	ICTFPHC, 1994	I	4	<ul style="list-style-type: none"> with a low prevalence of IDA in infants in the general population, the inaccuracy of hemoglobin measurement, and the conflicting evidence for iron therapy, there is insufficient evidence to recommend the inclusion of routine early detection of anemia by hemoglobin measurement between ages six and 12 months
Screening for iron deficiency anemia using hemoglobin or hematocrit is recommended for: <ul style="list-style-type: none"> Pregnant women. At first visit 	USPSTF, 1996	B	3	<ul style="list-style-type: none"> USPSTF recommendations weighted on similar recommendations from other organizations including CTFPHC, fair evidence to support screening for anemia in pregnant women (observational studies reporting an association between severe to moderate anemia (hemoglobin <9-10 g/dL) and poor pregnancy outcome). No good evidence of causal relationship between iron deficiency and poor pregnancy outcomes Women of low socioeconomic status and immigrants from developing countries are most likely to benefit from screening. hemoglobin measurement is a nonspecific test for iron deficiency
Assessment with Hb or HCT at repeated intervals during pregnancy		I	4	<ul style="list-style-type: none"> no benefits demonstrated
Screening for iron deficiency anemia using hemoglobin or hematocrit is recommended for: <ul style="list-style-type: none"> High-risk infants. 	USPSTF, 1996	B		

RECOMMENDATIONS PRENATAL TO 6 YEARS	Publishers Of Guidelines	Grade Of Recom- menda- tions A-E, OR I	Level Of Evidence (1-4)	Special Considerations
Education programs and postpartum support to promote breastfeeding*	CTFPHC, 1994	A	2	For the general population, it is recommended that physicians encourage: <ul style="list-style-type: none"> • breast-feeding for at least six months • the introduction of iron fortified formula and/or cereal after six months of age
Provision of written materials to new mothers to promote breastfeeding.	CTFPHC, 1994	D	2	
Prevention of iron deficiency anemia in high risk groups : <ul style="list-style-type: none"> • Fortified formula for non breast fed infants • Fortified infant cereals after 4-6 months • Breast feeding • Iron supplementation 	CTFPHC, 1994	B B B B	2 1 2 1	<ul style="list-style-type: none"> • compared to early introduction of cow's milk; addition of fortified cereals after 6 months BF.
Counselling for iron rich diet to parents of children under 6 and women of childbearing years. (American Academy of Pediatrics)	USPSTF, 1996	I	2	
Encouraging parents to breastfeed their infants and to include ironenriched foods in the diet of infants and young children is recommended.		B	2	
Routine Hemoglobin screening blood test 6- 12 months <ul style="list-style-type: none"> • Normal 	CTFPHC, 1994	C	1	Conflicting evidence from randomized controlled trials evaluating clinical outcomes: <ul style="list-style-type: none"> • 3 studies showed no benefit from therapy; • one recent study demonstrated improvement in both cognitive and motor development.
Routine Hemoglobin screening blood 6-12 months <ul style="list-style-type: none"> • high risk infants 	CTFPHC, 1994	B	1	



