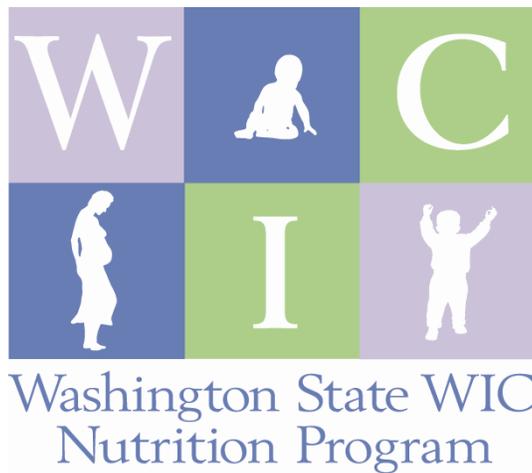


WASHINGTON STATE WIC POLICY AND PROCEDURE MANUAL



VOLUME 1, CHAPTER 14

Nutrition Risk Criteria

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TABLE OF CONTENTS

Section 1 - Determining Medical and Nutrition Risk 1

- Assess Nutrition Risk..... 1
- Pregnant Risk Factor Summary List 3
- Breastfeeding Risk Factor Summary List 4
- Postpartum Risk Factor Summary List 5
- Infant Risk Factor Summary List..... 6
- Child Risk Factor Summary List..... 7

Section 2 - Nutrition High Risk Status 8

- Determine High Risk Status..... 8
- Nutrition High Risk Summary List - Pregnant Women..... 11
- Nutrition High Risk Summary List - Breastfeeding Women..... 12
- Nutrition High Risk Summary List - Postpartum Women..... 13
- Nutrition High Risk Summary List - Infants 14
- Nutrition High Risk Summary List - Children..... 15

Section 3 - Nutrition Risk Definitions and Justifications..... 16

- ≤ 16 Yrs at Conception (PG)..... 16
- 17 Years at Conception (PG) 16
- ≤ 17 Yrs at Conception (BF, PP) 16
- Alcohol Use..... 18
- Asthma (using daily meds)..... 20
- BMI/Age ≤ 5th Percentile 22
- BMI/Age ≤ 10th Percentile 22
- BMI/Age ≥ 85th and < 95th Percentile 24
- BMI/Age ≥ 95th Percentile 28
- Bariatric Surgery 32
- Breastfeeding a Priority 1, 2 or 4 Infant..... 33
- Breastfeeding Complications - Infants..... 35
- Breastfeeding Complications - Women 39
- Breastfeeding Twins, Triplets 42
- Breastfeeding While Pregnant..... 43
- Cancer 44
- Cardiovascular Disorder..... 45
- Caregiver Alcohol/Drug Addiction..... 47
- Caregiver Limited Ability to Make Feeding Decisions 48
- Celiac Disease 49
- Central Nervous System Disorder..... 55
- Cleft Lip and/or Palate (Includes Unrepaired Cleft Lip/Palate)..... 59
- Current BMI < 18.5..... 61
- Current BMI 25 – 29.9 (≥ 6 mos postpartum) 63
- Current BMI ≥ 30 (≥ 6 months postpartum) 63

Cystic Fibrosis.....	65
Depression.....	67
Developmental Delays Affecting Chewing/Swallowing	75
Diabetes Mellitus	77
Drug Nutrient Interactions	80
Drug Use	81
Early Introduction of Solids (< 4 months)	83
Eating Disorder	85
Failure to Thrive.....	87
Feeding Sugar-containing Drinks	89
Fetal Alcohol Syndrome	90
Fetal Growth Restriction	92
Food Allergy (severe diet impact).....	94
Foster Care (new/change in home past 6 months)	101
Gastro-esophageal Reflux	103
Gastrointestinal Disorder	104
Genetic and Congenital Disorder	109
Gestational Diabetes.....	111
Gestational Diabetes (Hx).....	116
Head Circumference/Adjusted Age \leq 2 nd Percentile (Birth to < 24 months).....	120
Head Circumference/Age \leq 2 nd Percentile (Birth to < 24 months)	120
Height/Age \leq 5th Percentile.....	123
Height/Age \leq 10th Percentile.....	123
High Birth Weight \geq 9 lbs.....	126
High Blood Lead Level.....	127
High Weight Gain – 1 st Trimester.....	132
High Weight Gain - 2 nd & 3 rd Trimester	132
High Weight Gain (This PG)	135
Homelessness	139
Hypertension/Prehypertension	140
Hypoglycemia	145
In State Transfer.....	146
Inadequate Folic Acid Supplementation (< 400 mcg)	147
Inadequate Fluoride Supplementation (\geq 6 mos) (Infants)	149
Inadequate Fluoride Supplementation (Children).....	149
Inadequate Iodine Supplementation (<150 mcg).....	150
Inadequate Iron Supplementation (< 27 mg)	152
Inadequate Vitamin D Supplementation	153
Inappropriate Formula Dilution	155
Inappropriate Milk Substitute	157
Inappropriate or Excessive Supplements	158
Inappropriate Substitute for Breastmilk/Formula	161
Inappropriate Use of Bottle/Cup.....	163
Infant of Pri. 1, 2 or 4 Breastfeeding Woman at Nutr. Risk	167
Infant of WIC Eligible Mom (< 6 months)	168
Infectious Disease (past 6 months)	169
Iron Deficiency Anemia.....	172

Juvenile Rheumatoid Arthritis (JRA).....	174
Kidney Disorder (not UTI)	175
Lactose Intolerance	176
Large for Gestational Age (Hx) (This PG)	180
Large for Gestational Age (Infant).....	182
Length/Adjusted Age \leq 5th Percentile (Infants, Children < 24 months)	183
Length/Adjusted Age \leq 10th Percentile (< 2yrs)	183
Length/Age \leq 2 nd Percentile.....	186
Length/Age > 2 nd and \leq 5 th Percentile.....	186
Limited Frequency of Breastfeeding (\leq 6 months)	189
Limited Skills for Proper Nutrition	191
Low Birth Weight \leq 5#, 8 oz. (Infant, Children < 24 months)	192
Low Birth Weight \leq 5 lbs., 8 oz. (Hx) Pregnant women	193
Low Birth Weight \leq 5 lbs., 8 oz. (This PG) BF/PP women.....	193
Low Hemoglobin/Hematocrit	194
Low Weight Gain 1 st Trimester	196
Low Weight Gain 2 nd /3 rd Trimester	196
Lung Disorder	200
Lupus.....	202
Maternal Smoking.....	203
Maternal Substance Use (during pregnancy)	205
Metabolic Disorder.....	206
Migrancy	214
No Prenatal Care >13 weeks	215
Not Meeting Dietary Guidelines	216
Not Meeting Dietary Guidelines (2 – 5 years)	216
Not Meeting Feeding Guidelines (4 – 12 months).....	220
Not Meeting Feeding Guidelines (12 – 23 months).....	220
Not Supporting Development/Feeding Relationship	229
Nutrient Deficiency Disease	232
Nutrition Related Birth Defects (Hx) (This PG)	234
Oral Health Conditions	236
Other Medical Condition (impacts nutr. status).....	246
Out of State Transfer	247
Pica.....	248
Potentially Contaminated Foods – Infants and Children	250
Potentially Contaminated Foods – Pregnant Women	253
Preeclampsia (Hx).....	255
Pregnancy Induced Hypertension	258
Pregnant with Multiples	260
Pregnant with Multiples (This PG)	260
Premature \leq 37 Weeks Gestation (Infant, Children < 24 months).....	262
Premature \leq 37 Weeks Gestation (Hx) (This PG)	263
Pre-Diabetes	264
Pre-Pregnancy BMI < 18.5 (PG).....	268
Pre-Pregnancy BMI < 18.5 (< 6 mos. postpartum) (BF, PP).....	268
Pre-Pregnancy BMI 25 – 29.9 (PG).....	271

Pre-Pregnancy BMI \geq 30 (PG).....	271
Pre-Pregnancy BMI 25 - 29.9 (< 6 months postpartum) (BF, PP).....	271
Pre-Pregnancy BMI \geq 30 (< 6 months postpartum) (BF, PP).....	271
Recent Major Surgery, Trauma, Burns	274
Recipient of Abuse (past 6 months).....	275
Reduced-fat or Non-fat Milk (12 - 23 Months)	276
Regression	278
Respiratory Infection (3x/6 months)	279
Secondhand Smoke	280
Severe Nausea/Vomiting.....	286
Slow Weight Gain	287
Small for Gestational Age.....	289
Spontaneous Abortion, Fetal or Neonatal Loss (Hx) (This PG)	291
Thyroid Disorder	294
Two Pregnancies in Two Years	301
Two Pregnancies in Two Years (This PG)	301
Unsafe Handling/Storage of Breastmilk/Formula.....	307
Very Low Birth Weight \leq 3#, 5 oz.	312
Very Low Hemoglobin/Hematocrit	313
Very Restrictive Diet - Children	315
Very Restrictive Diet - Women	316
Very Restrictive Feeding - Infants	319
Weight/Height or Length \leq 2 nd Percentile	321
Weight/Height or Length $>$ 2 nd and \leq 5 th Percentile.....	321
Weight/Length \geq 98 th Percentile	324
Weight/Length \geq 98 th Percentile (< 24 months)	324
Weight Loss 1st Tri < Pre-preg Wt.....	328
Weight Loss 2 nd /3 rd Tri \geq 2 lbs.....	328

Appendix	329
BMI Table for Determining Weight Classifications for Women (1).....	331
Guidelines for Growth Charts and Gestational Age Adjustment for	332
Low Birth Weight and Very Low Birth Weight Infants	332
Calculating Gestation-Adjusted Age	339
Guidance for Screening and Referring Women With or At Risk for Depression	340

POLICY: Assess Nutrition Risk

A Competent Professional Authority (CPA) must use the nutrition risks listed in this chapter to identify nutrition risks for clients.

The CPA must assess for risks at these appointments:

- New certification
- Completion of the certification
- Recertification
- Mid-certification health assessment

The CPA can select additional risk factors at any time, for example at a second contact or follow-up visit.

PROCEDURE:

The CPA:

- A. Assesses the client's nutrition status and identifies all nutrition risks for each client.
1. Assign risks based on answers to the Assessment Questions, assessment of growth or weight gain, and evaluation of bloodwork values.

See these chapters in Volume 1 of the manual for more information:

- Chapter 9 – Anthropometrics
 - Chapter 10 - Hematology
 - Chapter 11 – Assessment
2. A client or caregiver can self-report medical conditions, but the condition must be diagnosed by a health care provider. For example if the client says “My doctor says that I have ...”
 - a. The CPA should ask more questions to make sure there is a diagnosis of the condition. Examples include:
 - Are you seeing a doctor for this condition?

The CPA may ask for the name and contact information for the medical provider and talk to the provider as appropriate. See Volume 1, Chapter 25 – Legal Issues and Confidentiality for more information about sharing information with providers.

CHAPTER 14 NUTRITION RISK CRITERIA

Section 1 Determining Nutrition Risk

- Are you on a special diet, medicine or other type of treatment for this condition?
 - What type of medication has your doctor prescribed?
- B. Marks all risk(s) for each client in the client's computer file.
- C. Talks with the client or caregiver about the client's nutrition needs and interests.
1. Use information from the assessment to start the nutrition conversation and to identify information and resources that may be helpful for the family.

Information:

Client Services automatically marks some risk factors based on information entered by staff.

Autocalculated risks: Client Services automatically calculates and assigns most of the measurement risks when you press the Identify New Risks button on the Measures tab.

Auto-assigned risks: Client Services automatically assigns the "homeless" and "migrant" risk factors when the boxes are checked on the Demographics tab.

Carry Forward risks: Risk factors carry forward from one certification to the next when it is appropriate. For example, when a pregnant woman has the risk of "Two Pregnancies in Two Years," Client Services will document that risk in the client's file at the breastfeeding or postpartum certification.

CHAPTER 14 NUTRITION RISK CRITERIASection 1 Determining Nutrition Risk

Nutrition Risk Factor Summary List – Pregnant Women**Medical - Current Pregnancy****Priority 1**

Two Pregnancies/Two Years	Very Low Hgb 1st Tri ≤ 10.3 g/dl (Hct $\leq 31\%$)
Pregnant with Multiples	Very Low Hgb 2nd/3rd Tri ≤ 10.0 g/dl (Hct $\leq 30\%$)
17 Years at Conception	Asthma (using daily meds)
≤ 16 Years at Conception	Bariatric Surgery
Breastfeeding While Pregnant	Cancer
Breastfeeding Complications	Cardiovascular Disorder
Food Allergy (severe diet impact)	Celiac Disease
Lactose Intolerance	Central Nervous System Disorder
Severe Nausea/Vomiting	Cystic Fibrosis
Oral Health Conditions	Depression
No Prenatal Care > 13 weeks	Dev. Delays Affecting Chewing/Swallowing
Pregnancy Induced Hypertension	Drug Nutrient Interactions
Gestational Diabetes	Eating Disorder
Diabetes Mellitus	Gastrointestinal Disorder
Fetal Growth Restriction	Genetic and Congenital Disorders
Maternal Smoking	High Blood Lead Level
Secondhand Smoke	Hypertension/Prehypertension
Alcohol Use	Hypoglycemia
Drug Use	Infectious Disease (past 6 months)
Pre-Pregnancy BMI < 18.5	Iron Deficiency Anemia
Pre-Pregnancy BMI 25 – 29.9	Juvenile Rheumatoid Arthritis
Pre-Pregnancy BMI ≥ 30	Kidney Disorder (not UTI)
Weight Loss 1 st Tri < Pre-Pregnancy Weight	Lung Disorder
Weight Loss 2nd/3rd Tri ≥ 2 lbs	Lupus
Low Weight Gain 1 st Tri	Metabolic Disorder
Low Weight Gain 2nd/3rd Tri	Nutrient Deficiency Disease
High Weight Gain – 1 st Trimester	Other Medical Conditions (impacts nutr status)
High Weight Gain – 2nd & 3rd Trimester	Recent Major Surgery, Trauma, Burns
Low Hgb 1 st Tri. < 11.0 g/dl (Hct < 33%)	Thyroid Disorder
Low Hgb 2 nd Tri. < 10.5 g/dl (Hct < 32%)	
Low Hgb 3 rd Tri. < 11.0 g/dl (Hct < 33%)	

Medical - Pregnancy History**Priority 1**

Large for Gestational Age (Hx)	Low Birth Weight ≤ 5 pounds 8 oz (Hx)
Spon. Abortion, Fetal or Neonatal Loss (Hx)	Premature ≤ 37 wks. Gestation (Hx)
Nutrition Related Birth Defects (Hx)	Gestational Diabetes (Hx)
	Preeclampsia (Hx)

Non – Medical**Priority 4**

Very Restrictive Diet	Foster Care (new/change in home past 6 months)
Potentially Contaminated Foods	Recipient of Abuse (past 6 months)
Inadequate Iron Supplementation (< 27 mg)	Homelessness
Inadequate Iodine Supplementation (< 150 mcg)	Migrancy
Inappropriate or Excessive Supplements	In State Transfer
Pica	Out of State Transfer
Limited Skills for Proper Nutrition	Not Meeting Dietary Guidelines

Bold = High Risk

CHAPTER 14 NUTRITION RISK CRITERIASection 1 Determining Nutrition Risk

Nutrition Risk Factor Summary List – Breastfeeding Women**Breastfeeding** **Priority varies**

Breastfeeding a Priority 1 Infant
Breastfeeding a Priority 2 Infant
Breastfeeding a Priority 4 Infant

Medical - Current Status **Priority 1**

Breastfeeding Twins, Triplets	Cardiovascular Disorder
Breastfeeding Complications	Celiac Disease
Food Allergy (severe diet impact)	Central Nervous System Disorder
Lactose Intolerance	Cystic Fibrosis
Oral Health Conditions	Depression
Diabetes Mellitus	Dev. Delays Affecting Chewing/Swallowing
Pre-Diabetes	Drug Nutrient Interactions
Gastrointestinal Disorder	Eating Disorder
Maternal Smoking	Genetic and Congenital Disorders
Secondhand Smoke	High Blood Lead Level
Alcohol Use	Hypertension/Prehypertension
Drug Use	Hypoglycemia
Pre-Pregnancy BMI < 18.5 (< 6 months postpartum)	Infectious Disease (past 6 months)
Pre-Pregnancy BMI 25 – 29.9 (< 6 months postpartum)	Iron Deficiency Anemia
Pre-Pregnancy BMI ≥ 30 (< 6 months postpartum)	Juvenile Rheumatoid Arthritis
Current BMI < 18.5	Kidney Disorder (not UTI)
Current BMI 25 – 29.9 (≥ 6 months postpartum)	Lung Disorder
Current BMI ≥ 30 (≥ 6 months postpartum)	Lupus
Low Hgb < 12.0 g/dl (Hct < 36%)	Metabolic Disorder
Very Low Hgb ≤ 10.3 g/dl (Hct ≤ 31%)	Nutrient Deficiency Disease
Asthma (using daily meds)	Other Medical Condition (impacts nutr status)
Bariatric Surgery	Recent Major Surgery, Trauma, Burns
Cancer	Thyroid Disorder

Medical - Most Recent Pregnancy/Pregnancy History **Priority 1**

≤ 17 Yrs at Conception (This PG)	Low Birth Weight ≤ 5lbs. 8oz. (This PG)
High Weight Gain (This PG)	Premature ≤ 37 weeks gestation (This PG)
Two Pregnancies/Two Years (This PG)	Large for Gestational Age (This PG)
Pregnant with Multiples (This PG)	Nutrition Related Birth Defects (This PG)
Gestational Diabetes (Hx)	Spon Ab., Fetal or Neonatal Loss (This PG)
Preeclampsia (Hx)	

Non- Medical **Priority 4**

Very Restrictive Diet	Foster Care (new/change in home past 6 months)
Inadequate Iodine Supplementation (< 150 mcg)	Recipient of Abuse (past 6 months)
Inadequate Folic Acid Supplementation (< 400 mcg)	Homelessness
Inappropriate or Excessive Supplements	Migrancy
Pica	Out of State Transfer
Limited Skills for Proper Nutrition	Not Meeting Dietary Guidelines

Priority 7

Regression

Bold = High Risk

CHAPTER 14 NUTRITION RISK CRITERIASection 1 Determining Nutrition Risk

Nutrition Risk Factor Summary List – Postpartum Women**Medical - Current Status** **Priority 6**

Food Allergy (severe diet impact) Lactose Intolerance Oral Health Conditions Diabetes Mellitus Pre-Diabetes Gastrointestinal Disorder Maternal Smoking Alcohol Use Drug Use Pre-Pregnancy BMI < 18.5 (< 6 mos. postpartum) Pre-Pregnancy BMI 25 – 29.9 (< 6 months postpartum) Pre-Pregnancy BMI ≥ 30 (< 6 months postpartum) Current BMI < 18.5 Low Hgb < 12.0 g/dl (Hct < 36%) Very Low Hgb ≤ 10.3 g/dl (Hct ≤ 31%) Asthma (using daily meds) Bariatric Surgery Cancer Cardiovascular Disorder Celiac Disease Central Nervous System Disorder	Cystic Fibrosis Depression Dev. Delays Affecting Chewing/Swallowing Drug Nutrient Interactions Eating Disorder Genetic and Congenital Disorders High Blood Lead Level Hypertension/Prehypertension Hypoglycemia Infectious Disease (past 6 months) Iron Deficiency Anemia Juvenile Rheumatoid Arthritis Kidney Disorder (not UTI) Lung Disorder Lupus Metabolic Disorder Nutrient Deficiency Disease Other Medical Condition (impacts nutr status) Recent Major Surgery, Trauma, Burns Thyroid Disorder
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Medical - Most Recent Pregnancy/Pregnancy History **Priority 6**

≤ 17 Yrs at Conception (This PG) High Weight Gain (This PG) Two Pregnancies/Two Years (This PG) Pregnant with Multiples (This PG) Gestational Diabetes (Hx) Preeclampsia (Hx)	Low Birth Weight ≤ 5lbs. 8oz. (This PG) Premature ≤ 37 weeks gestation (This PG) Large for Gestational Age (This PG) Nutrition Related Birth Defects (This PG) Spon. Ab., Fetal or Neonatal Loss (This PG)
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Non – Medical **Priority 6**

Very Restrictive Diet Inadequate Folic Acid Supplementation (< 400 mcg) Inappropriate or Excessive Supplements Pica Limited Skills for Proper Nutrition	Foster Care (new/change in home past 6 months) Recipient of Abuse (past 6 months) Homelessness Migrancy Out of State Transfer Not Meeting Dietary Guidelines
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Bold = High Risk

CHAPTER 14 NUTRITION RISK CRITERIASection 1 Determining Nutrition Risk

Nutrition Risk Factor Summary List - Infants

Infant of WIC Mom	Priority varies
Infant of Pri 1 BF Woman at Nutr. Risk Infant of Pri 2 BF Woman at Nutr. Risk Infant of Pri 4 BF Woman at Nutr. Risk Pri 2 - Infant of WIC Eligible Mom (< 6 months) (Pri 2)	
Medical	Priority 1
Breastfeeding Complications Premature \leq 37 weeks gestation Low Birth Weight \leq 5 lbs. 8 oz. (< 6 months) Low Birth Weight \leq 5 lbs. 8 oz. (\geq 6 months) Very Low Birth Weight \leq 3 lbs. 5 oz. High Birth Weight \geq 9 lbs. Small for Gestational Age Large for Gestational Age Food Allergy (severe diet impact) Lactose Intolerance Gastrointestinal Disorder Gastro-esophageal Reflux Dev. Delays Affecting Chewing/Swallowing Maternal Substance Use (during pregnancy) Secondhand Smoke Slow Weight Gain Head Circumference/Age \leq 2 nd Head Circumference/Adjusted Age \leq 2 nd Length /Age \leq 2 nd Length/Adjusted Age \leq 2 nd Length /Age $>$ 2 nd and \leq 5 th Length/Adjusted Age $>$ 2 nd and \leq 5 th Weight/Length \leq 2nd Weight/Length $>$ 2 nd and \leq 5 th Weight/Length \geq 98th Low Hgb 6-12 mos $<$ 11.0 g/dl (Hct $<$ 33%) Very Low Hgb 6-12 mos \leq 10.3 g/dl (Hct \leq 31%) Cancer	Cardiovascular Disorder Celiac Disease Central Nervous System Disorder Cleft Lip/Palate Cleft/Lip Palate (unrepaired) Cystic Fibrosis Oral Health Conditions Diabetes Mellitus Drug Nutrient Interactions Failure to Thrive Fetal Alcohol Syndrome Genetic and Congenital Disorder High Blood Lead Level Hypertension/Prehypertension Hypoglycemia Infectious Disease (past 6 months) Iron Deficiency Anemia Juvenile Rheumatoid Arthritis Kidney Disorder (not UTI) Lung Disorder Lupus Metabolic Disorder Nutrient Deficiency Disease Other Medical Condition (impacts nutr status) Recent Major Surgery, Trauma, Burns Respiratory Infection (3x/6 months) Thyroid Disorder
Non-Medical	Priority 4
Early Introduction of Solids (< 4 months) Not Supporting Development/Feeding Relationship Inappropriate Use of Bottle/Cup Feeding Sugar-containing Drinks Inappropriate Substitute for Breastmilk/Formula Limited Frequency of Breastfeeding (\leq 6 months) Inappropriate Formula Dilution Unsafe Handling/Storage of Breastmilk/Formula Potentially Contaminated Foods Very Restrictive Feeding Inadequate Vitamin D Supplementation (< 400 IU) Bold = High Risk	Inadequate Fluoride Supplementation (\geq 6 mos) Inappropriate or Excessive Supplements Caregiver w/ Limited Ability to Make Feeding Decisions Caregiver Alcohol/Drug Addiction Foster Care (new/change in home past 6 months) Recipient of Abuse (past 6 months) Homelessness Migrancy Out of State Transfer Not Meeting Feeding Guidelines (4 – 12 months)

CHAPTER 14 NUTRITION RISK CRITERIASection 1 Determining Nutrition Risk

Nutrition Risk Factor Summary List - Children

Medical	Priority 3
Food Allergy (severe diet impact) Lactose Intolerance Gastrointestinal Disorder Diabetes Mellitus Dev. Delays Affecting Chewing/Swallowing Oral Health Conditions Secondhand Smoke Premature ≤ 37 weeks gestation (< 24 months) Low Birth Weight ≤ 5 lb, 8oz (< 24 months) Small for Gestational Age (< 24 months) Slow Weight Gain Length/Age $\leq 2^{\text{nd}}$ (< 24 months) Length/Adjusted Age $\leq 2^{\text{nd}}$ (< 24 months) Length/Age $> 2^{\text{nd}}$ and $\leq 5^{\text{th}}$ (< 24 months) Length/Adjusted Age $> 2^{\text{nd}}$ and $\leq 5^{\text{th}}$ (< 24 months) Weight/Length $\leq 2^{\text{nd}}$ (< 24 months) Weight/Length $> 2^{\text{nd}}$ and $\leq 5^{\text{th}}$ (< 24 months) Weight/Length $\geq 98^{\text{th}}$ (< 24 months) Height/Age $\leq 5^{\text{th}}$ Height/Age $\leq 10^{\text{th}}$ BMI/Age $\leq 5^{\text{th}}$ BMI/Age $\leq 10^{\text{th}}$ BMI/Age $\geq 85^{\text{th}}$ and $< 95^{\text{th}}$ BMI/Age $\geq 95^{\text{th}}$ * Head Circumference/Age $\leq 2^{\text{nd}}$ (< 24 months) Head Circumference/Adjusted Age $\leq 2^{\text{nd}}$ (< 24 months) Low Hgb < 11.0 g/dl (Hct $< 33\%$) Very Low Hgb ≤ 10.3 g/dl (Hct $\leq 31\%$)	Asthma (using daily meds) Cancer Cardiovascular Disorder Celiac Disease Central Nervous System Disorder Cleft Lip/Palate Cleft/Lip Palate (unrepaired) Cystic Fibrosis Drug Nutrient Interactions Failure to Thrive Fetal Alcohol Syndrome Genetic and Congenital Disorder High Blood Lead Level Hypertension/Prehypertension Hypoglycemia Infectious Disease (past 6 months) Iron Deficiency Anemia Juvenile Rheumatoid Arthritis Kidney Disorder (not UTI) Lung Disorder Lupus Metabolic Disorder Nutrient Deficiency Disease Other Medical Condition (impacts nutr status) Recent Major Surgery, Trauma, Burns Thyroid Disorder
Non – Medical	Priority 5
Reduced-fat or Non-fat Milk (12 – 23 months) Inappropriate Milk Substitute Not Supporting Development/Feeding Relationship Feeding Sugar-containing Drinks Inappropriate Use of Bottle/Cup Inadequate Vitamin D Supplementation (< 400 IU) Inadequate Fluoride Supplementation Inappropriate or Excessive Supplements Potentially Contaminated Foods Very Restrictive Diet	Caregiver w/ Limited Ability to Make Feeding Decisions Caregiver Alcohol/Drug Addiction Pica Foster Care (new/change in home past 6 months) Recipient of Abuse (past 6 months) Homelessness Migrancy Out of State Transfer Not Meeting Feeding Guidelines (12 – 23 months) Not Meeting Dietary Guidelines (2 – 5 years)
Regression	Priority 7

Bold = High Risk

* = High Risk Group Contact Allowed

POLICY: Determine High Risk Status

The CPA must determine if a client is high risk by using the high risk criteria listed in this chapter. The local agency has the option of adding to the high risk criteria by considering more of the risks in this chapter as high risk.

The CPA must refer high risk clients to a nutritionist for a nutrition high risk care plan.

The CPA has the option to make a client high risk by professional discretion if he or she determines the client should see the nutritionist.

High risk status must be determined at the appointments listed below.

- New certification
- Complete certification
- Recertification
- Mid-certification health assessment

Staff update the client's file when there's a change in the client's high risk status as follows:

1. A non-high risk client becomes high risk at a later visit, for example the second contact or a follow-up visit.
 - Select the appropriate risk factor(s) to update the client's status to high risk.
 - Refer the client to the nutritionist for a high risk care plan when there are more than 60 days (2 months) left in the client's eligibility period.
 - If the change to high risk status occurs within 60 days of the end of the eligibility period, it's best practice to have the client see the nutritionist, but it isn't required due to limited time.
2. A high risk client becomes non-high risk at a later visit.
 - Make sure the high risk factor no longer applies. See below for an example.
 - Write a note in the client's file about the change. The risk factor can't be removed.
 - The client isn't required to see the nutritionist for a high risk care plan.

Example: A pregnant woman reports that she is having one baby when she is certified. Early in the second trimester, her weight gain plots above the solid line and Client Services assigns the "High Weight Gain 2nd/3rd Trimester" risk, which is high risk.

At the next visit she says she found out she is having twins. When the woman's weight is plotted on the Multiples grid her weight gain is no longer above the solid

line. Staff make a note in the risk notes field or on the Notes Tab about the change and that she is no longer high risk. The client isn't required to see the nutritionist for a high risk care plan.

PROCEDURE:

The CPA:

- A. Completes the nutrition assessment and selects all appropriate risks in the client's file at the new certification, complete certification, recertification or mid-certification health assessment.
- B. Determines if the client is high risk.
 1. A client is automatically high risk when a high risk factor is selected. High risk factors are pink in Client Services.
 2. The CPA can make the client high risk by professional discretion when there are concerns about the client's nutrition status even though the selected risks don't make the client high risk based on the high risk criteria in this chapter.
 - a. Check the High Risk by Professional Discretion (PDHR) box on the Assessment tab.
 - b. Document the reason the client is determined high risk in the Professional Discretion HR Note field.
 3. Let the client know he or she will see a nutritionist at a future visit.
- C. Updates the client's file when there are changes to high risk status at other appointments, like a second contact or follow-up.
 1. Document any risk changes in the client's file.
 2. When a non-high risk client becomes high risk:
 - a. Mark the high risk factor(s).
 - b. Refer the client to the nutritionist when the client becomes high risk when there are more than 60 days (2 months) left in the eligibility period.
 - c. It's best practice to refer the client to the nutritionist when there are less than 60 days left in the eligibility period, but it's not required due to the limited timeframe.
 3. When a high risk client is no longer high risk:

CHAPTER 14 NUTRITION RISK CRITERIA**Section 2 Nutrition High Risk Status**

- a. Document why the client is no longer high risk in the risk note field or on the Notes tab. Staff may also want to make a note on the Flowsheet about the client's change from high risk to non-high risk for scheduling purposes.
- b. The client isn't required to see the nutritionist.

Note: Client Services won't allow staff to remove (deselect) the original high risk factor from the client's file.

Information:

Clients may ask to see the nutritionist for an individual second contact. In this case the client is scheduled with the nutritionist but isn't marked as high risk.

**Nutrition High Risk Summary List
Pregnant Women****Medical - High Risk Criteria:**

1. ≤ 16 Years at Conception
2. Food Allergy (severe diet impact)
3. Pregnancy Induced Hypertension (PIH)
4. Gestational Diabetes
5. Diabetes Mellitus
6. Fetal Growth Restriction
7. Weight Loss 2nd /3rd trimester ≥ 2 lbs
8. Low Weight Gain 2nd/3rd trimester
9. High Weight Gain – 2nd & 3rd Trimester
10. Very Low Hemoglobin or Hematocrit:
 - a. 1st Trimester - Hgb ≤ 10.3 g/dl, Hct $\leq 31\%$
 - b. 2nd/3rd Trimester - Hgb ≤ 10 g/dl, Hct $\leq 30\%$
11. Cancer
12. Cardiovascular Disorder
13. Celiac Disease
14. Central Nervous System Disorder
15. Cystic Fibrosis
16. Developmental Delays Affecting Chewing/Swallowing
17. Eating Disorder
18. Gastrointestinal Disorder
19. Genetic and Congenital Disorder
20. High Blood Lead Level
21. Hypertension/Prehypertension
22. Hypoglycemia
23. Infectious Disease (past 6 months)
24. Juvenile Rheumatoid Arthritis (JRA)
25. Kidney Disorder (not UTI)
26. Lung Disorder
27. Lupus
28. Metabolic Disorder
29. Nutrient Deficiency Disease
30. Gestational Diabetes (HX)
31. Preeclampsia (Hx)

Dietary – High Risk Criteria:

32. Very Restrictive Diet
33. Inappropriate or excessive supplements
34. Pica

**Nutrition High Risk Summary List
Breastfeeding Women****Medical – High Risk Criteria:**

1. Food Allergy (severe diet impact)
2. Diabetes Mellitus
3. Pre-Diabetes
4. Gastrointestinal Disorder
5. Very Low Hemoglobin or Hematocrit - Hgb \leq 10.3 g/dl, Hct \leq 31%
6. Cancer
7. Cardiovascular Disorder
8. Celiac Disease
9. Central Nervous System Disorder
10. Cystic Fibrosis
11. Developmental Delays Affecting Chewing/Swallowing
12. Eating Disorder
13. Genetic and Congenital Disorder
14. High Blood Lead Level
15. Hypertension/Prehypertension
16. Hypoglycemia
17. Infectious Disease (past 6 months)
18. Juvenile Rheumatoid Arthritis (JRA)
19. Kidney Disorder (not UTI)
20. Lung Disorder
21. Lupus
22. Metabolic Disorder
23. Nutrient Deficiency Disease

Dietary – High Risk Criteria:

24. Very Restrictive Diet
25. Inappropriate or Excessive Supplements
26. Pica

**Nutrition High Risk Summary List
Postpartum Women****Medical – High Risk Criteria:**

1. Food Allergy (severe diet impact)
2. Diabetes Mellitus
3. Pre-Diabetes
4. Gastrointestinal Disorder
5. Very Low Hemoglobin or Hematocrit - Hgb \leq 10.3 g/dl, Hct \leq 31%
6. Cancer
7. Cardiovascular Disorder
8. Celiac Disease
9. Central Nervous System Disorder
10. Cystic Fibrosis
11. Developmental Delays Affecting Chewing/Swallowing
12. Eating Disorder
13. Genetic and Congenital Disorder
14. High Blood Lead Level
15. Hypertension/Prehypertension
16. Hypoglycemia
17. Infectious Disease (past 6 months)
18. Juvenile Rheumatoid Arthritis (JRA)
19. Kidney Disorder (not UTI)
20. Lupus
21. Metabolic Disorder
22. Nutrient Deficiency Disease

Dietary – High Risk Criteria:

23. Very Restrictive Diet
24. Inappropriate or Excessive Supplements
25. Pica

**Nutrition High Risk Summary List
Infants****Medical - High Risk Criteria:**

1. Low Birth Weight \leq 5 lbs, 8 oz (< 6 months)
2. Very Low Birth Weight \leq 3 lbs, 5 oz
3. Food Allergy (severe diet impact)
4. Gastro-esophageal Reflux
5. Gastrointestinal Disorder
6. Developmental Delays Affecting Chewing/Swallowing
7. Slow Weight Gain
8. Weight/Length \leq 2nd
9. Weight/Length \geq 98th
10. Very Low Hemoglobin or Hematocrit - Hgb \leq 10.3 g/dl, Hct \leq 31%
11. Cancer
12. Cardiovascular Disorder
13. Celiac Disease
14. Central Nervous System Disorder
15. Cleft Lip/Palate (unrepaired)
16. Cystic Fibrosis
17. Diabetes Mellitus
18. Failure to Thrive
19. Fetal Alcohol Syndrome
20. Genetic and Congenital Disorder
21. High Blood Lead Level
22. Hypertension/Prehypertension
23. Hypoglycemia
24. Infectious Disease (past 6 months)
25. Juvenile Rheumatoid Arthritis (JRA)
26. Kidney disorder (not UTI)
27. Lung Disorder
28. Lupus
29. Metabolic Disorder
30. Nutrient Deficiency Disease
31. Respiratory Infection (3x/6 months)

Dietary- High Risk Criteria:

32. Very Restrictive Feeding
33. Inappropriate or Excessive Supplements

**Nutrition High Risk Summary List
Children****Medical – High Risk Criteria:**

1. Food Allergy (severe diet impact)
2. Diabetes Mellitus
3. Gastrointestinal Disorder
4. Developmental Delays Affecting Chewing/Swallowing
5. Slow Weight Gain
6. Weight/Length $\leq 2^{\text{nd}}$ (< 24 months)
7. Weight/Length $\geq 98^{\text{th}}$ (< 24 months)
8. BMI/Age $\leq 5^{\text{th}}$
9. BMI/Age $\geq 95^{\text{th}}$ (Note: Group contact allowed)
10. Very Low Hemoglobin or Hematocrit - Hgb ≤ 10.3 g/dl, Hct $\leq 31\%$
11. Cancer
12. Cardiovascular Disorder
13. Celiac Disease
14. Central Nervous System Disorder
15. Cleft Lip/Palate (unrepaired)
16. Cystic Fibrosis
17. Failure to Thrive
18. Fetal Alcohol Syndrome
19. Genetic and Congenital Disorder
20. High Blood Lead Level
21. Hypertension/Prehypertension
22. Hypoglycemia
23. Infectious Disease (past 6 months)
24. Juvenile Rheumatoid Arthritis (JRA)
25. Kidney Disorder (not UTI)
26. Lung Disorder
27. Lupus
28. Metabolic Disorder
29. Nutrient Deficiency Disease

Dietary – High Risk Criteria:

30. Very Restrictive Diet
31. Inappropriate or Excessive Supplements
32. Pica

≤ 16 Years at Conception – PG Women
17 Years at Conception – PG Women
≤ 17 Years at Conception (This PG) – BF/PP Women

Federal Risk 331
High Risk Factor for Pregnant Women ≤ 16 Years of Conception

**Definition/
 cut-off value**

Pregnancy: Conception ≤ 16 years of age (High Risk factor)
 Conception > 16 years of age and ≤ 17 years of age

Breastfeeding/Postpartum: Conception ≤ 17 Years of Age for this most recent pregnancy

**Client category
 And priority level**

Category	Priority
Pregnant women	1
Breastfeeding women	1
Postpartum women	6

Justification

Pregnancy before growth is complete, is a nutrition risk because of the potential for competition for nutrients for the pregnancy needs and the woman’s growth. The pregnant teenager is confronted with many special stresses that are superimposed on the nutritional needs associated with continued growth and maturation.

Younger pregnant women of low socioeconomic status tend to consume less than recommended amounts of protein, iron, and calcium, and are more likely to come into pregnancy already underweight. Pregnant teens that participate in WIC have been shown to have an associated increase in mean birth weight and a decrease in LBW outcomes.

Adolescent mothers frequently come into pregnancy underweight, have extra growth related nutritional needs, and because they often have concerns about weight and body image, are in need of realistic, health promoting nutrition advice and support during lactation. Diets of adolescents with low family incomes typically contain less iron, and less vitamin A than are recommended during lactation.

Less Than or Equal to 16 Years at Conception (PG) (continued)
17 Years at Conception (PG, BF, PP) (continued)

The adolescent mother is also confronted with many special stresses superimposed on the normal nutrition needs associated with continued growth. Nutrition status and risk during the postpartum period follow from the nutrition stresses of the past pregnancy, and in turn have an impact on nutrition related risks in subsequent pregnancies.

Poor weight gain and low intakes of a variety of nutrients are more common in pregnant adolescents. Therefore, participation in the WIC Program should be of substantial benefit.

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3. Kennedy and Kotlechuck: The effect of WIC supplemental feeding on birth weight: A case control analysis; *Am. J. of Clin. Nutr.*; September 1984; 40:579-585.
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Alcohol Use

Federal Risk 372

**Definition/
cut-off value**

Pregnant women:

- Any alcohol use during the pregnancy even if it was consumed before the client knew she was pregnant.

Breastfeeding and postpartum women:

- Routine current use of two or more drinks per day (6). A serving or standard sized drink is: 1 can of beer (12 fluid oz.); 5 oz. wine; or 1 ½ fluid ounces liquor (1 jigger gin, rum, vodka, whiskey (86 proof), vermouth, cordials, or liqueurs), or
- Binge Drinking, i.e., drinks 5 or more drinks on the same occasion on at least one day in the past 30 days; or
- Heavy Drinking, i.e., drinks 5 or more drinks on the same occasion on five or more days in the previous 30 days.

**Client category
and priority level**

Category	Priority
Pregnant women	1
Breastfeeding women*	1
Postpartum women	6

* Breastfeeding is not recommended for women with these conditions. Consult with the clinic or state WIC breastfeeding coordinator.

Justification

Drinking alcoholic beverages during pregnancy can damage the developing fetus. Excessive alcohol consumption may result in low birth weight, reduced growth rate, birth defects, and mental retardation. WIC can provide supplemental foods, nutrition education and referral to medical and social services, which can monitor and provide assistance to the family.

“Fetal Alcohol Syndrome” is a name given to a condition sometimes seen in children of mothers who drank heavily during pregnancy. The child has a specific pattern of physical, mental, and behavioral abnormalities. Since there is no cure, prevention is the only answer.

The exact amount of alcoholic beverages pregnant women may drink without risk to the developing fetus is not known, as well as the risk from periodic bouts of moderate or heavy drinking. Alcohol has the potential to damage the fetus at every stage of the pregnancy. Therefore, the recommendation is not to drink any alcoholic beverages during pregnancy.

Alcohol Use (continued)

Studies show that the more alcoholic beverages the mother drinks, the greater the risks for her baby. In addition, studies indicate that factors such as cigarette smoking and poor dietary practices may also be involved. Studies show that the reduction of heavy drinking during pregnancy has benefits for both mother and newborns. Pregnancy is a special time in a woman's life and the majority of heavy drinkers will respond to supportive counseling.

Heavy drinkers, themselves, may develop nutritional deficiencies and more serious diseases, such as cirrhosis of the liver and certain types of cancer, particularly if they also smoke cigarettes. WIC can provide education and referral to medical and social services, including addiction treatment, which can help improve pregnancy outcome.

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4. National Clearinghouse for Alcohol and Drug Information; Office for Substance Abuse Prevention; The fact is...alcohol and other drugs can harm an unborn baby; Rockville; 1989.
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6. Jones, C. and Lopez, R.: Drug Abuse and Pregnancy; New Perspectives in Prenatal Care; 1990; pp. 273-318.
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Asthma (using daily meds)

Federal Risk 360

**Definition/
cut-off value** Presence of asthma requiring daily medication diagnosed by a physician as self-reported by applicant/participant/caregiver; or as reported or documented by a physician, or someone working under physician’s orders.

Client category and priority level	Category	Priority
	Pregnant women	1
	Breastfeeding women	1
	Postpartum women	6
	Children	3

Justification Asthma is a chronic inflammatory disorder of the airways, which can cause recurrent episodes of wheezing, breathlessness, chest tightness, and coughing of variable severity. Persistent asthma requires daily use of medication, preferably inhaled anti-inflammatory agents. Severe forms of asthma may require long-term use of oral corticosteroids, which can result in growth suppression in children, poor bone mineralization, high weight gain, and, in pregnancy, decreased birth weight of the infant. High doses of inhaled corticosteroids can result in growth suppression in children and poor bone mineralization. Untreated asthma is also associated with poor growth and bone mineralization and, in pregnant women, adverse birth outcomes such as low birth weight, prematurity, and cerebral palsy. Repeated asthma exacerbations (“attacks”) can, in the short-term, interfere with eating, and in the long-term, cause irreversible lung damage that contributes to chronic pulmonary disease. Compliance with prescribed medications is considered to be poor. Elimination of environmental factors that can trigger asthma exacerbations (such as cockroach allergen or environmental tobacco smoke) is a major component of asthma treatment. WIC can help by providing foods high in calcium and vitamin D, in educating participants to consume appropriate foods and to reduce environmental triggers, and in supporting and encouraging compliance with the therapeutic regimen prescribed by the health care provider.

Note: This risk criteria is not applicable to infants for the medical condition of asthma. In infants, asthma-like symptoms are usually diagnosed as bronchiolitis with wheezing or RSV which are covered under Respiratory Infection (3x/6 months).