RECOMMENDATIONS PRENATAL TO 6 YEARS	Publishers Of Guidelines	Grade Of Recom- menda- tions A-E, OR I	Level Of Evidence (1-4)	Special Considerations
Iron supplementation of pregnant women	USPSTF, 1996	I	4	<ul style="list-style-type: none"> evidence does not support routine supplementation of non-anemic pregnant women. supplementation in those with anemia does improve biochemical parameters but no beneficial clinical outcomes have been demonstrated (i.e pregnancy outcomes),
Routine use of iron supplements for infants and young children	USPSTF, 1996	I	4	<ul style="list-style-type: none"> recommendations against screening may be made on other grounds.
Appropriate hematological studies and nutrition counselling should be provided for patients found to have anemia.	USPSTF, 1996	B	2	
BREAST FEEDING	CTFPHC, 1994	A	Not specified	<p>CTFPHC notes that there are numerous bases on which to recommend breastfeeding other than IDA alone:</p> <ul style="list-style-type: none"> prevention of infections decreased risk of ovarian cancer prevention of tooth decay
Encourage parents to offer breastfeeding	USPSTF, 1996	A	3	
<p>PREVENTION OF NEURAL TUBE DEFECT</p> <p>All women of childbearing age capable of becoming pregnant should be advised to increase their daily intake of folic acid and/or supplement to meet recommended level of intake</p>	CTFPHC, 1994	A	1	<ul style="list-style-type: none"> supplementation reduces the risk of NTD by 40% to be effective, supplementation should begin at least one month before pregnancy and continue during the first trimester. pre-pregnancy and pregnancy levels are set separately. level of supplementation correlates with maternal risk assessment

RECOMMENDATIONS PRENATAL TO 6 YEARS	Publishers Of Guidelines	Grade Of Recom- menda- tions A-E, OR I	Level Of Evidence (1-4)	Special Considerations
<p>Daily multivitamins with folic acid (0.4-0.8 mg) to reduce the risk of neural tube defects are recommended for all women who are planning or capable of pregnancy.</p> <p>Daily multivitamins with folic acid (1 mg) to reduce the risk of neural tube defects are recommended for women who had a previous baby with neural tube defect) USPSTF, 1996</p>	USPSTF, 1996	A	1	
Nutritional supplementation programs for women at high-risk of undernutrition to prevent LBW	USPSTF, 1996	I	4	



Table 4. Recommendations for Children and Teens

Note – recommendations related to screening are in **bold**; treatment recommendations are not bolded.

RECOMMENDATIONS CHILDREN AND TEENS	Publishers Of Guidelines	Grade Of Recommendations A-E, OR I	Level Of Evidence (1-4)	Special Considerations
Measurement of height and weight, calculation of body mass index (BMI) (weight/height²) and treatment of obesity.	CTFPHC, 1994	I	2	<ul style="list-style-type: none"> • weight reduction can be cautiously recommended in persons with obesity and coexistent diabetes, hypertension or hyperlipidemia • in persons who are either obese or in the upper normal BMI range, in whom weight reduction is not being considered or has been unsuccessful, maintenance of a stable weight is a reasonable alternative.
	USPTF			<ul style="list-style-type: none"> • no recommendations found for childhood obesity
Primary prevention programs for obesity. Screening for childhood obesity	CTFPHC, 1994	C	2	<ul style="list-style-type: none"> • insufficient evidence to recommend for or against primary prevention programs for obesity. • primary prevention programs are ineffective in reducing the incidence of obesity • for highly motivated obese children and their families, there is good evidence that intensive diet, exercise, and family behaviour management counselling is successful in lowering the degree of obesity 10 years later, but these obese children were not identified by screening.
Family–based nutrition and exercise education and behaviour modification.	CTFPHC, 1994	I	1	<ul style="list-style-type: none"> • lack of generalizability • inadequate information. Sole study where there were strict selection criteria –family motivation, SES, etc

RECOMMENDATIONS CHILDREN AND TEENS	Publishers Of Guidelines	Grade Of Recommendations A-E, OR I	Level Of Evidence (1-4)	Special Considerations
Counselling: to reduce intake of cariogenic foods, and for infants to reduce nocturnal and long-term use of baby bottles containing liquids other than water as pacifiers.	CTFPHC, 1995	C	2	<ul style="list-style-type: none"> • despite early evidence recent data suggests less specific impact of dietary sugars on caries incidence in the general population. • poor evidence of dietary change as effective for population; however for high-risk persons and regarding changes in infant feeding to prevent baby bottle caries may be clinically prudent
Routine counselling with low fat diets for children	CTFPHC, 1994	I	4	<ul style="list-style-type: none"> • community-based studies have evaluated measures to reduce dietary fat intake in children, no controlled trials of routine behavioural dietary counselling for children or adolescents in the primary care setting were identified.
Intensive counselling with low fat diet for children	CTFPHC, 1994	I	4	<ul style="list-style-type: none"> • no controlled trials of intensive counselling in children or adolescents that measured diet were identified



Table 5 – Recommendations for Adults

Note – recommendations related to screening are in bold; treatment recommendations are not bolded.

Recommendations For Adult Years	Publishers Of Guidelines	Grade Of Recommendations A-E, OR I	Level Of Evidence (1-4)	Special Considerations
SCREENING FOR OBESITY				
<i>Adult obesity</i>	<i>CTFPHC</i>			<i>Work by guidelines groups not completed yet.</i>
Screen all adult patients for obesity (BMI>30).	USPSTF, 2003	B	1	<ul style="list-style-type: none"> body mass index (BMI) is reliable and valid for identifying adults at increased risk for mortality and morbidity due to overweight and obesity.
Offer intensive diet and/or exercise counselling and behavioural interventions to promote sustained weight loss for obese adults.	USPSTF, 2003	B	1	<ul style="list-style-type: none"> no evidence was found that addressed the harms of counselling and behavioural interventions.
Offer low or moderate intensity counselling and behavioural interventions to promote sustained weight loss for obese adults (BMI 25-29.9).	USPSTF, 2003	I	3	<ul style="list-style-type: none"> relevant studies were of fair to good quality, but showed mixed results limited by small sample sizes, high drop-out rates, potential for selection bias.
Offer intensive counselling and behavioral interventions to promote sustained weight loss for overweight adults	USPSTF, 2003	I	3	<ul style="list-style-type: none"> limited evidence
Recommend surgery for morbidly obese adults	USPSTF, 2003	B	2	<ul style="list-style-type: none"> surgery for extremely obese patients who have tried and failed to lose weight with exercise and diet may be more effective for weight reduction.(AHRQ, 2004)

Recommendations For Adult Years	Publishers Of Guidelines	Grade Of Recommendations A-E, OR I	Level Of Evidence (1-4)	Special Considerations
DIET COUNSELLING TO PROMOTE A HEALTHY DIET				
Routine medium intensity behavioral counselling to promote a healthy diet in unselected patients in primary care settings	USPSTF, 2003	I	2 no RCT, observational studies of limited F/U	<ul style="list-style-type: none"> • strength of this evidence is limited by reliance on self-reported diet outcomes, limited use of measures corroborating reported changes in diet, limited followup data beyond 6 to 12 months, and enrollment of study participants who may not be fully representative of primary care patients. • limited evidence to assess possible harms.
Nutritional counselling by physicians, as opposed to counselling by Registered Dietitians or community interventions	USPSTF, 2003			<ul style="list-style-type: none"> • in most studies on counselling, the counselor was not a physician • interventions not easily reproduced in typical physician – client clinical encounter
Referral to a Registered Dietitians or other trained provider for counselling	USPSTF, 2003	-	4	<p>Clinicians who lack the time or skills to perform a complete dietary history, address potential barriers to changes in eating habits, and to offer specific guidance on meal planning and food selection and preparation, should either</p> <ul style="list-style-type: none"> • have patients seen by other trained providers in the office or clinic, or • refer patients to a Registered Dietitian or qualified nutritionist for further counselling.
HYPERLIPIDEMIA				
Intensive behavioural dietary counselling for adult patients with hyperlipidemia and other known risk factors for cardiovascular and diet-related chronic disease.	USPSTF 2003	B	1	<ul style="list-style-type: none"> • intensive counselling can be delivered by specially trained primary care clinicians or by referral to other specialists, such as nutritionists or Registered Dietitians