Asthma (using daily meds) – (continued)

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3. National Heart, Lung, and Blood Institute: Expert Panel Report 2: Guidelines for the Diagnosis and Management of Asthma; 1997; pp. 3, 20, 67-73.
4. National Heart, Lung, and Blood Institute: Management of Asthma During Pregnancy; 1992; pp. 7, 36-37.
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Clarification

Self-reporting of a diagnosis by a medical professional should not be confused with self-diagnosis, where a person simply claims to have or to have had a medical condition without any reference to professional diagnosis. A self-reported medical diagnosis (“My doctor says that I have/my son or daughter has...”) should prompt the CPA to validate the presence of the condition by asking more pointed questions related to that diagnosis.

BMI/Age \leq 5th Percentile
BMI/Age \leq 10th Percentile

Federal Risk 103
High Risk Factor BMI/Age \leq 5th Percentile

**Definition/
 cut-off value**

Children \geq 24 months to 5 years of age with a Body Mass Index (BMI) for age* \leq 10th percentile.

* Based on National Center for Health Statistics/Centers for Disease Control and Prevention age/gender specific growth charts (2000).

Note: For children 24 – 36 months of age with a recumbent length, use \leq 5th or \leq 10th percentile weight-for-length risk factor.

**Client category
 and priority level**

Category	Priority
Children (\geq 24 months of age)	3

Justification

The Centers for Disease Control and Prevention (CDC) uses the 5th percentile as the cut-off to define underweight for purposes of their Pediatric Nutrition Surveillance System (1, 2). However, CDC does not have a position regarding the cut-off percentile for underweight, which should be used to determine nutritional risk in WIC.

A review of literature indicates that many children at or below the 5th percentile for weight are in need of nutritional intervention and those at or below the 10th percentile may be at nutritional risk and in need of preventative nutritional intervention, or at least further evaluation (3).

BMI-for-age describes body proportionality and is sensitive to acute undernutrition, but can also reflect long-term status (2). Physical growth delay is used as a proxy for the deleterious effects undernutrition can have on immune function, organ development, hormonal function and brain development (3). Participation in WIC has been associated with improved growth in both weight and height in children (4).

BMI/Age \leq 5th Percentile
BMI/Age \leq 10th Percentile (continued)

**Implications
For WIC
Nutrition Services**

Participation in WIC has been associated with improved growth in both weight and height in children (4). An infant or child determined to be underweight at WIC certification should be monitored at regular intervals during the certification period, as appropriate. Through client-centered counseling, WIC staff can assist families in making nutritionally balanced food choices to promote adequate weight gain. Also, the foods provided by the WIC Program are scientifically-based and intended to address the supplemental nutritional needs of the Program's target population, and can be tailored to meet the needs of individual participants.

In addition, WIC staff can greatly assist families by providing referrals to medical providers and other services, if available, in their community. Such resources may provide the recommended medical assessments, in order to rule out or confirm medical conditions, and offer treatment when necessary and/or in cases where growth improvement is slow to respond to dietary interventions.

References

1. Food and Nutrition Information Center, National Agriculture Library. Update of Analysis of Literature Regarding Cut-off Percentiles for Low Weight for Length in Infants. Washington, D.C.; 1991.
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4. Disbrow DD. The costs and benefits of nutrition services: a literature review. J.Am.Diet.Assoc. 1989; 89:53-66.

BMI/Age \geq 85th and < 95th Percentile

Federal Risk 114

**Definition/
cut-off value** Children \geq 24 months of age with a Body Mass Index (BMI) for age \geq 85th and < 95th percentile as plotted on the 2000 Centers for Disease Control and Prevention (CDC) 2 – 20 years gender specific growth charts (1, 2).

Client category and priority level	Category	Priority
	Children (\geq 24 months of age)	3

Justification The rise in the prevalence of overweight and obesity in children and adolescents in the United States is one of the most important public health issues we face today. The National Health and Nutrition Examination Survey (NHANES) from the mid-1960s to the early 2000s document a significant increase in overweight among children from preschool age through adolescence. These trends parallel a concurrent increase in obesity among adults, suggesting that fundamental shifts are occurring in dietary and/or physical activity behaviors that are having an adverse effect on overall energy balance (3).

BMI is a measure of body weight adjusted for height. While not a direct measure of body fatness, BMI is a useful screening tool to assess adiposity (3). Children \geq 2 years of age, with a BMI-for-age \geq 85th and < 95th percentile are considered *overweight* and those at or above the 95th percentile, *obese* (4). Research on BMI and body fatness shows that the majority of children with BMI-for-age at or above the 95th percentile have high adiposity and less than one-half of the children in the 85th to < 95th percentiles have high adiposity (4). Although an imperfect tool, elevated BMI among children most often indicates increased risk for future adverse health outcomes and/or development of diseases (5). BMI should serve as the initial screen and as the starting point for classification of health risks (3).

Increasingly, attention is being focused on the need for comprehensive strategies that focus on parenting overweight/obesity and a sedentary lifestyle for all ages. Scientific evidence suggests that the presence of obesity in a parent greatly increases risk of overweight in preschoolers, even when no other overt signs of increasing body mass are present (6). The presence of parental obesity should lead to greater efforts by nutrition services to assist families in establishing or improving healthy behaviors (3).

BMI/Age \geq 85th and $<$ 95th (continued)

**Implications for
WIC Nutrition
Services**

The WIC Program plays an important role in public health efforts to reduce the prevalence of obesity by actively identifying and enrolling infants and children who may be overweight or at risk of overweight in childhood or adolescence. When identifying this risk, it is important to communicate it in a way that is supportive, nonjudgmental, and with a careful choice of words to convey an empathetic attitude and to minimize embarrassment or harm to a child's self-esteem (4). In recognition of the importance of language, the 2007 American Medical Association expert committee report recommends the use of the terms *overweight* and *obese* for documentation and risk assessment **only** and the use of more neutral terms (e.g. *weight disproportional to height*, *excess weight*, *BMI*) when discussing a child's weight with a parent/caregiver (3).

BMI is calculated and plotted on growth charts at each WIC certification. However, growth charts are meant to be used as a screening tool and comprise only one aspect of the overall growth assessment. A clinical assessment to determine if a child is at a healthy weight is more complex. Weight classification (derived from the growth chart) should be integrated with the growth pattern, familial obesity, medical risks, and dietary and physical activity habits to determine the child's obesity risk (1, 5).

The goal in WIC nutrition counseling is to help the child achieve recommended rates of growth and development. WIC staff can frame the discussion to make achieving normal growth a shared goal of the WIC Program and the parent/caregiver. Studies have shown that the early childhood eating environment provides a great opportunity for preventive intervention (7). Parents/caregivers of infants and toddlers may need education on recognition of satiety cues and other physiologic needs that lead to crying, and ways to comfort a child (holding, reading, rocking) other than by feeding. Young children look upon their parents as role models for eating behaviors. Through client-centered counseling, WIC staff can emphasize the importance of prevention and can assist families in making changes that improve parenting skills that promote healthy eating, and physical activity behaviors and a healthy weight in children. Also the foods provided by the WIC Program are scientifically-based and intended to address the supplemental nutritional needs of the Program's target population and can be tailored to meet the needs of individual participants.

BMI/Age \geq 85th and < 95th (continued)

Beliefs about what is an attractive or healthy weight, the importance of physical activity, what foods are desirable or appropriate for parents to provide to children, family mealtime routines, and many other lifestyle habits are influenced by different cultures, and should be considered during the nutrition assessment and counseling (6). The following resources for obesity prevention can be found at:

- Fit WIC Materials:
http://www.nal.usda.gov/wicworks/Sharing_Center/gallery/families.html.
- MyPyramid for Preschoolers:
<http://www.choosemyplate.gov/preschoolers.html>.

In addition, WIC staff can greatly assist families by providing referrals to medical providers and other services, if available, in their community. Such resources may provide the recommended medical assessments, in order to rule out or confirm medical conditions, and offer treatment when necessary and/or in cases where growth improvement is slow to respond to dietary interventions.

References

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BMI/Age \geq 85th and $<$ 95th (continued)

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Clarification

The 2000 CDC Birth to 36 months growth charts cannot be used as a screening tool for the purpose of assigning this risk because these charts are based on recumbent length rather than standing height data. However, these charts may be used as an assessment tool for evaluating growth in children aged 24 – 36 months who are not able to be measured for the standing height required for the 2000 CDC 2 – 20 years growth charts.

BMI/Age \geq 95th Percentile

Federal Risk 113
High Risk Factor (Group Contact Allowed)

**Definition/
cut-off value** Children \geq 24 months to 5 years of age with a Body Mass Index (BMI)* for age \geq 95th percentile as plotted on the 2000 Centers for Disease Control and Prevention (CDC) 2 – 20 years gender specific growth charts (1, 2).

Client category and priority level	Category	Priority
	Children (\geq 24 months of age)	3

Justification The rapid rise in the prevalence of obesity in children and adolescents is one of the most important public health issues in the United States today. The National Health and Nutrition Examination Survey (NHANES) from the mid-1960's to the early 2000's document a significant increase in obesity among children from preschool age through adolescence. These trends parallel a concurrent increase in obesity among adults, suggesting that fundamental shifts occurring in dietary and/or physical activity behaviors are having an adverse effect on overall energy balance (3).

The causes of increased obesity rates in the United States are complex. Both genetic make-up and environmental factors contribute to the obesity risk. Important contributors include a large and growing abundance of calorically dense foods and an increased sedentary lifestyle for all ages. Although obesity tends to run in families, a genetic predisposition does not inevitably result in obesity. Environmental and behavioral factors can influence the development of obesity in genetically at-risk people (3).

BMI is a measure of body weight adjusted for height. While not a direct measure of body fatness, BMI is a useful screening tool to assess adiposity (3). Children \geq 2 years of age, with a BMI-for-age \geq 85th and $<$ 95th percentile are considered *overweight* and those at or above the 95th percentile, *obese* (4). Research on BMI and body fatness shows that the majority of children with BMI-for-age at or above the 95th percentile have high adiposity and less than one-half of the children in the 85th to $<$ 95th percentiles have high adiposity (4). Although an imperfect tool, elevated BMI among children most often indicates increased risk for future adverse health outcomes and/or development of diseases (5). BMI should serve as the initial screen and as the starting point for classification of health risks (3).

BMI/Age \geq 95th Percentile (continued)

Use of the 95th percentile to define obesity identifies those children with a greater likelihood of being obese as adolescents and adults, with increased risk of obesity-related disease and mortality. It is recommended that an obese child (\geq 95th percentile) undergo a medical assessment and careful evaluation to identify any underlying health risks or secondary complications (3). Obesity can result from excessive energy intake, decreased energy expenditure, or a medical condition that impairs the regulation of energy metabolism. In addition, obesity in early childhood may signify problematic feeding practices or evolving family behaviors that, if continued, may contribute to health risks in adulthood related to diet and inactivity.

**Implications
For WIC
Nutrition Services**

The WIC Program plays an important role in public health efforts to reduce the prevalence of obesity in later childhood or adolescence. When identifying this risk, it is important to communicate with parents/caregivers in a way that is supportive and nonjudgmental, and with a careful choice of words that convey an empathetic attitude and minimize embarrassment or harm to a child's self-esteem (4). In recognition of the importance of language, the 2007 American Medical Association Expert Committee Report recommends the use of the terms *overweight* and *obese* for documentation and risk assessment **only** and the use of more neutral terms (e.g. *weight disproportional to height*, *excess weight*, *BMI*) when discussing a child's weight with a parent/caregiver (3).

BMI is calculated and plotted on growth charts at each WIC certification. However, growth charts are meant to be used as a screening tool and comprise only one aspect of the overall growth assessment. A clinical assessment to determine if a child is at a healthy weight is more complex. Weight classification (derived from the growth chart) should be integrated with the growth pattern, familial obesity, medical risks, and dietary and physical activity habits to determine the child's obesity risk (1, 5).

The goal in WIC nutrition counseling is to help the child achieve recommended rates of growth and development. WIC staff can frame the discussion to make achieving normal growth a shared goal of the WIC Program and the parent/caregiver and make clear that obesity is a medical condition that can be addressed (4). Parents/caregivers of children may need education on recognition of

BMI/Age \geq 95th Percentile (continued)

satiety cues and other physiologic needs that lead to crying, and ways to comfort a child (holding, reading, rocking) other than by feeding. The foods provided by the WIC Program are scientifically-based and intended to address the supplemental nutritional needs of the Program's target population and can be tailored to meet the needs of individual participants. Emphasis can be placed on promoting food choices of high nutritional quality while avoiding unnecessary or excessive amounts of calorie rich foods and beverages, and reducing inactivity (like decreasing sedentary TV viewing).

Beliefs about what is an attractive or healthy weight, the importance of physical activity, what foods are desirable or appropriate for parents to provide to children, family mealtime routines, and many other lifestyle habits are influenced by different cultures, and should be considered during the nutrition assessment and counseling (6). The following resources for obesity prevention can be found at:

- Fit WIC Materials:
http://www.nal.usda.gov/wicworks/Sharing_Center/gallery/families.html.
- MyPyramid for Preschoolers:
<http://www.choosemyplate.gov/preschoolers.html>.

In addition, WIC staff can greatly assist families by providing referrals to medical providers and other services, if available, in their community. Such resources may provide the recommended medical assessments, in order to rule out or confirm medical conditions, and offer treatment when necessary and/or in cases where growth improvement is slow to respond to dietary interventions.

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BMI/Age \geq 95th Percentile (continued)

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6. Krebs NF, Himes JH, Jacobson D, Nicklas TA, Guilday P, Styne D. Assessment of child and adolescent overweight and obesity. *Pediatrics* 2007; 120 Suppl 4:S103-S228.

Clarification

The 2000 CDC Birth to 36 months growth charts cannot be used as a screening tool for the purpose of assigning this risk because these charts are based on recumbent length rather than standing height data. However, these charts may be used as an assessment tool for evaluating growth in children aged 24-36 months who are not able to be measured for the standing height required for the 2000 CDC 2 – 20 years growth charts. .

Bariatric Surgery

Federal Risk 342

**Definition/
cut-off value** Bariatric surgery, such as adjustable gastric banding (AGB) and/or bypassing some portion of intestine e.g. Roux-y gastric bypass (RYGB), which interferes with the intake, digestion and/or absorption of nutrients.

Client category and priority level	Category	Priority
	Pregnant Women	1
	Breastfeeding Women	1
	Postpartum Women	6

Justification Many types of surgical procedures are used for the intervention of morbid obesity. These procedures promote weight loss by restricting dietary intakes, e.g. adjustable gastric banding (AGB), and/or bypassing some portion of intestine to cause incomplete digestion and/or malabsorption of nutrients, e.g. Roux-y gastric bypass (RYGB). Therefore, the risks for developing nutritional deficiencies after bariatric surgery are greatly increased. Since gastric bypass individuals have both a decreased availability of gastric acid and intrinsic factor, vitamin B₁₂ deficiency can develop without supplementation. Taking daily nutritional supplements and eating foods high in vitamins and minerals are important aspects of the nutritional management for the individuals who have had bariatric surgery (1).

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Breastfeeding a Priority 1 Infant
Breastfeeding a Priority 2 Infant
Breastfeeding a Priority 4 Infant

Federal Risk 601

**Definition/
cut-off value** A woman who is breastfeeding an infant who has been determined to be at nutrition risk. The CPA selects the appropriate priority level in order to match the priority of the breastfeeding woman and the breastfed infant.

Client category and priority level	Category	Priority
	Breastfeeding women	1, 2, or 4*
		*The breastfeeding woman and the breastfed infant must be the same priority

Justification A breastfed infant is dependent on the mother’s milk as the primary source of nutrition. Special attention should therefore be given to the health and nutritional status of the mother (5). Lactation requires an additional approximately 500 Kcal per day as increased protein, calcium, and other vitamins and minerals (3,1). Inadequate maternal nutrition may result in decreased nutrient content of the milk (1).

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Breastfeeding a Priority 1, 2 or 4 Infant (continued)

Clarification

Clinic staff assure that the breastfeeding mother and infant have been assigned the same priority with the higher priority being chosen. If the pair is certified at the same time, staff select the correct risk and priority at the certification appointment. If the two are certified at different times, staff review the certification record of the person certified first to assure that the correct risk and priority is selected for both the mother and infant.

Breastfeeding Complications (Infants)

Federal Risk 603

**Definition/
cut-off value**

A breastfed infant with any of the following complications or potential complications for breastfeeding:

- a. jaundice
- b. weak or ineffective suck
- c. difficulty latching onto mother’s breast
- d. inadequate stooling (for age, as determined by a physician or other health care professional), and/or less than 6 wet diapers per day

**Client category
and priority level**

Category	Priority
Infants	1

Justification

- a. Jaundice occurs when bilirubin accumulates in the blood because red blood cells break down too quickly, the liver does not process bilirubin as efficiently as it should, or intestinal excretion of bilirubin is impaired. The slight degree of jaundice observed in many healthy newborns is considered physiologic. Jaundice is considered pathologic if it appears within 24 hours after delivery, lasts longer than a week or two, reaches an abnormally high level, or results from a medical problem such as rapid destruction of red blood cells, excessive bruising, liver disease, or other illness. When jaundice occurs in an otherwise healthy breastfed infant, it is important to distinguish “breastmilk jaundice” from “breastfeeding jaundice” and determine the appropriate treatment.
 - In the condition known as “breastmilk jaundice,” the onset of jaundice usually begins well after the infant has left the hospital, 5 to 10 days after birth, and can persist for weeks and even months. Early visits to the WIC clinic can help identify and refer these infants to their primary health care provider. Breastmilk jaundice is a normal physiologic phenomenon in the thriving breastfed baby and is due to a human milk factor that increases intestinal absorption of bilirubin. The stooling and voiding pattern is normal. If the bilirubin level approaches 18 – 20 mg%, the health care provider may choose to briefly interrupt breastfeeding for 24 – 36 hours, which results in a dramatic decline in bilirubin level.

Breastfeeding Complications – Infants (continued)

- Resumption of breastfeeding usually results in cessation of the rapid fall in serum bilirubin concentration, and in many cases a small increase may be observed, followed by the usual gradual decline to normal.
 - “Breastfeeding jaundice” is an exaggeration of physiologic jaundice, which usually peaks between 3 and 5 days of life, though it can persist longer. This type of jaundice is a common marker for inadequate breastfeeding. An infant with breastfeeding jaundice is underfed and displays the following symptoms: infrequent or ineffective breastfeeding; failure to gain appropriate weight; infrequent stooling with delayed appearance of yellow stools (i.e., prolonged passage of meconium); and scant dark urine with urate crystals. Improved nutrition usually results in a rapid decline in serum bilirubin concentration.
- b. A weak or ineffective suck may cause a baby to obtain inadequate milk with breastfeeding and result in a diminished milk supply and an underweight baby. Weak or ineffective suckling can be due to prematurity, low birth weight, a sleepy baby, or physical/medical problems such as heart disease, respiratory illness, or infection. Newborns who receive bottle feedings before beginning breastfeeding or who frequently use a pacifier may have trouble learning the proper tongue and jaw motions required for effective breastfeeding.
- c. Difficulty latching onto the mother’s breast may be due to flat or inverted nipples, breast engorgement, or incorrect positioning and breastfeeding technique. Early exposure to bottle feedings can predispose infants to “nipple confusion” or difficulty learning to attach to the breast correctly and effectively extract milk. A referral for lactation counseling should be made.
- d. Inadequate stooling and/or less than 6 wet diapers are probable indicators that the breastfed infant is not receiving adequate milk. Not only is the baby at risk for failure to thrive, but the mother’s milk is at risk for rapidly diminishing due to ineffective removal of milk. The breastfed infant with inadequate caloric intake must be identified early and the situation remedied promptly to avoid long-term consequences of dehydration or nutritional deprivation. Although failure to thrive can have many etiologies, the most common cause in the breastfed infant is insufficient milk intake as a result of infrequent or ineffective nursing.
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Breastfeeding Complications – Infant (continued)

Inadequate breastfeeding can be due to infant difficulties with latching on or sustaining suckling, use of a nipple shield over the mother's nipple, impaired let down of milk, a non-demanding infant, excessive use of a pacifier, or numerous other breastfeeding problems.

The literature regarding inadequate stooling varies widely in terms of quantification; this condition is best diagnosed by the pediatrician or other health care practitioner.

References

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Breastfeeding Complications-Infants (continued)

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Breastfeeding Complications (Women)

Federal Risk 602

**Definition/
cut-off value**

A breastfeeding woman with any of the following complications or potential complications for breastfeeding:

- a. severe breast engorgement
- b. recurrent plugged ducts
- c. mastitis (fever or flu like symptoms with localized breast tenderness)
- d. flat or inverted nipples
- e. cracked, bleeding, or severely sore nipples
- f. age 40 years or more
- g. failure of milk to come in by 4 days postpartum
- h. tandem nursing (breastfeeding two siblings who are not twins)

**Client category
and priority level**

Category	Priority
Pregnant women	1
Breastfeeding women	1

Justification

Severe breast engorgement

Severe engorgement is often caused by infrequent nursing and/or ineffective removal of milk. This severe breast congestion causes the nipple-areola area to become flattened and tense, making it difficult for the baby to latch-on correctly. The result can be sore, damaged nipples and poor milk transfer during feeding attempts. This ultimately results in diminished milk supply. When the infant is unable to latch-on or nurse effectively, alternative methods of milk expression are necessary, such as using an electric breast pump.

Recurrent plugged ducts

A clogged duct is a temporary back-up of milk that occurs when one or more of the lobes of the breast do not drain well. This usually results from incomplete emptying of milk. Counseling on feeding frequency or method or advising against wearing an overly tight bra or clothing can assist.

Mastitis

Mastitis is a breast infection that causes a flu-like illness accompanied by an inflamed, painful area of the breast – putting both the health of the mother and successful breastfeeding at risk. The women should be referred to her health care provider for antibiotic treatment.

Breastfeeding Complications – Women (continued)

Flat or inverted nipples

Infants may have difficulty latching on correctly to nurse when nipples are flat or inverted. Appropriate interventions can improve nipple protractility and skilled help guiding a baby in proper breastfeeding technique can facilitate proper attachment.

Cracked, bleeding or severely sore nipples

Severe nipple pain, discomfort lasting throughout feedings, or pain persisting beyond one week postpartum is atypical and suggest the baby is not positioned correctly at the breast. Improper infant latch-on not only causes sore nipples, but impairs milk flow and leads to diminished milk supply and inadequate infant intake. There are several other causes of severe or persistent nipple pain, including Candida or staph infection. Referrals for lactation counseling and/or examination by the women’s health care provider are indicated.

Age \geq 40 years

Older women (over 40) are more likely to experience fertility problems and perinatal risk factors that could impact the initiation of breastfeeding. Because involutinal breast changes can begin in the late 30’s, older mothers may have fewer functioning milk glands resulting in greater difficulty in producing an abundant milk supply.

Failure of milk to come in by 4 days postpartum

Failure of milk to come in by 4 days postpartum may be a result of maternal illness or perinatal complications. This may place the infant at nutritional and/or medical risk, making temporary supplementation necessary until a normal breast milk supply is established.

Tandem nursing (breastfeeding two siblings who are not twins)

With tandem nursing the older baby may compete for nursing privileges, and care must be taken to assure that the younger baby has first access to the milk supply. The mother who chooses to tandem nurse will have increased nutritional requirements to assure her adequate milk production.

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Breastfeeding Complications – Women (continued)

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Breastfeeding Twins, Triplets

Federal Risk 335

**Definition/
cut-off value** A breastfeeding woman who is breastfeeding twins, triplets or more multiples.

Client category and priority level	Category	Priority
	Breastfeeding women	1

Justification Multifetal gestations are associated with low birth weight, fetal growth restriction, placental and cord abnormalities, preeclampsia, anemia, shorter gestation, and an increased risk of infant mortality. Twin births account for 16% of all low birth weight infants. The risk of pregnancy complications is greater in women carrying twins and increases markedly as the number of fetuses increases (1, 2).

Pregnant or breastfeeding women with twins or more multiples have greater requirements for all nutrients than women with only one infant. The nutrient depletion due to multiple fetuses is compounded by the increased nutrient requirements of breastfeeding more than one infant.

The woman who is breastfeeding twins, triplets or more multiples would benefit greatly from the nutritional supplementation, nutrition education and referrals provided by the WIC Program.

References

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2. Worthington-Roberts, BS. Weight gain patterns in twin pregnancies with desirable outcomes. Clin. Nutr. 1988; 7:191-6.

Breastfeeding While Pregnant

Federal Risk 338

**Definition/
cut-off value** A pregnant woman who is breastfeeding.

Client category and priority level	Category	Priority
	Pregnant women	1

Justification Breastfeeding during pregnancy can influence the mother’s ability to meet the nutrient needs of her growing fetus and nursing baby. Generally, pregnancy hormones cause the expectant mother’s milk supply to drastically decline (until after delivery). If the mother conceived while her nursing baby was still solely or predominantly breastfeeding, the baby could fail to receive adequate nutrition. In addition to changes in milk volume and composition, mothers who breastfeed throughout a pregnancy usually report that their nipples, previously accustomed to nursing, become extremely sensitive (presumably due to pregnancy hormones). When women nurse through a pregnancy it is possible that oxytocin released during breastfeeding could trigger uterine contractions and premature labor. When a mother chooses to nurse through a pregnancy, she needs breastfeeding counseling.

References Mohrbacher, N., Stock, J.: The Breastfeeding Answer Book: Revised Edition Schaumburg, IL; La Leche League International; 1997.

Cancer

Federal Risk 347
High Risk Factor

**Definition/
cut-off value**

A chronic disease whereby populations of cells have acquired the ability to multiply and spread without the usual biologic restraints. The current condition, or the treatment for the condition, must be severe enough to affect nutritional status.

Presence of cancer diagnosed by a physician as self-reported by applicant/participant/caregiver; or as reported or documented by a physician, or someone working under a physician’s orders.

**Client category
and priority level**

Category	Priority
Pregnant women	1
Breastfeeding women*	1
Postpartum women	6
Infants	1
Children	3

* Some cancer treatments may contraindicate breastfeeding

Justification

An individual’s nutritional status at the time of diagnosis of cancer is associated with the outcome of treatment. The type of cancer and stage of disease progression determines the type of medical treatment, and if indicated, nutrition management. Individuals with a diagnosis of cancer are at significant health risk, depending upon the stage of disease progression or type of ongoing cancer treatment.

References

Institute of Medicine: WIC Nutrition Risk Criteria: A Scientific Assessment. National Academy Press, Washington, D.C.; 1996.

Clarification

Self-reporting of a diagnosis by a medical professional should not be confused with self-diagnosis, where a person simply claims to have or to have had a medical condition without any reference to professional diagnosis. A self-reported medical diagnosis (“My doctor says that I have/my son or daughter has...”) should prompt the CPA to validate the presence of the condition by asking more pointed questions related to that diagnosis.

Cardiovascular Disorder

Federal Risk 360
High Risk Factor

**Definition/
cut-off value**

A diagnosis of cardiovascular disease or condition. The current condition or treatment of the condition must be severe enough to affect nutritional status. Includes but is not limited to: hypercholesterolemia, hyperlipidemia, hypertriglyceridemia or congenital heart disease (CHD)

Presence of heart disease diagnosed by a physician as self-reported by applicant/participant/caregiver; or as reported or documented by a physician, or someone working under a physician's orders.

**Client category
and priority level**

Category	Priority
Pregnant women	1
Breastfeeding women	1
Postpartum women	6
Infants	1
Children	3

Justification

Cardiovascular diseases affect normal physiological processes and can be accompanied by failure to thrive and malnutrition. Cardiovascular diseases put individuals at risk for growth failure and malnutrition due to low calorie intake and hypermetabolism.

Congenital heart disease (CHD) refers to cardiovascular defects that are present and usually evident at birth. Children with congenital heart disease demonstrate slow growth due to many factors including: chronic oxygen deficits, decreased food intake due to poor appetite and fatigue, decreased gastrointestinal absorption, increased susceptibility to infection and increased energy needs due to increased cardiac workload. (3)

References

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 2. Queen, Patricia and Lang, Carol: Handbook of Pediatric Nutrition; 1993; pp. 422-425.
 3. Washington State Department of Health: Nutrition Interventions for Children with Special Health Care Needs, 2001: pp 177 – 182.
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Cardiovascular Disorder (continued)

Clarification

Self-reporting of a diagnosis by a medical professional should not be confused with self-diagnosis, where a person simply claims to have or to have had a medical condition without any reference to professional diagnosis. A self-reported medical diagnosis (“My doctor says that I have/my son or daughter has...”) should prompt the CPA to validate the presence of the condition by asking more pointed questions related to that diagnosis.

Caregiver Alcohol/Drug Addiction

Federal Risk 902

**Definition/
cut-off value**

An infant or child whose primary caregiver is assessed to have a limited ability to make appropriate feeding decisions and/or prepare food due to currently using or having a history of abusing alcohol or other drugs.

**Client category
and priority level**

Category	Priority
Infants	4
Children	5

Justification

Maternal chemical dependency is strongly associated with abuse and neglect. In 22 states, 90% of caregivers reported for child abuse are active substance abusers. Education, referrals and service coordination with WIC will aid the mother/caregiver in developing skills, knowledge and/or assistance to properly care for a total dependent.

References

1. Grand RJ, Stephen LJ, Dietz WH. Pediatric Nutrition: Theory and Practice; Boston: Butterworths, 1987.
 2. Institute of Medicine: WIC Nutrition Risk Criteria: A Scientific Assessment. National Academy Press, Washington, D. C.; 1996.
 3. Pollitt E, Wirth S. Mother-Infant Feeding Interaction and Weight Gain in the First Month of Life. J. Am Diet Assoc. 1981;78:596-601.
 4. WIC Program regulations: Section 246.7(e)(2).
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Caregiver With Limited Ability to Make Feeding Decisions

Federal Risk 902

**Definition/
cut-off value**

An infant or child whose primary caregiver is assessed to have a limited ability to make appropriate feeding decisions and/or prepare food. Examples may include caregivers who are:

- 17 years old or younger;
- mentally disabled/delayed and/or have a mental illness such as clinical depression (diagnosed by a physician or licensed psychologist); or
- physically disabled to a degree that restricts or limits food preparation abilities.

**Client category
and priority level**

Category	Priority
Infants	4
Children	5

Justification

The mother or caregiver 17 years of age or younger, generally has limited exposure and application of skills necessary to care for and feed a total dependent. Cognitive limitation in a parent of primary caregiver has been recognized as a risk factor for failure to thrive, as well as for abuse and neglect. The mentally handicapped caregiver may not exhibit the necessary parenting skills to promote beneficial feeding interactions with the infant. Maternal mental illnesses such as severe depression and maternal chemical dependency are also strongly associated with abuse and neglect. Certain physical handicaps such as blindness, para- or quadriplegia, or physical anomalies restrict/limit the caregiver’s ability to prepare and offer a variety of foods. Education, referrals and service coordination with WIC will aid the mother/caregiver in developing skills, knowledge and/or assistance to properly care for a total dependent.

References

1. Accardo and Whitman B.: Children of Mentally Retarded Parents; American Journal of Diseases of Children; 1990; 144:69-70.
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5. WIC Program regulations: Section 246.7(e)(2).

Celiac Disease

Federal Risk 354
High Risk Factor

Definition
cut-off value

Celiac Disease (CD) is an autoimmune disease precipitated by the ingestion of gluten (a protein in wheat, rye, and barley) that results in damage to the small intestine and malabsorption of the nutrients from food. (1). (For more information about the definition of CD, please see the Clarification section.)

CD is also known as:

- Celiac Sprue
- Gluten Enteropathy
- Non-tropical Sprue

Presence of Celiac Disease diagnosed, documented, or reported by a physician or someone working under a physician’s orders, or as self-reported by applicant/participant/caregiver. See Clarification for more information about self-reporting a diagnosis.

Client category
and priority level

Category	Priority
Pregnant women	1
Breastfeeding women	1
Postpartum women	6
Infants	1
Children	3

Justification

CD affects approximately 1% of the U.S. population (2, 3). CD can occur at any age and the treatment requires strict adherence to a gluten-free diet for life. CD is both a disease of malabsorption and an abnormal immune reaction to gluten. When individuals with CD eat foods or ingest products containing gluten, their immune system responds by damaging or destroying villi – the tiny, fingerlike protrusions lining the small intestine. Villi normally allow nutrients from food to be absorbed through the walls of the small intestine into the bloodstream (4). The destruction of villi can result in malabsorption of nutrients needed for good health. Key nutrients often affected are iron, calcium and folate as they are absorbed in the first part of the small intestine. If damage occurs further down the small intestinal tract, malabsorption of carbohydrates (especially lactose), fat, and fat-soluble vitamins, protein and other nutrients may also occur (2, 5).

Celiac Disease (continued)

Justification

In addition to the gastrointestinal system, CD affects many other systems in the body, resulting in a wide range and severity of symptoms. Symptoms of CD may include chronic diarrhea, vomiting, constipation, pale foul-smelling fatty stools and weight loss. Failure to thrive may occur in infants and children. The vitamin and mineral deficiencies that can occur from continued exposure to gluten may result in conditions such as anemia, osteoporosis and neurological disorders such as ataxia, seizures and neuropathy.

Individuals with CD who continue to ingest gluten are also at increased risk for developing other autoimmune disorders (e.g., thyroid disease, type 1 diabetes, Addison’s disease) and certain types of cancer, especially gastrointestinal malignancies (2).

Continued exposure to gluten increases the risk of miscarriage or having a low birth weight baby, and may result in infertility in both women and men. A delay in diagnosis for children may cause serious nutritional complications including growth failure, delayed puberty, iron-deficiency anemia, and impaired bone health. Mood swings and depression may also occur (2, 6). See Table 1 for Nutritional Implications and Symptoms.

Table 1. Nutritional Implications and Symptoms of CD	
Common in Children	
<i>Digestive Symptoms</i> – more common in infants and children, may include	
<ul style="list-style-type: none"> • Vomiting • Chronic diarrhea • Constipation • Abdominal bloating and pain • Pale, foul-smelling, or fatty stool 	
<i>Other Symptoms</i> –	
<ul style="list-style-type: none"> • Delayed puberty • Dental enamel abnormalities of the permanent teeth • Failure to thrive (delayed growth and short stature) • Weight loss • Irritability 	

Celiac Disease (continued)

Table 1. Nutritional Implications and Symptoms of CD
Common in Adults
<i>Digestive Symptoms</i> – same as above, less common in adults
<i>Other Symptoms</i> – adults may have one or more of the following: <ul style="list-style-type: none"> • Unexplained iron-deficiency anemia • Other vitamin and mineral deficiencies (A, D, E, K, calcium) • Lactose intolerance • Fatigue • Bone or joint pain • Arthritis • Depression or anxiety • Tingling numbness in the hands and feet • Seizures • Missed menstrual periods • Infertility (men and women) or recurrent miscarriage • Canker sores inside the mouth • Itchy skin rash – dermatitis herpetiformis • Elevated liver enzymes
Sources: Case, Shelley, <i>Gluten-Free Diet, A Comprehensive Resource Guide</i> , Case Nutrition Consulting Inc., 2008. National Institute of Diabetes and Digestive and Kidney Diseases, <i>Celiac Disease</i> , NIH Publication No. 08-4269 September 2008. http://digestive.niddk.nih.gov/ddiseases/pubs/#what . Accessed May 2012.

The risk for development of CD depends on genetic, immunological, and environmental factors. Recent studies suggest that the introduction of small amounts of gluten while the infant is still breast-fed may reduce the risk of CD. Both breastfeeding during the introduction of dietary gluten, and increasing the duration of breastfeeding were associated with reduced risk in the infant for the development of CD. It is not clear from studies whether breastfeeding delays the onset of symptoms or provides a permanent protection against the disease. Therefore, it is prudent to avoid both early (< 4 months) and late (≥ 7 months) introduction of gluten and to introduce gluten gradually while the infant is still breast-fed, as this may reduce the risk of CD. (7)

Celiac Disease (continued)

The only treatment of CD is a gluten-free diet. Individuals with CD should discuss gluten-free food choices with a dietitian or physician that specializes in CD. Individuals with CD should always read food ingredient lists carefully to make sure that the food does not contain gluten. Making informed decisions in the grocery stores and when eating out is essential for the successful treatment of the disease (5, 8).

**Implications
for WIC
Nutrition Services**

Through client-centered counseling, WIC staff can assist participants with CD in making gluten-free food choices that improve quality of life and promote nutritional well-being. WIC can provide nutrition education/counseling on alternatives to gluten-containing food products as well as provide gluten-free grain selections available in the WIC food packages. Based on the needs and interests of the participant, WIC staff may (as appropriate):

- Promote breastfeeding throughout the first year of life, with exclusive breastfeeding until 4 – 6 months of age.
 - In consultation with the guidance of a medical provider, introduce gluten-containing foods between 4 and 6 months to infants at risk of CD, including infants with a parent or sibling with CD.
 - Tailor food packages to substitute or remove gluten-containing foods.
 - Educate participants on meeting nutritional needs in the absence of gluten-containing foods.
 - Encourage high fiber, gluten-free grain selections.
 - Monitor participant’s growth pattern and weight status.
 - Educate participants on planning gluten-free meals and snacks for outside the home.
 - Provide educational materials outlining allowed foods and foods to avoid, for example:
 - <http://www.celiac.nih.gov/Default.aspx>. Accessed May 2012.
 - <http://www.naspghan.org/user-assets/Documents/pdf/diseaseIno/GlutenFreeDietGuide-E.pdf>. Accessed May 2012.
 - Provide referrals as appropriate.
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Celiac Disease (continued)

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Celiac Disease (continued)

Clarification

Self-reporting of a diagnosis by a medical professional should not be confused with self-diagnosis, where a person simply claims to have or to have had a medical condition without any reference to professional diagnosis. A self-reported medical diagnosis (“My doctor says that I have/my son or daughter has...”) should prompt the CPA to validate the presence of the condition by asking more pointed questions related to that diagnosis.

The 2006 American Gastroenterological Association (AGA) Institute Technical Review on the Diagnosis and Management of Celiac Disease refers to CD as “a unique disorder that is both a food intolerance and autoimmune disorder” (9). According to the 2010 NIAID-Sponsored Expert Panel definition, CD is non-IgE mediated food allergy (10). (See nutrition risk criteria #353, Food Allergy.) However, the Expert Panel did not include information about CD in its report but rather refers readers to existing clinical guidelines on CD, including the AGA Institute’s Technical Review. (5, 9, 10)

Central Nervous System Disorder

Federal Risk 348
High Risk Factor

Definition cut-off value

Conditions that affect energy requirements and may affect the individual’s ability to feed self that alter nutritional status metabolically, mechanically, or both. It includes, but is not limited to:

- epilepsy
- cerebral palsy (CP) and
- neural tube defects (NTD), such as:
 - spina bifida or
 - myelomeningocele
- Parkinson’s disease
- Multiple sclerosis (MS)

Presence of central nervous system disorders diagnosed by a physician as self-reported by applicant/participant/caregiver; or as reported or documented by a physician, or someone working under physician’s orders.

Client category and priority level

Category	Priority
Pregnant women	1
Breastfeeding women	1
Postpartum women	6
Infants	1
Children	3

Justification

Epileptics are at nutritional risk due to alteration in nutrient status from prolonged anti-convulsant therapy, inadequate growth, and physical injuries from seizures (1). The ketogenic diet has been used for the treatment of refractory epilepsy in children (2). However, children on a ketogenic diet for six months or more have been observed to have slower gain in weight and height (3, 4). Growth monitoring and nutrition counseling to increase energy and protein intakes while maintaining the ketogenic status are recommended (4). In some cases, formula specifically prepared for children on a ketogenic diet is necessary. Women on antiepileptic drugs (AEDs) present a special challenge. Most AEDs have been associated with the risk of neural tube defects on the developing fetus. Although it is unclear whether folic acid supplementation protects against the embryotoxic and teratogenic effects of AEDs, folic acid is recommended for women with epilepsy as it is for other women of childbearing age (5-7).

Central Nervous System Disorder (continued)

Oral motor dysfunction is associated with infants and children with cerebral palsy (CP). These infants and children often have poor growth due to eating impairment, such as difficulty in spoon feeding, biting, chewing, sucking, drinking from a cup and swallowing. Rejection of solid foods, choking, coughing, and spillage during eating are common among these children (8, 9). Growth monitoring and nutrition counseling to modify food consistency and increase energy and nutrient intakes are recommended. Some children may require tube feeding and referral to feeding clinics, where available.

Limited mobility or paralysis, hydrocephalus, limited feeding skills, and genitourinary problems, put children with neural tube defects (NTDs) at increased risk of abnormal growth and development. Ambulatory disability, atrophy of the lower extremities, and short stature place NTDs affected children at high risk for increased body mass index (10). Growth monitoring and nutrition counseling for appropriate feeding practices are suggested.

In some cases, participants with Parkinson's disease require protein redistribution diets to increase the efficacy of the medication used to treat the disease (11). Participants treated with levodopa-carbidopa may also need to increase the intake of B vitamins (12). Participants with Parkinson's disease will benefit from nutrition education/counseling on dietary protein modification, which emphasizes adequate nutrition and meeting minimum protein requirements. Additionally, since people with Parkinson's often experience unintended weight loss (13), it is important to monitor for adequate maternal weight gain.

Individuals with multiple sclerosis (MS) may experience difficulties with chewing and swallowing that require changes in food texture in order to achieve a nutritionally adequate diet (14). Obesity and malnutrition are frequent nutrition problems observed in individuals with MS. Immobility and the use of steroids and anti-depressants are contributing factors for obesity. Dysphagia, adynamia, and drug therapy potentially contribute to malnutrition. Both obesity and malnutrition have detrimental effects on the course of the disease. Adequate intakes of polyunsaturated fatty acids, vitamin D, vitamin B12 and a diet low in animal fat have been suggested to have beneficial effects in relapsing-remitting MS (15 – 17). Breastfeeding advice to mothers with MS has been controversial. However, there is no evidence to indicate that breastfeeding has any deleterious effect on women with MS. In fact, breastfeeding should be encouraged for the health benefits to the infants (18). In addition, mothers who choose to breastfeed should receive the necessary support to enhance breastfeeding duration.

As a public health nutrition program, WIC plays a key role in health promotion and disease prevention. As such, the nutrition intervention for participants with

Central Nervous System Disorder (continued)

medical conditions should focus on supporting, to the extent possible, the medical treatment and/or medical/nutrition therapy a participant may be receiving. Such support may include: investigating potential drug-nutrient interactions; inquiring about the participant's understanding of a prescribed special diet; encouraging the participant to keep medical appointments; tailoring the food package to accommodate the medical condition; and referring the participant to other health and social services.

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Central Nervous System Disorder (continued)

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Clarification

Self-reporting of a diagnosis by a medical professional should not be confused with self-diagnosis, where a person simply claims to have or to have had a medical condition without any reference to professional diagnosis. A self-reported medical diagnosis (“My doctor says that I have/my son or daughter has...”) should prompt the CPA to validate the presence of the condition by asking more pointed questions related to that diagnosis.

Cleft Lip and/or Palate
Cleft Lip/Palate (Unrepaired)**Federal Risk 349**
High Risk Factor for Unrepaired Cleft Lip or Palate

Definition
cut-off value

A diagnosis of cleft lip and/or palate which affects chewing, sucking and swallowing. Cleft lip and palate is defined as a fissure or elongated opening of the lip or palate as the result of not fusing during embryonic development. Infants and children with a repaired cleft lip/palate need continued monitoring to assure adequate intake.

Presence of cleft lip and/or palate diagnosed by a physician as self-reported by applicant/participant/caregiver; or as reported or documented by a physician, or someone working under physician's orders.

Client category
and priority level

Category	Priority
Infants	1
Children	3

Justification

For infants and children with this disorder, special attention to nutrition may be required to achieve adequate growth and development and/or to maintain health.

Severe cleft lip and palate anomalies commonly cause difficulty with chewing, sucking and swallowing, even after extensive repair efforts.

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Cleft Lip and/or Palate (continued)

Clarification

Self-reporting of a diagnosis by a medical professional should not be confused with self-diagnosis, where a person simply claims to have or to have had a medical condition without any reference to professional diagnosis. A self-reported medical diagnosis (“My doctor says that I have/my son or daughter has...”) should prompt the CPA to validate the presence of the condition by asking more pointed questions related to that diagnosis.

Current BMI < 18.5

Federal Risk 101

**Definition/
cut-off value**

Breastfeeding and postpartum women with a current Body Mass Index (BMI) <18.5.

Note: Until research supports the use of different BMI cut-offs to determine weight status categories for adolescent pregnancies, the same BMI cut-offs will be used for all women, regardless of age, when determining WIC eligibility. (See Justification for a more detailed explanation.)

Refer to the Appendix for a BMI table for determining weight classification for women.

**Client category
and priority level**

Category	Priority
Breastfeeding women	1
Postpartum women	6

Justification

Weight during the early postpartum period, when most WIC certifications occur, is very unstable. During the first 4-6 weeks fluid shifts and tissue changes cause fluctuations in weight. After 6 weeks, weight loss varies among women. Prepregnancy weight, amount of weight gain during pregnancy, race, age, parity and lactation all influence the rate of postpartum weight loss. By 6 months postpartum, body weight is more stable and should be close to the prepregnancy weight. In most cases therefore, prepregnancy weight is a better indicator of weight status than postpartum weight in the first 6 months after delivery. The one exception is the woman with a BMI of < 18.5 during the immediate 6 months after delivery. Underweight at this stage may indicate inadequate weight gain during pregnancy, depression, an eating disorder or disease; any of which need to be addressed.

While being on the lean side of normal weight is generally considered healthy, being underweight can be indicative of poor nutritional status, inadequate food consumption, and/or an underlying medical condition. Underweight women who are breastfeeding may be further impacting their own nutritional status. Should she become pregnant again, an underweight woman is at a higher risk for delivery of low birth weight (LBW) infants, retarded fetal growth, and perinatal mortality. The role of the WIC Program is to assist underweight women in the achievement of a healthy dietary intake and body mass index.

Current BMI < 18.5 (continued)

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Current BMI 25 - 29.9 (≥ 6 months postpartum)
Current BMI ≥ 30 (≥ 6 months postpartum)

Federal Risk 111

**Definition/
cut-off value**

Breastfeeding women 6 months postpartum or more with a current Body Mass Index (BMI) between 25 and 29.9.

Breastfeeding women 6 months postpartum or more with a current Body Mass Index (BMI) greater than or equal to 30.

Note: Until research supports the use of different BMI cut-offs for adolescent pregnancies, the same BMI cut-offs will be used for all women, regardless of age, when determining WIC eligibility. (See Justification for a more detailed explanation.)

Refer to the Appendix for a BMI table for determining weight classification for women.

**Client category
and priority level**

Category

Priority

Breastfeeding women

1

Justification

Weight during the early postpartum period, when most WIC certifications occur, is very unstable. During the first 4-6 weeks fluid shifts and tissue changes cause fluctuations in weight. After 6 weeks, weight loss varies among women. Prepregnancy weight, amount of weight gain during pregnancy, race, age, parity and lactation all influence the rate of postpartum weight loss. By 6 months postpartum, body weight is more stable and should be close to the prepregnancy weight. In most cases therefore, prepregnancy weight is a better indicator of weight status than postpartum weight in the first 6 months after delivery.

The percentage of adolescents who are overweight is increasing rapidly and more than 60% of adults in the US are overweight. Due to the significant impact that overweight and obesity have on morbidity and mortality, it is imperative that every effort be made to identify individuals who are overweight and to assist them in achieving a more healthful weight. The WIC Program is in a position to play an important role in helping to reduce the prevalence of overweight not only by working with postpartum women on improving their own weight status, but also by helping them to see their role in assisting their children to learn healthful eating and physical activity behaviors.

Current BMI \geq 25 - 29.9 (\geq 6 months postpartum) (continued)
Current BMI \geq 30 (\geq 6 months postpartum) (continued)

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Cystic Fibrosis

**Federal Risk 360
 High Risk Factor**

**Definition/
 cut-off value** Presence of cystic fibrosis (CF) diagnosed by a physician as self-reported by applicant/participant/caregiver; or as reported or documented by a physician, or someone working under a physician’s orders.

Client category and priority level	Category	Priority
	Pregnant women	1
	Breastfeeding women	1
	Postpartum women	6
	Infants	1
	Children	3

Justification Cystic fibrosis (CF), a genetic disorder of children, adolescents, and young adults characterized by widespread dysfunction of the exocrine glands, is the most common lethal hereditary disease of the Caucasian race.

Many aspects of the disease of CF stress the nutritional status of the patient directly or indirectly by affecting the patient’s appetite and subsequent intake. Gastrointestinal losses occur in spite of pancreatic enzyme replacement therapy. Also, catch-up growth requires additional calories. All of these factors contribute to a chronic energy deficit, which can lead to a marasmic type of malnutrition. The primary goal of nutritional therapy is to overcome this energy deficit.

Studies have shown variable intakes in the CF population, but the intakes are usually less than adequate and are associated with a less than normal growth pattern.

Cystic Fibrosis (continued)

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Clarification

Self-reporting of a diagnosis by a medical professional should not be confused with self-diagnosis, where a person simply claims to have or to have had a medical condition without any reference to professional diagnosis. A self-reported medical diagnosis (“My doctor says that I have/my son or daughter has...”) should prompt the CPA to validate the presence of the condition by asking more pointed questions related to that diagnosis.

Depression

Federal Risk 361

**Definition/
cut-off value**

Presence of clinical depression, including postpartum depression.

Presence of condition diagnosed, documented, or reported by a physician, clinical psychologist, or someone working under a physician's orders. The diagnosis of depression from a physician can be self-reported by applicant/participant/caregiver.

See the Clarification section for more information about self-reporting a diagnosis.

**Client category
and priority level**

Category	Priority
Pregnant women	1
Breastfeeding women	1
Postpartum women	6

Justification

According to the National Institute of Mental Health (NIMH), nearly 10 percent of the U.S. population ages 18 and older suffers from depression each year, with 6.7 percent suffering from major depressive disorders (1). Although depression can occur at any age, the average onset is around age 30 (1, 2). Depression occurs twice as frequently in women as in men. Depression has a variety of symptoms, but the most common are deep feelings of sadness or a marked loss of interest in pleasure or activities. Other symptoms of depression include: appetite changes resulting in unintended weight losses or gains, insomnia or oversleeping, loss of energy or increased fatigue, restlessness or irritability, feelings of worthlessness or inappropriate guilt and difficulty thinking, concentrating or making decisions (1 – 3). Further, depression can increase the risk for some chronic diseases such as coronary heart disease, myocardial infarction, chronic pain syndromes, premature aging, and impaired wound healing. Therefore, untreated depression has the potential to impact long term health status (4). For information about children and depression, please see the Clarification section.

Pregnancy and Depression

Depression is common during pregnancy. Between 14 and 23 percent of pregnant women will experience depressive symptoms (5, 6). Several studies have found that depression risk is highest during the last trimester of pregnancy (4). Women who experience depression during pregnancy are found to be less likely to seek

Depression (continued)

Justification

Prenatal care (3). They may also suffer from episodes of nausea and vomiting or initiate or increase the use of drugs, alcohol and nicotine (4). Pregnant women with depression may be at risk for preeclampsia, preterm delivery or delivery of low birth weight infants and have higher perinatal mortality rates (5, 6).

Pregnant Adolescents

In the United States, 10 percent of women become pregnant during adolescence (7). The prevalence of teen pregnancy is highest among African and Native Americans, lower socioeconomic groups, and those living in stressful family environments. The prevalence rate of depression among pregnant adolescents is between 16 and 44 percent, which is almost twice as high as among their adult counterparts and non-pregnant adolescents (7).

Adolescence is a stage of rapid metabolic, hormonal, physiological and developmental changes. Depressive symptoms are likely to emerge when the physiologic and psychological changes that occur during pregnancy are superimposed upon normal developmental change (8).

Teens who are under stress, lack social and/or family support, experience significant loss, or who have attention, learning or conduct disorders are at greater risk for developing clinical depression (9). Depression in young people often occurs with mental disorders, substance abuse disorders, or physical illnesses, such as diabetes (10). Pregnant adolescents with depressive symptoms are more likely to delay or refuse prenatal care and have subsequent, short interval pregnancies (within 24 months), both of which have shown to result in poor pregnancy outcomes (11, 12).

Antidepressant Use in Pregnancy

Negative consequences for the newborn such as fetal growth changes and shorter gestation periods have been associated with both depression symptoms and use of antidepressant medications during pregnancy. Although rare, some studies have linked fetal malformations, cardiac defects, pulmonary hypertension and reduced birth weight to antidepressant use during pregnancy, however, more research in this area is needed (4, 6, 13). For more information about specific drug therapies used for treating depression, please see the Clarification section (14).

Depression (continued)

Justification

A fetus exposed to antidepressants throughout pregnancy or during the last trimester may, in rare instances, experience temporary withdrawal symptoms – such as jitters or irritability – at birth (15, 16). Some health care providers may suggest tapering dosages until after birth to minimize newborn withdrawal symptoms though it is unclear whether this method can reduce harmful effects. This strategy may also be unsafe for new mothers as they enter the postpartum period – a time of increased risk of mood swings and problems with anxiety. Therefore, it is imperative that prenatal women discuss the risks and benefits of antidepressant therapy with their health care provider.

Postpartum Depression and Related Mood Disorders

Postpartum depression was historically hypothesized to be caused by low estrogen and progesterone levels immediately following birth, however, this hypothesis has been found to have limited scientific support (17). Emerging studies have found that reproductive hormones have an indirect relationship on depression because of the influence on stress hormones, immune markers or sleep quality. The incidence of postpartum depression in new mothers can range from approximately 12 to 25 percent, to up to 35 percent or more in some high-risk groups. High risk groups include: women of low income, younger age, low education level and histories of stressful life events or traumatic experiences. Some studies have higher percentage rates for depression because they include both subjects with diagnosed major depression and those with depressive symptoms, thus accounting for the wide range in rates (4).

Postpartum depression is distinguished from “baby blues” – a common reaction following delivery – both by its duration and the debilitating effects of the indifference the mother has about herself and her children (17). “Baby blues” are characterized by mild depressive symptoms, tearfulness (often for no discernible reason), anxiety, irritableness, mood fluctuations, increased sensitivity and fatigue. The “blues” typically peak for to five days after delivery, may last hours to days and resolve by the 10th postnatal day (18).

Inflammation and Depression

Inflammation was once recognized as one of several risk factors for depression. New research has found that inflammation is not *a* risk factor – but rather it is *the* risk factor that underlies all others. This represents a shift in how inflammation contributes to depression. Emerging research has revealed that depression is associated with inflammation manifested by increased levels of proinflammatory cytokines. Common experiences of new motherhood; sleep disturbance,

Depression (continued)

Justification

postpartum pain and past or current psychological trauma, act as stressors that cause proinflammatory cytokine levels to rise. This finding may explain why psychosocial, behavioral and physical risk factors increase the risk of depression (19). Additionally, inflammation levels normally rise during the last trimester of pregnancy, which may explain, as stated in the Pregnancy and Depression section above, the higher risk for experiencing depression during pregnancy (4).

Breastfeeding and Depression

Successful breastfeeding has a protective effect on maternal mental health because it attenuates stress and modulates the inflammatory response. Conversely, breastfeeding difficulties such as nipple pain can increase the risk of depression and should be addressed promptly (19).

Implications for WIC Nutrition Services

Individuals diagnosed with depression can benefit from WIC nutrition services and supplemental foods. Through participant-centered counseling, WIC staff can, as necessary:

- Reinforce and support the treatments and therapies prescribed by the participant's health care provider.
- Make referrals to the primary health care provider and/or to other appropriate mental health and social service programs. A 2010 brief from the [Urban Institute](#), recognized the WIC Program as a viable access point to identify and refer mothers with depressive symptoms (20). To learn more about mental health resources in your area please access the U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration's website. <http://store.samhsa.gov/mhlocator> or <http://www.samhsa.gov/prevention/>.
- Provide follow-up to ensure that the woman is receiving the necessary mental health treatment.
- Encourage food choices that promote nutritional well-being (to include good sources of Omega-3's for their anti-inflammatory properties).
- Educate about the increased risk of depressive symptoms during the third trimester of pregnancy as well as the prevalence, risks and signs of postpartum depression.
- Provide adequate breastfeeding education, assessment and support (e.g., peer counseling) to women with existing depression; both prenatally and in the postpartum period.

Depression (continued)

Implications for WIC Nutrition Services

A supplement to this criterion was developed to provide WIC State and local agencies with more information about the treatment of depression and WIC's role in providing nutrition services to women at risk of or diagnosed with depression: *Guidance for Screening and Referring Women with or At Risk for Depression* is located in the Appendix of this chapter.

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Depression (continued)

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Depression (continued)

Additional References:

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Clarification

Self-reporting of a diagnosis by a medical professional should not be confused with self-diagnosis, where a person simply claims to have or to have had a medical condition without any reference to professional diagnosis. A self-reported medical diagnosis (“My doctor says that I have/my son or daughter has...”) should prompt the CPA to validate the presence of the condition by asking more pointed questions related to that diagnosis.

Depression may be present in young children; however, it is generally not diagnosed until later in life. At this time, there is no evidence-based research to support the diagnosis of depression as a risk criterion for WIC children participants. It is important to note, however, that a child’s health may be at risk if the mother has a diagnosis of depression.

Nutrition Risk Criterion # 902; Caregiver with Limited Ability to Make Feeding Decisions, is an appropriate risk criterion assignment for an infant or child of a WIC mother diagnosed with clinical depression.

There are three major classes of antidepressants. Of the three classes listed below, the first two, Tricyclic antidepressants (TCAs) and Selective serotonin reuptake inhibitors (SSRIs) are generally viewed as safe options for pregnant and breastfeeding women. MAOIs such as Nardil (Phenelzine) and Parnate (Tranlycypromine) are always contraindicated during pregnancy and breastfeeding as reproductive safety has not been established (20).

- **Tricyclic antidepressants (TCAs)** are the oldest, least expensive and most studied of the antidepressants with a proven track record of effectiveness and include medications such as Amitriptyline (Elavil) and Desipramine (Norpramin). Noted drawbacks are complex dosing, unpleasant side effects and risk of suicide.
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Depression (continued)

Clarification

- **Selective serotonin reuptake inhibitors (SSRIs)** are used most frequently in pregnant and breastfeeding mothers. Sertraline (Zoloft) and paroxetine (Paxil) are recommended first line treatments for breastfeeding women due to fewer side effects than other antidepressants and a once-a-day dosing schedule. Paroxetine (Paxil) is generally discouraged during pregnancy because it has been associated with fetal heart defects when taken during the first three months of pregnancy. Infants of mothers on these medications should be monitored for the following symptoms: sedation, agitation, irritability, poor feeding and GI distress.
- **Monoamine oxidase inhibitors (MAOIs)** work by inhibiting the enzyme monoamine oxidase to allow for more norepinephrine and serotonin to remain available in the brain. As stated above, these types of medications are **always** contraindicated during pregnancy and breastfeeding as reproductive safety has not been established. Furthermore, MAOIs have many drug and diet contraindications.

Nutrition Risk Criterion #357, Drug-Nutrient Interactions may be assigned, as appropriate, to women taking anti-depressants.

Developmental Delays Affecting Chewing/Swallowing

Federal Risk 362 High Risk Factor

**Definition/
cut-off value**

Developmental, sensory or motor disabilities that restrict the ability to chew or swallow food or require tube feeding to meet nutritional needs. Includes but not limited to:

- minimal brain function
 - feeding problems due to developmental disability/delay such as Pervasive Developmental Disorder (PDD) which includes autism
 - birth injury
 - head trauma
 - brain damage
 - other disabilities
-

**Client category
and priority level**

Category	Priority
Pregnant women	1
Breastfeeding women	1
Postpartum women	6
Infants	1
Children	3

Justification

Pregnant, breastfeeding and postpartum women with developmental, sensory or motor disabilities may: 1) have feeding problems associated with muscle coordination involving chewing or swallowing, thus restricting or limiting the ability to consume food and increasing the potential for malnutrition; or 2) require enteral feedings to supply complete nutritional deficiencies. Education, referrals, and service coordination with WIC will assist the participant in making dietary changes/adaptations and finding assistance to assure she is consuming an adequate diet.

Infants and children with developmental disabilities are at increased risk for nutritional problems. Education, referrals, and service coordination with WIC will aid in early intervention of these disabilities. Service coordination with WIC will assist the participant, parent, or caregiver in making dietary changes/adaptations and finding assistance to assure the infant or child is consuming an adequate diet.

Developmental Delays Affecting Chewing/Swallowing (continued)

Pervasive Development Disorder (PDD) is a category of developmental disorders with autism being the most severe. Young children may initially have a diagnosis of PDD with a more specific diagnosis of autism usually occurring at 2 ½ to 3 years of age or older. Children with PDD have very selective eating habits that go beyond the usual “picky eating” behavior and that may become increasingly selective over time, i.e., foods they used to eat will be refused. This picky behavior can be related to the color, shape, texture or temperature of a food.

Common feeding concerns include:

- difficulty with transition to textures, especially during infancy;
- increased sensory sensitivity; restricted intake due to color, texture, and/or temperature of foods;
- decreased selection of foods over time; and/or
- difficulty accepting new foods; difficulty with administration of multivitamin/mineral supplementation and difficulty with changes in mealtime environment.

References

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Diabetes Mellitus

Federal Risk 343
High Risk Factor

**Definition/
 cut-off value**

Diabetes mellitus consists of a group of metabolic diseases characterized by inappropriate hyperglycemia resulting from defects in insulin secretion, insulin action or both (1).

Presence of diabetes mellitus diagnosed by a physician as self-reported by applicant/participant/caregiver; or as reported or documented by a physician, or someone working under a physician’s orders.

**Client category
 and priority level**

Category	Priority
Pregnant women	1
Breastfeeding women	1
Postpartum women	6
Infants	1
Children	3

Justification

Diabetes mellitus may be broadly described as a chronic, systemic disease characterized by:

- Abnormalities in the metabolism of carbohydrates, proteins, fats, and insulin; and
- Abnormalities in the structure and function of blood vessels and nerves (2).

The chronic hyperglycemia of diabetes is associated with long-term damage, dysfunction, and failure of various organs, especially the eyes, kidneys, nerves, heart, and blood vessels (1, 2) and includes type 1 diabetes mellitus, type 2 diabetes mellitus, and Maturity Onset Diabetes of the Young (MODY). MODY is a series of familial disorders characterized by early onset and mild hyperglycemia. Specific genetic defects have been identified on chromosomes 7, 12, and 20 (2). MODY is often diagnosed before the age of 25 years. It is caused by dominantly inherited defect of insulin secretion. Persons with MODY are often non-obese and without metabolic syndrome (3).

Diabetes Mellitus (continued)

The two major classifications of diabetes are type 1 diabetes (beta-cell destruction, usually leading to absolute insulin deficiency) and type 2 diabetes (ranging from predominantly insulin resistance with relative insulin deficiency to predominantly an insulin secretory defect with insulin resistance) (1). The Expert Committee on Diagnosis and Classification of Diabetes Mellitus, working under the sponsorship of the American Diabetes Association, has identified the criteria for the diagnosis of diabetes mellitus (1, 2). (See clarification).

Long-term complications of diabetes include retinopathy with potential loss of vision, nephropathy leading to renal failure; peripheral neuropathy with risk of foot ulcers, amputations, and Charcot joints; and, autonomic neuropathy causing gastrointestinal, genitourinary, cardiovascular symptoms and sexual dysfunction. Patients with diabetes have an increased incidence of atherosclerotic cardiovascular, peripheral arterial and cerebrovascular diseases. Hypertension and abnormalities of lipoprotein metabolism are often found in people with diabetes (1).

WIC nutrition services can reinforce and support the medical and dietary therapies (such as Medical Nutrition Therapy) that participants with diabetes receive from their health care providers (4).

References

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Clarification

Self-reporting of a diagnosis by a medical professional should not be confused with self-diagnosis, where a person simply claims to have or to have had a medical condition without any reference to professional diagnosis. A self-reported medical diagnosis (“My doctor says that I have/my son or daughter has...”) should prompt the CPA to validate the presence of the condition.

Diabetes Mellitus (continued)

Diabetes mellitus is sometimes described by both patients and health professionals as “a little bit of sugar” or “high sugar.” In reality, “sugar” is only one component of the pathology and clinical manifestations of the multifaceted syndrome of diabetes mellitus (2).

Diabetes mellitus is diagnosed by a licensed medical provider using any one of the following three methods:

1. Fasting plasma glucose \geq 126 mg/dL (7.0 mmol/l). Fasting is defined as no caloric intake for at least 8 hours.
2. Symptoms of hyperglycemia plus casual plasma glucose concentration \geq 200 mg/dl (11.1 mmol/L).
 - Casual implies any time of day without regard to time since last meal.
 - The classic symptoms of hyperglycemia include polyuria, polydipsia, and unexplained weight loss.
3. Two-hour plasma glucose \geq 200 mg/dL (11.1 mmol/L) during a 75-g oral glucose tolerance test (OGTT) (1).

In the absence of unequivocal hyperglycemia, these criteria should be confirmed by repeat testing on a different day. The third measure (OGTT) is not recommended for routine clinic use.

Drug Nutrient Interactions

Federal Risk 357

Definition cut-off value Use of prescription or over-the-counter drugs or medications that have been shown to interfere with nutrient intake or utilization, to an extent that nutritional status is compromised.

Client category and priority level	Category	Priority
	Pregnant women	1
	Breastfeeding women	1
	Postpartum women	6
	Infants	1
	Children	3

Justification The drug treatment of a disease or medical condition may itself affect nutritional status. Drug induced nutritional deficiencies are usually slow to develop and occur most frequently in long-term drug treatment of chronic disease. Possible nutrition related side effects of drugs include, but are not limited to: altered taste sensation, gastric irritation, appetite suppression, altered GI motility, and altered nutrient metabolism and function, including enzyme inhibition, vitamin antagonism, and increased urinary loss.

The marketplace of prescribed and over the counter drugs is a rapidly changing one. For knowledgeable information on the relationship of an individual's drug use to his/her nutritional status, it is important to refer to a current drug reference such as Physician's Desk Reference (PDR), a text such as Physician's Medication Interactions, drug inserts, or to speak with a pharmacist.

- References**
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Drug Use

Federal Risk 372

**Definition/
cut-off value**

For Pregnant, Breastfeeding and Postpartum Women:

- Any illegal drug use

Note: Although marijuana is legal in Washington state; this nutrition risk factor does apply to pregnant, breastfeeding and postpartum women who use recreational marijuana. Use the Drug-Nutrient Interaction risk for clients using prescribed medical marijuana.

**Client category
and priority level**

Category	Priority
Pregnant women	1
Breastfeeding women*	1
Postpartum women	6

* Breastfeeding is not recommended for women with this condition. Consult with the clinic or state WIC breastfeeding coordinator.

Justification

Pregnant women who smoke marijuana are frequently at higher risk of still birth, miscarriage, low birth weight babies, and fetal abnormalities, especially of the nervous system. Heavy cocaine use has been associated with higher rates of miscarriage, premature onset of labor, Fetal Growth Retardation (FGR), congenital anomalies, and developmental/behavioral abnormalities in the preschool years. Infants born to cocaine users often exhibit symptoms of cocaine intoxication at birth. Infants of women addicted to heroin, methadone, or other narcotics are more likely to be stillborn or have low birth weights. These babies frequently must go through withdrawal soon after birth. Increased rates of congenital defects, growth retardation, and preterm delivery, have been observed in infants of women addicted to amphetamines.

Pregnant addicts often forget their own health care, adding to their unborn babies' risk. One study found that substance abusing women had lower hematocrit levels at the time of prenatal care registration, lower prepregnant weights and gained less weight during the pregnancy. Since nutritional deficiencies can be expected among drug abusers, diet counseling and other efforts to improve food intake are recommended.

Heroin and cocaine are known to appear in human milk. Marijuana also appears in a poorly absorbed form, but in quantities sufficient enough to cause lethargy, and decreased feeding after prolonged exposure.

Drug Use (continued)

References

1. USDA/DHHS Dietary Guidelines; 1995
2. Lawrence, Ruth: Maternal & Child Health Technical Information Bulletin: A Review of the Medical Benefits and Contraindications to Breastfeeding in the United States; October 1997.
3. Weiner, L., Morse, B.A., and Garrido, P.: FAS/FAE Focusing Prevention on Women at Risk; International Journal of the Addictions; 1989; 24:385-395.
4. National Clearinghouse for Alcohol and Drug Information; Office for Substance Abuse Prevention; The fact is...alcohol and other drugs can harm an unborn baby; Rockville; 1989.
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Early Introduction of Solids (< 4 months)

Federal Risk 411.3

**Definition/
cut-off value**

Addition of solid food(s) into the daily diet before four (< 4) months of age.

Note: The CPA considers the “adjusted age” of a premature infant rather than using the actual age when assessing whether the infant is ready for the introduction of solids and whether this risk applies.

**Client category
and priority level**

Category	Priority
Infants	4

Justification

Feeding solids too early (i.e., before 4 – 6 months of age) by, for example, adding dilute cereal or other solid foods to bottles deprives infants the opportunity to learn to feed themselves (1, 2, 3, 4). The major objection to the introduction of solids before age 4 months of age is based on the possibility that it may interfere with establishing sound eating habits and may contribute to overfeeding (5, 6). Before 4 months of age, the infant possesses an extrusion reflux that enables him/her to swallow only liquid foods (7, 8, 9). The extrusion reflex is toned down at 4 months (3). Breast milk or iron-fortified infant formula is all the infant needs.

Gastric secretions, digestive capacity, renal capacity and enzymatic secretions are low, which makes digestion of solids inefficient and potentially harmful (5, 3, 6, 9). Furthermore, there is the potential for antigens to be developed against solid foods, due to the undigested proteins that may permeate the gut, however, the potential for developing allergic reactions may primarily be in infants with a strong family history of atopy (5, 6).

If solid foods are introduced before the infant is developmentally ready, breastmilk or iron fortified formula necessary for optimum growth is displaced (3, 7, 9).

Around 4 months of age, the infant is developmentally ready for solid foods when (3, 5, 6, 7, 9):

- the infant is better able to express certain feeding cues such as turning head to indicate satiation,
- oral and gross motor skills begin to develop that help the infant to take solid foods,
- the extrusion reflex disappears, and
- the infant begins to sit upright and maintain balance.

Early Introduction of Solids (< 4 months) (continued)

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Eating Disorder

Federal Risk 358
High Risk Factor

**Definition/
 cut-off value**

Eating disorders (anorexia nervosa and bulimia), are characterized by a disturbed sense of body image and morbid fear of becoming fat. Symptoms are manifested by abnormal eating patterns including, but not limited to:

- self-induced vomiting
- purgative abuse
- alternating period of starvation
- use of drugs such as appetite suppressants, thyroid preparations or diuretics
- self-induced marked weight loss

Presence of eating disorder(s) diagnosed by a physician as self-reported by applicant/participant/caregiver; or as reported or documented by a physician, or someone working under a physician’s orders or evidence of such disorders documented by the CPA.

**Client category
 and priority level**

Category	Priority
Pregnant women	1
Breastfeeding women	1
Postpartum women	6

Justification

Anorexia nervosa and bulimia are serious disorders that affect women in the childbearing years. These disorders result in general malnutrition and may cause life-threatening fluid and electrolyte imbalances. Women with eating disorders may begin pregnancy in a poor nutritional state. They are at risk of developing chemical and nutritional imbalances, deficiencies, and weight gain abnormalities during pregnancy if aberrant eating behaviors are not controlled. These eating disorders can seriously complicate any pregnancy since the nutritional status of the pregnant woman is an important factor in perinatal outcome.

Maternal undernutrition is associated with increased perinatal mortality and an increased risk of congenital malformation. While the majority of pregnant women studied reported a significant reduction in their eating disorder symptoms during pregnancy, a high percentage of these women regressed in the postpartum period. This regression in postpartum women is a serious concern for breastfeeding and non-breastfeeding postpartum women who are extremely preoccupied with rapid weight loss after delivery.

Eating Disorder (continued)

References

1. Worthington-Roberts, B., and Williams, SR: Nutrition in Pregnancy and Lactation; 5th ed.; Mosby Pub; St. Louis; pp. 270-271.
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 5. Krummel DA, and Kris-Etherton, PM: Nutrition in Women's Health, Aspen Pub; Gaithersburg, MD; pp 58-102.
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Clarification

Self-reporting of a diagnosis by a medical professional should not be confused with self-diagnosis, where a person simply claims to have or to have had a medical condition without any reference to professional diagnosis. A self-reported medical diagnosis (“My doctor says that I have/my son or daughter has...”) should prompt the CPA to validate the presence of the condition by asking more pointed questions related to that diagnosis.

Failure to Thrive

Federal Risk 134 **High Risk Factor**

**Definition/
cut-off value**

Presence of failure to thrive (FTT) diagnosed by a physician as self-reported by applicant/participant/caregiver, or as reported or documented by a physician, or someone working under physician's orders.

Note: For premature infants with a diagnosis of FTT also see "Guidelines for Growth Charts and Gestational Age Adjustment for Low Birth Weight and Very Low Birth Weight Infants" located in the Appendix of this chapter.

**Client category
and priority level**

Category	Priority
Infants	1
Children	3

Justification

Failure to thrive (FTT) is a serious growth problem with an often, complex etiology. Some of the indicators that a physician might use to diagnose FTT include:

- weight consistently below the 3rd percentile for age;
- weight < 80% of ideal weight for height/age;
- progressive fall-off in weight to below the 3rd percentile; or
- a decrease in expected rate of growth along the child's previously defined growth curve irrespective of its relationship to the 3rd percentile (1).

FTT may be a mild form of Protein Energy Malnutrition (PEM) that is manifested by a reduction in rate of somatic growth. Regardless of the etiology of FTT, there is inadequate nutrition to support weight gain (2).

References

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 2. Institute of Medicine. WIC Nutrition Risk Criteria: A Scientific Assessment. Washington (DC): National Academy Press; 1996; p.100.
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Failure to Thrive (continued)

Clarification

Self-reporting of a diagnosis by a medical professional should not be confused with self-diagnosis, where a person simply claims to have or to have had a medical condition without any reference to professional diagnosis. A self-reported medical diagnosis (“My doctor says that I have/my son or daughter has...”) should prompt the CPA to validate the presence of the condition by asking more pointed questions related to that diagnosis.

Feeding Sugar-containing Drinks

Federal Risks: Infants - 411.2; Children - 425.2

**Definition/
cut-off value**

Children: Routinely feeding a child any sugar-containing fluids.
Infants: Feeding an infant any sugar-containing fluids.

Examples of sugar-containing fluids include:

- Soda/soft drinks,
- Gelatin water;
- Corn syrup solutions; and
- Sweetened tea;
- Chocolate or other flavored milk.

**Client category
and priority level**

Category	Priority
Infants	4
Children	5

Justification

Abundant epidemiologic evidence from groups who have consumed low quantities of sugar as well as those who have consumed high quantities shows that sugar – especially sucrose – is the major dietary factor affecting dental caries and prevalence and progression (1). Consumption of foods and beverages high in fermentable carbohydrates, such as sucrose, increases the risk of early childhood caries and tooth decay (1, 2).

References

1. Tinanoff N, Palmer CA. Dietary determinants of dental caries and dietary Recommendations for preschool children. J Public Health Dent 2000;60(3):197-206.
2. Williams, CP, editor. Pediatric manual of clinical dietetics. Chicago: American Dietetic Association; 1998.

Clarification

“Routinely” is defined as a regular or routine practice that occurs frequently enough to have an impact on a client’s nutrition or health status. Staff use professional discretion to determine that a client’s health and nutrition status are impacted by the frequency of a particular practice.

Fetal Alcohol Syndrome

Federal Risk 382
High Risk Factor

**Definition/
 cut-off value**

Fetal Alcohol Syndrome (FAS) is based on the presence of retarded growth, a pattern of facial abnormalities, and abnormalities of the central nervous system, including mental retardation (1).

Presence of FAS diagnosed by a physician as self-reported by applicant/participant/caregiver; or as reported or documented by a physician, or someone working under physician’s orders.

**Client category
 and priority level**

Category	Priority
Infants	1
Children	3

Justification

FAS is a combination of permanent, irreversible birth defects attributable solely to alcohol consumption by the mother during pregnancy. There is no known cure; it can only be prevented (1). Symptoms of FAS may include failure to thrive, a pattern of poor growth throughout childhood and poor ability to suck (for infants). Babies with FAS are often irritable and have difficulty feeding and sleeping.

Lower levels of alcohol use may produce Fetal Alcohol Effects (FAE) or Alcohol Related Birth Defects (ARBD) that can include mental deficit, behavioral problems, and milder abnormal physiological manifestations (2). FAE and ARBD are generally less severe than FAS and their effects are widely variable. Therefore, FAE and ARBD in and of themselves are not considered risks, whereas the risk of FAS is unquestionable.

Identification of FAS is an opportunity to anticipate and act upon the nutritional and educational needs of the child. WIC can provide nutritional foods to help counter the continuing poor growth and undifferentiated malabsorption that appears to be present with FAS. WIC can help caregivers acknowledge that children with FAS often grow steadily but slower than their peers. WIC can also educate the caregiver on feeding, increased calorie needs, and maintaining optimal nutritional status of the child.

Alcohol abuse is highly concentrated in some families (3). Drinking, particularly abusive drinking, is often found in families that suffer from a multitude of other social problems (4). A substantial number of FAS children come from families, either immediate or extended, where alcohol abuse is common, even normative.

Fetal Alcohol Syndrome (continued)

This frequently results in changes of caregivers or foster placements. New caregivers need to be educated on the special and continuing nutritional needs of the child.

The physical, social, and psychological stresses and the birth of a new baby, particularly one with special needs, places an extra burden upon the recovering woman. This puts the child at risk for poor nutrition and neglect (e.g., the caregiver may forget to prepare food or be unable to adequately provide all the foods necessary for the optimal growth and development of the infant or child.) WIC can provide supplemental food, nutrition education and referral to medical and social services, which can monitor and provide assistance to the family.

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 6. Weiner, L., Morse, B.A., and Garrido, P.: FAS/FAE Focusing Prevention on Women at Risk; *International Journal of the Addictions*; 1989; 24:385-395.
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Clarification

Self-reporting of a diagnosis by a medical professional should not be confused with self-diagnosis, where a person simply claims to have or to have had a medical condition without any reference to professional diagnosis. A self-reported medical diagnosis (“My doctor says that I have/my son or daughter has...”) should prompt the CPA to validate the presence of the condition by asking more pointed questions related to that diagnosis.

Fetal Growth Restriction

Federal Risk 336 High Risk Factor

**Definition/
cut-off value**

Fetal Growth Restriction (FGR) [replaces the term Intrauterine Growth Retardation (IUGR)], may be diagnosed by a physician with serial measurements of fundal height, abdominal girth and can be confirmed with ultrasonography. FGR is usually defined as a fetal weight < 10th percentile for gestational age.

Presence of condition diagnosed by a physician as self-reported by applicant/participant/caregiver; or as reported or documented by a physician, or someone working under physician's orders.

**Client category
and priority**

Category	Priority
Pregnant women	1

Justification

Fetal Growth Restriction (FGR) usually leads to low birth weight (LBW) which is the strongest possible indicator of perinatal mortality risk. Severely growth restricted infants are at increased risk of fetal and neonatal death, hypoglycemia, polycythemia, cerebral palsy, anemia, bone disease, birth asphyxia, and long term neurocognitive complications. FGR may also lead to increased risk of ischemic heart disease, hypertension, obstructive lung disease, diabetes mellitus, and death from cardiovascular disease in adulthood. FGR may be caused by conditions affecting the fetus such as infections and chromosomal and congenital anomalies. Restricted growth is also associated with maternal height, prepregnancy weight, birth interval and maternal smoking. WIC's emphasis on preventative strategies to combat smoking, improve nutrition, and increase birth interval, may provide the guidance needed to improve fetal growth.

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Fetal Growth Restriction (continued)

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Clarification

Self-reporting of a diagnosis by a medical professional should not be confused with self-diagnosis, where a person simply claims to have or to have had a medical condition without any reference to professional diagnosis. A self-reported medical diagnosis (“My doctor says that I have/my son or daughter has...”) should prompt the CPA to validate the presence of the condition by asking more pointed questions related to that diagnosis.

Food Allergy (severe diet impact)

Federal Risk 353
High Risk Factor

Definition
cut-off value

Food allergies are adverse health effects arising from a specific immune response that occurs reproducibly on exposure to a given food. (1)

Presence of food allergies diagnosed by a physician as self-reported by applicant/participant/caregiver; or as reported or documented by a physician, or someone working under physician's orders.

Client category
and priority level

Category	Priority
Pregnant women	1
Breastfeeding women	1
Postpartum women	6
Infants	1
Children	3

Justification

The actual prevalence of food allergies is difficult to establish due to variability in study designs and definitions of food allergies; however recent studies suggest a true increase in prevalence over the past 10 to 20 years (1). A meta-analysis conducted by the National Institute of Allergy and Infectious Disease (NIAID) found the prevalence of food allergy among all age groups between 1 – 10% (2). Further research has found that food allergy affects more children than recently reported with the prevalence estimated to be 8% (2). Food allergies are a significant health concern as they can cause serious illness and life-threatening reactions. Prompt identification and proper treatment of food allergies improves quality of life, nutritional well-being and social interaction.

Food allergy reactions occur when the body's immune system responds to a harmless food as if it were a threat (3). The most common types of food allergies involve immunoglobulin E (IgE)-mediated responses. The immune system forms IgE against offending food(s) and causes abnormal reactions. IgE is a distinct class of antibodies that mediates an immediate allergic reaction. When food allergens enter the body, IgE antibodies bind to them and release chemicals that cause various symptoms. (1)

Food Allergy (severe diet impact) (continued)

Justification

According to an expert panel sponsored by the National Institute of Allergy and Infectious Disease, individuals with a family history of any allergic disease are susceptible to developing food allergies and are classified as “at risk” or “high risk.” Individuals who are “at risk” are those with a biological parent or sibling with existing, or history of, allergic rhinitis, asthma or atopic dermatitis. Individuals who are “high risk” are those with preexisting severe allergic disease and/or family history of food allergies. (1)

Food Allergies vs. Intolerances

Food intolerances are classified differently from food allergies based on the pathophysiological mechanism of the reactions. Unlike food allergies, food intolerances do not involve the immune system. Food intolerances are adverse reactions to food caused either by the properties of the food itself, such as a toxin, or the characteristics of the individual, such as a metabolic disorder (4). Food intolerances are often misdiagnosed as food allergies because the symptoms are often similar. Causes of food intolerances may include food poisoning, histamine toxicity, food additives such as monosodium glutamate (MSG), or sulfites (5). The most common food intolerance is lactose intolerance (see nutrition risk #355, Lactose Intolerance).

Common Food Allergies

Although reactions can occur from the ingestion of any food, a small number of foods are responsible for the majority of food-induced allergic reactions (6). The foods that most often cause allergic reactions include:

- cow’s milk (and foods made from cow’s milk)
- eggs
- peanuts
- tree nuts (walnuts, almonds, cashews, hazelnuts, pecans, brazil nuts)
- crustacean shellfish (shrimp, crayfish, lobster, and crab)
- wheat
- soy

For many individuals, food allergies appear within the first two years of life. Allergies to cow’s milk, eggs, wheat and soy generally resolve in early childhood. In contrast, allergy to peanuts and tree nuts typically persist to adulthood. Adults may have food allergies continuing from childhood or may develop sensitivity to food allergens encountered after childhood, which usually continue through life. (1)

Food Allergy (severe diet impact) (continued)

Justification

Symptoms

There are several types of immune responses to food including IgE-mediated, non-IgE-mediated response, the immune system produces allergen-specific IgE antibodies (sIgE) when a food allergen first enters the body. Upon re-exposure to the food allergen, the sIgE identifies it and quickly initiates the release of chemicals, such as histamine (3). These chemicals cause various symptoms based on the area of the body in which they were released. These reactions occur within minutes or up to 4 hours after ingestion and include symptoms such as urticarial (hives), angioedema, wheezing, cough, nausea, vomiting, hypotension and anaphylaxis (7).

Food-induced anaphylaxis is the most severe form of IgE-mediated food allergies. It often occurs rapidly, within seconds to a few hours after exposure, and is potentially fatal without proper treatment. Food-induced anaphylaxis often affects multiple organ systems and produces many symptoms, including respiratory compromise (such as dyspnea, wheeze and bronchospasm), swelling and reduced blood pressure (7). Prompt diagnosis and treatment is essential to prevent life-threatening reactions. Tree nuts, peanuts, milk, egg, fish and crustacean fish are the leading causes of food-induced anaphylaxis (1).

Food allergens may also induce allergic reactions which are non-IgE-mediated. Non-IgE-mediated reactions generally occur more than 4 hours after ingestion, primarily result in gastrointestinal symptoms and are more chronic in nature (7). Examples of non-IgE-mediated reactions to specific foods include celiac disease (see nutrition risk criteria #354, Celiac Disease), [food protein-induced enterocolitis syndrome \(FPIES\)](#), [food protein-induced proctocolitis \(PFIP\)](#), [food protein-induced gastroenteropathy](#), [food-induced contact dermatitis](#) and [food-induced pulmonary hemosiderosis \(Heiner's syndrome\)](#) (accessed May 2012) (8).

The diagnosis of food allergies by a health care provider (HCP) is often difficult and can be multifaceted (see Clarification for more information). Food allergies often coexist with severe asthma, atopic dermatitis (AD), eosinophilic esophagitis (EoE) and exercise-induced anaphylaxis. Individuals with a diagnosis of any of these conditions should be considered for food allergy evaluation. (1)

Food Allergy (severe diet impact) (continued)

Justification

Prevention

Currently, there is insufficient evidence to conclude that restricting highly allergenic foods in the maternal diet during pregnancy or lactation prevents the development of food allergies in the offspring (9). Adequate nutrition intake during pregnancy and lactation is essential to achieve positive health outcomes.

Unnecessary food avoidance can result in inadequate nutrition. There is also a lack of evidence that delaying the introduction of solids beyond 6 months of age, including highly allergenic foods, prevents the development of food allergies. If the introduction of developmentally appropriate solid food is delayed beyond 6 months of age, inadequate nutrient intake, growth deficits and feeding problems can occur. (1)

The protective role that breastfeeding has in the prevention of food allergies remains unclear. There is some evidence for infants at high risk of developing food allergies that exclusive breastfeeding for at least 4 months may decrease the likelihood of cow's milk allergy in the first 2 years of life (9). The American Academy of Pediatrics (AAP) continues to recommend that all infants, including those with a family history of food allergies, be exclusively breastfed until 6 months of age, unless contraindicated for medical reasons (1, 10). For infants who are partially breastfed or formula fed, partially hydrolyzed formulas may be considered as a strategy for preventing the development of food allergies in at-risk infants. According to the AAP, there is no convincing evidence for the use of soy formula as a strategy for preventing the development of food allergies in at-risk infants and therefore it is not recommended. (9)

Management

Food allergies have been shown to produce anxiety and alter the quality of life of those with the condition. It is recommended that individuals with food allergies and their caregivers be educated on food allergen avoidance and emergency management that is age and culturally appropriate. Individuals with a history of severe food allergic reactions, such as anaphylaxis, should work with their HCP to establish an emergency management plan. (1)

Food allergen avoidance is the safest method for managing food allergies. Individuals with food allergies must work closely with their HCP to determine the food(s) to be avoided. This includes the avoidance of any cross-reactive foods, i.e., similar foods within a food group (see Clarification for more information). Nutrition counseling and growth monitoring is recommended for all individuals with food allergies to ensure a nutritionally adequate diet. Individuals with food allergies should also be educated on reading food labels and ingredient lists. (1)

Food Allergy (severe diet impact) (continued)

Infants who are partially breastfed or formula fed, with certain non-IgE mediated allergies, such as, FPIES and FPIP may require extensively hydrolyzed casein or amino acid-based formula. According to food allergy experts, children with FPIES can be re-challenged every 18 – 24 months and, infants or children with FPIP can be re-challenged at 9 – 12 months of age. The re-challenging of foods should be done with HCP oversight. (8)

Implications for WIC Nutrition Services

Through client-centered counseling, WIC staff can assist families with food allergies with making changes that improve quality of life and promote nutritional well-being while avoiding offending foods. Based on the needs and interests of the participant, WIC staff can (as appropriate):

- Facilitate and encourage the participant’s ongoing follow-up with the HCP for optimal management of the condition.
 - Promote exclusive breastfeeding until six months of age and continue through the first year (10).
 - Provide hypoallergenic formula for participants with appropriate medical documentation, as needed.
 - Tailor food packages to substitute or remove offending foods.
 - Educate participants on maintaining adequate nutritional intake while avoiding offending foods.
 - Monitor weight status and growth patterns of participants.
 - Educate participants about reading food labels and identifying offending foods and ingredients. See resources below:
 - <http://www.fda.gov/downloads/ForConsumers/ConsumerUpdates/UCM254727.pdf>. Accessed May 2012.
 - <http://www.webmd.com/allergies/ss/slideshow-food-allergy-triggers>. Accessed May 2012.
 - <http://www.foodallergy.org/section/how-to-read-a-label>. Accessed May 2012.
 - Educate participants on planning meals and snacks for outside the home.
 - Refer participants to their HCP for a re-challenge of offending foods, as appropriate.
 - Establish and maintain communication with the participant’s HCP.
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Food Allergy (severe diet impact) (continued)

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Food Allergy (severe diet impact) (continued)

Clarification

Self-reporting of a diagnosis by a medical professional should not be confused with self-diagnosis, where a person simply claims to have or to have had a medical condition without any reference to professional diagnosis. A self-reported medical diagnosis (“My doctor says that I have/my son or daughter has...”) should prompt the CPA to validate the presence of the condition by asking more pointed questions related to that diagnosis.