Recommendations For Adult Years	Publishers Of Guidelines	Grade Of Recommendations A-E, OR I	Level Of Evidence (1-4)	Special Considerations
OSTEOPOROSIS				
Screen asymptomatic people for osteoporotic risk factors with initial history and physical examination in periodic health examination (PHE)	CTFPHC 1993	I	2	<ul style="list-style-type: none"> • early detection of clinical risk factors for osteoporotic fractures have limited sensitivity and specificity.
Assess BMD by Single and dual photon absorptiometry, quantitative computed tomography, neutron activation analysis, dual x-ray absorptiometry as part of PHE.	CTFPHC 1993	D	2	<ul style="list-style-type: none"> • reduced bone mineral content (BMC) and increased fracture risk are correlated, but bone mineral density (BMD) does not accurately identify those at risk of fractures • diagnostic techniques are not widely available.
Screen postmenopausal women to prevent fragility fractures	CTFPHC 2004	B	1	<p>There is no direct evidence that screening reduces fractures. However, there is good evidence</p> <ul style="list-style-type: none"> • of effectiveness of screening in identifying low BMD, and • that treating women with low BMD can reduce the risk of fractures.
Screen asymptomatic people for osteoporotic risk factors using history of previous fracture for the prediction of osteoporotic fractures.)	CTFPHC 2004	B	2	<ul style="list-style-type: none"> • individual risk factors in general have poor predictive ability for osteoporotic fractures and osteoporosis • history of previous fracture has been shown to predict future fracture. • new recommendations distinguish screening methodologies, e.g. BMD, bone turnover markers, etc. • pharmacological treatment also reviewed but no updates related to diet management per se.

Recommendations For Adult Years	Publishers Of Guidelines	Grade Of Recommendations A-E, OR I	Level Of Evidence (1-4)	Special Considerations
Screen women aged 65 and older routinely for osteoporosis. Routine screening begin at age 60 for women at increased risk for osteoporotic fractures	USPSTF 2002	B	1	Good evidence that <ul style="list-style-type: none"> • bone density measurements accurately predict the risk for fractures in the short-term, • treating asymptomatic women with osteoporosis reduces their risk for fracture.
Routine osteoporosis screening in postmenopausal women who are younger than 60 or in women aged 60-64 who are not at increased risk for osteoporotic fractures.	USPSTF 2002	C	2	<ul style="list-style-type: none"> • fair evidence that screening women at lower risk for osteoporosis or fracture can identify additional women who may be eligible for treatment for osteoporosis, • treatment prevents a small number of fractures in this group. • benefits and harms of screening and treatment were assessed to be too close to make a general recommendation for this age group.
IRON SUPPLEMENTATION				
Routine screening for iron deficiency anemia in asymptomatic adults	USPSTF 2003			<ul style="list-style-type: none"> • see iron supplementation in infants and children. • in adults, recommendations against screening may be made on other grounds.
	<i>CTFPS</i>			<i>No guidelines on this topic.</i>
DIABETES				
Routine screening of asymptomatic adults using fasting blood sugars	CTFPHC 1994	D	2	<ul style="list-style-type: none"> • low sensitivity in asymptomatic low risk populations • efficacy of screening not demonstrated
Routine screening of asymptomatic patients	USPSTF 2003	I	4	<ul style="list-style-type: none"> • poor evidence to assess possible harm of screening • benefit of early tight control after detection by screening is unknown



Recommendations For Adult Years	Publishers Of Guidelines	Grade Of Recommendations A-E, OR I	Level Of Evidence (1-4)	Special Considerations
Routine screening for adults with hypertension and hyperlipidemia	USPSTF 2003	B	2	
	2003			for risk of condition • strong influence of 1998 UK Prospective Diabetes Study
Routine fasting blood sugar every 3 years after 40 years old	Canadian Diabetes Clinical Guidelines 2003	I	4	
Early and frequent screening of adults with hypertension or hyperlipidemia	Canadian Diabetes Clinical Guidelines 2003	I	4	
Differentiate Type 2 Diabetes Mellitus, impaired glucose tolerance, and fasting glucose and treat accordingly.	CTFPHC 1994	I	4	
CHOLESTEROL LOWERING				
Measurement of blood total cholesterol level.	CTFPHC 1994	I	4	<ul style="list-style-type: none"> • average of three or more readings accurately reflects “true” level if measured in standardized laboratory. • although not evaluated for its effectiveness, screening should be considered in all men aged 30 to 59 years • individual clinical judgement should be exercised in all other cases. • rating changed to reflect 2003 changes in ranking