Food allergies are diagnosed by a HCP by evaluating a thorough medical history and conducting a physical exam to consider possible trigger foods to determine the underlying mechanism of the reaction, which guides testing. Along with a detailed history of the disorder, such as symptoms, timing, common triggers and associations, there are several types of tests that the HCP may use in diagnosing food allergies. These include the following:

- Food Elimination Diet
- Oral Food Challenges
- Skin Prick Test (SPT)
- Allergen-specific serum IgE (sIgE)
- Atopy Patch Test

Diagnosing food allergies is difficult because the detection of sIgE does not necessarily indicate a clinical allergy. Often, more than one type of test is required to confirm a diagnosis. The double-blind, placebo-controlled food challenge is considered the gold standard in testing for food allergies (11).

Children often outgrow allergies to cow’s milk, soy, egg, and wheat quickly; but are less likely to outgrow allergies to peanut, tree nuts, fish, and crustacean shellfish. If the child has had a recent allergic reaction, there is no reason to retest. Otherwise, annual testing may be considered to see if the allergy to cow’s milk, soy, egg, or wheat has been outgrown so the diet can be normalized. (1)

Cross-reactive food: When a person has allergies to one food, he/she tends to be allergic to similar foods within a food group. For example, all shellfish are closely related; if a person is allergic to one shellfish, there is a strong chance that person is also allergic to other shellfish. The same holds true for tree-nuts, such as almonds, cashews and walnuts (1)

Foster Care (new/change in home past 6 months)

Federal Risk 903

**Definition/
cut-off value** Entering the foster care system during the previous six months or moving from one foster care home to another foster care home during the previous six months.

Client category and priority level	Category	Priority
	Pregnant women	4
	Breastfeeding women	4
	Postpartum women	6
	Infants	4
	Children	5

Justification “Foster children are among the most vulnerable individuals in the welfare system. As a group, they are sicker than homeless children and children living in the poorest sections of inner cities.” This statement from a 1995 Government Accounting Office report on the health status of foster children confirms research findings that foster children have a high frequency of mental and physical problems, often the result of abuse and neglect suffered prior to entry into the foster care system. When compared to other Medicaid-eligible children, foster care children have higher rates of chronic conditions such as asthma, diabetes, and seizure disorders. They are also more likely than children in the general population to have birth defects, inadequate nutrition and growth retardation including short stature.

Studies focusing on the health of foster children often point out the inadequacy of the foster care system in evaluating the health status and providing follow-up care for the children for whom the system is responsible. Because foster care children are wards of a system which lacks a comprehensive health component, the social and medical histories of foster children in transition, either entering the system or moving from one foster care home to another, are frequently unknown to the adults applying for WIC benefits for the children. For example, the adult accompanying a foster child to a WIC clinic for a first-time certification may have no knowledge of the child’s eating patterns, special dietary needs, chronic illnesses or other factors which would qualify the child for WIC. Without any anthropometric history, failure to grow, often a problem for foster children, may not be diagnosed even by a single low cutoff percentile.

Since a high proportion of foster care children have suffered from neglect, abuse, or abandonment and the health problems associated with these, entry into foster

Foster Care (past 6 months) (continued)

care or moving from one foster care home to another during the previous six months is a nutritional risk for certification in the WIC Program. Certifiers using this risk should be diligent in evaluating and documenting the health and nutritional status of the foster child to identify other risks as well as problems that may require follow-up or referral to other health care programs. This nutrition risk cannot be used for consecutive certifications while the child remains in the same foster home. It should be used as the sole risk criterion only if careful assessment of the applicant's nutrition status indicates that no other risks based on anthropometric, medical or nutritional risk criteria can be identified.

The nutrition education, referrals, and service coordination provided by WIC will support the foster parent in developing the skills and knowledge to ensure that the foster child receives appropriate nutrition and health care. Since a foster parent frequently has inadequate information about a new foster child's health needs, the WIC nutritionist can alert the foster parent to the nutritional risks that many foster care children have and suggest ways to improve the child's nutritional status.

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Gastro-esophageal Reflux

Federal Risk 342
High Risk Factor

**Definition/
cut-off value** Presence of gastro-esophageal reflux (GER) as diagnosed by a physician as self-reported by the caregiver or as reported or documented by a physician, or someone working under physician’s orders.

Client category and priority level	Category	Priority
	Infants	1

Justification Gastrointestinal disorders increase nutrition risk through a number of ways, including impaired food intake, abnormal deglutition, impaired digestion of food in the intestinal lumen, generalized or specific nutrient malabsorption, or excessive gastrointestinal losses of endogenous fluid and nutrients. Frequent loss of nutrients through vomiting can result in malnourishment and lowered resistance to disease in individuals with chronic symptoms (1, 2). Nutrition management plays a prominent role in the treatment of gastro-esophageal reflux and gastrointestinal disorders.

WIC nutritionists can provide counseling to support the medical nutrition therapy given by clinic dietitians, and monitor compliance with therapeutic dietary regimens. They can also review and provide WIC-approved medical foods or formulas prescribed by the health care providers. In certain circumstances, WIC staff may recommend an appropriate medical food or formula to the health care provider. They should also make referrals to an appropriate health care provider for medical nutrition therapy by a clinical dietitian when indicated.

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2. American Dietetic Association, Pediatric Nutrition Group. Pediatric Manual of Clinical Dietetics. Chicago: Pediatric Nutrition Dietetic Practice Group, American Dietetic Association, 1998.

Clarification Self-reporting of a diagnosis by a medical professional should not be confused with self-diagnosis, where a person simply claims to have or to have had a medical condition without any reference to professional diagnosis. A self-reported medical diagnosis (“My doctor says that I have/my son or daughter has...”) should prompt the CPA to validate the presence of the condition by asking more pointed questions related to that diagnosis.

Gastrointestinal Disorder

Federal Risk 342
High Risk Factor

**Definition/
 cut-off value**

Diseases and/or conditions that interfere with the intake, digestion, and/or absorption of nutrients. The diseases and/or conditions include, but are not limited to:

- gastro-esophageal reflux disease (GERD)
- peptic ulcer
- short bowel syndrome
- inflammatory bowel disease, including ulcerative colitis or Crohn’s disease
- liver disease
- pancreatitis
- biliary tract diseases
- stomach or intestinal ulcers
- malabsorption syndromes
- gallbladder disease

Presence of gastrointestinal disorders diagnosed by a physician as self-reported by applicant/participant/caregiver; or as reported or documented by a physician, or someone working under physician’s orders.

**Client category
 and priority level**

Category	Priority
Pregnant women	1
Breastfeeding women	1
Postpartum women	6
Infants	1
Children	3

Justification

Gastrointestinal disorders increase nutrition risk through a number of ways, including restricted food intake, abnormal deglutition, impaired digestion of food in the intestinal lumen, generalized or specific nutrient malabsorption, or excessive gastrointestinal losses of endogenous fluid and nutrients. Frequent loss of nutrients through vomiting, diarrhea, malabsorption, or infections can result in malnourishment and lowered resistance (1, 2). Nutrition management plays a prominent role in the treatment of gastrointestinal disorders.

Gastrointestinal Disorder (continued)

Gastroesophageal Reflux Disease (GERD)

GERD is irritation and inflammation of the esophagus due to reflux of gastric acid into the esophagus (3). Nutritional care of GERD includes avoiding eating within 3 hours before going to bed; avoiding fatty foods, chocolate, peppermint, and spearmint, which may relax the lower esophageal sphincter; and coffee and alcoholic beverages, which may increase gastric secretion (4). Consumption of these items may need to be limited depending on individual tolerance.

Note: Gastro-esophageal reflux is a separate risk for infants.

Peptic Ulcer

Peptic ulcer normally involves the gastric and duodenal regions of the gastrointestinal tract (4). Because the primary cause of peptic ulcers is *Helicobacter pylori* infection, the focus of treatment is the elimination of the bacteria with antibiotic and proton pump inhibitor therapy. Dietary advice for person with peptic ulcers is to avoid alcohol, coffee (with and without caffeine), chocolate, and specific spices, such as black pepper (4, 5).

Short Bowel Syndrome (SBS)

SBS is the result of extensive small bowel resection. SBS in infants is mostly the result of small bowel resection for the treatment of congenital anomalies, necrotizing enterocolitis, and congenital vascular disease. In adults, Crohn's disease, radiation enteritis, mesenteric vascular accidents, trauma, and recurrent intestinal obstruction are the most common conditions treated by small bowel resection and resulting in SBS (4). The loss of a large segment of the small bowel causes malabsorption syndrome. Total parenteral nutrition usually is started within the first few days after intestinal adaptation in order to wean from parenteral nutrition therapy. Supplementation with fat soluble vitamins and vitamin B12 may be needed (7). The pediatric client's nutritional status must be assessed and growth closely monitored (8).

Inflammatory Bowel Disease (IBD)

Inflammatory bowel disease includes Crohn's disease and ulcerative colitis. Weight loss, growth impairment, and malnutrition are the most prevalent nutritional problems observed in IBD. Nutritional support is essential. Exclusive elemental nutrition has been used in attaining the remission of Crohn's disease. However, symptoms tend to recur promptly after resuming the conventional diet (9).

Gastrointestinal Disorder (continued)

Liver Disease

Since the liver plays an essential role in the metabolic processes of nutrients, liver disorders have far-reaching effects on nutritional status. Acute liver injury is often associated with anorexia, nausea and vomiting. Therefore, inadequate nutritional intakes are common. Decreased bile salt secretion is associated with the maldigestion and impaired absorption of fat and fat-soluble vitamins. Defects in protein metabolism associated with chronic liver failure include decreased hepatic synthesis of albumin, coagulation factors, urea synthesis and metabolism of aromatic amino acids. For nutritional therapy, an important consideration should be the balance between preventing muscle wasting and promoting liver regeneration without causing hepatic encephalopathy. It is recommended that persons with chronic liver disease consume the same amount of dietary protein as that required by normal individuals (0.74 g/kg) (10).

Pancreatic Disease

In chronic pancreatitis, there is a reduced secretion of pancreatic enzymes leading to malabsorption. In severe cases, tissue necrosis can occur. It is suggested that for patients with pancreatitis, a high carbohydrate, low-fat, low protein diet may be helpful (11).

Biliary Tract Disease

Common diseases of the biliary tract are:

- cholelithiasis (gallstones, without infection)
- choledocholithiasis (gallstone in the bile duct causing obstruction, pain and cramps)
- cholecystitis (inflammation of gallbladder caused by bile duct obstruction).

Obesity or severe fasting may increase risk for these disorders. Since lipids stimulate gallbladder contractions, a low fat diet with 25% to 30% of total calories as fat is recommended. Greater fat limitation is undesirable as some fat is required for stimulation and drainage of the biliary tract. Supplementation with fat-soluble vitamins may be needed for person with fat malabsorption or a chronic gall bladder condition (12).

WIC nutritionists can provide counseling to support the medical nutrition therapy given by clinic dietitians, and monitor compliance with therapeutic dietary regimens. They can also review and provide WIC-approved medical foods or formulas prescribed by the health care providers. In certain circumstances, WIC staff may recommend an appropriate medical food or formula to the health care provider. They should also make referrals to an appropriate health care provider for medical nutrition therapy by a clinical dietitian when indicated.

Gastrointestinal Disorder (continued)

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Gastrointestinal Disorder (continued)

Clarification

Self-reporting of a diagnosis by a medical professional should not be confused with self-diagnosis, where a person simply claims to have or to have had a medical condition without any reference to professional diagnosis. A self-reported medical diagnosis (“My doctor says that I have/my son or daughter has...”) should prompt the CPA to validate the presence of the condition by asking more pointed questions related to that diagnosis.

Genetic and Congenital Disorder**Federal Risk 349
High Risk Factor**

**Definition/
cut-off value**

Hereditary or congenital condition at birth that causes physical or metabolic abnormality. The current condition must alter nutrition status metabolically, mechanically, or both. May include, but is not limited to, Down's syndrome, thalassemia major, sickle cell anemia (not sickle cell trait), and muscular dystrophy.

Presence of genetic and congenital disorders diagnosed by a physician as self-reported by applicant/participant/caregiver; or as reported or documented by a physician, or someone working under a physician's orders.

**Client category
and priority level**

Category	Priority
Pregnant women	1
Breastfeeding women	1
Postpartum women	6
Infants	1
Children	3

Justification

For women, infants, and children with disorders, special attention to nutrition may be required to achieve adequate growth and development and/or to maintain health.

Surgery is required for many gastrointestinal congenital anomalies. (Examples are trachea-esophageal fistula, esophageal atresia, gastroschisis, omphalocele, diaphragmatic hernia, intestinal atresia, and Hirschsprung's Disease.)

Impaired esophageal atresia and trachea-esophageal fistula can lead to feeding problems during infancy. The metabolic consequences of impaired absorption in short bowel-syndrome, depend on the extent and site of the resection or the loss of competence. Clinical manifestations of short bowel syndrome include diarrhea, dehydration, edema, general malnutrition, anemia, dermatitis, bleeding tendencies, impaired taste, anorexia, and renal calculi. Total parenteral feedings are frequently necessary initially, followed by gradual and individualized transition to oral feedings. After intestinal resection, a period of adaptation by the residual intestine begins and may last as long as 12-18 months (3). Even after oral feedings are stabilized, close follow-up and frequent assessment of the nutritional status of infants with repaired congenital gastro-intestinal anomalies is recommended (2).

Genetic and Congenital Disorder (continued)

Sickle-cell anemia is an inherited disorder in which the person inherits a sickle gene from each parent. Persons with sickle-cell trait carry the sickle gene, but under normal circumstances are completely asymptomatic. Good nutritional status is important to individuals with sickle-cell anemia to help assume adequate growth (which can be compromised) and to help minimize complications of the disease, since virtually every organ of the body can be affected by sickle-cell anemia (i.e., liver, kidneys, gall bladder, and immune system). Special attention should be given to assuring adequate caloric, iron, folate, vitamin E, and vitamin C intakes as well as adequate hydration.

Muscular dystrophy is a familial disease characterized by a progressive atrophy and wasting of muscles. Changes in functionality and mobility can occur rapidly and as a result children may gain weight quickly (up to 20 pounds in a 6 month period). Early nutrition education that focuses on foods to include in a balanced diet, limiting foods high in simple sugars and fat and increasing fiber intake can be effective in minimizing the deleterious effects of the disease.

NOTE: Cleft lip/palate is a separate risk factor.

References

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 5. Ohio Neonatal Nutritionists: Nutritional Care for High Risk Newborns: Stickley Publishers; 1985; pp. 126-137, 141.
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Clarification

Self-reporting of a diagnosis by a medical professional should not be confused with self-diagnosis, where a person simply claims to have or to have had a medical condition without any reference to professional diagnosis. A self-reported medical diagnosis (“My doctor says that I have/my son or daughter has...”) should prompt the CPA to validate the presence of the condition by asking more pointed questions related to that diagnosis.

Gestational Diabetes

Federal Risk 302
High Risk Factor

**Definition/
cut-off value**

Gestational diabetes mellitus (GDM) is defined as any degree of glucose/carbohydrate intolerance with onset or first recognition during pregnancy (1,2).

Presence of gestational diabetes diagnosed by a physician as self-reported by applicant/participant/caregiver; or as reported or documented by a physician, or someone working under physician's orders.

**Client category
and priority level**

Category	Priority
Pregnant women	1

Justification

The definition of GDM applies regardless of whether insulin or only diet modification is used for treatment, or whether the condition persists after pregnancy. Included in this classification are women who may have had undiagnosed diabetes prior to pregnancy but who are first diagnosed during pregnancy (1, 2). Pregnant women requiring the use of exogenous steroids, tocolytics, or other medications, or who have medical conditions that alter glucose tolerance, may develop GDM (2). GDM represents nearly 90% of all pregnancies complicated by diabetes (1). The criteria for the diagnosis of GDM (3) are shown in Table 1 (see Clarification).

Pregnancy is an insulin-resistance and diabetogenic state (2). Deterioration of glucose tolerance occurs normally during pregnancy, particularly in the 3rd trimester (1, 2). Untreated or poorly treated GDM results in a higher risk of morbidity and mortality for both the mother and the fetus (2).

Gestational Diabetes (continued)

Established risk factors for GDM are advanced maternal age, obesity, and family history of diabetes (4). Risk assessment for GDM should be undertaken at the first prenatal visit. Women with clinical characteristics consistent with a high risk for GDM (for example, those with marked obesity, personal history of GDM or delivery of a previous large-for-gestation-age infant, glycosuria, polycystic ovary syndrome, or a strong family history of diabetes) should undergo glucose testing as soon as possible (5). Unquestionably, there are also ethnic differences in the prevalence of GDM. In the U.S., Native Americans, Asians, Hispanics, and African American women are at a higher risk for GDM than non-Hispanic White women. Besides obesity, there is a suggestion that physical inactivity, diets high in saturated fat and smoking are associated with increasing risk for GDM or recurrent GDM (4).

Infants of women with GDM are at an increased risk of developing obesity, impaired glucose tolerance or diabetes as children or young adults (4). GDM is associated with a higher incidence of maternal and fetal complications. Maternal complications include polycythemia, respiratory distress syndrome, and increased rate of stillbirth (6). Although rarely seen in GDM, congenital anomalies, neural tube defects, cardiac abnormalities and/or caudal regression may occur if a woman has GDM in the early first trimester (6, 7).

Since GDM is a risk factor for subsequent type 2 diabetes after delivery, lifestyle modifications aimed at reducing weight and increasing physical activity are recommended (8). The National Diabetes Education Program (NDEP) is currently promoting a GDM Prevention Initiative, targeting both providers and women with a GDM history (9). Key messages are illustrated in Table 2 (see Clarification).

Medical Nutrition Therapy (MNT) is the primary treatment for the management of GDM (7). MNT for GDM primarily involves a carbohydrate-controlled meal plan that promotes optimal nutrition for maternal and fetal health with adequate energy for appropriate gestational weight gain, achievement and maintenance of normoglycemia, and absence of ketosis (7, 8). Breastfeeding should be strongly encouraged as it is associated with maternal weight loss and reduced insulin resistance for both mother and offspring (10). WIC nutrition services can reinforce and support the medical and diet therapies (such as MNT) that participants with GDM receive from their health care providers.

References

1. American Diabetes Association: Diagnosis and classification of diabetes Mellitus. *Diabetes Care*. Jan 2008; 31 Suppl 1:S55-60.
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Gestational Diabetes (continued)

3. American Diabetes Association. Gestational diabetes mellitus (position statement). *Diabetes Care*. 2003; 26 Suppl 1:S103-105.
4. Ferrara, A. Increasing prevalence of gestational diabetes mellitus: a public health perspective. Proceedings of the fifth international workshop – conference on Gestational Diabetes Mellitus. *Diabetes Care*. Jul 2007; 30 Suppl 2:S141-46.
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9. Ratner, RE. Prevention of type 2 diabetes in women with previous gestational diabetes. Proceedings of the fifth international workshop – conference on gestational diabetes mellitus. *Diabetes Care*. Jul 2007; 30 Suppl 2:S242-245.
10. Evert AG, Vande Hei K. Gestational diabetes education and diabetes prevention strategies. *Diabetes Spectrum*. 2006; 19(3):135-139.

Clarification

Self-reporting of a diagnosis by a medical professional should not be confused with self-diagnosis, where a person simply claims to have or to have had a medical condition without any reference to professional diagnosis. A self-reported medical diagnosis (“My doctor says that I have/my son or daughter has...”) should prompt the CPA to validate the presence of the condition by asking more pointed questions related to that diagnosis.

Women at high risk for GDM who have tested negative at the initial screening, and women at average risk for GDM should be tested by a licensed medical provider, between 24 and 28 weeks of gestation. Women of average risk should be tested at 24 – 28 weeks of gestation. Testing should follow one of two approaches:

- **One-step approach:** perform a diagnostic 100-g OGTT (Oral Glucose Tolerance Test)

Gestational Diabetes (continued)

- **Two-step approach:**
 1. A screening test (glucose challenge test) that measures plasma or serum glucose is done 1 hour after a 50-g oral glucose load without regard for time of day or time of last meal. If a plasma or serum glucose level meets or exceeds the threshold (≥ 139 mg/dl [7.2 mmol/L] or ≥ 140 mg//dl [7.8 mmol/L], respectively), an OGTT is performed (3).
 2. A diagnosis of GDM is made with a 100-g oral glucose load after an overnight fast. Using a 3-hour test, if two or more plasma or serum glucose levels meet or exceed the threshold, a diagnosis of GDM is made. Alternatively, the diagnosis can be made using a 75-g oral glucose load. The glucose threshold values for both tests are listed in Table 1 (10). The 75-g glucose load test is not well validated as the 100-g OGTT.

With either the 75-g OGTT or the 100-g OGTT, it is recommended that the test be performed after an overnight fast of at least 8 hours but no longer than 14 hours. For 3 days prior to the test the woman should consume an unrestricted diet (≥ 150 g carbohydrate per day) and maintain unrestricted physical activity. Women need to remain seated and not smoke during the test. (1, 2).

Table 1. Diagnosis of Gestational Diabetes Mellitus with a 100-g or 75-g Oral Glucose Load

Time (h)	100-g Oral Glucose Load	75-g Oral Glucose Load
Fasting	95 mg/dl (5.3 mmol/L)	95 mg/dL (5.3 mmol/L)
1	180 mg/dL (10.0 mmol/L)	180 mg/dL (10.0 mmol/L)
2	155 mg/dL (8.6 mmol/L)	155 mg/dL (8.6 mmol/L)
3	140 mg/dL (7.8 mmol/L)	

Two or more of the venous plasma concentrations must be met or exceeded for a positive diagnosis.
 Source: American Diabetes Association (3).

Gestational Diabetes (continued)

Table 2. Gestational Diabetes Mellitus (GDM) Prevention Initiative from the National Diabetes Education Program

- GDM imparts lifelong risk for diabetes, mostly type 2
- Modest weight loss and physical activity can delay or prevent type 2 diabetes.
- Offspring can lower risk of diabetes by eating healthy foods, being active, and not becoming overweight.

Conservative recommendations to patients include:

- Let health care practitioners know of any history of GDM.
 - Get glucose testing at 6 to 12 weeks postpartum, then every 1 -2 years.
 - Reach pre-pregnancy weight 6 to 12 months postpartum.
 - If still overweight, lose at least 5 to 7% of weight slowly, over time, and keep it off.
-

Adapted from the National Diabetes Education Program (9).

Gestational Diabetes (Hx)

Federal Risk 303
High Risk Factor for Pregnant Women

**Definition/
 cut-off value**

Any history of diagnosed gestational diabetes mellitus (GDM).

 Presence of condition diagnosed by a physician as self-reported by applicant/participant/caregiver; or as reported or documented by a physician, or someone working under a physician’s orders.

**Client category
 and priority level**

Category	Priority
Pregnant women	1
Breastfeeding women	1
Postpartum women	6

Justification

Women who have had a pregnancy complicated by GDM are 40-60% more likely to develop diabetes within 15 – 20 years (1), usually type 2 (2). This risk of subsequent diabetes is greatest in women with GDM who are diagnosed early in the pregnancy, exhibit the highest rates of hyperglycemia during pregnancy, and are obese.

Approximately 30-50% of the women with a history of GDM will develop GDM in a subsequent pregnancy. Studies have found that the risk factors for subsequent GDM include insulin use in the index pregnancy, obesity, diet composition*, physical inactivity, failure to maintain healthy BMI and weight gain between pregnancies (2, 3). In addition, if a woman’s lipid levels are elevated, a history of GDM is also a risk factor for cardiovascular disorders (3).

There is evidence to suggest that some women with a history of GDM show relative beta-cell dysfunction during and after pregnancy (3). Most women with a history of GDM are insulin resistant. Changes in lifestyle (dietary and physical activity) may improve postpartum insulin sensitivity and could possibly preserve B-cell function to slow the progression to type 2 diabetes (2, 3).

Gestational Diabetes (Hx) (continued)

During WIC nutrition education and counseling, obese women with a history of GDM should be encouraged to lose weight before a subsequent pregnancy. Breastfeeding has been shown to lower the blood glucose level and to decrease the incidence of type 2 diabetes in women with a history of GDM (2, 3). Exercise also has a beneficial effect on insulin action by enhancing peripheral tissue glucose uptake (3). Medical Nutrition Therapy (MNT) is an essential component in the care of women with a history of GDM.

Women with a history of GDM but without immediate subsequent postpartum diagnosis of diabetes should be advised to discuss with their medical provider the importance of having a Glucose Tolerance Testing (GTT) at 6 to 12 weeks postpartum (see Clarification, Table 1); to have a pre-pregnancy consultation before the next pregnancy, and to request early glucose screening in the next pregnancy (4). The National Diabetes Education Program (NDEP) is currently promoting a GDM Diabetes Prevention Initiative, targeting both providers and women with a history of GDM (5). Key messages are illustrated in Table 2. (See Clarification).

WIC nutrition services can support and reinforce the MNT and physical activity recommendations that participants receive from the health care providers. In addition, WIC nutritionists can play an important role in providing women with counseling to help manage their weight after delivery. Also, children of women with a history of GDM should be encouraged to establish and maintain healthy dietary and lifestyle behaviors to avoid excess weight gain and reduce their risk for type 2 diabetes (1).

***Diet Composition**

Carbohydrate is the main nutrient that affects postprandial glucose elevations. During pregnancy complicated with GDM, carbohydrate intake can be manipulated by controlling the total amount of carbohydrate, the distribution of carbohydrate over several meals and snacks, and the type of carbohydrate. These modifications need not affect the total caloric intake level/prescription (6).

Because there is wide inter-individual variability in the glycemic index each woman needs to determine, with the guidance of the dietitian, which foods to avoid or use in smaller portions at all meals or during specific times of the day, for the duration of her pregnancy. Practice guidelines have avoided labeling foods as “good” or “bad” (6).

Gestational Diabetes (Hx) (continued)

Meal plans should be culturally appropriate and individualized to take into account the patient's body habitus, weight gain and physical activity; and should be modified as needed throughout pregnancy to achieve treatment goals (6).

References

1. Evert AG, Vende Hei K. Gestational diabetes education and diabetes prevention strategies. *Diabetes Spectrum*. 2006; 19(3):135-139.
 2. Franz MJ, Biastre SA, Slocum J. Diabetes in the life cycle and research. In: *Gestational diabetes – A core curriculum for diabetes education*, American Association of Diabetes Educators. 5th ed. 2003; 145-163.
 3. Thomas AM, Gutierrez YM. American Dietetic Association guide to gestational diabetes mellitus in postpartum considerations. Eds. American Dietetic Association. 2005; 101-113.
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 5. Ratner RE. Prevention of type 2 diabetes in women with previous gestational diabetes. *Proceedings of the fifth international workshop – conference on Gestational Diabetes Mellitus*. *Diabetes Care*. Jul 2007; 30 Suppl 2:S242-245.
 6. Reader DM. Medical nutrition therapy and lifestyle interventions. *Proceedings of the fifth international workshop – conference on Gestational Diabetes Mellitus*. *Diabetes Care*. Jul 2007; 30 Suppl 2:S188-193.
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Clarification

Self-reporting of “History of...” conditions should be treated in the same manner as self-reporting of current conditions requiring a physician's diagnosis, i.e., the applicant may report to the CPA that he/she was diagnosed by a physician with a given condition at some point in the past. As with current conditions, self-diagnosis of a past condition should never be confused with self-reporting.

Gestational Diabetes (Hx) (continued)

Clarification

Table 1. Reasons for Delayed Postpartum Glucose Testing of Women with Prior Gestational Diabetes Mellitus (GDM)

1. The substantial prevalence of glucose abnormalities detected by 3 months postpartum.
2. Abnormal test results identify women at high risk of developing diabetes over the next 5 to 10 years.
3. Ample clinical trial evidence in women with glucose intolerance that type 2 diabetes can be delayed or prevented by lifestyle interventions or modest and perhaps intermittent drug therapy.
4. Women with prior GDM and impaired glucose tolerance (IGT) have cardiovascular disease (CVD) risk factors. Interventions may reduce subsequent CVD, which is the leading cause of death in both types of diabetes.
5. Identification, treatment, and planning of pregnancy in women developing diabetes after GDM should reduce subsequent early fetal loss and major congenital malformations.

Kitzmiller JL, Dang-Kilduff L, Taslimi MM

Table 2. Gestational Diabetes Mellitus (GDM) Prevention Initiative from the National Diabetes Education Program

- GDM imparts lifelong risk for diabetes, mostly type 2.
- Modest weight loss and physical activity can delay or prevent type 2 diabetes.
- Offspring can lower risk by eating healthy foods, being active, and not becoming overweight.

Conservative recommendations to patients include:

- Let health care practitioners know of any history of GDM.
- Get glucose testing at 6 to 12 weeks postpartum, then every 1 – 2 years.
- Reach prepregnancy weight 6 to 12 months postpartum.
- If still overweight, lose at least 5 to 7% of weight slowly, over time, and keep it off.

Adapted from the National Diabetes Education Program.

Head Circumference/Age \leq 2nd Percentile (Birth to < 24 months)**Head Circumference/Adjusted Age \leq 2nd Percentile (Birth to < 24 months)**

Federal Risk 152

**Definition/
cut-off value**

Head circumference for age \leq 2nd percentile as plotted on the Centers for Disease Control and Prevention (CDC) Birth to 24 months gender specific growth charts (1).

For premature infants assignment of this risk criteria is based on adjusted gestational age. For more information about adjusting for gestational age see “Guidelines for Growth Charts and Gestational Age Adjustment for Low Birth Weight and Very Low Birth Weight Infants” located in the Appendix of this chapter.

Note: Client Services will plot both head circumference/age and head circumference/adjusted age on the same graph for premature infants. Nutrition risk assessment is based on the adjusted age percentile.

**Client category
and priority level****Category****Priority**

Infants

1

Children (< 24 months)

3

Justification

The American Academy of Pediatrics recommends that all children have a head-circumference measurement at each well-child visit until 2 years of age (3). It is recommended that the measurements be plotted on gender specific growth charts to identify children with a head size or growth pattern that warrants further evaluation (3). Low head circumference (LHC) is associated with pre-term birth and very low birth weight (VLBW) as well as a variety of genetic, nutrition, and health factors (4). Head size is also related to socioeconomic status and the relationship is mediated in part by nutrition factors (4). LHC is indicative of further nutrition and health risk, particularly poor neurocognitive abilities (4). LHC among VLBW children is associated with lower IQ and poorer academic achievement (5). Some studies suggest that interventions to improve antenatal and postnatal head circumference growth may contribute to better scholastic outcomes (5).

Head Circumference/Age \leq 2nd Percentile
Head Circumference/Adjusted Age \leq 2nd Percentile (continued)

**Implications for
WIC Nutrition
Services**

LHC alone does not necessarily indicate an abnormal head size. The diagnosis of LHC must also be based on the presence of other evidence and knowledge of the causes of LHC (5). Although WIC agencies may choose not to take head Circumference measurements, referral data that indicates LHC may be used to assign this risk.

Through client-centered counseling, WIC staff can assist families in making nutritionally balanced food choices to promote adequate growth. Also, the foods provided by the WIC Program are scientifically-based and intended to address the supplemental nutritional needs of the Program's target population, and can be tailored to meet the needs of individual participants.

In addition, WIC staff can greatly assist families by providing referrals to medical providers and other services, if available, in their community. Such resources may provide the recommended medical assessments, in order to rule out or confirm medical conditions, and offer treatment when necessary and/or in cases where growth improvement is slow to respond to dietary interventions.

References

1. Centers for Disease Control and Prevention. Use of World Health Organization and CDC growth charts for children aged 0 – 59 months in the United States. MMWR 2010; 59(No. RR-9). Available at: <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5909a1.htm>. Accessed September 2010.
 2. World Health Organization. WHO child growth standards: Length/height-for-age, weight-for-age, weight for height and body mass index-for-age: Methods and development. Geneva, Switzerland: World Health Organization; 2006. Available at: http://www.who.int/childgrowth/publications/technical_report_pub/en/. Accessed September 2010.
 3. Hagan JF, Shaw JS, Duncan PM, editors. Bright futures: Guidelines for health supervision of infants, children and adolescents. 3rd ed. Elk Grove, IL: American Academy of Pediatrics; 2008.
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Head Circumference/Age \leq 2nd Percentile
Head Circumference/Adjusted Age \leq 2nd Percentile (continued)

References

4. Institute of Medicine. WIC nutrition risk criteria a scientific assessment. Washington (DC): National Academy Press; 1996.
5. Peterson J, Taylor HG, Minich N, Hack M. Subnormal head circumference in very low birth weight children: neonatal correlates and school-age consequences. Early Hum Dev. 2006 May; 82(5):325-34.

Clarification

The cut-off for LHC is 2.3; however, for ease of use, CDC labels it as the 2nd Percentile on the hard copy Birth to 24 months growth charts. Client Services electronic charts and risk assessment use the 2.3rd percentile as the cut-off.

Height/Age \leq 5th Percentile
Height/Age \leq 10th Percentile

Federal Risk 121

**Definition/
cut-off value** Growth that is \leq 10th percentile (including \leq 5th percentile) height for age based on National Center for Health Statistics/Centers for Disease Control and Prevention age/gender specific growth charts (2000).

Client category and priority level	Category	Priority
	Children	3

Justification The Centers for Disease Control and Prevention (CDC) uses the 5th percentile as the cut-off to define short stature in its Pediatric Nutrition Surveillance System (1,2). However, CDC does not have a position regarding the cut-off percentile which should be used to determine at risk of short stature as a nutritional risk for the WIC Program. Due to the health risk prevention emphasis in the WIC Program, the 10th percentile is used for WIC to determine at risk of short stature.

Abnormally short stature in children is widely recognized as a response to an inadequate nutrient supply at the cellular level (4). This indicator can help identify children whose growth is stunted due to prolonged undernutrition or repeated illness (3). Short stature is related to the lack of total dietary energy and to poor dietary quality that provides inadequate protein, particularly animal protein, and inadequate amounts of such micronutrients as zinc, vitamin A, iron, copper, iodine, calcium, and phosphorous (4). In these circumstances, maintenance of basic metabolic functions takes precedence, and thus resources are diverted from linear growth.

Demonstrable differences in stature exist among children of different ethnic and racial groups. However, racial and ethnic differences are relatively minor compared with environmental factors. (1)

Growth patterns of children of racial groups whose short stature has traditionally been attributed to genetics have been observed to increase in rate and final height under conditions of improved nutrition (5, 6).

Height/Age \leq 5th Percentile**Height/Age \leq 10th Percentile (continued)**

Short stature may also result from disease conditions such as endocrine disturbances, inborn errors of metabolism, intrinsic bone diseases, chromosomal defects, fetal alcohol syndrome, and chronic systemic diseases (4).

**Implications
For WIC
Nutrition Services**

Participation in WIC has been associated with improved growth in both weight and height in children (7). A more in-depth dietary assessment and/or referral to a health care provider may be necessary to determine if short stature is a result of Dietary inadequacy or a disease condition. Also, more frequency follow-up to monitor growth is appropriate for children in these categories. Through client-centered counseling WIC staff can assist families in improving dietary intake to promote healthy growth and development. In addition, the foods provided by the WIC Program are scientifically-based and intended to address the supplemental nutritional needs of the Program's target population, and can be tailored to meet the needs of individual participants.

In addition, WIC staff can greatly assist families by providing referrals to medical providers and other services, if available in their community. Such resources may provide the recommended medical assessments, in order to rule out or confirm medical conditions, and offer treatment when necessary and/or in cases where growth improvement is slow to respond to dietary interventions.

References

1. Centers for Disease Control and Prevention. Use of World Health Organization and CDC growth charts for children aged 0 – 59 months in the United States. MMWR 2010; 59(no. RR-9). Available at: http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5909a1.htm?s_cid=rr5909a1w. Accessed September 2010.
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 3. World Health Organization. WHO child growth standards: Length/height-for-age, weight-for-age, weight for height and body mass index-for-age: Methods and development. Geneva, Switzerland: World Health Organization; 2006. Available at: http://www.who.int/childgrowth/publications/technical_report_pub/en/index.html. Accessed September 2010.
 4. Institute of Medicine. WIC nutrition risk criteria a scientific assessment. Washington (DC): National Academy Press; 1996. P. 104-109.
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Height/Age \leq 5th Percentile**Height/Age \leq 10th Percentile (continued)**

5. Pipes, PL, Trahms CM. Nutrition in Infancy and Childhood; 6th Edition. Seattle (WA): WCB/McGraw-Hill; 1997. p. 2.
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High Birth Weight \geq 9 lbs.

Federal Risk 153

**Definition/
cut-off value**

Birth weight greater than or equal to 9 pounds (\geq 4000 g).

**Client category
and priority level**

Category	Priority
Infants	1

Justification

Infant mortality rates are higher among full-term infants who weigh \geq 4,000 g (\geq 9 lbs) than for infants weighing between 3,000 and 4,000 g (6.6 and 8.8 lbs). Oversized infants are usually born at term; however, preterm infants with weights high for gestational age also have significantly higher mortality rates than infants with comparable weights born at term (1). Very large infants regardless of their gestational age, have a higher incidence of birth injuries and congenital anomalies (especially congenital heart disease) and developmental and intellectual retardation (2).

Large for Gestational Age and high birth weight may be a result of maternal diabetes (which may or may not have been diagnosed before or during pregnancy) and may result in obesity in childhood that may extend into adult life (1).

References

1. Institute of Medicine. WIC nutrition risk criteria, a scientific assessment. Washington (DC): National Academy Press; 1996. p. 117.
 2. Behrman RE, Kliegman R, Jenson HB. Nelson textbook of pediatrics. Philadelphia (PA): Saunders; 2000. p. 384.
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High Blood Lead Level

Federal Risk 211
High Risk Factor

**Definition/
 cut-off value**

Blood lead level of ≥ 5 ug/deciliter within the past 12 months.

Cut off value is the current reference value published in guidance from the Centers for Disease Control and Prevention (CDC).

**Client category
 and priority level**

Category	Priority
Pregnant women	1
Breastfeeding women	1
Postpartum women	6
Infants	1
Children	3

Justification

Lead poisoning is a persistent, but entirely preventable, public health problem in the United States. Elevated blood lead levels (BLLs) – levels at or above the reference value identified by the Centers for Disease Control and Prevention (CDC) – are a potent, pervasive neurotoxicant associated with harmful effects on health, nutritional status, learning and behavior. The CDC recognizes that there is no safe blood lead level for a mother or fetus yet there are no published guidelines for these groups. Therefore, CDC recommends the same guidelines identified for children be used for prenatal and breastfeeding women as well as infants until specific guidelines are available. (1, 2)

Blood lead levels have been declining in the U. S. population as a whole. It is most common in children, but can occur in other groups as well. Children remain at heightened risk because they absorb lead more readily than adults and their developing nervous system is particularly vulnerable to the effects of lead. Elevated blood lead levels in children have been associated with decreased IQ, academic failure, and behavioral problems. (1)

Avoidance of lead exposure remains the primary preventive strategy for reducing adverse health effects. (1) As a result of the wide variability in lead exposure in different communities, CDC recommends that state and/or local communities implement lead screening requirements based on their local data. If a state or local plan does not exist, it is recommended that the universal BLL testing according to 1991 CDC guidance be followed. (1)

High Blood Lead Level (continued)

Testing

Venous blood samples are the preferred method of blood lead testing. Elevated BLLs obtained using capillary (finger stick) samples should be confirmed using a venous blood test. (1)

Lead in Pregnant Women

Lead poisoning in a pregnant woman results in lead crossing the placenta and can have a detrimental impact on a developing fetus. One cause of lead poisoning in pregnant women is from practicing pica. Pica is defined as the eating of one or more nonnutritive substances on a persistent basis for a period of at least one month. Items commonly ingested include soil, clay, ice, starch, baking powder, chalk and paint. Cases of lead poisoning have been found when lead containing items, such as lead-contaminated soil and pottery, have been ingested. Pica is commonly practiced in areas of Africa, Asia, and Central America. In the United States it occurs more frequently in the South and in immigrant populations where it is culturally acceptable. In areas of the U.S. where pica is viewed negatively, woman may not admit to engaging in these practices thus, it places the pregnant woman and her fetus at risk. (2, 3)

Lead in Breastfeeding Women

Lead can be passed to the infant through breast milk. Some mothers exposed to lead may be encouraged to continue breastfeeding if their BLLs are within an acceptable range. The benefits of breastfeeding outweigh the potential health consequences the infant would otherwise endure.

Key Recommendations for Initiation of Breastfeeding (2):

- Mothers with BLLs < 40 ug/dL should breastfeed.
- Mothers with confirmed BLLs \geq 40 ug/dL should begin breastfeeding when their blood lead levels drop below 40 ug/dL. Until then, they should pump and discard their breast milk.

Key Recommendations for Continuation of Breastfeeding (2):

- Breastfeeding should continue for all infants with BLLs below 5 ug/dL.
- Infants born to mothers with BLL \geq 5 ug/dL and < 40 ug/Dl can continue to breastfeed unless there are indications that the breast milk is contributing to elevating BLLs.

Lead in Infants and Children

Similarly, children with pica may also have an elevated BLL. (For more information about pica please see the Lead in Pregnant Women section above.)

High Blood Lead Level (continued)

Lead poisoning is most common in children, especially those living in low income, migrant, or new refugee households. CDC recommends blood lead screening for all children at high risk for elevated BLLs with follow-up screening within 12 months.

Nutrition and Lead Absorption

Adequate consumption of calcium, iron, selenium, and zinc along with vitamins C, D and E decreases the absorption of lead in adults and lowers the susceptibility to the toxic effects in children (2). Nutritional status affects the absorption, deposition, and excretion of lead and thus may affect lead toxicity. Infants and children with a $BLL \geq 5$ ug/dL should be assessed for the adequacy of their diet with a focus on increasing iron, calcium, and vitamin C as follows:

- Iron deficiency anemia (IDA) can be an indicator of lead poisoning as they often coexist. Iron status should be evaluated and nutritional supplementation may be recommended by the participant's health care provider to correct and prevent IDA. Testing for IDA should occur (4):
 - Once between ages 9 – 12 months,
 - Again 6 months later, and
 - Annually from ages 2 to 5 years.
- Inadequate dietary calcium intake generally affects lead absorption. Results from some studies indicate that dietary calcium (when consumed at Adequate Intake levels) competitively inhibits lead absorption.
- The antioxidant, vitamin C, has been shown to have natural chelating properties, enhancing the urinary elimination of lead from the body. (2, 4)

Referrals

WIC agencies must assess the history of lead testing for every infant and child. The WIC staff should make a referral to a children's health care provider if the:

- Child has never received a lead test
 - Child had an elevated BLL 12 months prior and has had no interim follow-up screening
 - Child is suspected by parent or a health care provider to be at risk for lead exposure
 - Child has a sibling or frequent playmate with an elevated BLL
 - Participant is a recent immigrant, refugee, or foreign adoptee
 - Breastfeeding or lactating woman, parent, or child's principal caregiver works professionally or recreationally with lead
 - Family has a household member who uses traditional, folk, or ethnic remedies; cosmetics; or who routinely eats unregulated/uninspected food imported from abroad
 - Family has been identified at increased risk for lead exposure by the health department because the family has local risk factors for lead exposure.
-

High Blood Lead Level (continued)

**Implications
For WIC
Nutrition Services**

WIC nutrition services may benefit participants with lead exposure or elevated BLL in the following ways by:

- Reinforcing primary prevention strategies to avoid lead exposure and reduce adverse health effects such as offering to explain risk factors and common sources of lead, and providing a referral to lead treatment programs in health departments. Other CDC prevention tips can be found at: <http://www.cdc.gov/nceh/lead/tips.htm>.
- Encouraging consumption of foods (with an emphasis on the foods in the WIC food package) with nutrients that help minimize absorption of ingested lead and assist in preventing adverse consequences.
 - Calcium: Low-fat dairy, bone-in canned fish, and fortified fruit and vegetable juices <http://ods.od.nih.gov/factsheets/Calcium-HealthProfessional/>
 - Iron: Lentils and beans, fortified cereals, red meats, fish and poultry <http://ods.od.nih.gov/factsheets/Iron-HealthProfessional/>
 - Vitamin C: Citrus fruits, tomatoes, and other fruits and vegetables <http://ods.od.nih.gov/factsheets/VitaminC-HealthProfessional/>
- Helping to determine source(s) of lead exposure and counsel participants on avoiding further exposure, including identification and assessment of pica behavior. (For more information see the Pica risk in this chapter.)
- Working with local lead treatment programs to determine source(s) of lead exposure and to support their recommendations for reducing further exposure.
- Providing breastfeeding support to mothers with elevated BLLs who need to temporarily pump and discard their breast milk.
- Working with healthcare providers to support breastfeeding according to the CDC guidelines if lead exposure occurs in the breastfeeding dyad.

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High Blood Lead Level (continued)

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High Weight Gain - 1st Trimester
High Weight Gain – 2nd & 3rd Trimester

Federal Risk 133
High Risk Factor – High Weight Gain 2nd & 3rd Trimester

**Definition/
 cut-off value**

High weight gain at any point in pregnancy, such that using the Washington State WIC Nutrition Program pregnancy weight gain grid, a pregnant woman’s weight plots at any point above the top line of the appropriate weight gain range for her respective pre-pregnant weight category.

Note: Until research supports the use of different BMI cut-offs to determine weight categories for adolescent pregnancies, the same BMI cut-offs will be used for all women, regardless of age, when determining WIC eligibility. (See Justification for a more detailed explanation.)

Refer to the Appendix for a BMI table for determining weight classification for women.

Note: This risk does not automatically calculate for underweight women having multiples.

**Client category
 and priority level**

Category	Priority
Pregnant women	1

Justification

Women with excessive gestational weight gains are at increased risk for cesarean delivery and delivering large for gestational age infants that can secondarily lead to complications during labor and delivery. There is a strong association between higher maternal weight gain and both postpartum weight retention and subsequent maternal obesity. High maternal weight gain may be associated with glucose abnormalities and gestational hypertension disorders, but the evidence is inconclusive. (1)

Childhood obesity is one of the most important long-term health outcomes related to high maternal weight gain. A number of epidemiologic studies show that high maternal weight gain is associated with childhood obesity as measured by BMI (1).

The 2009 Institute of Medicine (IOM) report: *Weight Gain During Pregnancy: Reexamining the Guidelines* (1) updated the pregnancy weight categories to conform to the categories developed by the World Health Organization and adopted by the National Heart, Lung and Blood Institute in 1998 (2). The reexamination of the guidelines consisted of a review of the determinants of a wide range of short- and long-term consequences of variation in weight gain during pregnancy for both the mother and her infant. The IOM prenatal weight gain recommendations based on prepregnancy weight status categories are associated with improved maternal and child health outcomes (1).

High Weight Gain - 1st Trimester (continued)
High Weight Gain – 2nd & 3rd Trimester (continued)

Included in the 2009 IOM guidelines is the recommendation that the BMI weight categories used for adult women be used for pregnant adolescents as well. More research is needed to determine whether special categories are needed for adolescents. It is recognized that the IOM cut-offs for defining weight categories will classify some adolescents differently than the CDC BMI-for-age charts. For the purpose of WIC eligibility determination, the IOM cut-offs will be used for pregnant and postpartum adolescents, professionals should use all of the tools available to them to assess these applicants' anthropometric status and tailor nutrition counseling accordingly.

For twin gestations, the 2009 IOM recommendations provide provisional guidelines: normal weight women should gain 37 – 54 pounds; overweight women, 31 – 50 pounds; and obese women, 25 – 42 pounds. There was insufficient information for the IOM committee to develop even provisional guidelines for women with multiple fetuses (1). However, a consistent rate of weight gain is advisable. A gain of 1.5 pounds per week during the second and third trimesters has been associated with a reduced risk of preterm and low-birth weight delivery in twin pregnancy (3). In triplet pregnancies the overall gain should be around 50 pounds with a steady rate of gain of 1.5 pounds per week throughout the pregnancy (3). Education by the WIC nutritionist should address a steady rate of weight gain that is higher than for singleton pregnancies. For WIC eligibility determinations, multi-fetal pregnancies are considered a nutrition risk in and of themselves aside from the weight gain issue.

The supplemental foods, nutrition education, and counseling related to the weight gain guidelines provided by the WIC Program may improve maternal weight status and infant outcomes (4). In addition, WIC nutritionists can play an important role, through nutrition education and physical activity promotion, in assisting postpartum women achieve and maintain a healthy weight.

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 4. Institute of Medicine. WIC nutrition risk criteria: a scientific assessment. National Academy Press, Washington, D. C.; 1996.
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High Weight Gain - 1st Trimester (continued)
High Weight Gain – 2nd & 3rd Trimester (continued)

Additional Related References

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High Weight Gain (This PG)

Federal Risk 133

**Definition/
cut-off value**

Breastfeeding or Postpartum Women (most recent pregnancy only): total gestational weight gain exceeding the upper limit of the IOM’s recommended range (2) based on Pre-Pregnancy Body Mass Index (BMI) for singleton pregnancies, as follows (1):

<u>Prepregnancy Weight Groups</u>	<u>Definition</u>	<u>Cut-off Value</u>
Underweight	BMI < 18.5	> 40 lbs
Normal Weight	BMI 18.5 to 24.9	> 35 lbs
Overweight	BMI 25.0 to 29.9	> 25 lbs
Obese	BMI ≥ 30.0	> 20 lbs

Multi-fetal Pregnancies: See Justification for information.

Note: Until research supports the use of different BMI cut-offs to determine weight categories for adolescent pregnancies, the same BMI cut-offs will be used for all women, regardless of age, when determining WIC eligibility. See Justification for a more detailed explanation.

Refer to the Appendix for a BMI table for determining weight classification for women.

**Client category
and priority level**

Category	Priority
Breastfeeding women	1
Postpartum women	6

High Weight Gain (This PG) (continued)

Justification

Women with excessive gestational weight gains are at increased risk for cesarean delivery and delivering large for gestational age infants that can secondarily lead to complications during labor and delivery. There is a strong association between higher maternal weight gain and both postpartum weight retention and subsequent maternal obesity. High maternal weight gain may be associated with glucose abnormalities and gestational hypertension disorders, but the evidence is inconclusive. (1)

Childhood obesity is one of the most important long-term health outcomes related to high maternal weight gain. A number of epidemiologic studies show that high maternal weight gain is associated with childhood obesity as measured by BMI (1).

The 2009 Institute of Medicine (IOM) report: *Weight Gain During Pregnancy: Reexamining the Guidelines* (1) updated the pregnancy weight categories to conform to the categories developed by the World Health Organization and adopted by the National Heart, Lung and Blood Institute in 1998 (2). The reexamination of the guidelines consisted of a review of the determinants of a wide range of short- and long-term consequences of variation in weight gain during pregnancy for both the mother and her infant. The IOM prenatal weight gain recommendations based on prepregnancy weight status categories are associated with improved maternal and child health outcomes (1).

Included in the 2009 IOM guidelines is the recommendation that the BMI weight categories used for adult women be used for pregnant adolescents as well. More research is needed to determine whether special categories are needed for adolescents. It is recognized that the IOM cut-offs for defining weight categories will classify some adolescents differently than the CDC BMI-for-age charts. For the purpose of WIC eligibility determination, the IOM cut-offs will be used for pregnant and postpartum adolescents, professionals should use all of the tools available to them to assess these applicants' anthropometric status and tailor nutrition counseling accordingly.

High Weight Gain (This PG) (continued)

For twin gestations, the 2009 IOM recommendations provide provisional guidelines: normal weight women should gain 37 – 54 pounds; overweight women, 31 – 50 pounds; and obese women, 25 – 42 pounds. There was insufficient information for the IOM committee to develop even provisional guidelines for women with multiple fetuses (1). However, a consistent rate of weight gain is advisable. A gain of 1.5 pounds per week during the second and third trimesters has been associated with a reduced risk of preterm and low-birth weight delivery in twin pregnancy (3). In triplet pregnancies the overall gain should be around 50 pounds with a steady rate of gain of 1.5 pounds per week throughout the pregnancy (3). Education by the WIC nutritionist should address a steady rate of weight gain that is higher than for singleton pregnancies. For WIC eligibility determinations, multi-fetal pregnancies are considered a nutrition risk in and of themselves aside from the weight gain issue.

The supplemental foods, nutrition education, and counseling related to the weight gain guidelines provided by the WIC Program may improve maternal weight status and infant outcomes (4). In addition, WIC nutritionists can play an important role, through nutrition education and physical activity promotion, in assisting postpartum women achieve and maintain a healthy weight.

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1. Institute of Medicine. Weight gain during pregnancy: reexamining the Guidelines (Prepublication Copy). National Academy Press, Washington, D. C.; 2009. Accessed June 2009.
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 3. Brown JE and Carlson M. Nutrition and multifetal pregnancy. J Am Diet Assoc. 2000;100:343-348.
 4. Institute of Medicine. WIC nutrition risk criteria: a scientific assessment. National Academy Press, Washington, D. C.; 1996.
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High Weight Gain (This PG) (continued)

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Additional Related References

1. Carmichael S, Abrams B, and Selvin S. The Pattern of Maternal Weight Gain in Women with Good Pregnancy Outcomes; American Journal of Public Health; December 1997; Vol. 87, No. 12, pp. 1984-1988.
2. Brown JE, Schloesser PT. Pregnancy weight status, prenatal weight gain, and the outcome of term twin gestation. Am.J.Obstet.Gynecol. 1990;162:182-6.
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Homelessness

Federal Risk 801

**Definition
cut-off value**

A woman, infant, or child who lacks a fixed and regular nighttime residence; or whose primary nighttime residence is:

- a supervised publicly or privately operated shelter (including a welfare hotel, a congregate shelter, or a shelter for victims of domestic violence) designed to provide temporary living accommodations;
 - an institution that provides temporary residence for individuals intended to be institutionalized;
 - a temporary accommodation of not more than 365 days in the residence of another individual; or
 - a public or private place not designed for, or ordinarily used as, a regular sleeping accommodation for human beings.
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**Client category
and priority level**

Category	Priority
Pregnant women	4
Breastfeeding women	4
Postpartum women	6
Infants	4
Children	5

Justification

Homeless individuals comprise a very vulnerable population with many special needs. WIC program regulations specify homelessness as a predisposing nutrition risk condition. Today's homeless population contains a sizeable number of women and children – over one-third of the total homeless population in the U.S. Studies show that forty-three percent of today's homeless are families, and an increasing number of the “new homeless” include economically displaced individuals who have lost their jobs, exhausted their resources, and recently entered the ranks of the homeless and consider their condition to be temporary.

References

WIC Program Regulations; Section 246.7(e)(2)(iv)

Hypertension/Prehypertension

**Federal Risk 345
 High Risk Factor**

**Definition/
 cut-off value** Presence of hypertension or prehypertension diagnosed by a physician as self reported by applicant/participant/caregiver; or as reported or documented by a physician, or someone working under a physician’s orders.

Client category and priority level	Category	Priority
	Pregnant women	1
	Breastfeeding women	1
	Postpartum women	6
	Infants	1
	Children	3

Justification Hypertension, commonly referred to as high blood pressure, is defined as persistently high arterial blood pressure with systolic blood pressure above 140 mm Hg or diastolic blood pressure above 90 mm Hg (1). People with high blood pressure can be asymptomatic for years (2). Untreated hypertension leads to many degenerative diseases, including congestive heart failure, end-stage renal disease, and peripheral vascular disease.

There is a large segment of the population that falls under the classification of prehypertension, with blood pressure readings between 130/80 to 139/89 mm Hg (3). People with prehypertension are twice as likely to develop hypertension (3).

There is no cure for hypertension (2); however lifestyle modifications can prevent high blood pressure and are critical in the management of hypertension and prehypertension (3).

Risk factors for hypertension include (4):

- Age (increases with age)
- Race/ethnicity (occurs more often and earlier in African Americans)
- Overweight or obesity
- Male gender
- Unhealthy nutrient consumption and lifestyle habits (high sodium intake, excessive alcohol consumption, low potassium intake, physical inactivity, and smoking)
- Family history
- Chronic stress

Hypertension/Prehypertension (continued)

Management of hypertension includes lifestyle modifications and medication. In prehypertensive individuals, implementing lifestyle changes can prevent or delay the onset of hypertension (3, 5). In hypertensive individuals, dietary intervention is not only effective in reducing blood pressure but also in delaying drug treatment (6).

Lifestyle changes to manage hypertension and prehypertension include:

- Consuming a diet consistent with the Dietary Guidelines for Americans or following the DASH (Dietary Approaches to Stop Hypertension) eating plan, if recommended by a physician
- Limiting dietary sodium
- Engaging in regular physical activity
- Achieving and maintaining a healthy weight
- Smoking cessation

The WIC Program provides fruits, vegetables, low fat milk and cheese, which are important components of the DASH eating plan. WIC nutritionists provide nutrition education and counseling to reduce sodium intakes, achieve/maintain proper weight status, promote physical activity, and make referrals to smoking cessation programs, which are the lifestyle interventions critical to the management of hypertension/prehypertension.

Pregnant Women: Hypertension is the most common medical complication of pregnancy, occurring in 7% of all pregnancies. Hypertension during pregnancy may lead to low birth weight, fetal growth restriction, and premature delivery, as well as maternal, fetal, and neonatal morbidity (7). Hypertensive disorders of pregnancy are categorized as (8, 9):

- **Chronic Hypertension:** Hypertension that was present before pregnancy. It increases perinatal mortality and morbidity through an increased risk of SGA (small for gestational age) infants. Women with chronic hypertension are at risk for complications of pregnancy such as preeclampsia. There is a 25% risk of superimposed preeclampsia and an increased risk for preterm delivery, fetal growth restriction, congestive heart failure and renal failure.
- **Preeclampsia:** A pregnancy-specific syndrome observed after the 20th week of pregnancy with elevated blood pressure accompanied by significant proteinuria.
- **Eclampsia:** The occurrence of seizures, in a woman with preeclampsia, that cannot be attributed to other causes.
- **Preeclampsia superimposed upon chronic hypertension:** Preeclampsia occurring in a woman with chronic hypertension. It is the major leading factor of maternal and infant mortality and morbidity.

Hypertension/Prehypertension (continued)

- **Gestational Hypertension:** Blood pressure elevation detected for the first time after midpregnancy without proteinuria. It presents minimal risks to mother and baby, when it does not progress to preeclampsia.

The term “pregnancy-induced hypertension” includes gestational hypertension, preeclampsia and eclampsia. For more information about preeclampsia, please see the risk Preeclampsia (Hx).

The following conditions are associated with an increased incidence of pregnancy-induced hypertension (4):

- Inadequate diet
- Nutritional deficiencies, including low protein, essential fatty acid, or magnesium intake
- Inadequate calcium intake in early pregnancy (7)
- Obesity
- Primigravidity
- Age (pregnancy before age 20 or after age 40)
- Multi-fetal gestation
- Genetic disease factors
- Familial predisposition

The impact of hypertension continues after delivery. Special consideration must be given to lactating women with high blood pressure, especially if their plan includes medication. It is important that the hypertensive lactating woman inform her physician of her breastfeeding status if she is also taking medication to determine whether they pose any risks to the infant. However, hypertension is not a contraindication for lactation. Lactation, as suggested in research, is thought to present some therapeutic advantages in the management of the disease in women (10, 11, 12).

Children: Hypertension during childhood is age-specific, and is defined as blood pressure readings greater than the 95th percentile for age, gender, and height on at least three separate occasions. Blood pressure reading between the 90th and 95th percentile is considered prehypertension (13). Children with high blood pressure are more likely to become hypertensive adults (15). Therefore, they should have their blood pressure checked regularly beginning at the age of three (14, 15).

Epidemiologic data suggests an association between childhood obesity and high blood pressure (16). Blood pressure and overweight status have been suggested as criteria to identify hypertensive children. Weight control decreases blood pressure, sensitivity to salt and other cardiovascular risk factors (13).

Hypertension/Prehypertension (continued)

Nutrition-related prevention efforts in overweight hypertensive children should aim at achieving a moderate weight loss or preventing further weight gain. Additionally, a decrease in time spent in sedentary activities with subsequent increase in physical activity should be emphasized.

Dietary changes conducive to weight management in children include:

- Portion control
- Decreased consumption of sugar-containing beverages and energy-dense snacks
- Increased consumption of fresh fruits and vegetables
- Regular meals, especially breakfast

The WIC Program provides nutritious supplemental foods and nutrition education compatible with changes needed to promote a healthy weight and decrease the impact of hypertension in children.

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Hypertension/Prehypertension (continued)

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16. Committee on Nutrition, American Academy of Pediatrics. Pediatric nutrition handbook. 6th ed. Elk Grove, Ill: American Academy of Pediatrics; 2009.

Clarification

Self-reporting of a diagnosis by a medical professional should not be confused with self-diagnosis, where a person simply claims to have or to have had a medical condition without any reference to professional diagnosis. A self-reported medical diagnosis (“My doctor says that I have/my son or daughter has...”) should prompt the CPA to validate the presence of the condition by asking more pointed questions related to that diagnosis.

Hypoglycemia

Federal Risk 356
High Risk Factor

Definition cut-off value. Presence of hypoglycemia diagnosed by a physician as self-reported by applicant/participant/caregiver; or as reported or documented by a physician, or someone working under a physician's orders

Client category and priority level

Category	Priority
Pregnant women	1
Breastfeeding women	1
Postpartum women	6
Infants	1
Children	3

Justification

Hypoglycemia can occur as a complication of diabetes, as a condition in itself, in association with other disorders, or under certain conditions such as early pregnancy, prolonged fasting, or long period of strenuous exercise (1).

Symptomatic hypoglycemia is a risk observed in a substantial proportion of newborns that are small for gestation age (SGA), but it is uncommon and of shorter duration in newborns who are of the appropriate size for gestational age (2).

WIC can provide nutrition management that concentrates on frequent feedings to support adequate growth for infants and children (2). WIC can also provide nutrition education to help manage hypoglycemia in women that includes consuming a balanced diet, low carbohydrate snacks, and exercise (1).

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 2. Institute of Medicine: WIC Nutrition Risk Criteria: A Scientific Assessment; 1996; pp. 217-218.
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Clarification

Self-reporting of a diagnosis by a medical professional should not be confused with self-diagnosis, where a person simply claims to have or to have had a medical condition without any reference to professional diagnosis. A self-reported medical diagnosis (“My doctor says that I have/my son or daughter has...”) should prompt the CPA to validate the presence of the condition by asking more pointed questions related to that diagnosis.

In State Transfer

Federal Risk 502

**Definition
cut-off value**

Presume eligible woman with current valid transfer information, such as Verification of Certification (VOC) document, transfer card, or electronic transfer information from another Washington State local agency. This risk is used for women who were presumed eligible and transfer from one Washington State local WIC agency to another between the time they are presumed eligible and prior to having the completion of the certification

The transfer information is valid until the certification period expires, and shall be accepted as proof of eligibility for program benefits. If the receiving local agency has waiting lists for participation, the transferring participant shall be placed on the list ahead of all other waiting applicants.

**Client category
and priority level**

Category	Priority
Pregnant women	4

Justification

This risk is used for women who were presumed eligible and transfer from one Washington State local WIC agency to another between the time they are presumed eligible and prior to having the completion of the certification. All other client categories carry forward the risk(s) determined during the certification assessment by the client's previous Washington State WIC clinic when they transfer within the state. Presumed eligible women do not have an assigned risk, therefore the In State transfer risk is used for them between the time they are presumed and the time their certification is completed. The woman's nutrition risks are assigned when the certification is completed.

Local agencies must accept transfer/Verification of Certification (VOC) documents from participants. A person with a valid transfer/VOC document shall not be denied participation in the receiving local agency because the person does not meet that local agency's particular eligibility criteria. Once a WIC participant has been certified by a local agency, the service delivery area into which s/he moves is obligated to honor the commitment.

References

1. FNS Instruction 803-11, Rev. 1.
2. WIC Program Regulations; Section 246.7(k).

Inadequate Folic Acid Supplementation (< 400 mcg)

Federal Risk 427.4

**Definition/
cut-off value**

Participant not routinely taking a dietary supplement recognized as essential by national public health policy makers because diet alone cannot meet nutrient requirements.

Breastfeeding and Postpartum Women: Taking less than 400 mcg of folic acid from fortified foods and/or supplements daily.

**Client category
and priority level**

Category	Priority
Breastfeeding women	4
Postpartum women	6

Justification

Non-pregnant women of childbearing age who do not consume adequate amounts of folic acid are at greater risk for functional folate deficiency, which has been proven to cause neural tube defects (NTDs), such as spina bifida and anencephaly (1 – 4).

Folic acid consumed from fortified foods and/or vitamin supplement in addition to folate found naturally in food reduces this risk (5). The terms “folic acid” and “folate” are used interchangeably, yet they have different meanings. Folic acid is the synthetic form used in vitamin supplements and fortified foods (5, 2, 3). Folate occurs naturally and is found in foods, such as dark green leafy vegetables, strawberries, and orange juice (5).

Studies show that consuming 400 mcg of folic acid daily interconceptionally can prevent 50 percent of neural tube defects (5). Because NTDs develop early in pregnancy (between the 17th and 30th day) and many pregnancies are not planned, it is important to have adequate intakes before pregnancy and throughout the childbearing years (6). NTDs often occur before women know they are pregnant. It is recommended that all women capable of becoming pregnant consume a multivitamin containing 400 mcg of folic acid daily (3, 4, 7). It is important that breastfeeding and non-breastfeeding women participating in the WIC Program know about folic acid and foods that contain folate to encourage preconceptional preventive practices (2).

Inadequate Folic Acid Supplementation (< 400 mcg) (continued)

References

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5. American Academy of Pediatrics, Committee on Genetics. Folic acid for the prevention of neural tube defects. *Pediatrics.* 1999; 104(2):325-327.
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Inadequate Fluoride Supplementation (≥ 6 mos) (Infants)
Inadequate Fluoride Supplementation (Children)

Federal Risks: Infants 411.11; Children 425.8

**Definition/
cut-off value**

Participant not routinely taking a fluoride supplement recognized as essential by national public health policy makers because diet alone cannot meet nutrient requirements.

Infants:

- Infants who are 6 months of age or older who are ingesting less than 0.25 mg of fluoride daily when the water supply contains less than 0.3 ppm fluoride.

Children:

- Providing children under 36 months of age less than 0.25 mg of fluoride daily when the water supply contains less than 0.3 ppm fluoride.
- Providing children 36 – 60 months of age less than 0.50 mg of fluoride daily when the water supply contains less than 0.3 ppm fluoride.

**Client category
and priority level**

Category	Priority
Infants	4
Children	5

Justification

Depending on an infant’s or child’s specific needs and environmental circumstances, certain dietary supplements may be recommended by the infant’s or child’s health care provider to ensure health. For example, fluoride supplements may be of benefit in reducing dental decay for children living in fluoride-deficient areas (1, 2).

References

1. Committee on Nutrition, American Academy of Pediatrics. Pediatric Nutrition Handbook. 6th ed. Elk Grove Village, Ill: American Academy of Pediatrics, 2009.
2. American Academy of Pediatric Dentistry. Fluoride. Pediatr Dent. 1999;21:40.

Inadequate Iodine Supplementation (< 150 mcg)

Federal Risk 427.4

**Definition/
cut-off value**

Participant not routinely taking an iodine supplement recognized as essential by national public health policy makers because diet alone cannot meet nutrient requirements.

Pregnant and Breastfeeding:

- Consumption of less than 150 mcg of supplemental iodine per day by pregnant and breastfeeding women.

**Client category
and priority level**

Category	Priority
Pregnant	4
Breastfeeding	4

Justification

During pregnancy and lactation the iodine requirement is sharply elevated. The RDA for iodine during pregnancy is 220 mcg and 290 mcg during lactation (1). Severe iodine deficiency during pregnancy can cause cretinism and adversely affect cognitive development in children (2). Even mild iodine deficiency may have adverse effects on the cognitive function of children (3). Since the 1970's, according to the 2001-2002 National Health and Nutrition Examination Surveys (NHANES), there has been a decrease of approximately 50% in adult urinary iodine values. For women of child bearing age, the median urinary iodine value decreased from 294 to 128 mcg per liter (4). The American Thyroid Association recommends that women receive prenatal vitamins containing 150 mcg of iodine daily during pregnancy and lactation (5). The iodine content of prenatal vitamins in the United States is not mandated, thus not all prenatal vitamins contain iodine (6). Pregnant and breastfeeding women should be advised to review the iodine content of their vitamins and discuss the adequacy of the iodine with their health care provider.

References

1. Institute of Medicine. Dietary reference intakes for vitamin A, vitamin K, Arsenic, Boron, chromium, copper, iodine, iron, manganese, molybdenum, Nickel, silicon, vanadium and zinc. Food and Nutrition Board. Washington, D.C: National Academy Press; 2001.
 2. Zimmerman MB. Iodine deficiency in pregnancy and effects of maternal iodine supplementation on the offspring: a review. Am J Clin Nutr 2009;8(suppl:668S-72S)
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Inadequate Iodine Supplementation (< 150 mcg) (continued)

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6. Leung AM, Pearce EN, Braverman, LE. Iodine content of prenatal vitamins in the United States. *N Engl J Med* 2009;360:9.

Inadequate Iron Supplementation (< 27 mg)

Federal Risk 427.4

**Definition/
cut-off value**

Participant not routinely taking an iron supplement recognized as essential by national public health policy makers because diet alone cannot meet nutrient requirements.

Pregnant:

- Consumption of less than 27 mg of supplemental iron per day by pregnant women.

**Client category
and priority level**

Category	Priority
Pregnant	4

Justification

The Recommended Dietary Allowance (RDA) for pregnant women is 27 mg of iron per day (1). The Centers for Disease Control and Prevention recommends iron supplementation for all pregnant women to prevent iron deficiency (2); however, pregnant women should seek guidance from a qualified health care provider before taking dietary supplements (3).

References

1. Institute of Medicine. Dietary reference intakes for vitamin A, vitamin K, Arsenic, Boron, chromium, copper, iodine, iron, manganese, molybdenum, Nickel, silicon, vanadium and zinc. Food and Nutrition Board. Washington, D.C: National Academy Press; 2001.
2. Centers for Disease Control and Prevention. Recommendations to prevent and control iron deficiency in the United States. MMWR 1998;47:RR-3.
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<http://www.nlm.nih.gov/medlineplus/druginfo/natural/patient-iron.html#Safety>. Accessed May 2009.

Inadequate Vitamin D Supplementation (< 400 IU)

Federal Risks: Infants 411.11; Children 425.8

**Definition/
cut-off value**

Participant not routinely taking a Vitamin D supplement recognized as essential by national public health policy makers because diet alone cannot meet nutrient requirements.

Infants:

- Infants who are exclusively breastfed, or are ingesting less than 1 quart (32 ounces) per day of vitamin D fortified formula, and are not taking a supplement of 400 IU of vitamin D.

Children:

- Not providing 400 IU of vitamin D if a child consumes less than 1 quart (32 ounces) of vitamin D fortified milk or formula.

**Client category
and priority level**

Category	Priority
Infants	4
Children	5

Justification

Infants:

Depending on an infant's or child's specific needs and environmental circumstances, certain dietary supplements may be recommended by the infant's or child's health care provider to ensure health. To prevent rickets and vitamin D deficiency in healthy infants and children, the AAP recommends a supplement of 400 IU per day for the following (1, 2):

1. All breastfed and partially breastfed infants unless they are weaned to at least 1 quart (32 ounces) per day of vitamin D-fortified formula.
2. All non-breastfed infants who are ingesting less than 1 quart (32 ounces) per day of vitamin-D fortified formula.

Children:

In addition, the AAP recommends that children who are ingesting less than 1 quart (32 ounces) per day of vitamin D-fortified formula or milk, should receive a vitamin D supplement of 400 IU/day (2). Since 1 quart of milk is in excess of the recommended 2 cups of milk per day for pre-school children (3), most children will require a vitamin D supplement.

Inadequate Vitamin D Supplementation (< 400 IU) (continued)

References

1. American Academy of Pediatrics, Section on Breastfeeding: Breastfeeding and the use of human milk. *Pediatrics* 2005; Feb;115(2):496-506.
2. American Academy of Pediatrics, Section on Breastfeeding and Committee on Nutrition. Prevention of rickets and vitamin D deficiency in infants, children, and adolescents. *Pediatrics* 2008;
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Federal Risk Reference Numbers: Infants 411.11, Children 425.8

5/2015

Inappropriate Formula Dilution

Federal Risk 411.6

**Definition/
cut-off value**

Routinely feeding inappropriately diluted formula, e.g. routine over dilution or under dilution of formula.

Includes:

- Failure to follow manufacturer’s dilution instructions (includes stretching formula for household economic reasons)
- Failure to follow specific instructions accompanying a prescription.

**Client category
and priority level**

Category

Priority

Infants

4

Justification

Over dilution can result in water intoxication resulting in hyponatremia; irritability; coma; inadequate nutrient intake; failure to thrive; poor growth (1 – 6).

Under dilution of formula increases calories, protein, and solutes presented to the kidney for excretion, and can result in hypernatremia, tetany, and obesity (2 – 6). Dehydration and metabolic acidosis can occur with under-dilution of formula (2, 3, 4, 6).

Powdered formulas vary in density so manufacturer’s scoops are formula specific to assure correct dilution (3, 5). One clue for staff to identify incorrect formula preparation is to determine if the parent/caregiver is using the correct manufacturer’s scoop to prepare formula.

References

1. Committee on Nutrition, American Academy of Pediatrics. Pediatric nutrition handbook. 6th eds. Elk Grove Village, Ill: American Academy of Pediatrics, 2009.
2. Institute of Medicine: WIC Nutrition Risk Criteria: A Scientific Assessment; National Academy Press, Washington, D. C., 1996.
3. Fomon SJ. Nutrition of normal infants. St. Louis: Mosby, 1993.
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Inappropriate Formula Dilution (continued)

Clarification “Routinely” is defined as a regular or routine practice that occurs frequently enough to have an impact on a client’s nutrition or health status. Staff use professional discretion to determine that a client’s health and nutrition status are impacted by the frequency of a particular practice.

Inappropriate Milk Substitute

Federal Risk 425.1

**Definition/
cut-off value**

Routinely feeding inappropriate beverages as the primary milk source. Examples of inappropriate imitation or substitute milks include:

- inadequately or unfortified rice- or soy- based beverages
 - non-dairy creamers
 - sweetened condensed milk
 - other “homemade concoctions”
-

**Client category
and priority level**

Category

Priority

Children

5

Justification

Goat’s milk, sheep’s milk, imitation and substitute milks (that are unfortified or inadequately fortified) do not contain nutrients in amounts appropriate as a primary milk source for children (1-4).

References

1. Committee on Nutrition, American Academy of Pediatrics. Pediatric nutrition Handbook. 6th ed. Elk Grove Village, Ill: American Academy of Pediatrics, 2009.
 2. American Academy of Pediatrics, Committee on Nutrition. Iron fortification of infant formula. Pediatrics 1999; 104:119-123.
 3. Trahms CM, Pipes PL, editors. Nutrition in Infancy and Childhood. WCB/McGraw-Hill; 1997.
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Clarification

“Routinely” is defined as a regular or routine practice that occurs frequently enough to have an impact on a client’s nutrition or health status. Staff use professional discretion to determine that a client’s health and nutrition status are impacted by the frequency of a particular practice.

Inappropriate or Excessive Supplements

Federal Risks: Women 427.1; Infants 411.10; Children 425.7
High Risk Factor

**Definition/
cut-off value**

Participant taking dietary supplements with potentially harmful consequences.

Examples of dietary supplements which when ingested in excess of recommended dosages may be toxic or have harmful consequences:

- Single or multi vitamins
- Mineral supplements
- Herbal or botanical supplements/remedies/teas

**Client category
and priority level**

Category	Priority
Pregnant women	4
Breastfeeding women	4
Postpartum women	6
Infants	4
Children	5

Justification

Women: Pregnant, Breastfeeding and Postpartum

Women taking inappropriate or excessive amounts of dietary supplements such as, single or multivitamins or minerals, or botanical (including herbal) remedies or teas, are at risk for adverse effects such as harmful nutrient interactions, toxicity and teratogenicity (1, 2). Pregnant and lactating women are at higher risk secondary to the potential transference of harmful substances to their infant.

Most nutrient toxicities occur through excessive supplementation of particular nutrients, such as, vitamins A, B-6 and niacin, iron and selenium (3). Large doses of vitamin A may be teratogenic (4). Because of this risk, the Institute of Medicine recommends avoiding preformed vitamin A supplementation during the first trimester of pregnancy (4). Besides nutrient toxicities, nutrient-nutrient and drug-nutrient interactions may adversely affect health.

Many herbal and botanical remedies have cultural implications and are related to beliefs about pregnancy and breastfeeding. The incidence of herbal use in pregnancy ranges from 7 – 55% with Echinacea and ginger being the most common (1). Some botanical (including herbal) teas may be safe; however, others have

Inappropriate or Excessive Supplements (continued)

undesirable effects during pregnancy and breastfeeding. Herbal supplements such as, blue cohosh and pennyroyal stimulate uterine contractions, which may increase the risk of miscarriage or premature labor (1, 5). The March of Dimes and the American Academy of Pediatrics recommend cautious use of tea mixtures because of the lack of testing with pregnant women (6).

While many herbal teas may be safe, some have undesirable effects, particularly on infants who are fed herbal teas or who receive breast milk from mothers who have ingested herbal teas. Examples of teas with potentially harmful effects to infants include licorice, comfrey leaves, sassafras, senna, buckhorn bark, and chamomile.

Infants and Children:

An infant or child consuming inappropriate or excessive amounts of single or multivitamin or mineral or herbal remedy not prescribed by a physician is at risk for a variety of adverse effects including harmful nutrient interactions, toxicity, and teratogenicity (7, 8).

Like drugs, herbal or botanical preparations have chemical and biological activity, may have side effects, and may interact with certain medications – these interactions can cause problems and can even be dangerous (9). Botanical supplements are not necessarily safe because the safety of a botanical depends on many things, such as its chemical makeup, how it works in the body, how it is prepared, and the dose used (9). While some herbal teas may be safe, some have undesirable effects, particularly on infants and young children who are fed herbal teas or who receive breast milk from mothers who have ingested herbal teas (10). Examples of teas with potentially harmful effects to children include: licorice, comfrey leaves, sassafras, senna, buckhorn bark, cinnamon, wormwood, woodruff, valerian, foxglove, pokeroor or pokeweed, periwinkle, nutmeg, catnip, hydrangea, juniper, Mormon tea, thorn apple, yohimbe bark, lobelia, oleander, Mate, kola nut or gotu cola and chamomile (10 – 12).

References

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Inappropriate or Excessive Supplements (continued)

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12. Ridker PM. Toxic effects of herbal teas. *Arch Environ Health* 42(3):133-6, 1987.
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Inappropriate Substitute for Breastmilk/Formula

Federal Risk 411.1

**Definition/
cut-off value**

Routinely using a substitute(s) for breastmilk or for FDA approved iron-fortified formula as the primary nutrient source during the first year of life.

Examples of substitutes include:

- Low iron formula without iron supplementation.
- Cow’s milk, goat’s milk, or sheep’s milk (whole, reduced fat, low-fat, skim), canned evaporated or sweetened condensed milk; and
- Imitation or substitute milks (such as rice- or soy-based beverages, non-dairy creamer), or other “homemade concoctions.”

**Client category
and priority level**

Category

Priority

Infants

4

Justification

During the first year of life, breastfeeding is the preferred method of infant feeding. The American Academy of Pediatrics (AAP) recommends breast milk for the first 12 months of life because of its acknowledged benefits to infant nutrition, gastrointestinal function, host defense, and psychological well-being (1). For infants fed infant formula, iron-fortified formula is generally recommended as a substitute for breastfeeding (1 – 4). Rapid growth and increased physical activity significantly increase the need for iron and utilizes iron stores (1). Body stores are insufficient to meet the increased iron needs making it necessary for the infant to receive a dependable source of iron to prevent iron deficiency anemia (1). Iron deficiency anemia is associated with cognitive and psychomotor impairments that may be irreversible, and with decreased immune function, apathy, short attention span, and irritability (1, 5). Feeding of low-iron infant formula can compromise an infant’s iron stores and lead to iron deficiency anemia. Cow’s milk has insufficient and inappropriate amounts of nutrients and can cause occult blood loss that can lead to iron deficiency, stress on the kidneys from a high renal solute load, and allergic reactions (1, 3, 5 – 8). Sweetened condensed milk has an abundance of sugar that displaces other nutrients or causes over consumption of calories (9). Homemade formulas prepared with canned evaporated milk do not contain optimal kinds and amounts of nutrients infants need (1, 5, 8, 9). Goat’s milk, sheep’s milk, imitation milks, and substitute milks do not contain nutrients in amounts appropriate for infants (1, 3, 5, 10, 11).

Inappropriate Substitute for Breastmilk/Formula (continued)

References

1. Committee on Nutrition, American Academy of Pediatrics. Pediatric nutrition handbook. 6th eds. Elk Grove Village, Ill: American Academy of Pediatrics, 2009.
 2. American Academy of Pediatrics, Committee on Nutrition: Iron fortification of infant formula. Pediatrics 1999; 104:119-123.
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Clarification

“Routinely” is defined as a regular or routine practice that occurs frequently enough to have an impact on a client’s nutrition or health status. Staff use professional discretion to determine that a client’s health and nutrition status are impacted by the frequency of a particular practice.

Inappropriate Use of Bottle/Cup

Federal Risks: Infants 411.2; Children 425.3

**Definition/
cut-off value**

Routinely using bottles or cups improperly. This includes:

- Using a bottle to feed fruit juice or sugar-containing fluids, fluids such as soda/soft drinks, gelatin water, corn syrup solutions, or sweetened tea.
- Using a bottle to feed diluted cereal or other solid foods.

Note: If a medical provider has prescribed adding cereal to the infant’s or child’s bottle for a medical reason (such as GERD) the CPA would not assign this risk.
- Allowing the infant/child to fall asleep or be put to bed with a bottle at naps or bedtime.
- Allowing the infant/child to use the bottle without restriction (e.g., walking around with the bottle) or as a pacifier.
- Propping the bottle when feeding.
- Allowing an infant/child to carry around and drink throughout the day from a covered or training cup.
- Using a bottle for feeding or drinking beyond 14 months of age.

Note: If a child has special needs, either developmental delay or other medical conditions impacting feeding and the child is working with the medical provider or therapist, it may be appropriate for the caregiver to feed the child using a bottle and the CPA would not assign this risk.
- Using a pacifier dipped in sweet agents such as sugar, honey or syrups (children).

Note: Use the risk “Potentially Contaminated Foods” when honey is given to infants.

**Client category
and priority level**

Category	Priority
Infants	4
Children	5

Inappropriate Use of the Bottle (continued)

Justification

Dental caries is a major health problem in U.S. preschool children, especially in low-income populations (1). Eating and feeding habits that affect tooth decay and are started during infant may continue into early childhood. Most implicated in this rampant disease process is prolonged use of baby bottles during the day or night, containing fermentable sugars, (e.g., fruit juice, soda, and other sweetened drinks), pacifiers dipped in sweet agents such as sugar, honey or syrups, or other high frequency sugar exposures (2). The American Academy of Pediatrics (AAP) and the American Academy of Pedodontics recommend that juice should be offered to infants in a cup, not a bottle, and that infants and children not be put to bed with a bottle in their mouth (3, 4). While sleeping with a bottle in his or her mouth, an infant's or child's swallowing and salivary flow decreases, thus creating a pooling of liquid around the teeth (5). The practice of allowing infants or children to carry or drink from a bottle or training cup of juice for periods throughout the day leads to excessive exposure of the teeth to carbohydrate, which promotes the development of dental caries (3).

Allowing infants or children to sleep with a nursing bottle containing fermentable carbohydrates or to use it unsupervised during waking hours provides an almost constant supply of carbohydrates and sugars (6). This leads to rapid demineralization of tooth enamel and an increase in the risk of dental caries due to prolonged contact between cariogenic bacteria on the susceptible tooth surface and the sugars in the consumed liquid (6, 7). The sugars in the liquid pool around the infant's or child's teeth and gums feed the bacteria there and decay is the result (8). The process may start before the teeth are even fully erupted. Upper incisors (upper front teeth) are particularly vulnerable; the lower incisors are generally protected by the tongue (8). The damage begins as white lesions and progresses to brown or black discoloration typical of caries (8). When early childhood caries is severe, the decayed crowns may break off and the permanent teeth developing below may be damaged (8). Undiagnosed dental caries and other oral pain may contribute to feeding problems and failure to thrive in young children (8).

Unrestricted use of a bottle, containing fermentable carbohydrates, is a risk because the more times a child consumes solid or liquid food, the higher the caries risk (6). Cariogenic snacks eaten between meals place the toddler most at risk for caries development; this includes the habit of continually sipping from cups (or bottles) containing cariogenic liquids (juice, milk, soda, or sweetened liquid) (8). If inappropriate use of the bottle or cup persists, the child is at risk of toothaches, costly dental treatment, loss of primary teeth, and developmental lags on eating and chewing. If this continues beyond the usual weaning period, there is a risk of decay to permanent teeth.

Inappropriate Use of the Bottle (continued)

Propping the bottle deprives infants of vital human contact and nurturing which makes them feel secure. It can cause: ear infections because of fluid entering the middle ear and not draining properly; choking from liquid flowing into the lungs; and tooth decay from prolonged exposure to carbohydrate-containing liquids (9).

Adding solid food to a nursing bottle results in force-feeding, inappropriately increases the energy and nutrient composition of the formula, deprives the infant of experiences important to the development of feeding behavior, and could cause an infant to choke (10, 11, 12).

Pediatric dentists recommend that parents be encouraged to have infants drink from a cup as they approach their first birthday, and that infants are weaned from the bottle by 12 – 14 months of age (7).

References

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Inappropriate Use of the Bottle (continued)

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Clarification

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Infant of Priority 1 Breastfeeding Woman at Nutrition Risk**Infant of Priority 2 Breastfeeding Woman at Nutrition Risk****Infant of Priority 4 Breastfeeding Woman at Nutrition Risk**

Federal Risk 702

**Definition/
cut-off value**

An infant who is breastfed by a woman at nutritional risk. The CPA selects the appropriate priority level in order to match the priority of the breastfeeding mom and the breastfed infant.