Recommendations For Adult Years	Publishers Of Guidelines	Grade Of Recommendations A-E, OR I	Level Of Evidence (1-4)	Special Considerations
Stepped fat-modified diet to which a cholesterol lowering drug is added if response is inadequate (mean total cholesterol level of more than 6.85 mmol/L or LDL-C level of more than 4.50 mmol/L).	CTFPHC 1994	B	2	<ul style="list-style-type: none"> for men 30 to 59 years old with a mean total cholesterol level of more than 6.85 mmol/L or an LDL-C level of more than 4.90 mmol/L treatment is efficacious in reducing incidence of CHD
General dietary advice on fat (especially saturated fat) and cholesterol intake. men 30 to 69 years	CTFPHC 1994	B	2	<ul style="list-style-type: none"> for men 30 to 69 years decreased intake of total fat, saturated fat and cholesterol is associated with decreased incidence of CHD.
General dietary advice on fat (especially saturated fat) and cholesterol intake. Those not in above group	CTFPHC 1994	I*	4	<ul style="list-style-type: none"> for all others, than those explicitly identified in two preceding rows, value of such advice has not been demonstrated. <p><i>*rating changed to reflect 2003 changes in ranking</i></p>
VITAMIN SUPPLEMENTS				
The USPSTF recommends against the use of beta-carotene supplements, either alone or in combination, for the prevention of cancer or cardiovascular disease.	USPSTF 2003	D	1	<ul style="list-style-type: none"> beta-carotene supplementation was associated with higher incidence of lung cancer and higher all-cause mortality.



Recommendations For Adult Years	Publishers Of Guidelines	Grade Of Recommendations A-E, OR I	Level Of Evidence (1-4)	Special Considerations
Supplements of vitamins A, C, or E; multivitamins with folic acid; or antioxidant combinations for the prevention of cancer or cardiovascular disease.	USPSTF 2003	I	4	<ul style="list-style-type: none"> • available evidence from randomized trials is either inadequate or conflicting, and the influence of confounding variables on observed outcomes in observational studies cannot be determined.
Treatment of hyperhomocysteinemia with vitamin therapy (B6 or folate).	USPSTF 2003	C	2-3	<ul style="list-style-type: none"> • treatment with folic acid (alone or with vitamin B12) is effective in lowering plasma total homocysteine • vitamin B6 lowers post-methionine load levels • no completed studies regarding the effectiveness of treatment on clinical outcomes
Vitamin E supplementation for the primary prevention of CVD in the general population and in male smokers	CTFPHC 2003	I	1-2	<ul style="list-style-type: none"> • no studies showed significant results for the primary prevention of CVD
Vitamin E for the secondary prevention of CVD in patients with established CVD or risk factors for CVD	CTFPHC 2003	D	2	<ul style="list-style-type: none"> • majority of trials showed no benefit • 1 trial showed a positive result for non-fatal MI (RR=0.23)
Vitamin E for the prevention of lung cancer	CTFPHC 2003	D	1	<ul style="list-style-type: none"> • no studies showed significant results for the prevention of lung cancer
Vitamin E for the prevention of other cancers (esophageal, stomach, colorectal, urological, and prostate)	CTFPHC 2003	I	2	<ul style="list-style-type: none"> • no studies showed significant results for the prevention of other cancers

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