**Client category
and priority level****Category****Priority**

Infants

1, 2, or 4 *

*** The breastfed infant and breastfeeding woman must be the same priority**

Justification

A breastfed infant is dependent on the mother's milk as the primary source of nutrition. Lactation requires the mother to consume an additional 500 Kcal per day (approximately) as well as increased protein, calcium, and other vitamins and minerals (4, 5). Inadequate maternal nutrition may result in decreased nutrient content of the milk (5). Special attention should therefore be given to the health and nutritional status of breastfed infants whose mothers are at nutritional risk (3).

References

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Clarification

Clinic staff assure that the breastfeeding mother and infant have been assigned the same priority with the higher priority being chosen. If the pair is certified at the same time, staff select the correct risk and priority at the certification appointment. If the two are certified at different times, staff review the certification record of the person certified first to assure that the correct risk and priority is selected for both the mother and infant.

Infant of WIC Eligible Mom (< 6 months)

Federal Risk 701

**Definition/
cut-off value**

An infant < six months of age whose mother was a WIC Program participant during pregnancy or whose mother would have been nutrition risk eligible during pregnancy. Based on health history information or medical records that document that the woman was at nutrition risk during pregnancy because of detrimental or abnormal nutrition conditions detectable by biochemical or anthropometric measurements or other documented nutritionally related medical conditions.

**Client category
and priority level**

Category	Priority
Infants	2

Justification

Federal Regulations designate these conditions for WIC eligibility (3).

WIC participation during pregnancy is associated with improved pregnancy outcomes. An infant whose nutritional status has been adequately maintained through WIC services during gestation and early infancy may decline in nutritional status if without these services and return to a state of elevated risk for nutritional related health problems. Infants whose mother was at medical/nutritional risk during pregnancy, but did not receive those services, may also be thought of as a group at elevated risk for morbidity and mortality in the infant period (1, 2).

WIC participation in infancy is associated with lower infant mortality, decreased anemia for infants and improvements in growth (head circumference, height, and weight). Infants on WIC are more likely to consume iron-fortified formula and cereal and less likely to consume cow's milk before one year, thus lowering the risk of developing iron deficiency anemia (1, 2).

References

1. Disbrow DD. The costs and benefits of nutrition services: a literature review. J.Am.Diet.Assoc. 1989;89:S3-66.
 2. Ryan AS, Martinez GA, Malec, DJ.: The Effect of the WIC Program on Nutrient Intakes of Infants; Medical Anthropology; 1984; vol. 9, no. 2.
 3. WIC Program Regulations: Section 246.7(e)(1)(ii).
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Clarification

When the infant is under six months of age and the mother was not on WIC during her pregnancy, clinic staff assess if the woman would have been eligible for the program due to her health history or her pregnancy. Staff document the reason the woman would have been eligible in the infant's file.

Infectious Disease (past 6 months)

**Federal Risk 352
 High Risk Factor**

**Definition/
 cut-off value**

A disease caused by growth of a pathogenic microorganism in the body severe enough to affect nutritional status. Includes, but is not limited to:

- tuberculosis
- pneumonia
- meningitis
- parasitic infections
- hepatitis**
- bronchiolitis (3 episodes in last 6 months)
- HIV (Human Immunodeficiency Virus infection)*
- AIDS (Acquired Immunodeficiency Syndrome)*

The infectious disease must be present within the past 6 months, and diagnosed by a physician as self-reported by applicant/participant/caregiver; or as reported or documented by a physician, or someone working under physician's orders.

**Client category
 and priority level**

Category	Priority
Pregnant women	1
Breastfeeding women *	1
Postpartum women	6
Infants	1
Children	3

* Breastfeeding is not recommended for women with HIV or AIDS. Consult with the clinic or state WIC breastfeeding coordinator.

** Breastfeeding may be permitted for women with hepatitis, see Clarification on next page for guidelines.

Justification

Chronic, prolonged, or repeated infections adversely affect nutritional status through increased nutrient requirements as well as decreased ability to take in or utilize nutrients.

Catabolic response to infection increases energy and nutrient requirements and may increase the severity of medical conditions associated with infection.

Infectious Disease (past 6 months) (continued)

Bronchiolitis is a lower respiratory tract infection that affects young children, usually under 24 months of age. It is often diagnosed in winter and early spring, and is usually caused by the respiratory syncytial virus (RSV). Recurring episodes of bronchiolitis may affect nutritional status during a critical growth period and lead to the development of asthma and other pulmonary diseases.

HIV is a member of the retrovirus family. HIV enters the cell and causes cell dysfunction or death. Since the virus primarily affects the cell of the immune system, immunodeficiency results (AIDS). Recent evidence suggests that monocytes and macrophages may be the most important target cells and indicates that HIV can infect bone marrow stem cells. HIV infection is associated with the risk of malnutrition at all stages of infection.

NOTE: Bronchiolitis is listed as a separate risk factor for infants as Respiratory Infections (3x/6months).

References

1. Institute of Medicine: WIC Nutrition Risk Criteria: A Scientific Assessment; 1996; pp.184-186.
2. Berkow, et al.: Merck Manual; 1992; 16th Edition.
3. Grand, Stupen, and Dietz: Pediatric Nutrition: Theory and Practice; Butterworths; 1987; pp. 549-570, 571-578, 651-664.
4. Lawrence, Ruth A: Maternal and Child Health Technical Information Bulletin: A Review of Medical Benefits and Contraindications to Breastfeeding in the United States; 1997 pp. 14-17.

Clarification

Developments in the management and prevention of hepatitis have changed the management of infected women during pregnancy and have made breastfeeding safe. The following are guidelines for breastfeeding women with hepatitis, as found in the Technical Information Bulletin (10/97) "A Review of the Medical Benefits and Contraindications to Breastfeeding in the United States":

- Hepatitis A: Breastfeeding is permitted as soon as the mother receives gamma globulin.
- Hepatitis B: Breastfeeding is permitted after the infant receives HBIG (Hepatitis B specific immunoglobulin) and the first dose of the Hepatitis B vaccine.
- Hepatitis C: Breastfeeding is permitted for mothers without co-infection (e.g. HIV).
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Infectious Disease (past 6 months) (continued)

Self-reporting of a diagnosis by a medical professional should not be confused with self-diagnosis, where a person simply claims to have or to have had a medical condition without any reference to professional diagnosis. A self-reported medical diagnosis (“My doctor says that I have/my son or daughter has...”) should prompt the CPA to validate the presence of the condition by asking more pointed questions related to that diagnosis.

Iron Deficiency Anemia

Federal Risk 201

**Definition/
cut-off value**

Presence of iron deficiency anemia diagnosed by a physician as self-reported applicant/participant/caregiver; or as reported or documented by a physician or someone working under a physician's orders.

Note: Refer to table of anemia conditions and corresponding nutrition risk factors in the Clarification section on the next page.

**Client category
and priority level**

Category	Priority
Pregnant women	1
Breastfeeding women	1
Postpartum women	6
Infants	1
Children	3

Justification

Hemoglobin (Hgb) and hematocrit (Hct) are the most commonly used tests to screen for iron deficiency anemia. Measurements of Hgb and Hct reflect the amount of functional iron in the body. Changes in Hgb concentration and Hct occur at the late stages of iron deficiency. While neither a Hgb nor a Hct test are direct measures of iron status and do not distinguish among different types of anemia, these tests are useful indicators of iron deficiency anemia.

Iron deficiency is by far the most common cause of anemia in children and women of childbearing age. It may be caused by a diet low in iron, insufficient assimilation of iron from the diet, increased iron requirements due to growth or pregnancy, or blood loss. Anemia can impair energy metabolism, temperature regulation, immune function, and work performance. Anemia during pregnancy may increase the risk of prematurity, poor maternal weight gain, low birth weight, and infant mortality. In infants and children, even mild anemia may delay mental and motor development. The risk increases with the duration and severity of anemia, and early damages are unlikely to be reversed through later therapy.

Iron Deficiency Anemia (continued)

References

1. Centers for Disease Control and Prevention. Criteria for Anemia in Children And Childbearing-Aged Women. MMWR 1998;47:RR-3.
2. Centers for Disease Control and Prevention: Prenatal Nutrition Surveillance System User’s Manual. Atlanta, GA: CDC; 1994.
3. Institute of Medicine: Iron Deficiency Anemia: Recommended Guidelines for the Prevention, Detection, and Management Among US Children and Women of Childbearing Age; 1993.
4. Institute of Medicine: Nutrition During Pregnancy; National Academy Press; 1990.
5. Institute of Medicine: WIC Nutrition Risk Criteria: A Scientific Assessment; 1996.

Clarification

All of the anemia conditions below must be diagnosed by a medical professional. The following information will assist the CPA in selecting the correct nutrition risk factor when the client reports a diagnosis of anemia.

When the client reports this:	Assign this risk:
Iron deficiency anemia	Iron Deficiency Anemia
Sickle cell anemia Thalassemia major	Genetic and Congenital Disorder
Folic acid deficiency anemia Vitamin B12 deficiency anemia Other nutritional anemias	Nutrient Deficiency Disease

Juvenile Rheumatoid Arthritis (JRA)

Federal Risk 360
High Risk Factor

**Definition/
cut-off value** Presence of Juvenile Rheumatoid Arthritis (JRA) diagnosed by a physician self-reported by applicant/participant/caregiver; or as reported or documented by a physician, or someone working under a physician’s orders.

Client category and priority level	Category	Priority
	Pregnant women	1
	Breastfeeding women	1
	Postpartum women	6
	Infants	1
	Children	3

Justification Juvenile rheumatoid arthritis (JRA) is the most common pediatric rheumatic disease and most common cause of chronic arthritis among children. JRA puts individuals at risk of anorexia, weight loss, failure to grow, and protein energy malnutrition.

- References**
1. Institute of Medicine: WIC Nutrition Risk Criteria: A Scientific Assessment; 1996; pp. 185-187, 190-191.
 2. Queen, Patricia and Lang, Carol: Handbook of Pediatric Nutrition; 1993; pp. 422-425.
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Clarification Self-reporting of a diagnosis by a medical professional should not be confused with self-diagnosis, where a person simply claims to have or to have had a medical condition without any reference to professional diagnosis. A self-reported medical diagnosis (“My doctor says that I have/my son or daughter has...”) should prompt the CPA to validate the presence of the condition by asking more pointed questions related to that diagnosis.

Kidney Disorder (not UTI)

Federal Risk 346
High Risk Factor

**Definition/
cut-off value** Any renal disease including pyelonephritis and persistent proteinuria, but excluding urinary tract infections (UTI) involving the bladder. Presence of renal disease diagnosed by a physician as self-reported by applicant/participant/caregiver; or as reported or documented by a physician, or someone working under physician’s orders.

Client category and priority level	Category	Priority
	Pregnant women	1
	Breastfeeding women	1
	Postpartum women	6
	Infants	1
	Children	3

Justification Renal disease can result in growth failure in children and infants. In pregnant women, fetal growth is often limited and there is a high risk of developing a preeclampsia-like syndrome. Women with chronic renal disease often have proteinuria, with risk of azotemia if protein intake becomes too high.

References Institute of Medicine: WIC Nutrition Risk Criteria: A Scientific Assessment; 1996.

Clarification Self-reporting of a diagnosis by a medical professional should not be confused with self-diagnosis, where a person simply claims to have or to have had a medical condition without any reference to professional diagnosis. A self-reported medical diagnosis (“My doctor says that I have/my son or daughter has...”) should prompt the CPA to validate the presence of the condition by asking more pointed questions related to that diagnosis.

Lactose Intolerance

Federal Risk 355

**Definition/
cut-off value**

Lactose intolerance is the syndrome of one or more of the following: diarrhea, abdominal pain, flatulence, and/or bloating, that occur after lactose ingestion.

Presence of condition diagnosed, documented, or reported by a physician or someone working under a physician’s orders, or as self-reported by the applicant, participant, or caregiver. See Clarification for more information about self-reporting a diagnosis.

**Client category
and priority level**

Category	Priority
Pregnant women	1
Breastfeeding women	1
Postpartum women	6
Infants	1
Children	3

Justification

Lactose intolerance occurs because of a deficiency in the levels of the lactase enzyme (1). Many variables determine whether a person with lactase deficiency develops symptoms. They include: the dose of lactose ingested; the residual intestinal lactase activity; the ingestion of food along with lactose; the ability of the colonic flora to ferment lactose; and, the individual sensitivity to the products of lactose fermentation (1). Some forms of lactase deficiencies may be temporary, resulting from premature birth or small bowel injuries, and will correct themselves, leaving individuals with the ability to digest lactose insufficiently (2).

Primary lactase deficiency is attributable to relative or absolute absence of lactase that develops in childhood, and is the most common cause of lactose malabsorption and lactose intolerance (2).

Secondary lactase deficiency is one that results from small bowel injury, such as acute gastroenteritis, persistent diarrhea, or other causes that injure the small intestine mucosa, and can present at any age, but is more common in infancy. Treatment of secondary lactase deficiency and lactose malabsorption attributable to an underlying condition generally do not require elimination of lactose from the diet. Once the primary problem is resolved lactose-containing products can be consumed normally. (2)

Lactose Intolerance (continued)

Justification

Congenital lactase deficiency is a rare disorder that has been reported in only a few infants. Affected newborn infants present with intractable diarrhea as soon as human milk or lactose-containing formula is introduced. (2)

Developmental lactase deficiency is the relative lactase deficiency observed among pre-term infants of less than 34 weeks' gestation (2). One study in preterm infants reported benefit from the use of lactase-supplemented feedings or lactose-reduced formulas (3). The use of lactose-containing formulas and human milk does not seem to have any short- or long-term deleterious effects in preterm infants (2).

Lactose is found primarily in milk, milk-based formula and other dairy products, which provide a variety of nutrients essential to the WIC population (calcium, vitamin D, protein). Lactose intolerance varies according to individuals. Some individuals may tolerate various quantities of lactose without discomfort, or tolerate it when consumed with other foods. Dairy products that are soured, or otherwise treated with bacteria that secrete lactase (e.g. *Lactobacillus acidophilus*), such as cheese and yogurt, are easier to digest in lactose-intolerant individuals because they contain relatively low levels of lactose. (4)

Many individuals diagnosed with lactose intolerance avoid dairy all together. Also, lactose intolerance has been shown to be associated with low bone mass and increased risk of fracture (5). Inadequate dairy intake increases the risk of metabolic syndrome, hypertension, preeclampsia, obesity and certain forms of cancer, especially colon cancer (6).

**Implications
For WIC
Nutrition
Services**

It is important to assess participants individually for lactose tolerances and nutrient needs to determine the best plan of action. WIC can provide client-centered counseling to incorporate tolerated amounts of lactose-containing foods and/or other dietary sources of calcium, vitamin D and protein into participants' diets. WIC foods such as cheese, lactose-free milk, soy beverages, tofu, and calcium-fortified foods (like juice) can provide these nutrients to participants with lactose intolerance. Based on the needs and interests of the participant, WIC staff can, in addition, also offer the following strategies (as appropriate):

- **Except for infants with congenital lactase deficiency**, promote exclusive breastfeeding until six months of age and continue breastfeeding through the first year. For infants with congenital lactase deficiency, treatment is removal and substitution of lactose from the diet with commercial lactose-free formula (2).
 - Tailor food packages to substitute or remove lactose-containing foods.
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Lactose Intolerance (continued)

- Educate participants on meeting nutritional needs in the absence of lactose-containing foods.
- Educate participants on planning lactose-free or lactose-reduced meals and snacks for outings, social gatherings, school or work.

Any WIC participant suspected to have lactose intolerance should be referred to a health care provider for evaluation and appropriate diagnosis (7), if needed (see Clarification for additional information on diagnosing Lactose Intolerance).

References

1. National Institutes of Health Consensus Development Conference Statement: Lactose intolerance and health. February, 2010. Available at: <http://consensus.nih.gov/2010/lactosestatement.htm>. Accessed May 2012.
2. Heyman MB. Lactose intolerance in infants, children, and adolescents; Pediatrics 2006 September: 118 (#3) 1279-1286. <http://aappolicy.aappublications.org/cgi/reprint/pediatrics;118/3/1279.pdf>. Accessed May 2012.
3. Shulman RJ, Feste A, Ou C. Absorption of lactose, glucose polymers, or combination in premature infants. J Pediatr. 1995; 127:626-631.
4. Ranciaro A, Tishoff SA. Population genetics: evolutionary history of lactose tolerance in Africa [abstract]. NIH Consensus Development Conference Lactose Intolerance and Health; February 2010; 43-47.
5. U.S. Department of Health and Human Services – Office of the Surgeon General. Bone health and osteoporosis: a report of the surgeon general. 2004.
6. Hearney RP. Consequences of excluding dairy or of avoiding milk in adults [abstract]. NIH Consensus Development Conference Lactose Intolerance and Health. February, 2010; 73-77.
7. Chang, Lin MD. Clinical Presentation: But what if it is not lactose intolerance? [abstract]. NIH Consensus Development Conference Lactose Intolerance and Health. February, 2010; 39-42.

Additional Reference

1. National Dairy Council [Internet]. Lactose Intolerance Health Education Kit (2011). Available at: <http://www.nationaldairyCouncil.org/EDUCATIONMATERIALS/HEALTHPROFESSIONALSEDUCATIONKITS/Pages/LactoseIntoleranceHealthEducationKit.aspx>. Accessed May 2012.
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Lactose Intolerance (continued)

Clarification

Self-reporting of a diagnosis by a medical professional should not be confused with self-diagnosis, where a person simply claims to have or to have had a medical condition without any reference to a professional diagnosis. A self-reported medical diagnosis (“My doctor says that I have/my son or daughter has...”) should prompt the CPA to validate the presence of the condition by asking more pointed questions related to that diagnosis.

Lactose malabsorption can be diagnosed with a hydrogen breath test. The test involves having individuals ingest a standard dose of lactose after fasting. Elevated levels of breath hydrogen, which are produced by bacterial fermentation of undigested lactose in the colon, indicate the presence of lactose malabsorption (1). The hydrogen breath test is not routinely ordered, and instead, patients are frequently asked to assess symptoms while avoiding dairy products for a period of time followed by a lactose product challenge to determine if they are lactose intolerant (7). The demonstration of lactose malabsorption does not necessarily indicate that an individual will be symptomatic.

Large For Gestational Age (Hx) - PG Women
Large For Gestational Age Infant (This PG) – BF, PP Women

Federal Risk 337

**Definition/
cut-off value**

Pregnant women: Any history of giving birth to an infant weighing equal to or greater than 9 lbs. (≥ 4000 grams).

Breastfeeding and postpartum women: Most recent pregnancy giving birth to an infant weighing greater than or equal to 9 lbs. (≥ 4000 g).

Presence of condition diagnosed by a physician as self-reported by applicant/participant/caregiver; or as reported or documented by a physician, or someone working under a physician's orders.

**Client category
and priority level**

Category	Priority
Pregnant women	1
Breastfeeding women	1
Postpartum women	6

Justification

Women with a previous delivery of an infant weighing ≥ 9 lbs. (≥ 4000 grams) are at an increased risk of giving birth to a large for gestational age infant (1). Macrosomia may be an indicator of maternal diabetes (current or gestational) or a predictor of future diabetes (2).

The incidence of maternal, fetal, and neonatal complications is high with neonates weighing greater than 9 lbs. (> 4000 grams). Risks for the infant include dystocia, meconium aspiration, clavicular fracture, brachia plexus injury, and asphyxia (3).

References

1. Boyd, M.E., R.H. Usher, and F.H. McLean: Fetal Macrosomia: Prediction, risks, proposed management; *Obstet Gynecol.*; 1983; 61:715-722.
 2. Institute of Medicine. WIC nutrition risk criteria a scientific assessment. Washington (DC): National Academy Press; 1996. p. 117.
 3. Institute of Medicine: Nutrition During Pregnancy. Washington (DC): National Academy Press; 1990. p. 190.
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Large for Gestational Age (Hx) (This PG) (continued)

Clarification

Self-reporting for “History of...” conditions should be treated in the same manner as self-reporting for current conditions requiring a physician’s diagnosis, i.e., the applicant may report to the CPA that s/he was diagnosed by a physician with a given condition at some point in the past. As with current conditions, self-diagnosis of a past condition should never be confused with self-reporting

Large For Gestational Age (Infant)

Federal Risk 153

**Definition/
cut-off value**

Birth weight greater or equal to 9 pounds (≥ 4000 g), or

Presence of large for gestational age diagnosed by a physician as self-reported by caregiver; or as reported or documented by a physician, or someone working under a physician's orders.

**Client category
and priority level**

Category

Priority

Infants

1

Justification

Infant mortality rates are higher among full-term infants who weigh $\geq 4,000$ g (≥ 9 lbs) than for infants weighing between 3,000 and 4,000 g (6.6 and 8.8 lbs). Oversized infants are usually born at term; however, preterm infants with weights high for gestational age also have significantly higher mortality rates than infants with comparable weights born at term. When large for gestational age occurs with pre-term birth, the mortality risk is higher than when either condition exists alone (1). Very large infants regardless of their gestational age, have a higher incidence of birth injuries and congenital anomalies (especially congenital heart disease) and developmental and intellectual retardation (2).

Large for gestational age may be a result of maternal diabetes (which may or may not have been diagnosed before or during pregnancy) and may result in obesity in childhood that may extend into adult life (1).

References

1. Institute of Medicine. WIC nutrition risk criteria a scientific assessment. Washington (DC): National Academy Press; 1996. p. 117.
 2. Behrman, RE, Kliegman R, Jenson HB. Nelson Textbook of Pediatrics. Philadelphia (PA): Saunders; 2000. p. 384.
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Clarification

Self-reporting of a diagnosis by a medical professional should not be confused with self-diagnosis, where a person simply claims to have or to have had a medical condition without any reference to professional diagnosis. A self-reported medical diagnosis (“My doctor says that I have/my son or daughter has...”) should prompt the CPA to validate the presence of the condition by asking more pointed questions related to that diagnosis.

Length/Adjusted Age \leq 2nd Percentile
Length/Adjusted Age $>$ 2nd and \leq 5th Percentile

Federal Risk 121

**Definition/
cut-off value**

Growth that is \leq 2nd percentile or $>$ 2nd and \leq 5th percentile length for adjusted age as plotted on the Centers for Disease Control and Prevention (CDC) Birth to 24 months gender specific charts (1).

For premature infants and children (with a history of prematurity) up to 2 years of age, assignment of this risk criteria is based on adjusted gestational age. For more information about adjusting for gestational age see “Guidelines for Growth Charts and Gestational Age Adjustment for Low Birth Weight and Very Low Birth Weight Infants” located in the Appendix of this chapter.

Note: Client Services will plot both length/age and length/adjusted age on the same graph for premature infants and children under 2 years of age. Nutrition risk assessment is based on the adjusted age percentiles.

**Client category
and priority level**

Category	Priority
Infants	1
Children (< 24 months)	3

Justification

The Centers for Disease Control and Prevention (CDC) uses the 2.3rd percentile (for birth to 24 months of age) and the 5th percentile (for 2 – 5 years of age) stature-for-age, as the cut-off to define short stature in its Pediatric Nutrition Surveillance System (1,2). However, CDC does not have a position regarding the cut-off percentile which should be used to determine *at risk of short stature* as a nutritional risk for the WIC Program. *At risk of short stature* is included in this criterion to reflect the preventative emphasis of the WIC Program.

Abnormally short stature in infants and children is widely recognized as a response to an inadequate nutrient supply at the cellular level (4). This indicator can help identify children whose growth is stunted due to prolonged undernutrition or repeated illness (3). Short stature is related to a lack of total dietary energy and to poor dietary quality that provides inadequate protein, particularly animal protein, and inadequate amounts of such micronutrients as zinc, vitamin A, iron, copper, iodine, calcium, and phosphorous (4). In these circumstances, maintenance of basic metabolic functions take precedence, and thus resources are diverted from linear growth.

Length/Adjusted Age \leq 2nd Percentile
Length/Adjusted Age $>$ 2nd and \leq 5th Percentile (cont.)

Demonstrable differences in stature exist among children of different ethnic and racial groups. However, racial and ethnic differences are relatively minor compared with environmental factors (1). Growth patterns of children of racial groups whose short stature has traditionally been attributed to genetics have been observed to increase in rate and final height under conditions of improved nutrition (5,6).

Short stature may also result from disease conditions such as endocrine disturbances, inborn errors of metabolism, intrinsic bone diseases, chromosomal defects, fetal alcohol syndrome, and chronic systemic diseases (4).

**Implications
For WIC
Nutrition Services**

Participation in WIC has been associated with improved growth in both weight and height in children (7). A more in-depth dietary assessment and/or referral to a health care provider may be necessary to determine if short stature is a result of dietary inadequacy or a disease condition. Also, more frequent follow-up to monitor growth is appropriate for children in these categories. Through client-centered counseling WIC staff can assist families in improving dietary intake to promote healthy growth and development. In addition, the foods provided by the WIC Program are scientifically-based and intended to address the supplemental nutritional needs of the Program's target population, and can be tailored to meet the needs of individual participants.

In addition, WIC staff can greatly assist families by providing referrals to medical providers and other services, if available, in their community. Such resources may provide the recommended medical assessments, in order to rule out or confirm medical conditions, and offer treatment when necessary and/or in cases where growth improvement is slow to respond to dietary interventions.

Length/Adjusted Age \leq 2nd Percentile
Length/Adjusted Age $>$ 2nd and \leq 5th Percentile (cont.)

References

1. Centers for Disease Control and Prevention. Use of World Health Organization and CDC growth charts for children aged 0 – 59 months in the United States. MMWR 2010; 59(No. RR-9). Available at: http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5909a1.htm?s_cid=rr5909a1_w. Accessed September 2010.
2. Kuczumarski RJ, Ogden CL, Grummer-Strawn LM, et al. CDC growth charts: United States. Advance data from vital and health statistics; no. 314. Hyattsville, Maryland: National Center for Health Statistics. 2000.
3. World Health Organization. WHO child growth standards. Length/height-for-age, weight-for-age, weight for height and body mass index-for-age: Methods and development. Geneva, Switzerland: World Health Organization; 2006. Available at: http://www.who.int/childgrowth/publications/technical_report_pub/en/index.html. Accessed September 2010.
4. Institute of Medicine. WIC nutrition risk criteria a scientific assessment. Washington (DC): National Academy Press; 1996. p. 104 – 109.
5. Pipes PL, Trahms CM. Nutrition in infancy and childhood, 6th edition. Seattle (WA): WCB/McGraw-Hill; 1997. p. 2.
6. Berhane R, Dietz WH. Clinical assessment of growth. In: Kessler DB, Dawson P., editors. Failures to thrive and pediatric undernutrition: A transdisciplinary approach. Baltimore (MD): Paul H. Brooks Publishing Company, Inc.; 1999. p. 199.
7. Disbrow DD. The costs and benefits of nutrition services: a literature review. J Am Diet Assoc. 1989;89:S3-66.

Clarification

The cut-off for short stature for infants and children $>$ 24 months is 2.3; however, for ease of use, CDC labels it as the 2nd percentile on the Birth to 24 months growth charts. Electronic charts and risk assessment uses the 2.3rd percentile as the cut-off.

Length/Age \leq 2nd Percentile
Length/Age $>$ 2nd and \leq 5th Percentile

Federal Risk 121

**Definition/
cut-off value**

Growth that is $<$ 2nd percentile or $>$ 2nd and \leq 5th percentile length for age as plotted on the Centers for Disease Control and Prevention (CDC) Birth to 24 months gender specific charts (1).

Note: For premature infants and children (with a history of prematurity) up to 2 years of age, assignment of this risk criteria is based on adjusted gestational age. For more information about adjusting for gestational age see “Guidelines for Growth Charts and Gestational Age Adjustment for Low Birth Weight and Very Low Birth Weight Infants” located in the Appendix of this chapter.

**Client category
and priority level**

Category	Priority
Infants	1
Children ($<$ 24 months)	3

Justification

The Centers for Disease Control and Prevention (CDC) uses the 2.3rd percentile (for birth to 24 months of age) and the 5th percentile (for 2 – 5 years of age) stature-for-age, as the cut-off to define short stature in its Pediatric Nutrition Surveillance System (1,2). However, CDC does not have a position regarding the cut-off percentile which should be used to determine *at risk of short stature* as a nutritional risk for the WIC Program. *At risk of short stature* is included in this criterion to reflect the preventative emphasis of the WIC Program.

Abnormally short stature in infants and children is widely recognized as a response to an inadequate nutrient supply at the cellular level (4). This indicator can help identify children whose growth is stunted due to prolonged undernutrition or repeated illness (3). Short stature is related to a lack of total dietary energy and to poor dietary quality that provides inadequate protein, particularly animal protein, and inadequate amounts of such micronutrients as zinc, vitamin A, iron, copper, iodine, calcium, and phosphorous (4). In these circumstances, maintenance of basic metabolic functions take precedence, and thus resources are diverted from linear growth.

Length/Age \leq 2nd Percentile
Length/Age $>$ 2nd and \leq 5th Percentile (cont.)

Demonstrable differences in stature exist among children of different ethnic and racial groups. However, racial and ethnic differences are relatively minor compared with environmental factors (1). Growth patterns of children of racial groups whose short stature has traditionally been attributed to genetics have been observed to increase in rate and final height under conditions of improved nutrition (5,6).

Short stature may also result from disease conditions such as endocrine disturbances, inborn errors of metabolism, intrinsic bone diseases, chromosomal defects, fetal alcohol syndrome, and chronic systemic diseases (4).

**Implications
For WIC
Nutrition Services**

Participation in WIC has been associated with improved growth in both weight and height in children (7). A more in-depth dietary assessment and/or referral to a health care provider may be necessary to determine if short stature is a result of dietary inadequacy or a disease condition. Also, more frequent follow-up to monitor growth is appropriate for children in these categories. Through client-centered counseling WIC staff can assist families in improving dietary intake to promote healthy growth and development. In addition, the foods provided by the WIC Program are scientifically-based and intended to address the supplemental nutritional needs of the Program's target population, and can be tailored to meet the needs of individual participants.

In addition, WIC staff can greatly assist families by providing referrals to medical providers and other services, if available, in their community. Such resources may provide the recommended medical assessments, in order to rule out or confirm medical conditions, and offer treatment when necessary and/or in cases where growth improvement is slow to respond to dietary interventions.

Length/Age \leq 2nd Percentile**Length/Age $>$ 2nd and \leq 5th Percentile (cont.)**

References

1. Centers for Disease Control and Prevention. Use of World Health Organization and CDC growth charts for children aged 0 – 59 months in the United States. MMWR 2010; 59(No. RR-9). Available at: http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5909a1.htm?s_cid=rr5909a1_w. Accessed September 2010.
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3. World Health Organization. WHO child growth standards. Length/height-for-age, weight-for-age, weight for height and body mass index-for-age: Methods and development. Geneva, Switzerland: World Health Organization; 2006. Available at: http://www.who.int/childgrowth/publications/technical_report_pub/en/index.html. Accessed September 2010.
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6. Berhane R, Dietz WH. Clinical assessment of growth. In: Kessler DB, Dawson P., editors. Failures to thrive and pediatric undernutrition: A transdisciplinary approach. Baltimore (MD): Paul H. Brooks Publishing Company, Inc.; 1999. p. 199.
7. Disbrow DD. The costs and benefits of nutrition services: a literature review. J Am Diet Assoc. 1989;89:S3-66.

Clarification

The cut-off for short stature for infants and children $>$ 24 months is 2.3; however, for ease of use, CDC labels it as the 2nd percentile on the Birth to 24 months growth charts. Electronic charts and risk assessment uses the 2.3rd percentile as the cut-off.

Limited Frequency of Breastfeeding (≤ 6 months)

Federal Risk 411.7

**Definition/
cut-off value**

Routinely limiting the frequency of nursing of the exclusively breastfed infant when breastmilk is the sole source of nutrients.

Examples of inappropriate frequency of nursing:

- Scheduled feedings instead of demand feedings
- Less than 8 feedings in 24 hours if less than 2 months of age, and
- Less than 6 feedings in 24 hours if between 2 and 6 months of age

**Client category
and priority level**

Category
Infants

Priority
4

Justification

Exclusive breastfeeding provides ideal nutrition to an infant and is sufficient to support optimal growth and development in the first 6 months of life (1). Frequent breastfeeding is critical to the establishment and maintenance of an adequate milk supply for the infant (1, 2 – 6). Inadequate frequency of breastfeeding may lead to lactation failure in the mother and dehydration, poor weight gain, diarrhea, and vomiting, illness, and malnourishment in the infant (1, 4, 7 – 12). Exclusive breastfeeding protects infants from early exposure to contaminated foods and liquids (10). In addition, infants, who receive breastmilk more than infant formulas, have a lower risk of being overweight in childhood and adolescence (13, 14).

References

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Limited Frequency of Breastfeeding (\leq 6 months) (continued)

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Clarification

“Routinely” is defined as a regular or routine practice that occurs frequently enough to have an impact on a client’s nutrition or health status. Staff use professional discretion to determine that a client’s health and nutrition status are impacted by the frequency of a particular practice.

Limited Skills for Proper Nutrition

Federal Risk 902

**Definition/
cut-off value**

Women (pregnant, breastfeeding, or postpartum) who have a limited ability to make appropriate feeding decisions and/or prepare food. Examples may include individuals who are:

- 17 years old or younger;
- mentally disabled/delayed and/or have a mental illness such as clinical depression (diagnosed by a physician or licensed psychologist);
- physically disabled to a degree which restricts or limits food preparation abilities; or
- currently using or having a history of abusing alcohol or other drugs.

**Client category
and priority level**

Category	Priority
Pregnant women	4
Breastfeeding women	4
Postpartum women	6

Justification

When the woman 17 years of age or younger has limited exposure and application of skills to make appropriate eating decisions and/or prepare food, this risk would apply. Cognitive limitation, mental disabilities or mental illnesses, such as severe depression, can also affect the woman’s skills and decisions about good nutrition. Currently using or having a history of abusing alcohol or other drugs is strongly associated with poor nutrition. Certain physical handicaps such as blindness, para- or quadriplegia, or physical anomalies restrict/limit the woman’s ability to prepare and consume a variety of foods. Education, referrals and service coordination with WIC will aid the woman in developing skills, knowledge and/or assistance for proper nutrition.

References

1. Accardo and Whitman B.: Children of Mentally Retarded Parents; American Journal of Diseases of Children; 1990; 144:69-70.
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3. Institute of Medicine: WIC Nutrition Risk Criteria: A Scientific Assessment; 1996; pp. 321-323.
4. Pollitt, Ernest and Wirth: Mother-Infant Feeding Interaction and Weight Gain in the First Month of Life; J. Am Diet Assoc.; 1981; 78:596-601.
5. WIC Program regulations: Section 246.7(e)(2).

CHAPTER 14 NUTRITION RISK CRITERIA**Section 3 Nutrition Risk Definitions and Justifications**

Low Birth Weight \leq 5#, 8 oz. (< 6 months) - Infants**Low Birth Weight \leq 5#, 8 oz. (\geq 6 months) - Infants****Low Birth Weight \leq 5#, 8 oz. (< 24 months) - Children****Federal Risk 141****High Risk Factor for infants – Low Birth Weight (< 6 months)**

**Definition
cut-off value**

Low birth weight (LBW) is defined as \leq 5 pounds, 8 ounces (\leq 2500g), for infants and children less than 24 months old.

Very low birth weight (VLBW) is defined as \leq 3 pounds, 5 ounces (\leq 1500 g), for infants. The Very Low Birth Weight risk is assigned for infants who weigh \leq 3 pounds, 5 ounces at birth.

Note: See “Guidelines for Growth Charts and Gestational Age Adjustment for Low Birth Weight and Very Low Birth Weight Infants” located in the Appendix of this chapter for more information about the anthropometric assessment and nutritional care of LBW and VLBW infants.

**Client category
and priority level**

Category	Priority
Infants	1
Children < 2 years	3

Justification

Low birth weight (LBW) is one of the most important biologic predictors of infant death and deficiencies in physical and mental development during childhood among those babies who survive and continues to be a strong predictor of growth in early childhood. Infant and children born with LBW, particularly LBW caused by fetal growth restriction, need an optimal nutrient intake to survive, meet the needs of an extended period of relatively rapid postnatal growth, and complete their growth and development (1).

References

Cited Reference:

1. Institute of Medicine. WIC nutrition risk criteria a scientific assessment. Washington (DC): National Academy Press; 1996. p. 97.

Additional Reference:

2. Anderson DM. Nutritional implications of premature birth, birth weight, and gestational age classification. In: Groh-Wargo S, Thompson M, Cox J, editors. Nutritional care for high-risk newborns. Rev. 3rd ed. Chicago: Precept Press, Inc.; 2000.

Low Birth Weight \leq 5 lbs., 8 oz. (Hx) – PG Women
Low Birth Weight \leq 5 lbs., 8 oz. (This PG) – BF/PP Women

Federal Risk 312

**Definition/
cut-off value**

Birth of an infant weighing \leq 5 lb. 8 oz (\leq 2500 grams).
 Pregnant Women: any history of having a low birth weight infant
 Breastfeeding/Postpartum: most recent pregnancy

**Client category
and priority level**

Category	Priority
Pregnant women	1
Breastfeeding women	1
Postpartum women	6

Justification

A woman’s history of a delivery of a low birth weight (LBW) baby is the most reliable predictor for LBW in her subsequent pregnancy (1). The risk for LBW is 2-5 times higher than average among women who have had previous LBW deliveries, and increases with the number of previous LBW deliveries (1). This is true for histories in which the LBW was due to premature birth, fetal growth restriction (FGR), or a combination of these factors. The extent to which nutritional interventions (dietary supplementation and counsel) can decrease the risk for repeat LBW, depends upon the relative degree to which poor nutrition was implicated in each woman’s previous poor pregnancy outcome. Nutritional deficiencies and excesses have been shown to result in LBW and pregnancy loss. The pregnant woman’s weight gain is one of the most important correlates of birth weight and of FGR (2, 3).

References

1. Institute of Medicine: Committee to Study the Prevention of Low Birth Weight: Preventing Low Birth Weight; 1985; p. 51.
2. Institute of Medicine: Nutrition During Pregnancy; National Academy Press; 1990, pp. 176-211.
3. Kramer: Intrauterine Growth and Gestational Duration Determents. Pediatrics; October 1987; 80(4):502-511.

Low Hemoglobin/Hematocrit

Federal Risk 201

**Definition/
cut-off value**

Hemoglobin or hematocrit concentration below the 95% confidence interval (i.e. below the .025 percentile) for healthy, well-nourished individuals of the same age, sex, and stage of pregnancy.

Cut-off values are:

Pregnant Women:

- 1st Trimester: < 11.0 g/dl Hgb (< 33% Hct)
- 2nd Trimester: < 10.5 g/dl Hgb (< 32% Hct)
- 3rd Trimester: < 11.0 g/dl Hgb (< 33% Hct)

Breastfeeding and Postpartum Women: <12.0 g/dl Hgb (< 36% Hct)

Infants:

- 6 – 12 months: < 11.0 g/dl Hgb (< 33% Hct)

Children:

- 1 – 5 years: < 11.0 g/dl Hgb (< 33% Hct)

**Client category
and priority level**

Category	Priority
Pregnant women	1
Breastfeeding women	1
Postpartum women	6
Infants	1
Children	3

Justification

Hemoglobin (Hgb) and hematocrit (Hct) are the most commonly used tests to screen for iron deficiency anemia. Measurements of Hgb and Hct reflect the amount of functional iron in the body. Changes in Hgb concentration and Hct occur at the late stages of iron deficiency. While neither an Hgb nor Hct test are direct measures of iron status and do not distinguish among different types of anemia, these tests are useful indicators of iron deficiency anemia.

Iron deficiency is by far the most common cause of anemia in children and women of childbearing age. It may be caused by a diet low in iron, insufficient assimilation of iron from the diet, increased iron requirements due to growth or pregnancy, or blood loss. Anemia can impair energy metabolism, temperature regulation, immune function, and work performance. Anemia during pregnancy may increase the risk

Low Hemoglobin/Hematocrit (continued)

of prematurity, poor maternal weight gain, low birth weight, and infant mortality. In infants and children, even mild anemia may delay mental and motor development. The risk increases with the duration and severity of anemia, and early damages are unlikely to be reversed through later therapy.

References

1. CDC: Criteria for Anemia in Children and Childbearing-Aged Women. MMWR 1998;47:RR-3.
 2. Centers for Disease Control and Prevention: Prenatal Nutrition Surveillance System User's Manual. Atlanta, GA: CDC; 1994.
 3. Institute of Medicine: Iron Deficiency Anemia: Recommended Guidelines for the Prevention, Detection, and Management Among US Children and Women of Childbearing Age; 1993.
 4. Institute of Medicine: Nutrition During Pregnancy; National Academy Press; Washington, D. C., 1990.
 5. Institute of Medicine: WIC Nutrition Risk Assessment; 1996.
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Clarification

Basis for blood work assessment:

For pregnant women being assessed for iron deficiency anemia, bloodwork must be evaluated using trimester values established by CDC. Thus the blood test result for a pregnant woman would be assessed based on the trimester in which her bloodwork was taken.

Definition of Trimester:

CDC defines a trimester as a term of three months in the prenatal gestation period with the specific trimesters defined as follows in weeks:

- First Trimester: 0-13 weeks
- Second Trimester: 14-26 weeks
- Third Trimester: 27-40 weeks.

Further, CDC begins the calculation of weeks starting with the first day of the last menstrual period. If that date is not available, CDC estimates that date from the estimated date of confinement (EDC). This definition is used in interpreting CDC's Prenatal Nutrition Surveillance System data, comprised primarily of data on pregnant women participating in the WIC Program.

Low Weight Gain – 1st Trimester
Low Weight Gain – 2nd/3rd Trimester

Federal Risk 131
High Risk Factor – Low Weight Gain – 2nd/3rd Trimester

Definition
cut-off value

Low weight gain at any point in pregnancy, such that using the Washington State WIC Program weight gain grid, a pregnant woman’s weight plots beneath the bottom line of the appropriate weight gain range for her respective pre-pregnancy weight category (underweight, normal, or overweight or obese) as shown below. Washington State WIC Program prenatal weight gain grids are based on the Institute of Medicine’s (IOM) 2009 recommendations for maternal weight gain.

<u>Pre-Pregnant Weight Groups</u>	<u>Definition</u>	<u>Weight Gain Recommendations</u>
Underweight	BMI < 18.5	28 – 40 lbs
Normal Weight	BMI 18.5 to 24.9	25 – 35 lbs
Overweight	BMI 25.0 to 29.9	15 – 25 lbs
Obese	BMI ≥30.0	11 - 20

Multi-fetal Pregnancies: See Justification for information.

Note: Until research supports the use of different BMI cut-offs to determine weight categories for adolescent pregnancies, the same BMI cut-offs will be used for all women, regardless of age, when determining WIC eligibility. See Justification for a more detailed explanation.

Refer to the Appendix for a BMI table for determining weight classification for women.

Client category
and priority level

Category	Priority
Pregnant women	1

Low Weight Gain – 1st Trimester (continued)
Low Weight Gain – 2nd/3rd Trimester (continued)

Justification

Maternal weight gain during the 2nd and 3rd trimesters is an important determinant of fetal growth. Low maternal weight gain is associated with an increased risk of small for gestational age (SGA) infants, especially in underweight and normal-weight women (1). In addition, low maternal weight gain is associated with failure to initiate breastfeeding and preterm birth among underweight and to a lesser extent normal weight women (1).

The 2009 Institute of Medicine (IOM) report: *Weight Gain During Pregnancy: Reexamining the Guidelines* (1) updated the pregnancy weight categories to conform to the categories developed by the World Health Organization and adopted by the National Heart, Lung and Blood Institute in 1998 (2). The reexamination of the guidelines consisted of a review of the determinants of a wide range of short- and long-term consequences of variation in weight gain during pregnancy for both the mother and her infant. The IOM prenatal weight gain recommendations based on prepregnancy weight status categories are associated with improved maternal and child health outcomes (1).

Included in the 2009 IOM guidelines is the recommendation that the BMI weight categories used for adult women be used for pregnant adolescents as well. More research is needed to determine whether special categories are needed for adolescents. It is recognized that the IOM cut-offs for defining weight categories will classify some adolescents differently than the CDC BMI-for-age charts. For the purpose of WIC eligibility determination, the IOM cut-offs will be used for all women regardless of age. However, due to the lack of research on relevant BMI cut-offs for pregnant and postpartum adolescents, professionals should use all of the tools available to them to assess these applicants' anthropometric status and tailor nutrition counseling accordingly.

Low Weight Gain – 1st Trimester (continued)
Low Weight Gain – 2nd/3rd Trimester (continued)

For twin gestations, the 2009 IOM recommendations provide provisional guidelines: normal-weight women should gain 37 – 54 pounds; overweight women, 31 – 50 pounds; and obese women, 25 – 42 pounds. There was insufficient information for the IOM committee to develop even provisional guidelines for underweight women with multiple fetuses (1). A consistent rate of weight gain is advisable. A gain of 1.5 pounds per week during the second and third trimesters has been associated with a reduced risk of preterm and low-birth weight delivery in twin pregnancy (3). In triplet pregnancies the overall weight gain should be around 50 pounds with a steady rate of gain of approximately 1.5 pounds per week through-out the pregnancy (3). For WIC eligibility determinations, multiple fetuses are considered a nutrition risk in and of themselves, aside from the weight gain issue.

The supplemental foods, nutrition education, and counseling related to the weight gain guidelines provided by the WIC Program may improve maternal weight status and infant outcomes (4).

References

1. Institute of Medicine. Weight gain during pregnancy: reexamining the Guidelines (Prepublication Copy). National Academy Press, Washington D. C.; 2009. www.nap.edu. Accessed June 2009.
 2. National Heart, Lung, and Blood Institute (NHLBI), National Institutes of Health (NIH). Clinical guidelines on the identification, evaluation, and treatment of overweight and obesity in adults. NIH Publication No.: 98-4083, 1998. www.nhlbi.nih.gov. Accessed June 2009.
 3. Brown JE and Carlson M. Nutrition and multifetal pregnancy. J Am Diet Assoc. 2000;100:343-348.
 4. Institute of Medicine: WIC Nutrition Risk Criteria: A Scientific Assessment. National Academy Press, Washington, D. C.; 1996.
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Low Weight Gain – 1st Trimester (continued)
Low Weight Gain – 2nd/3rd Trimester (continued)

Additional Related References

1. Brown JE, Schloesser PT. Pregnancy weight status, prenatal weight gain, and the outcome of term twin gestation. *Am.J.Obstet.Gynecol.* 1990;162:182-6.
2. Parker JD, Abrams B. Prenatal weight gain advice: an examination of the recent prenatal weight gain recommendations of the Institute of Medicine. *Obstet Gynecol*, 1992; 79:664-9.
3. Siega-Riz AM, Adair LS, Hobel CJ. Institute of Medicine maternal weight gain recommendations and pregnancy outcomes in a predominately Hispanic population. *Obstet Gynecol*, 1994; 84:565-73.
4. Suitor, CW, editor. *Maternal Weight Gain: A Report of an Expert Work Group*. Arlington, Virginia: National Center for Education in Maternal and Child Health; 1997. Sponsored by Maternal and Child Health Bureau, Health Resources and Services Administration, Public Health Service, U. S. Department of Health and Human Services.
5. Williams RL, Creasy RK, Cunningham GC, Hawes WE, Norris FD, Tashiro M. Fetal growth and perinatal viability in California. *Obstet. Gynecol.* 1982;59:624-32.

Clarification

The Centers for Disease Control and Prevention (CDC) defines a trimester as a term of three months in the prenatal gestation period with the specific trimesters defined as follows in weeks.

First Trimester: 0-13 weeks
Second Trimester: 14-26 weeks
Third Trimester: 27-40 weeks.

Further, CDC begins the calculation of weeks starting with the first day of the last menstrual period. If that date is not available, CDC estimates that date from the estimated date of confinement (EDC). This definition is used in interpreting CDC's Prenatal Nutrition Surveillance System data, comprised primarily of data on pregnant women participating in the WIC Program.

Lung Disorder

Federal Risk 360 High Risk Factor

**Definition/
cut-off value**

A diagnosis of lung disease or disorder. The current condition or treatment of the condition must be severe enough to affect nutritional status. Includes but is not limited to: chronic lung disease or bronchopulmonary dysplasia.

Presence of medical condition(s) diagnosed by a physician as self-reported by applicant/participant/caregiver; or as reported or documented by a physician, or someone working under a physician's orders.

**Client category
and priority level**

Category	Priority
Pregnant women	1
Breastfeeding women	1
Postpartum women	6
Infants	1
Children	3

Justification

Chronic lung diseases affect normal physiological processes and can be accompanied by failure to thrive and malnutrition. Growth in infants and children with lung disorders may be compromised by several factors, including respiratory limitations, increased energy needs, and feeding difficulties.

Bronchopulmonary dysplasia (BPD) typically occurs in very low birth weight (VLBW) infants who sustain lung damage as a result of oxygen toxicity and barotraumas from mechanical ventilation early in life. The goals of nutritional care for children with BPD is to supply adequate calories and nutrients to promote adequate linear growth, maintain fluid balance and develop age-appropriate feeding skills. (3)

References

1. Institute of Medicine: WIC Nutrition Risk Criteria: A Scientific Assessment; 1996; pp. 185-187, 190-191.
 2. Queen, Patricia and Lang, Carol: Handbook of Pediatric Nutrition; 1993; pp. 422-425.
 3. Washington State Department of Health: Nutrition Interventions for Children with Special Health Care Needs, 2001: pp 153 – 162.
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Lung Disorder (continued)

Clarification

Self-reporting of a diagnosis by a medical professional should not be confused with self-diagnosis, where a person simply claims to have or to have had a medical condition without any reference to professional diagnosis. A self-reported medical diagnosis (“My doctor says that I have/my son or daughter has...”) should prompt the CPA to validate the presence of the condition by asking more pointed questions related to that diagnosis.

Lupus

Federal Risk 360
High Risk Factor

**Definition/
 cut-off value**

The presence of lupus erythematosus. The current condition, or treatment for the condition, must be severe enough to affect nutritional status.

Presence of medical condition(s) diagnosed by a physician as self-reported by applicant/participant/caregiver; or as reported or documented by a physician, or someone working under a physician’s orders.

**Client category
 and priority level**

Category	Priority
Pregnant women	1
Breastfeeding women	1
Postpartum women	6
Infants	1
Children	3

Justification

Lupus erythematosus is an autoimmune disorder that affects multiple organ systems. Lupus erythematosus increases the risk of infections, malaise, anorexia, and weight loss. In pregnant women, there is increased risk of spontaneous abortion and late pregnancy losses (after 28 weeks gestation).

References

1. Institute of Medicine: WIC Nutrition Risk Criteria: A Scientific Assessment; 1996; pp. 185-187, 190-191.
2. Queen, Patricia and Lang, Carol: Handbook of Pediatric Nutrition; 1993; pp. 422-425.

Clarification

Self-reporting of a diagnosis by a medical professional should not be confused with self-diagnosis, where a person simply claims to have or to have had a medical condition without any reference to professional diagnosis. A self-reported medical diagnosis (“My doctor says that I have/my son or daughter has...”) should prompt the CPA to validate the presence of the condition by asking more pointed questions related to that diagnosis.

Maternal Smoking

Federal Risk 371

**Definition/
cut-off value**

Any smoking of tobacco products, i.e., cigarettes, pipes, or cigars.

Pregnant women: If the pregnant woman smokes at any time during her pregnancy this risk is assigned. If the pregnant woman quit smoking prior to being certified to WIC this risk still applies.

Breastfeeding and Postpartum women: Assign this risk only when the breastfeeding or postpartum woman is currently smoking.

**Client category
and priority level**

Category	Priority
Pregnant women	1
Breastfeeding women	1
Postpartum women	6

Justification

Research has shown that smoking during pregnancy causes health problems and other adverse consequences for the mother, the unborn fetus and the newborn infant such as: pregnancy complications, premature birth, low birth weight, stillbirth, infant death, and risk for Sudden Infant Death Syndrome (SIDS) (1). Women who smoke are at risk for chronic and degenerative diseases such as: cancer, cardiovascular disease and chronic obstructive pulmonary disease. They are also at risk for other physiological effects such as loss of bone density (2).

Maternal smoking exposes the infant to nicotine and other compounds including cyanide and carbon monoxide, in-utero and via breastmilk (3). In-utero exposure to maternal smoking is associated with reduced lung function among infants (4). In addition, maternal smoking exposes infants and children to environmental tobacco smoke (ETS) or secondhand smoke.

Because smoking increases oxidative stress and metabolic turnover of vitamin C, the requirement for this vitamin is higher for women who smoke (5). The WIC food package provides a good source of vitamin C. Women who participate in WIC may also benefit from counseling and referral to smoking cessation programs.

References

1. Manual of Clinical Dietetics 6th ed., American Dietetic Association. 2000.
 2. Women and Smoking: A Report of the Surgeon General – 2001.
http://www.cdc.gov/tobacco/data_statistics/sgr/sgr_2001/sgr_women_chapters.htm
-

Maternal Smoking (continued)

3. Breastfeeding Handbook for Physicians, American Academy of Pediatrics and American College of Obstetrics and Gynecologists. 2006.
4. U.S. Department of Health and Human Services. *The Health Consequences of Smoking: A Report of the Surgeon General – Executive Summary*. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, Coordinating Center for Health Promotion, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2004.
5. *Dietary Reference Intakes for Vitamin C, Vitamin E, Selenium and Carotenoids* (2000) Institute of Medicine, the National Academy of Science.

Maternal Substance Use (during pregnancy)

Federal Risk 703

**Definition/
cut-off value**

Infant born of a woman with documentation or self-reporting of any use of alcohol or illegal drugs during the most recent pregnancy.

Note: Although marijuana is legal in Washington state; this nutrition risk factor applies when the pregnant woman used marijuana during the pregnancy.

**Client category
and priority level**

Category

Priority

Infants

1

Justification

Maternal chemical dependency represents social risk factors for Failure to Thrive. Chemical dependency is also strongly associated with abuse and neglect. In 22 States, 90% of all caretakers reported for child abuse are active substance abusers (3). These maternal conditions may contribute to a lack of synchrony between the infant and mother during feeding and therefore interfere with the infant’s growth progress. Nutrient intake depends on the synchronization of maternal and infant behaviors involve in feeding interactions (2, 4).

References

1. Grand, R., Stephen, J., and Dietz, W.: Pediatric Nutrition: Theory and Practice; Butterworths; 1987; pp. 627-644.
 2. McCullough, C.: The Child Welfare Response; The Future of Children; Spring 1991; vol. 1(1); pp. 61-67.
 3. Pollitt, Ernest, and Wirtz, Steve: Mother-infant feeding interaction and weight gain in the first month of life; Journal of American Dietetic Association; 1981; 78:596-601.
 4. WIC Program Regulations: Section 246.7(e)(2)(ii).
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Clarification

Self-reporting of a diagnosis by a medical professional should not be confused with self-diagnosis, where a person simply claims to have or to have had a medical condition without any reference to professional diagnosis. A self-reported medical diagnosis (“My doctor says that I have/my son or daughter has...”) should prompt the CPA to validate the presence of the condition by asking more pointed questions related to that diagnosis.

Metabolic Disorder

**Federal Risk 351
 High Risk Factor**

**Definition/
 cut-off value**

Inherited metabolic disorders caused by a defect in the enzymes or their co-factors that metabolize protein, carbohydrate or fat.

Inborn errors of metabolism (IEM) generally refer to gene mutations or gene deletions that alter metabolism in the body, including, but not limited to:

Inborn Errors of Metabolism*	
• Amino Acid Disorders	• Urea Cycle Disorders
• Organic Acid Metabolism Disorders	• Carbohydrate Disorders
• Fatty Acid Oxidation Disorders	• Peroxisomal Disorders
• Lysosomal Storage Diseases	• Mitochondrial Disorders
* For additional information about IEM see the Clarification. For information about each condition see the Justification	

Presence of condition diagnosed, documented or reported by a physician or someone working under physician’s orders, or as self-reported by the applicant, participant or caregiver. See Clarification for more information about self-reporting a diagnosis.

**Client category
 and priority level**

Category	Priority
Pregnant women	1
Breastfeeding women	1
Postpartum women	6
Infants	1
Children	3

Justification

The inheritance of most metabolic disorders is rare. IEM disorders may manifest at any stage of life, from infancy to adulthood. Early identification of IEM correlates with significant reduction in morbidity, mortality, and associated disabilities for those affected (1).

Metabolic Disorder (continued)

All States screen newborns for IEM, although the type and number of IEM screened for may vary from State to State. Typically, infants are screened for amino acid disorders, urea cycle disorders, organic acid disorders, and fatty acid oxidation defects. A few States are working toward including lysosomal storage diseases and peroxisomal disorders among their newborn screening panels (2).

In most states, treatment of an IEM is referred to a specialized metabolic treatment facility. Please see Clarification for contact information for treatment facilities. IEM treatment is based on symptomatic therapy which may include the following strategies: substrate restriction; stimulation or stabilization of residual enzyme activity; replacement of deficient products; removal of toxic metabolites or blocking their production; and enzyme replacement therapy (3). Avoidance of catabolism is essential at all treatment stages.

Nutrition therapy is integral to the treatment of IEM. Nutrition therapy should both correct the metabolic imbalance and ensure adequate energy, protein, and nutrients for normal growth and development among affected individuals. Continual monitoring of nutrient intake, laboratory values, and the individual's growth are needed for evaluation of the adequacy of the prescribed diet (4). It is important that the caregivers of infants and children with IEM ensure that the patient follows the prescribed dietary regimen. The below embedded links provide the most up-to-date information about the disease state as well as treatment.

Amino Acid Metabolism Disorders (3)

- Phenylketonuria (includes clinically significant hyperphenylalaninemia variants) - <http://ghr.nlm.nih.gov/condition/phenylketonuria>
- Maple syrup urine disease - <http://ghr.nlm.nih.gov/condition/maple-syrup-urine-disease>
- Homocystinurea - <http://ghr.nlm.nih.gov/condition/homocystinuria>
- Tyrosinemia - <http://ghr.nlm.nih.gov/condition/tyrosinemia>

Amino Acid Metabolism Disorders are characterized by the inability to metabolize a certain essential amino acid. The build-up of the amino acid that is not metabolized can be toxic. Treatment of amino acid disorders involves restricting one or more essential amino acids to the minimum required for growth and development and supplying the missing product due to the blocked reaction.

Metabolic Disorder (continued)

Carbohydrate Disorders (5)

- Galactosemia - <http://ghr.nlm.nih.gov/condition/galactosemia>
- Glycogen storage disease type I - <http://ghr.nlm.nih.gov/condition/glycogen-storage-disease-type-i>
- Glycogen storage disease type II - <http://ghr.nlm.nih.gov/condition/pompe-disease>. (See also Pompe disease - <http://ghr.nlm.nih.gov/condition/pompe-disease>).
- Glycogen storage disease type III - <http://ghr.nlm.nih.gov/condition/glycogen-storage-disease-type-iii>
- Glycogen storage disease type IV (Andersen Disease) - <http://www.rarediseases.org/rare-disease-information/rare-diseases/byID/394/viewAbstract>
- Glycogen storage disease type V - <http://ghr.nlm.nih.gov/condition/glycogen-storage-disease-type-v>
- Glycogen storage disease type VI - <http://ghr.nlm.nih.gov/condition/glycogen-storage-disease-type-vi>
- Hereditary Fructose Intolerance (Fructose 1 – phosphate aldolase deficiency, Fructose 1, 6, biphosphatase deficiency, fructose kinase deficiency) - <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1051308/pdf/jmedgene00234-0001.pdf>

This group of disorders includes an enzyme deficiency or its cofactor that affects the catabolism or anabolism of carbohydrate. Carbohydrate disorders are complex and affect neurological, physical, and nutritional status.

Fatty Acid Oxidation Defects (5)

- Medium-chain acyl-CoA dehydrogenase deficiency - <http://ghr.nlm.nih.gov/condition/medium-chain-acyl-coa-dehydrogenase-deficiency>
- Long-chain 3-hydroxyacyl-CoA dehydrogenase deficiency - <http://ghr.nlm.nih.gov/condition/long-chain-3-hydroxyacyl-coa-dehydrogenase-deficiency>
- Trifunctional protein deficiency type 1 (LCHAD deficiency) - <http://ghr.nlm.nih.gov/condition/long-chain-3-hydroxyacyl-coa-dehydrogenase-deficiency>
- Trifunctional protein deficiency type 2 (mitochondrial trifunctional protein deficiency) - <http://ghr.nlm.nih.gov/condition/mitochondrial-trifunctional-protein-deficiency>

Metabolic Disorder (continued)

Fatty Acid Oxidation Defects (continued)

- Carnitine uptake defect (primary carnitine deficiency) - <http://ghr.nlm.nih.gov/condition/primary-carnitine-deficiency>
- Very long-chain acyl-CoA dehydrogenase deficiency - <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1051308/pdf/jmedgene00234-0001.pdf>

Fatty acid oxidation defects include any enzyme defect in the process of mitochondrial fatty acid oxidation (FAO) system. The biochemical characteristic of all FAO defects is abnormal low ketone production as a result of the increased energy demands. This results in fasting hypoglycemia with severe acidosis secondary to the abnormal accumulation of intermediate metabolites of FAO, which can result in death.

Organic Acid Disorders (AKA organic aciduria or organic acidemia) (6)

- Isovaleric acidemia - <http://ghr.nlm.nih.gov/condition/isovaleric-acidemia>
- 3-Methylcrotonyl-CoA carboxylase deficiency - <http://ghr.nlm.nih.gov/condition/3-methylcrotonyl-coa-carboxylase-deficiency>
- Glutaric acidemia type I - <http://ghr.nlm.nih.gov/condition/glutaric-acidemia-type-i>
- Glutaric acidemia type II - <http://ghr.nlm.nih.gov/condition/glutaric-acidemia-type-ii>
- 3-hydroxy-3-methylglutaryl-coenzyme A lyase deficiency - <http://ghr.nlm.nih.gov/condition/3-methylcrotonyl-coa-carboxylase-deficiency>
- Multiple carboxylase deficiency – <http://ghr.nlm.nih.gov/condition/biotinidase-deficiency>. (Biotinidase deficiency, Holocarboxylase synthetase deficiency - <http://ghr.nlm.nih.gov/condition/holocarboxylase-synthetase-deficiency>)
- Methylmalonic acidemia - <http://ghr.nlm.nih.gov/condition/methylmalonic-acidemia>
- Propionic acidemia - <http://ghr.nlm.nih.gov/condition/propionic-acidemia>
- Beta-ketothiolase deficiency - <http://ghr.nlm.nih.gov/condition/beta-ketothiolase-deficiency>

Organic Acid Disorders are characterized by the excretion of non-amino organic acids in the urine. Most of the disorders are caused by a deficient enzyme involving the catabolism of specific amino acid(s). As a result, the non-metabolized substance accumulates due to the blockage of the specific metabolic pathway, which is toxic to certain organs and may also cause damage to the brain (7).

Metabolic Disorder (continued)

Lysosomal Storage Diseases (6, 8)

- Fabry disease (α -galactosidase A deficiency) - <http://ghr.nlm.nih.gov/condition/fabry-disease>
- Gauchers disease (glucocerebrosidase deficiency) - <http://ghr.nlm.nih.gov/condition/gaucher-disease>
- Pompe disease (glycogen storage disease Type II, or acid α -glucosidase deficiency) - <http://ghr.nlm.nih.gov/condition/pompe-disease>

Lysosomal storage diseases are a group of related conditions characterized by increased storage of undigested large molecule in lysosomes. Lysosome is a cellular organelle responsible for intracellular degradation and recycling of macromolecules. Due to a defect in a specific lysosomal enzyme, the macromolecule that normally would be metabolized is not broken down; instead, it accumulates in the lysosomes. This leads to tissue damage, organ failures and premature death. Common clinical features include bone abnormalities, organomegaly, developmental impairment and central, peripheral nervous system disorders.

Mitochondrial Disorders (6, 8)

- Leber hereditary optic neuropathy - <http://ghr.nlm.nih.gov/condition/leber-hereditary-optic-neuropathy>
- Mitochondrial encephalomyopathy, lactic acidosis, and stroke-like episodes (MELAS) - <http://ghr.nlm.nih.gov/condition/mitochondrial-encephalomyopathy-lactic-acidosis-and-stroke-like-episodes>
- Mitochondrial neurogastrointestinal encephalopathy disease (MNGIE) - <http://ghr.nlm.nih.gov/condition/mitochondrial-neurogastrointestinal-encephalopathy-disease>
- Myoclonic epilepsy with ragged-red fibers (MERRF) - <http://ghr.nlm.nih.gov/condition/myoclonic-epilepsy-with-ragged-red-fibers>
- Neuropathy, ataxia, and retinitis pigmentosa (NARP) - <http://ghr.nlm.nih.gov/condition/neuropathy-ataxia-and-retinitis-pigmentosa>
- Pyruvate carboxylase deficiency - <http://ghr.nlm.nih.gov/condition/pyruvate-carboxylase-deficiency>

Mitochondrial Disorders are caused by the dysfunction of the mitochondrial respiratory chain, or electron transport chain (ETC). Mitochondria play an essential role in energy production. The ETC dysfunction increases free radical production, which causes mitochondrial cellular damage, cell death and tissue necrosis and further worsens ETC dysfunction and thus forms a vicious cycle. The disorders can

Metabolic Disorder (continued)

affect almost all organ systems. However, the organs and cells that have the highest energy demand, such as the brain and muscles (skeletal and cardiac) are most affected. The clinical features vary greatly among this group of disorders, but most have multiple organ dysfunctions with severe neuropathy and myopathy.

Peroxisomal Disorders (6, 8, 9)

- Zellweger Syndrome Spectrum - <http://www.ncbi.nlm.nih.gov/books/NBK1448/>
- Adrenoleukodystrophy (x-ALD) - <http://ghr.nlm.nih.gov/condition/x-linked-adrenoleukodystrophy>

There are two types of peroxisomal disorders: single peroxisomal enzyme deficiencies and peroxisomal biogenesis disorders. These disorders cause severe seizures and psychomotor retardation (9). Peroxisomes are small organelles found in cytoplasm of all cells. They carry out oxidative reactions which generate hydrogen peroxides. They also contain catalase (peroxidase), which is important in detoxifying ethanol, formic acid and other toxins. Single peroxisomal enzyme deficiencies are diseases with dysfunction of a specific enzyme, such as acyl coenzyme A oxidase deficiency. Peroxisomal biogenesis disorders are caused by multiple peroxisome enzymes such as Zellweger syndrome and neonatal adrenoleukodystrophy.

Urea Cycle Disorders (6, 5)

- Citrullinemia - <http://ghr.nlm.nih.gov/condition/citrullinemia>
- Argininosuccinic aciduria - <http://ghr.nlm.nih.gov/condition/argininosuccinic-aciduria>
- Carbamoyl phosphate synthetase I deficiency - <http://ghr.nlm.nih.gov/condition/carbamoyl-phosphate-synthetase-i-deficiency>

Urea Cycle Disorders occur when any defect or total absence of any of the enzymes or the cofactors used in the urea cycle results in the accumulation of ammonia in the blood. The urea cycle converts waste nitrogen into urea and excretes it from the kidneys. Since there are no alternate pathways to clear the ammonia dysfunction of the urea cycle results in neurologic damages.

Metabolic Disorder (continued)

**Implications
For WIC
Nutrition Services**

WIC can provide exempt infant formulas and WIC-eligible medical foods, including those specifically formulated for IEM. Most of the dietary regimens for IEM require a combination of medical food (special formula in most cases) and standard infant formula or prescribed conventional foods. For example, participants with IEM related to essential amino acid metabolism (such as PKU, MSUD), who are not developmentally ready for conventional foods; require both medical food without the offending amino acid(s), and human milk or standard infant formula.

It is recommended that WIC nutritionists collaborate with the clinic dietitians at the metabolic treatment facility, where available, to prescribe WIC food packages (Food Package III) according to the therapeutic diet ordered by the metabolic team, monitor the compliance of the restricted diet, and follow up on the growth and developmental status of the participants with IEM.

Note: Infants with classic galactosemia cannot be breastfed due to lactose in human milk.

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Metabolic Disorder (continued)

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Clarification

IEM not listed within this write-up may be found under: <http://rarediseases.info.nih.gov/GARD>. Please keep in mind these additional resources are not meant for medical advice nor to suggest treatment.

Self-reporting of a diagnosis by a medical professional should not be confused with self-diagnosis, where a person simply claims to have or to have had a medical condition without any reference to professional diagnosis. A self-reported medical diagnosis (“My doctor says that I have/my son or daughter has...”) should prompt the CPA to validate the presence of the condition by asking more pointed questions related to that diagnosis.

The link below lists newborn screening coordinators. The coordinator can direct families to appropriate metabolic treatment facilities based on the newborn screening result: http://genes-r-us.uthscsa.edu/State_contacts.pdf

Migrancy

Federal Risk 802

**Definition/
cut-off value**

Categorically eligible women, infants, and children who are members of families which contain at least one individual whose principal employment is in agriculture on a seasonal basis, who has been so employed within the last 24 months, and who establishes, for the purposes of such employment, a temporary abode.

**Client category
and priority level**

Category	Priority
Pregnant women	4
Breastfeeding women	4
Postpartum women	6
Infants	4
Children	5

Justification

Data on the health and/or nutritional status of migrants indicate significantly higher rates or incidence of infant mortality, malnutrition, and parasitic disease (among migrant children) than among the general U.S. population. Therefore, migrancy has long been stipulated as a condition that predisposes persons to inadequate nutritional patterns or nutritionally related medical conditions.

References

WIC Program Regulations: Section 246.7(e)(2)(iv).

No Prenatal Care > 13 weeks

Federal Risk 334

Definition/ Prenatal care beginning after the 1st trimester (after the 13th week gestation).

Client category and priority level	Category	Priority
	Pregnant women	1

Justification Women who do not receive early and adequate prenatal care are more likely to deliver premature, growth retarded, or low birth weight infants (3). Women with medical or obstetric problems, as well as younger adolescents, may need closer management (1). Several studies have reported significant health and nutrition benefits for pregnant women enrolled in the WIC Program (3).

- References**
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Not Meeting Dietary Guidelines
Not Meeting Dietary Guidelines (2 – 5 years)

Federal Risk 401

**Definition/
cut-off value**

Women and children two years of age and older who meet the income, categorical, and residency eligibility requirements may be presumed to be at nutrition risk for *Failure to Meet Dietary Guidelines for Americans [Dietary Guidelines]*(1). Based on an individual’s estimated energy needs, the *failure to meet Dietary Guidelines* risk criterion is defined as consuming fewer than the recommended number of servings from one or more of the basic food groups (grains, fruits, vegetables, milk products, and meat or beans).

Only assign this risk when the client doesn’t have another medical or dietary risk after completing the assessment.

**Client category
and priority level**

Category	Priority
Pregnant women	4
Breastfeeding women	4
Postpartum women	6
Children (2 – 5 years)	5

Justification

The 1996 Institute of Medicine (IOM) report, *WIC Nutrition Risk Criteria: A Scientific Assessment* (2) raised questions about the quality of traditional dietary assessment methods (e.g., 24-hour recall and food frequency questionnaires) and recommend further research in the development and validation of diet assessment methodologies. In response to the 1996 IOM report, the Food and Nutrition Service (FNS) commissioned the IOM to review the use of various dietary assessment tools and to make recommendations for assessing inadequate diet or inappropriate dietary patterns, especially in the category of failure to meet Dietary Guidelines (see Clarification) (3).

The IOM Committee on Dietary Risk Assessment in the WIC Program approached this task by using the Food Guide Pyramid* recommended number of servings, based on energy needs, as cut-off points for each of the five basic food groups to determine if individuals were meeting the *Dietary Guidelines*. As a result of the review of the cut-off points for food groups and dietary assessment methods, the IOM published the 2002 report, *Dietary Assessment in the WIC Program*. The IOM Committee’s findings related to dietary risk, the summary evidence, and the Committee’s concluding recommendation are provided below. (4)

Not Meeting Dietary Guidelines (continued)
Not Meeting Dietary Guidelines (2 – 5 years) (continued)

IOM Committee Findings Related to Dietary Risk (4) (For more information, refer to the specific pages listed.)

- A dietary risk criterion that uses the WIC applicant's usual intake of the five basic Pyramid* food groups as the indicator and the recommended number of servings based on energy needs as the cut-off points is consistent with *failure to meet Dietary Guidelines*. (page 130)
- Nearly all U.S. women and children usually consume fewer than the recommended number of servings specified by the Food Guide Pyramid* and, therefore, would be at dietary risk based on the criterion *failure to meet Dietary Guidelines*. (page 130)
- Even research-quality dietary assessment methods are not sufficiently accurate or precise to distinguish an **individual's** eligibility status using criteria based on the Food Guide Pyramid* or on nutrient intake. (page 131)

Summary Evidence Supporting a Presumed Dietary Risk Criterion (4) (For more information, refer to the specific page listed.)

- Less than 1 percent of all women meet recommendations for all five Pyramid* groups. (page 127)
- Less than 1 percent of children ages 2 to 5 years meet recommendations for all five Pyramid* groups. (page 127)
- The percentage of women consuming fruit during 3 days of intake increases with increasing income level. (page 127)
- Members of low-income households are less likely to meet recommendations than are more affluent households. (page 127)
- Food-insecure mothers are less likely to meet recommendations for fruit and vegetable intake than are food-secure mothers. (page 127)
- The percentage of children meeting recommendations for fat and saturated fat as a percentage of food energy increases with increasing income level. (page 127)
- Low-income individuals and African Americans have lower mean Healthy Eating Index scores than do other income and racial/ethnic groups. (page 127)

** The Food Guide Pyramid was the Dietary Guidelines icon at the time the 2002 IOM Committee on Dietary Risk Assessment in the WIC Program conducted the review. The Dietary Guidelines icon has been changed to MyPlate. Although the icon has changed, the Findings and the Supporting Research are still applicable to this criterion. Please see Clarification for more information.*

Not Meeting Dietary Guidelines (continued)
Not Meeting Dietary Guidelines (2 – 5 years) (continued)

Summary Evidence Suggesting that Dietary Assessment Methods are Not Sufficient to Determine a WIC Applicant’s Dietary Risk (4) (For more information, refer to the specific page listed.)

- 24-hour diet recalls and food records are not good measures of an individual’s usual intake unless a number of independent days are observed. (page 61)
- On average, 24-hour diet recalls and food records tend to underestimate usual intake - energy intake in particular. (page 61)
- Food Frequency Questionnaires and diet histories tend to overestimate mean energy intakes. (page 61)

IOM Committee Concluding Recommendation (4) (For more information, refer to the specific page listed.)

“In summary, evidence exists to conclude that nearly all low-income women in the childbearing years and children ages 2 to 5 years are at dietary risk, are vulnerable to nutrition insults, and may benefit from WIC’s services. Further, due to the complex nature of dietary patterns, it is unlikely that a tool will be developed to fulfill its intended purpose with WIC: to classify individuals accurately with respect to their true dietary risk. Thus, any tools adopted would result in misclassification of the eligibility status of some, potentially many, individuals. By presuming that all who meet the categorical and income eligibility requirements are at dietary risk, WIC retains its potential for preventing and correcting nutrition-related problems while avoiding serious misclassification errors that could lead to denial of services to eligible individuals.” (page 135)

**Implications
For WIC
Nutrition Services**

As indicated in the 2002 IOM report, most American’s (including most WIC participants) fail to adhere to the *Dietary Guidelines*. Through participant-centered counseling, WIC staff can:

- Guide the participant in choosing healthy foods and age-appropriate physical activities as recommended in the *Dietary Guidelines*.
 - Reinforce positive lifestyle behaviors that lead to positive health outcomes.
 - Discuss nutrition-related topics of interest to the participant such as food shopping, meal preparation, feeding relationships, and family meals.
 - Refer participants, as appropriate, to the Supplemental Nutrition Assistance Program (SNAP), community food banks and other available nutrition assistance programs.
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Not Meeting Dietary Guidelines (continued)
Not Meeting Dietary Guidelines (2 – 5 years) (continued)

References

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4. Institute of Medicine (IOM); Committee on Dietary Risk Assessment in the WIC Program. Dietary risk assessment in the WIC program. Washington, DC: National Academy Press; 2002.

Clarification

The recommendation and findings of the IOM Committee were developed using the *2000 Dietary Guidelines* as the standard for a healthy diet. Subsequent to the 2002 IOM report, the *Dietary Guidelines* have been updated with the release of the *2005 and 2010 Dietary Guidelines*. Although the subsequent editions of the *Dietary Guidelines* is different from the 2000 edition, there is no evidence to suggest that the 2002 IOM recommendation and findings are invalid or inaccurate. The fact remains that diet assessment methodologies are insufficiently accurate to determine an individual's eligibility status. In addition, future research will be necessary to determine if there is a change in the IOM finding that nearly all Americans fail to consume the number of servings from the basic food groups as recommended in the *Dietary Guidelines*.

Not Meeting Feeding Guidelines (4 – 12 months)
Not Meeting Feeding Guidelines (12 – 23 months)

Federal Risk 428

**Definition/
cut-off value**

An infant or child who has begun or is expected to begin to:

- consume complementary foods and beverages,
- eat independently,
- be weaned from breastmilk or infant formula, or
- transition from a diet based on infant/toddler foods to one based on the *Dietary Guidelines for Americans*, is at risk of inappropriate complementary feeding.

Only assign this risk when the client doesn't have another medical or dietary risk after completing the assessment.

**Client category
and priority level**

Category	Priority
Infants	4
Children	5

Justification

Overview

Complementary feeding is the gradual addition of foods and beverages to the diet of the infant and young child (1, 2). The process of adding complementary foods should reflect the physical, intellectual, and behavioral stages as well as the nutrient needs of the infant or child. Inappropriate complimentary feeding practices are common and well documented in the literature. Caregivers often do not recognize signs of developmental readiness and, therefore, offer foods and beverages that may be inappropriate in type, amount, consistency, or texture. Furthermore, a lack of nationally accepted feeding guidelines for children under the age of two might lead caregivers to assume that all foods are suitable for this age range.

The 2000 WIC Participant and Program Characteristics study (PC 2000) shows greater percentages of anthropometric and biochemical risk factors in children ages 6 to 24 months than in children 24 to 60 months of age (3).

These differences could reflect physical manifestations of inappropriate complementary feeding practices. Although PC 2000 shows a lower dietary risk in the 6 to 24 month age group, this risk is probably under-reported due to the high incidence of other higher priority nutrition risks.

Not Meeting Feeding Guidelines (4 – 12 months) (continued)
Not Meeting Feeding Guidelines (12 – 23 months) (continued)

The Institute of Medicine (IOM), in their report, *Summary of Proposed Criteria for Selecting the WIC Food Packages* identified specific nutrients with potential for inadequacy or excess for WIC participants. For breast-fed infants 6 through 12 months, the nutrients of concern for potential inadequacy are iron and zinc while those for children 12 through 23 months are iron, vitamin E, fiber and potassium. The nutrients of concern for excessive intake in children 12 through 23 months are zinc, performed vitamin A, sodium and energy (4).

To manage complementary feeding successfully, caregivers must make decisions about what, when, where, and how to offer foods according to the infant’s or child’s:

- Requirement for energy and nutrients;
- Fine, gross, and oral motor skills;
- Emerging independence and desire to learn to self-feed; and
- Need to learn healthy eating habits through exposure to a variety of nutritious foods (1, 2, 5, 6, 7).

How WIC Can Help

The WIC Program plays a key role not only in the **prevention** of nutrition-related health problems, but also in the **promotion** of lifelong healthy eating behaviors. The process of introducing complementary foods provides a unique opportunity for WIC staff to assist caregivers in making appropriate feeding decisions for young children that may have lifelong implications.

Prevention of Nutrition-Related Health Problems

- Zinc deficiency: Zinc is critical for growth and immunity, as well as brain development and function. The concentration of zinc in breastmilk declines to a level considered inadequate to meet the needs of infants 7 to 12 months of age (8, 9). Complementary food sources of zinc, such as meats or zinc-fortified infant cereals, should be introduced to exclusively breastfed infants by 7 months.
- Iron deficiency: Hallberg states, “The weaning period in infants is especially critical because of the especially high iron requirements and the importance of adequate iron nutrition during this crucial period of development.” (10) According to the Centers for Disease Control and Prevention (CDC), children less than 24 months of age, especially those between 9 and 18 months, have the highest rate of iron deficiency of any

Not Meeting Feeding Guidelines (4 – 12 months) (continued)
Not Meeting Feeding Guidelines (12 – 23 months) (continued)

age group (11). In the third National Health and Nutrition Examination Survey (NHANES III), children ages 1 to 2, along with adolescent girls, had the highest rates of overt anemia, while 9% were iron deficient (12). Meanwhile, the Pediatric Nutrition Surveillance 2003 Report noted the highest rates of 16.2% in 6 to 11 month-old infants, 15.0% in 12 to 17 month-olds, and 13.5% in 18-23 month old children (13).

Picciano et al. reported that the intake of iron decreased from 98% of the recommended amount at 12 months to 76% at 18 months of age (14). In WIC clinics, Kahn et al. found that the incidence of anemia was significantly more common in 6 to 23 month old children than in 23 to 59 month-olds. The 6 to 23 month-old was also more likely than the older child to develop anemia despite a normal hemoglobin test at WIC certification (15).

Feeding practices that may prevent iron deficiency include:

- Breastfeeding infants exclusively until 4 to 6 months of age;
 - Feeding only iron-fortified infant formula as a substitute for or supplement to breastmilk until age 1;
 - Offering a supplemental food source of iron to infants, between 4 to 6 months or when developmentally ready;
 - Avoiding cow's milk until age 12 months; and
 - Limiting milk consumption to no more than 24 ounces per day for children aged 1 to 5 years (11).
-
- Obesity: Much of the literature on obesity indicates that learned behaviors and attitudes toward food consumption are major contributing factors. Proskitt states, "The main long term effect of weaning on nutritional status could be through attitudes toward food and meals learned by infants through the weaning process. This may be a truly critical area for the impact of feeding on later obesity." (16)

Birch and Fisher state, "An enormous amount of learning about food and eating occurs during the transition from the exclusive milk diet of infancy to the omnivore's diet consumed by early childhood." The authors believe that parents have the greatest influence on assuring eating behaviors that help to prevent future overweight and obesity (17).

Not Meeting Feeding Guidelines (4 – 12 months) (continued)
Not Meeting Feeding Guidelines (12 – 23 months) (continued)

The American Academy of Pediatrics (AAP) states, "...prevention of overweight is critical, because long-term outcome data for successful treatment approaches are limited..." and, "Families should be educated and empowered through anticipatory guidance to recognize the impact they have on their children's development through lifelong habits of physical activity and nutritious eating" (1). Parents can be reminded that they are role models and teachers who help their children adopt healthful eating and lifestyle practices.

- Tooth decay: Children under the age of 2 are particularly susceptible to Early Childhood Caries (ECC), a serious public health problem (18). In some communities, the incidence of ECC can range from 20% to 50% (19). Children with ECC appear to be more susceptible to caries in permanent teeth at later age (1, 20). Dental caries can be caused by many factors, including prolonged use of a bottle and extensive use of sweet and sticky foods (21).

The Avon Longitudinal Study of Pregnancy and Childhood examined 1,026 children aged 18 months and found that baby bottles were used exclusively for drinking by 10% of the children and for at least one feeding by 64% of the children. Lower income families were found to use the bottle more frequently than higher income families (22).

Complementary feeding practices that caregivers can use to prevent oral health problems include:

- Avoiding concentrated sweet foods like lollipops, candy and sweetened cereals.
- Avoiding sweetened beverages. Introducing fruit juice after 6 months of age (1) and only feeding it in a cup; and limiting fruit juice to 4-6 ounces per day.
- Weaning from a bottle to a cup by 12 to 14 months (23).

Promotion of Lifelong Healthy Eating Behaviors

- Timing of introduction of complementary foods: The AAP, Committee on Nutrition (CON) states that, "...complementary foods may be introduced between ages 4 and 6 months..." but cautions that actual timing of introduction of complementary foods for an individual infant may differ from this (population based) recommendation. Furthermore, the AAP-CON acknowledges a difference of opinion with the AAP, Section on Breastfeeding for at least 6 months (1).

Not Meeting Feeding Guidelines (4 – 12 months) (continued)
Not Meeting Feeding Guidelines (12 – 23 months) (continued)

Early introduction of complementary foods before the infant is developmentally ready (i.e., before 4-6 months of age) is associated with increased respiratory illness, allergy in high-risk infants, and decreased breastmilk production (7).

Infants with a strong family history of food allergy should be breastfed for as long as possible and should not receive complementary foods until 6 months of age. The introduction of the major food allergens such as eggs, milk, wheat, soy, peanuts, tree nuts, fish and shellfish should be delayed until well after the first year of life as guided by the health care provider (7, 24).

Delayed introduction of complementary foods, on the other hand, is also associated with feeding difficulties. Northstone et al found that introduction of textured foods after 10 months of age resulted in more feeding difficulties later on, such as picky eating and/or refusal of many foods. To avoid these and other developmental problems, solid foods should be introduced no later than 7 months, and finger foods between 7 and 9 months of age (25).

- Choosing Appropriate Complementary Foods and Beverages: Complementary foods should supply essential nutrients and be developmentally appropriate (7). The WIC Infant Feeding Practices Study (WIC-IFPS) found that by 6 months of age, greater than 80% of mothers introduced inappropriate dairy foods (i.e., yogurt, cheese, ice cream and pudding), 60% introduced sweets/snack foods (defined as chips, pretzels, candy, cookies, jam and honey), and 90% introduced high protein foods (beans, eggs and peanut butter) to their infants. This study also found that, among the infants who received supplemental drinks by 5 months of age, three-quarters had never used a cup, concluding that most infants received supplemental drinks from the bottle. By one year of age, almost 90% of WIC infants received sweetened beverages and over 90% received sweet/snack foods (26).

The Feeding Infants and Toddlers Study (FITS) found that WIC infants and toddlers consumed excess energy but inadequate amounts of fruit and vegetables. In addition, WIC toddlers consumed more sweets, desserts and sweetened beverages than on-WIC toddlers (27).

Not Meeting Feeding Guidelines (4 – 12 months) (continued)
Not Meeting Feeding Guidelines (12 – 23 months) (continued)

Sixty-five percent of all food-related choking deaths occur in children under the age of 2. Children in this age group have not fully developed their oral-motor skills for chewing and swallowing. For this reason, they should be fed foods of an appropriate consistency, size, and shape. Foods commonly implicated in choking include hot dogs, hard, gooey or sticky candy, nuts and seeds, chewing gum, grapes, raisins, popcorn, peanut butter and hard pieces of raw fruits and vegetables and chunks of meat or cheese (1, 28, 29).

- Introducing a Cup: Teaching an infant to drink from a cup is part of the process of acquiring independent eating skills. A delay in the initiation of cup drinking prolongs the use of the nursing bottle that can lead to excess milk and juice intake and possible Early Childhood Caries (ECC). Weaning from a bottle to a cup should occur by 12 to 14 months of age (23).
- Helping The Child Establish Lifelong Healthy Eating Patterns: Lifelong eating practices may have their roots in the early years. Birch and Fisher state that food exposure and accessibility, the modeling behavior of parents and siblings, and the level of parental control over food consumption influence a child's food preferences. Inappropriate feeding practices may result in under- or over-feeding and may promote negative associations with eating that continue into later life.

Normal eating behaviors such as spitting out or gagging on unfamiliar food or food with texture are often misinterpreted as dislikes or intolerances leading to a diminished variety of foods offered. Infants have an innate preference for sweet and salty tastes. Without guidance, an infant may develop lifelong preference for highly sweetened or salty foods rather than for a varied diet (17).

A young child gradually moves from the limited infant/toddler diet to daily multiple servings from each of the basic food groups as described in the Dietary Guidelines (30). The toddler stage (ages 1 – 2 years) may frustrate caregivers since many toddlers have constantly changing food preferences and erratic appetites. In addition, toddlers become skeptical about new foods and may need to experience a food 15-20 times before accepting it (31).

Not Meeting Feeding Guidelines (4 – 12 months) (continued)
Not Meeting Feeding Guidelines (12 – 23 months) (continued)

Caregivers can be guided and supported in managing common toddler feeding problems. Feeding practices that caregivers can use to facilitate a successful transition to a food group-based diet include:

- Offering a variety of developmentally appropriate nutritious foods;
- Reducing exposure to foods and beverages containing high levels of salt and sugar;
- Preparing meals that are pleasing to the eye and include a variety of colors and textures; setting a good example by eating a variety of foods;
- Offering only whole milk from age 1 – 2 (Lower fat milk can be introduced after that age);
- Providing structure by scheduling regular meal and snack times;
- Allowing the child to decide how much or whether to eat;
- Allowing the child to develop eating/self-feeding skills; and
- Eating with the child in a pleasant mealtime environment without coercion.

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Not Supporting Development/Feeding Relationship

Federal Risks: Infants 411.4, Children 425.4

**Definition/
cut-off value**

Routinely using feeding practices that disregard the developmental needs or stages of the infant or child.

Examples of not supporting development/feeding relationship:

- Inability to recognize, insensitivity to, or disregarding the infant’s or child’s cues for hunger and satiety (e.g. forcing an infant or child to eat a certain type and/or amount of food or beverage or ignoring an infant’s hunger cues) or a hungry child’s requests for appropriate foods.
- Feeding foods of inappropriate consistency, size, or shape that put the infant or child at risk of choking.
- Not supporting an infant’s or child’s need for growing independence with self-feeding (e.g., solely spoon-feeding an infant or child who is able and ready to finger feed and/or try self-feeding with appropriate utensils).
- Feeding an infant or child with an inappropriate texture based on his/her developmental stage (e.g., feeding primarily pureed or liquid food when the infant or child is ready and capable of eating mashed, chopped or appropriate finger foods).

**Client category
and priority level**

Category	Priority
Infants	4
Children	5

Justification

Infants held to rigid feeding schedules are often underfed or overfed. Caregivers insensitive to signs of hunger and satiety, or who over manage feeding may inappropriately restrict or encourage excessive intake. Findings show that these practices may promote negative or unpleasant associations with eating that may continue into later life, and may also contribute to obesity. Infrequent breastfeeding can result in lactation insufficiency and infant failure-to-thrive. Infants should be fed foods with a texture appropriate to their developmental level (1 – 6).

The interactions and communication between a caregiver and infant or child during feeding and eating influence a child’s ability to progress in eating skills and consume a nutritionally adequate diet. These interactions comprise the “feeding relationship” (7). A dysfunctional feeding relationship, which could be characterized by a caregiver misinterpreting, ignoring, or overruling a young child’s innate capability to regulate food intake based on hunger, appetite and satiety, can result in poor dietary intake and impaired growth (5, 7). Parents

Not Supporting Development/Feeding Relationship (continued)

who consistently attempt to control their children's food intake may give children few opportunities to learn to control their own food intake (9). This could result in inadequate or excessive food intake, future problems with food regulation, and problems with growth and nutritional status. Instead of using approaches such as bribery, rigid control, struggles, or short-order cooking to manage eating, a healthier approach is for parent to provide nutritious, safe foods at regular meals and snacks, allowing children to decide how much, if any they eat (10, 8). Young children should be able to eat in a matter-of-fact way sufficient quantities of the foods that are given to them, just as they take care of other daily needs (3). Research indicates that restricting access to foods (i.e., high fat foods) may enhance the interest of 3- to 5-year old children in those foods and increase their desire to obtain and consume those foods. Stringent parental controls on child eating has been found to potentiate children's preference for high-fat energy dense foods, limit children's acceptance of a variety of foods, and disrupt children's regulation of energy intake (11, 12). Forcing a child to clean his or her plate may lead to overeating or development of an aversion to certain foods (13). The toddler and preschooler are striving to be independent (13). Self-feeding is important even though physically they may not be able to handle feeding utensils or have good eye-hand coordination (13). Children should be able to manage the feeding process independently with dispatch, without either unnecessary dawdling or hurried eating (3, 14).

Self-feeding milestones include (10):

- During infancy, older infants progress from semisolid foods to thicker and lumpier foods to soft pieces to finger-feeding table food (5).
- By 15 months, children can manage a cup, although with some spilling.
- At 16 to 17 months of age, well-defined wrist rotation develops, permitting the transfer of feed from the bowl to the child's mouth with less spilling. The ability to lift the elbow as the spoon is raised and to flex the wrist as the spoon reaches the mouth follows.
- At 18 – 24 months, they learn to tilt a cup by manipulation with the fingers. Despite these new skills, 2-year-old children often prefer using their fingers to using the spoon.
- Preschool children learn to eat a wider variety of textures and kinds of food (3, 13). However, the foods offered should be modified so that the child can chew and swallow the food without difficulty (3).

Not Supporting Development/Feeding Relationship (continued)

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Nutrient Deficiency Disease

**Federal Risk 341
 High Risk Factor**

**Definition/
 cut-off value**

Diagnosis of nutritional deficiencies or a disease caused by an insufficient dietary intake of macro and micro nutrients. Diseases include, but are not limited to: Folic Acid deficiency, Vitamin B12 deficiency, Protein Energy Malnutrition, Scurvy, Rickets, Beri Beri, Hypocalcemia, Osteomalacia, Vitamin K Deficiency, Pellagra, Cheilosis, Menkes Disease, and Xerophthalmia.

Presence of nutrient deficiency diseases diagnosed by a physician as self-reported by applicant/participant/caregiver; or as reported or documented by a physician, or someone working under physician’s orders.

**Client category
 and priority level**

Category	Priority
Pregnant women	1
Breastfeeding women	1
Postpartum women	6
Infants	1
Children	3

Justification

The presence of macro- and micro- deficiencies indicates nutrition health risks.

Persistent malnutrition may lead to elevated morbidity and mortality rates. Important functional disturbances may occur as a result of single or multiple nutrient deficiencies. Examples include cognitive function, impaired function of the immune system, and impaired function of skeletal muscle. Participation in the WIC Program provides key nutrients and education to help restore nutrition status and promote full rehabilitation of those with an overt nutrient deficiency.

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Nutrient Deficiency Disease (continued)

Clarification

Self-reporting of a diagnosis by a medical professional should not be confused with self-diagnosis, where a person simply claims to have or to have had a medical condition without any reference to professional diagnosis. A self-reported medical diagnosis (“My doctor says that I have/my son or daughter has...”) should prompt the CPA to validate the presence of the condition by asking more pointed questions related to that diagnosis.

Nutrition Related Birth Defects (Hx) – PG Women
Nutrition Related Birth Defects (This PG) – BF/PP Women

Federal Risk 339

**Definition/
cut-off value** A woman who has given birth to an infant who has a congenital or birth defect linked to inappropriate nutritional intake, e.g., inadequate zinc, folic acid, excess vitamin A.

Pregnant Women: any history of birth with nutrition-related congenital or birth defect

Breastfeeding/Postpartum Women: most recent pregnancy

Presence of condition diagnosed by a physician as self-reported by applicant/participant/caregiver; or as reported or documented by a physician, or someone working under physician’s orders.

**Client category
and priority level**

Category	Priority
Pregnant women	1
Breastfeeding women	1
Postpartum women	6

Justification

The single greatest risk factor for a pregnancy with a neural tube defect is a personal or family history of such a defect. More than 50% of recurrences can be prevented by taking folic acid before conception. Recent studies suggest that intake of folic acid may also be inversely related to the occurrence of cleft lip and palate. The WIC program provides nutrition education and folic acid rich foods to women to help prevent future birth defects.

Recurrent birth defects can also be linked to other inappropriate nutritional intake prior to conception or during pregnancy, such as inadequate zinc (LBW), or excess vitamin A (cleft palate or lip). The food package and nutrition education provided to WIC participants help women at risk make food choices that provide appropriate nutrient levels.

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Nutrition Related Birth Defects (continued)

Clarification

Self-reporting of a diagnosis by a medical professional should not be confused with self-diagnosis, where a person simply claims to have or to have had a medical condition without any reference to professional diagnosis. A self-reported medical diagnosis (“My doctor says that I have/my son or daughter has...”) should prompt the CPA to validate the presence of the condition by asking more pointed questions related to that diagnosis.

Oral Health Conditions

Federal Risk 381

Definition and cut-off value

Oral health conditions include, but are not limited to:

- Dental caries, often referred to as “cavities” or “tooth decay”, is a common chronic, infectious, transmissible disease resulting from tooth-adherent specific bacteria, that metabolize sugars to produce acid which, over time, demineralizes tooth structure (1).
- Periodontal diseases are infections that affect the tissues and bone that support the teeth. Periodontal diseases are classified according to the severity of the disease. The two major stages are gingivitis and periodontitis. Gingivitis is a milder and reversible form of periodontal disease that only affects the gums. Gingivitis may lead to more serious, destructive forms of periodontal disease called periodontitis. (2)

More information on types of periodontal disease is available at:

<http://www.perio.org/consumer/2a.html>.

- Tooth loss, ineffectively replaced teeth or oral infections which impair the ability to ingest food in adequate quantity or quality.

Presence of oral health conditions diagnoses, documented, or reported by a physician, dentist, or someone working under a physician’s orders, or as self-reported by applicant/participant/caregiver. See Clarification for more information about self-reporting a diagnosis.

Client category and priority level

Category	Priority
Pregnant women	1
Breastfeeding women	1
Postpartum women	6
Infants	1
Children	3

Justification

Oral health reflects and influences general health and well being. Good oral health care and nutrition during pregnancy, infancy and childhood are often overlooked factors in the growth and development of the teeth and oral cavity.

Oral Health Conditions (continued)

Justification**Infants and Children**

The Centers for Disease Control (CDC) reports that dental caries may be the most prevalent infectious disease in U.S. children. More than 40% of children have tooth decay by the time they reach kindergarten. Infants that consume sugary foods, are of low socioeconomic status, and whose mothers have a low education level, are 32 times more likely to have caries at the age of 3 years than children who do not have those risk factors. Despite its high prevalence, early childhood caries (ECC) is a preventable disease. (3)

ECC may develop as soon as teeth erupt. Bacteria, predominantly mutans streptococci (MS), metabolize simple sugars to produce acid that demineralizes teeth, resulting in cavities. The exact age at which MS colonization occurs in children is controversial, but it does not happen until teeth erupt. The earlier colonization occurs, the greater the risk of caries. MS typically originates in the mother and is transmitted to the child via saliva (often through cup and utensil sharing). Elevated maternal levels of MS, due to active or untreated caries and frequent sugar consumption, increase risk of transmission. In addition, recent evidence suggests that exposure to environmental tobacco smoke increases the likelihood of MS colonization in children. (4)

Historically, ECC has been attributed to inappropriate and prolonged bottle use; formally called “baby bottle tooth decay.” However, recent studies indicate that the disease is multifactorial, which suggests any feeding practice that allows frequent sugar consumption in the presence of MS may result in caries formation: propped bottles containing sweetened liquids or formula, frequent consumption of juice or sweetened liquids from infant and “sippy” cups, and frequent snacking of high cariogenic foods. (4)

The frequency of sugar consumption is the main dietary variable in caries etiology. After bacteria metabolize sugar into acid, it takes 20 – 40 minutes for the acid to be neutralized or washed away by saliva. Therefore, if sugars are frequently consumed, the potential for demineralization is greater. Although MS can metabolize many different carbohydrates, they produce acid most efficiently from sugars, especially sucrose. Sugars within the cellular structure of food (such as fructose in whole fruit) are thought to be less cariogenic than sugars intentionally added to foods. (4) See Table 1 for more information on the cariogenic potential of children’s foods and snacks.

Milk is widely consumed, especially by children, and thus the interaction between different kinds of milk consumed and caries development has been a research topic of interest. Lactose is one of the least cariogenic sugars because it is poorly

Oral Health Conditions (continued)

Justification

metabolized by MS. Researchers have reported cows’ milk to be a protective, anticariogenic agent due to its high concentration of calcium and phosphate. The buffering activity of proteins in cows’ milk also might allow the formation of very stable complexes of calcium phosphate. Other anticariogenic properties in cows’ milk include antibacterial enzymes, vitamin D and fluoride. (4, 5)

Infant formulas, on the other hand, have a high potential for inducing caries due to their high carbohydrate variability. The cariogenic potential of human milk is inconclusive. Human milk has been found to contain more lactose (8.3%) than cows’ milk (4.9%). A higher human milk lactose concentration and the possibility that lactose fermentation of cows’ milk is slower than in human milk, may make human milk caries risk slightly higher. Some evidence indicates that breastfeeding for over 1 year during the night after tooth eruption might be associated with ECC, however other investigations showed no relationship between prevalence of caries and breastfeeding. Regardless of the type of milk consumed, sufficient dental care and cleaning after drinking milk/formula and breastfeeding can help prevent ECC. Avoiding inappropriate dietary practices, such as frequent juice consumption or snacking on highly cariogenic foods also remain important ECC preventive practices. (4, 5)

Table 1. Cariogenic Potential of Children’s Foods and Snacks		
Noncariogenic	Low Cariogenicity	High Cariogenicity
Cheese	Flavored Milk	Breakfast Bars
Chicken	Fresh fruits	Cake
Cottage Cheese	Whole grain products	Candies**
Eggs		Cookies
Flavored Club Soda		Doughnuts
Nuts and seeds*		Granola bars
Plain Cow’s Milk (unflavored)		Pretzels
Plain Yogurt		Raisins and other dried fruits
Popcorn*		Soda crackers
Seltzer		Sweetened beverages (including fruit juice)
Vegetables		Sweetened dry cereals
* Not appropriate for infants and toddlers due to potential choking problems.		
** Sticky candy and/or slowly eaten candy are extremely cariogenic.		
Adapted from: Faine, MP. Nutrition and oral health. In: Proceedings of Promoting Oral Health of Children with Neurodevelopmental Disabilities and Other Special Health Care Needs. May 4-5, 2001. Seattle, WA.		

Oral Health Conditions (continued)

Justification**Women**

Maternal periodontal disease and dental caries may impact pregnancy outcome, and the offspring's risk of developing early and severe dental caries. Periodontal disease and caries may also increase the woman's risk of atherosclerosis, rheumatoid arthritis and diabetes. These oral health problems are highly prevalent in women of childbearing age, particularly among low-income women and members of racial and ethnic minority groups. Socioeconomic factors, lack of resources to pay for care, barriers to access care, lack of public understanding of the importance of oral health and effective self-care practices all represent underlying reasons cited for observed inadequacies in oral health. (6)

Maternal periodontal disease, a chronic infection of the gingiva (gums) and supporting tooth structures, has been associated with preterm birth, low birth weight and development of preeclampsia (6, 7). Studies indicate that periodontal infection can result in placental-fetal exposure and, when coupled with a fetal inflammatory response, can lead to preterm delivery (7). Additionally, in a cohort of 164 young, minority, pregnant and postpartum women, the preterm/low birth weight rate was 5.4% lower among women who received periodontal treatment than those who did not receive treatment (7). In a case-control study, researchers found that preeclamptic patients were 3.5 times more likely to have periodontal disease than normotensive patients (6). (See nutrition risk criterion #304 Preeclampsia (Hx) for more information.)

Fluoride and Fluorosis

Use of fluorides for the prevention and control of caries is documented to be both safe and highly effective. Fluoride, a naturally occurring substance, has several caries-protective mechanisms of action, including enamel remineralization and altering bacterial metabolism to help prevent caries. Excessive intake of fluoride can cause dental fluorosis which is a change in the appearance of the tooth's enamel. In the U.S., fluorosis appears mostly in the very mild or mild form – as barely visible lacy white markings or spots. The severe form of dental fluorosis, staining and pitting of the tooth surface, is rare in the U.S. The CDC reports that 32% of American children have some form of dental fluorosis, with 2.45% of children having the moderate to severe stages. (8, 9, 10, 11)

Parents and caregivers may have questions and concerns about fluoride content in water supplies and in infant formula. Fluoridated water can be found in communities that supplement tap water with fluoride and it may also be found in water as well. The CDC's *My Water's Fluoride* website:

<http://apps.nccd.cdc.gov/MWF/Index.asp>, allows consumers in currently participating States to learn the fluoridation status of their water system.

Oral Health Conditions (continued)

Justification

All formula, including powdered, concentrate and ready-to-feed, contain fluoride, but most infant formula manufacturers ensure low levels of fluoride (8). WIC State and local agencies should refer caregivers of formula fed infants with questions regarding the use of fluoridated vs. non-fluoridated water to prepare infant formula to the infant's health care provider.

Dental Care and Anxiety

It is reported that 50% of the U.S. population doesn't seek regular dental care. Of the entire U.S. population, 8 – 15% has dental phobias. Dental fear can be directly learned from previous painful or negative experiences or indirectly learned from family, friends and the media. Negative portrayal of dentistry by these sources adds to an individual's anxiety. Anxiety and/or fear of dental procedures may prevent participants from seeking necessary dental care during high risk periods of the life cycle (e.g. pregnancy). Dental providers are learning to understand the causes of dental fear, have techniques to assess the level of fear and have modified treatments to accommodate patients with high anxiety levels. (12)

Oral Health Problems and Special Health Care Needs

The following special health care needs can increase the risk for oral health problems and can also make the overall effects of poor oral health more severe (13).

- **Prematurity and intrauterine malnutrition** – can have adverse effects on an individual's oral health. A study of infants who weighed < 2000 g at birth indicated more porous dental enamel and subsurface lesions. Infants with very low birth weights (<1500 g) are more apt to have enamel defects of the primary teeth. Malnutrition in the first few months of life (when oral structures develop) can increase the risk for oral problems.
- **Gastroesophageal Reflux Disease (GERD)** – common among children with cerebral palsy, Down syndrome and other conditions. GERD can contribute to oral health problems. As acidic gastric contents are regurgitated, primary and permanent teeth can be eroded.
- **Failure to thrive and other problems with weight gain and growth** – frequent meals and snacks (which may contribute to caries development) may be needed to maintain an adequate energy intake, or if mealtime is longer than usual, the demineralization period may exceed remineralization. Delayed weaning and children sipping on a bottle throughout the day, could also contribute to oral health problems.

Oral Health Conditions (continued)

Justification

- **Craniofacial malformations** – individuals with these malformations are at higher risk of developing oral problems. For example, children with cleft lip/palate disorders have more decayed, missing and filled teeth than children without.
- **Compromised immune function** – individuals with AIDS or those who take immunosuppressive medications are more susceptible to oral infections such as candidiasis, viral infections, dental caries, and periodontal disease.
- **Down syndrome (Trisomy 21)** – individuals with Down syndrome often have delayed dental development*, may be missing permanent teeth, and may have under-developed teeth or teeth with thin enamel. In addition, the potential for eating problems and GERD make oral care for individuals with Down’s especially important. (13)

* Delayed Tooth Eruption (DTE) is the emergence of a tooth into the oral cavity at a time that deviates significantly from norms established for different races, ethnicities, and sexes. Variation in the normal eruption of teeth is a common finding, but significant deviations from established norms should alert the clinician to further investigate the patient’s health and development. Eruption depends on genetics, growth of the jaw, muscular action and other factors. DTE is seen in children with certain genetic disorders, particularly Down syndrome, and in children with general developmental delays that involve the oral musculature. Whenever DTE is generalized, the child should be examined for systemic diseases affecting eruption, such as endocrine disorders, organ failures, metabolic disorders, drugs and inherited disorders. (14) Additional information about tooth eruption is available at: <http://www.ada.org/en>.

Dentate Status, Diet Quality and General Health

By the time individuals reach adulthood, the human mouth has progressed from 20 primary teeth to 32 permanent (adult) teeth (2). The extent to which tooth loss can adversely affect nutritional status is not completely known. However, diet quality tends to decline as the degree of dental impairment increases. Studies have shown that intake of vitamin A, fiber, calcium and other key nutrients decline as the number of teeth decline. In The Health Professionals study, participants without teeth had diets that contained fewer vegetables, less carotene and fiber, and more cholesterol, saturated fat, and calories than persons with 25 teeth or more (15). Despite the trend toward increased tooth retention throughout adult life in developed countries, 11% of adults aged 25 and older have lost all of their natural teeth. This number increases to 30% for people over age 65 and is even higher in those living in poverty. Loss of teeth is not a normal result of the aging process; the major cause of tooth loss is extractions resulting from dental caries and/or periodontal disease. (15)

Oral Health Conditions (continued)

**Implications for
WIC Nutrition
Services**

To help prevent oral health problems from developing and ensure the best possible health and development outcomes, WIC staff can encourage participants and caregivers to:

Diet

- Breastfeed infants during the first year of life and beyond as mutually desired.
- Avoid having an infant/child sleep with a bottle. Any bottle taken to bed should contain only water. (See Inappropriate Use of Bottle/Cup and Feeding Sugar-containing Drinks, risks 411.2 and 425.3)
- Gradually introduce a cup between 6 and 12 months of age, wean from the bottle by 12 months of age.
- Drink/provide only water and milk between meals.
- Limit sugary foods and drinks (if sweets are eaten, it's best to restrict to mealtimes.)
- Avoid carbonated beverages and juice drinks. (See Feeding Sugar-containing Drinks, risk 425.2)
- Limit the intake of 100% fruit juice to no more than 4 – 6 ounces per day.
- Establish eating patterns that are consistent with the Dietary Guidelines for Americans and the infant feeding practice guidelines of the American Academy of Pediatrics.
- Consume/provide a varied, balanced diet during gestation and throughout childhood to set the stage for optimal oral health. (1, 3, 4, 15)

Oral Hygiene

- Wipe the gums of even a very small infant with a soft washcloth or soft toothbrush, even prior to tooth eruption, to establish a daily oral hygiene routine (17, 18).
- Brush teeth (including an infant's, as soon as teeth erupt) thoroughly twice daily (morning and evening) and floss at least once every day.
- Minimize saliva sharing activities (i.e. sharing a drinking cup and utensils). (1, 3, 4, 15)

Fluoride

- Use fluoride toothpaste approved by the American Dental Association (“pea-size” for 2 – 5 year olds and, “smear” for under the age of two and at moderate or high caries risk). (1)

Oral Health Conditions (continued)

- Rinse every night with an alcohol-free over-the-counter mouth rinse with 0.05% sodium fluoride (guidance for woman participant and caregiver only). (3)
- Contact the infant's (if formula fed) health care provider with questions regarding the use of local drinking water or bottled water to prepare infant formula. (3)
- Talk to the dentist about fluoride supplements. These may be of benefit in reducing dental decay for children living in fluoride-deficient areas (See Inadequate Fluoride Supplementation, risk 411.11).
- Check if the public water systems have added fluoride at:
<http://apps.nccd.cdc.gov/MWF/Index.asp>.
- Access the following website for more information about fluoride:
<http://www.cdc.gov/fluoridation/>.

Referrals

- Establish a dental home within 6 months of eruption of the first tooth and no later than 12 months of age. (3)
- See a dentist for examination (every 6 months) and/or restoration of all active decay as soon as possible. (WIC staff should provide dental referrals as necessary.)

Oral Health Resources/Handouts

- Summary of Pediatric Oral Health Anticipatory Guidance:
<http://www.aafp.org/afp/2004/1201/p2113.html#afp20041201p2133-t2>.
- Table: Oral health and dietary management for mothers and children (see page 3 of pdf)
<http://www.sciencedirect.com/science/article/pii/S0002822398000443>.
- Oral Health Care During Pregnancy: A National Consensus Statement:
http://www.mchoralhealth.org/materials/consensus_statement.html.
- *Your Baby's Teeth*: <http://www.aafp.org/afp/2004/1201/p2121.html>.
- *Two Healthy Smiles: Tips to Keep You and Your Baby Healthy*:
<http://www.mchoralhealth.org/PDFs/pregnancybrochure.pdf>.
- *Tips for Good Oral Health Care During Pregnancy*:
<http://www.mchoralhealth.org/PDFs/OralHealthPregnancyHandout.pdf>
- *A Healthy Smile for Your Baby* (English):
<http://www.mchoralhealth.org/PDFs/babybrochure.pdf>.
- *A Healthy Smile for Your Baby* (Spanish):
http://www.mchoralhealth.org/PDFs/babybrochure_sp.pdf.

Oral Health Conditions (continued)

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Oral Health Conditions (continued)

16. Policy Statement: Preventive oral health intervention for pediatricians. *Pediatrics* (2008). Vol 122, No 6: 1387-1394.
17. American Academy of Pediatrics. *A Pediatric Guide to Oral Health Flip Chart and Reference Guide*. 2011. Copyright 2012.
18. Holt K, et al. *Bright Futures Nutrition*, 3rd Edition. American Academy of Pediatrics, 2011.

Clarification

Self-reporting of a diagnosis by a medical professional should not be confused with self-diagnosis, where a person simply claims to have or to have had a medical condition without any reference to professional diagnosis. A self-reported medical diagnosis (“My doctor says that I have/my son or daughter has...”) should prompt the CPA to validate the presence of the condition by asking more pointed questions related to that diagnosis.

Other Medical Condition (impacts nutr. status)

Federal Risk 360

**Definition/
cut-off value**

Diseases or conditions with nutritional implications that are not included in any of the other medical conditions. The current condition or treatment for the condition must be severe enough to affect nutritional status.

Presence of medical condition(s) diagnosed by a physician as self-reported by applicant/participant/caregiver; or as reported or documented by a physician, or someone working under a physician’s orders.

**Client category
and priority level**

Category	Priority
Pregnant women	1
Breastfeeding women	1
Postpartum women	6
Infants	1
Children	3

Justification

Medical conditions that affect the applicant or client’s nutritional status are allowed as WIC-eligible by federal regulation. The Competent Professional Authority determines during the WIC assessment if the condition can be positively impacted by the applicant’s/client’s participation on WIC because of the nutritious foods, nutrition education or other referrals provided. The CPA documents all pertinent information in the client’s file when using the risk Other Medical Condition.

References

1. Institute of Medicine: WIC Nutrition Risk Criteria: A Scientific Assessment; National Academy Press, Washington, D. C. 1996.

Clarification

Self-reporting of a diagnosis by a medical professional should not be confused with self-diagnosis, where a person simply claims to have or to have had a medical condition without any reference to professional diagnosis. A self-reported medical diagnosis (“My doctor says that I have/my son or daughter has...”) should prompt the CPA to validate the presence of the condition by asking more pointed questions related to that diagnosis.

Out of State Transfer

Federal Risk 502

**Definition/
cut-off value**

Person with current valid transfer information from another state such as a Verification of Certification (VOC) document or a transfer card. The transfer/VOC card is valid until the certification expires, and shall be accepted as proof of eligibility for program benefits. If the receiving local agency has waiting lists for participation, the transferring participant shall be placed on the list ahead of all other waiting applicants.

The criterion would be used primarily when the transfer/VOC card does not reflect another (more specific) nutrition risk condition at the same time of transfer or if the participant was initially certified based on a nutrition risk condition not used in Washington state.

**Client category
and priority level**

Category	Priority
Pregnant women	4
Breastfeeding women	4
Postpartum women	6
Infants	4
Children	5

Justification

Local agencies must accept transfer/Verification of Certification (VOC) documents from participants. A person with a valid transfer/VOC document shall not be denied participation in the receiving State or local agency because the person does not meet that State or local agency's particular eligibility criteria. Once a WIC participant has been certified by a local agency, the service delivery area into which s/he moves is obligated to honor the commitment.

References

1. FNS Instruction 803-11, Rev. 1
2. WIC Program Regulations: Section 246.7(k).

Pica

Federal Risks: Women 427.3, Children 425.9
High Risk Factor

**Definition/
cut-off value**

Routine or compulsive ingestion of non-food items, including but not limited to:

- clay
- starch (laundry and cornstarch)
- dirt
- ashes
- paint chips
- large quantities of ice/freezer frost
- baking soda
- burnt matches
- carpet fibers
- chalk
- cigarettes
- dust
- soil
- foam rubber

**Client category
and priority level**

Category	Priority
Pregnant women	4
Breastfeeding women	4
Postpartum women	6
Children	5

Justification

Pica is the compulsive eating of nonfood substances. Pica is observed most commonly in areas of low socioeconomic status and is more common in women (especially pregnant women) and in children (1). Pica has also been seen in children with obsessive-compulsive disorders, mental retardation, and sickle cell disease (1, 2, 3).

Pica can have serious medical implications (1). Pica is linked to lead poisoning and exposure to other toxicants, anemia, excess calories, or displacement of calories, gastric and small bowel obstruction, as well as parasitic infection. It may also contribute to other nutrient deficiencies by either inhibiting absorption or by displacing nutrient dense foods in the diet (4).

Poor pregnancy outcomes associated with pica-induced lead poisoning, include lower maternal hemoglobin level at delivery (5) and a smaller head circumference in the infant (6). Maternal transfer of lead via breastfeeding has been documented in infants and can result in neuro-developmental insult depending on the blood lead level and the compounded exposure for the infant during pregnancy and breastfeeding (7, 8, 9).

Infants are not identified to be at risk for pica, because developmentally, infants indiscriminately put numerous items hand-to-mouth.

Pica (continued)

References

1. Rose EA, Procerelli JH, Neale AV. Pica: common but commonly missed. *J Am Board Fam Pract.* 2000;13(5):353-8.
2. LeBlanc LA, Piazza CC, Krug MA. Comparing methods for maintaining the safety of a child with pica. *Res Dev Disabil.* 1997; 18(3)215-20.
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9. Canfield, RL, Henderson, C, Cory-Slecha, D, Cox, C, Jusko, T, Lanphear, B. Intellectual impairment in children with blood lead concentrations below 10 mcg per deciliter. *N Engl J Med.* 2003;348(16):1517-1526.

Clarification

“Routinely” is defined as a regular or routine practice that occurs frequently enough to have an impact on a client’s nutrition or health status. Staff use professional discretion to determine that a client’s health and nutrition status are impacted by the frequency of a particular practice.

Potentially Contaminated Foods – Infants and Children

Federal Risks: Infants 411.5, Children 425.5

**Definition/
cut-off value**

Feeding foods to an infant or child that could be contaminated with harmful microorganisms or toxins.

Potentially harmful foods include, but are not limited to, the following:

- Raw fish or shellfish, including oysters, clams, mussels, and scallops;
- Refrigerated smoked seafood, unless it is an ingredient in a cooked dish, such as a casserole;
- Raw or undercooked meat or poultry;
- Hot dogs, luncheon meats (cold cuts), fermented and dry sausage and other deli-style meat or poultry products unless reheated until steaming hot;
- Refrigerated pate or meat spreads;
- Raw or unpasteurized milk or foods containing unpasteurized milk;
- Soft cheeses such as feta, Brie, Camembert, blue-veined cheeses and Mexican style cheese such as queso blanco, queso fresco, or Panela unless labeled as made with pasteurized milk;
- Raw or undercooked eggs or foods containing raw or lightly cooked eggs including certain salad dressings, cookie and cake batters, sauces, and beverages such as unpasteurized eggnog;
- Raw or unpasteurized fruit or vegetable juices;
- Raw sprouts (alfalfa, clover, and radish).

Infants: The risk definition includes all of the above foods and the following:

Honey – added to liquids or solid foods, used in cooking, as part of processed foods, on a pacifier, etc.

**Client category
and priority level**

Category	Priority
Infants	4
Children	5

Potentially Contaminated Foods – Infants and Children (continued)

Justification

Only pasteurized juice is safe for infants, children, and adolescents (1). Pasteurized fruit juices are free of microorganisms (1). Unpasteurized juice may contain pathogens, such as *Escherichia coli*, *Salmonella*, and *Cryptosporidium* organisms (1, 2). These organisms can cause serious disease, such as hemolytic-uremic syndrome, and should never be fed to infants and children (1). Unpasteurized juice must contain a warning on the label that the product may contain harmful bacteria (1, 3). Infants or young children should not eat raw or unpasteurized milk or cheeses (4) – unpasteurized dairy products could contain harmful bacteria, such as *Brucella* species, that could cause young children to contract a dangerous food borne illness. The American Academy of Pediatrics (AAP) also recommends that young children should not eat soft cheeses such as feta, Brie, Camembert, blue-veined, and Mexican-style cheese – these foods could contain *Listeria* bacteria (hard cheeses, processed cheeses, cream cheese, cottage cheese, and yogurt need not be avoided) (4).

Honey has been implicated as the primary food source of *Clostridium botulinum* during infancy. These spores are extremely resistant to heat, including pasteurization, and are not destroyed by present methods of processing honey. Botulism in infancy is caused by ingestion of the spores, which germinate into the toxin in the lumen of the bowel (5 – 9).

Infants or young children should not eat raw or undercooked meat or poultry, raw fish or shellfish, including oysters, clams mussels, and scallops (4) – these foods may contain harmful bacteria or parasites that could cause children to contract a dangerous food borne illness.

According to the AAP, to prevent food-borne illness, the foods listed below should not be fed to infants or young children (4). All of the foods have been implicated in selected outbreaks of food-borne illness, including in children. Background information regarding foods that could be contaminated with harmful microorganisms is also included below:

- Deli meats, hot dogs, and processed meats (avoid unless heated until steaming hot) – These foods have been found to be contaminated with *Listeria monocytogenes*; if adequately cooked, this bacteria is destroyed.

Potentially Contaminated Foods – Infants and Children (continued)

References

1. American Academy of Pediatrics Committee on Nutrition: The use and misuse of fruit juice in pediatrics. *Pediatrics* 2001;107:1210-1213.
2. Parish ME. Public health and nonpasteurized fruit juices. *Crit Rev Microbiol.* 1997;23:109-119.
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Potentially Contaminated Foods – Pregnant Women

Federal Risk 427.5

**Definition/
cut-off value**

Pregnant woman ingesting foods that could be contaminated with pathogenic microorganisms.

Potentially harmful foods include, but are not limited to, the following:

- Raw fish or shellfish, including oysters, clams, mussels, and scallops;
- Refrigerated smoked seafood, unless it is an ingredient in a cooked dish, such as a casserole;
- Raw or undercooked meat or poultry;
- Hot dogs, luncheon meats (cold cuts), fermented and dry sausage and other deli-style meat or poultry products unless reheated until steaming hot
- Refrigerated pate or meat spreads;
- Raw or unpasteurized milk or foods containing unpasteurized milk;
- Soft cheeses such as feta, Brie, Camembert, blue-veined cheeses and Mexican style cheese such as queso blanco, queso fresco, or Panela unless labeled as made with pasteurized milk;
- Raw or undercooked eggs or foods containing raw or lightly cooked eggs including certain salad dressings, cookie and cake batters, sauces, and beverages such as unpasteurized eggnog;
- Raw or unpasteurized fruit or vegetable juices;
- Raw sprouts (alfalfa, clover, and radish).

**Client category
and priority level**

Category	Priority
Pregnant women	4

Justification

Food-borne illness is a serious public health problem (1). The causes include pathogenic microorganisms (bacteria, viruses, and parasites) and their toxins and chemical contamination. The symptoms are usually gastrointestinal in nature (vomiting, diarrhea, and abdominal pain), but neurological and “non-specific” symptoms may occur as well. Over the last 20 years, certain foods have been linked to outbreaks of food-borne illness. These foods include: milk (Campylobacter); shellfish (Norwalk-like viruses), unpasteurized apple cider (Escherichia coli O 157:H7); eggs (Salmonella); fish (ciguatera poisoning); raspberries (Cyclospora); strawberries (Hepatitis A virus); and ready-to-eat meats (Listeria monocytogenes).

Potentially Contaminated Foods – Pregnant Women (continued)

Listeria monocytogenes can cause an illness called listeriosis. Listeriosis during pregnancy can result in premature delivery, miscarriage, fetal death, and severe illness or death of a newborn from the infection (2). Listeriosis can be transmitted to the fetus through the placenta even if the mother is not showing signs of illness.

Pregnant women are especially at risk for food-borne illness. For this reason, government agencies such as the Centers for Disease Control and Prevention, the USDA Food Safety and Inspection Service, and the Food and Drug Administration advise pregnant woman and other high risk individuals not to eat foods as identified in the definition for this criterion (1, 2).

The CDC encourages health care professionals to provide anticipatory guidance, including the “four simple steps to food safety” of the Fight BAC campaign, to help reduce the incidence of food-borne illnesses.

References

1. Centers for Disease Control and Prevention, Diagnosis and Management of Foodborne Illness, A Primer for Physicians. MMWR 2001;50:RR-2.
2. Food Safety and Inspection Service, USDA. Listeriosis and Pregnancy: What is Your Risk? [cited August 11, 2004] Available from: <http://www.fsis.usda.gov>.

Preeclampsia (HX)

Federal Risk 304
High Risk Factor for Pregnant Women

**Definition/
 cut-off value**

Any history of diagnosed preeclampsia.

History of preeclampsia diagnosed by a physician as self-reported by applicant/participant/caregiver; or as reported or documented by a physician, or someone working under a physician’s orders.

**Client category
 and priority level**

Category	Priority
Pregnant women	1
Breastfeeding women	1
Postpartum Women	6

Justification

Preeclampsia is defined as pregnancy-induced hypertension (> 140 mm Hg systolic or 90 mm Hg diastolic) with proteinuria developing usually after the twentieth week of gestation (1, 2). Clinical symptoms of preeclampsia may include: edema, renal failure, and the HELLP (Hemolysis, Elevated Liver enzymes and Low Platelets) syndrome.

Preeclampsia is a leading cause of maternal death and a major contributor to maternal and perinatal morbidity (3). Women who have had preeclampsia in a prior pregnancy have an increased risk of recurrence (about 20% overall) (4). The risk is greater in women who have had preeclampsia occurring early in pregnancy or who have had preeclampsia in more than one pregnancy. Additionally, maternal pre-pregnancy obesity with BMI \geq 30 is the most prevalent risk factor for preeclampsia (4).

Risk factors for preeclampsia include (2, 4, 5):

- Pre-pregnancy obesity BMI \geq 30
- Preeclampsia in a prior pregnancy
- Nulliparity (no prior delivery)
- Maternal age > 35 years
- Endocrine disorders (e.g. diabetes); autoimmune disorders (e.g. lupus); renal disorders
- Multi-fetal gestation
- Genetics
- Black Race

Preeclampsia (Hx) (continued)

There are few established nutrient recommendations for the prevention of preeclampsia. However, vitamin D may be important because it influences vascular structure and function, and regulates blood pressure (4). Also, calcium may prevent preeclampsia among women with very low baseline calcium intake (4).

There is no treatment for preeclampsia. The condition resolves itself only when the pregnancy terminates or a placenta is delivered (4). Early prenatal care, therefore, is vital to the prevention of the onset of the disease.

WIC is well poised to provide crucial strategies during the critical inter-conceptual period to help reduce the risk of recurrence of preeclampsia in a subsequent pregnancy.

WIC nutrition education encourages practices shown by research to have a protective effect against developing preeclampsia (2, 4, 5). These include:

- Gaining recommended weight based on pre-pregnancy BMI, in order to help return to a healthy postpartum weight
- Scheduling early prenatal care visits
- Consuming a diet adequate in calcium and vitamin D
- Taking prenatal vitamins
- Engaging in regular physical activity
- Discontinuing smoking and alcohol consumption

Postpartum Women:

Women who have had preeclampsia should be advised that they are at risk for recurrence of the disease and development of cardiovascular disease (CVD) later in life (4, 7). WIC nutrition education can emphasize measures that support the prevention of preeclampsia in a future pregnancy such as reaching or maintaining a healthy BMI and lifestyle between pregnancies, consuming a nutritionally adequate diet consistent with the Dietary Guidelines for Americans, and engaging in regular physical activity.

Pregnant Women:

The WIC Program provides supplemental foods rich in nutrients, especially calcium and vitamin D, which research has shown to have a protective effect on preeclampsia (4). During nutrition education, WIC can encourage actions or behaviors that also have been shown to have a protective effect against preeclampsia: early prenatal care, taking a prenatal vitamin, and engaging in physical activity (6). WIC can also discourage smoking and alcohol consumption (2) and counsel pregnant women to gain recommended weight based on pre-pregnancy BMI (8) and to return to pre-pregnancy weight or a healthy BMI of < 25 for the benefit of future pregnancies.

Preeclampsia (Hx) (continued)

References

1. American Dietetic Association. Nutrition Care Manual. Hypertension; 2006. <http://www.nutritioncaremanual.org>. Accessed May 2009.
2. National Heart, Lung, and Blood Institute, 2000, Working group report on high blood pressure in pregnancy; 2000 Jul. NIH Publication No. 00-3029.
3. Irani RA, Xia Y. The functional role of the rennin-angiotensin system in pregnancy and preeclampsia. *Placenta*. 2008:763-771.
4. Roberts JM, Bodnar LM. Report on the WIC nutrition risk criterion for hypertension in pregnancy. July 2007. Unpublished.
5. National Heart, Lung, and Blood Institute: <http://www.nhlbi.nih.gov/>. Accessed May 2009.
6. U.S. Department of Health and Human Services. 2008 Physical activity guidelines for Americans. www.health.gov/paguidelines. p. 41-42. Access May 2009.
7. Gaugler-Senden, I, Berends A, DeGroot C, Steegers E.: Severe, very early onset of preeclampsia: subsequent pregnancies and future cardiovascular health. *European Journal of Obstetrics and Gynecology and Reproductive Biology*. 2008: 171-177.
8. Institute of Medicine. Weight gain during pregnancy: reexamining the guidelines (Prepublication Copy). National Academy Press, Washington, D.C.; 2009.

Clarification

Self-reporting for “History of...” conditions should be treated in the same manner as self-reporting for current conditions requiring a physician’s diagnosis, i.e. the applicant may report to the CPA that he/she was diagnosed by a physician with a give condition at some point in the past. As with current conditions, self-diagnosis of a past condition should never be confused with self-reporting.

Pregnancy Induced Hypertension

**Federal Risk 345
 High Risk Factor**

**Definition/
 cut-off value** Presence of pregnancy induced hypertension diagnosed by a physician as self-reported by applicant/participant/caregiver; or as reported or documented by a physician, or someone working under a physician’s orders.

Client category and priority level	Category	Priority
	Pregnant women	1

Justification Hypertension is the most common medical complication of pregnancy, occurring in 7% of all pregnancies. Hypertension during pregnancy may lead to low birth weight, fetal growth restriction, and premature delivery, as well as maternal, fetal and neonatal morbidity (1).

The term “pregnancy-induced hypertension” includes gestational hypertension, preeclampsia and eclampsia. (2, 3)

- **Gestational Hypertension:** Blood pressure elevation detected for the first time after midpregnancy without proteinuria. It presents minimal risks to mother and baby when it doesn’t progress to preeclampsia.
- **Preeclampsia:** A pregnancy-specific syndrome observed after the 20th week of pregnancy with elevated blood pressure accompanied by significant proteinuria.
- **Eclampsia:** The occurrence of seizures in a woman with preeclampsia that can’t be attributed to other causes.
- **Preeclampsia superimposed upon chronic hypertension:** Preeclampsia occurring in a woman with chronic hypertension. It is the major leading factor of maternal and infant mortality and morbidity.

The following conditions are associated with an increased incidence of pregnancy-induced hypertension (4):

- Inadequate diet
- Nutritional deficiencies, including low protein, essential fatty acid, or magnesium intake
- Inadequate calcium intake in early pregnancy (1)
- Obesity
- Primigravidity

Pregnancy Induced Hypertension (PIH) (continued)

- Age (pregnancy before age 20 or after age 40)
- Multi-fetal gestation
- Genetic disease factors
- Familial predisposition

The WIC Program provides fruits, vegetables, low fat milk and cheese, which are important components of the Dietary Approaches to Stop Hypertension (DASH) eating plan. WIC nutritionists provide nutrition education and counseling to reduce sodium intakes, achieve and maintain proper weight status, promote physical activity and make referrals to smoking cessation programs, which are the lifestyle interventions critical to the management of hypertension.

References

1. Roberts, JM, Bodnar LM. Report on the WIC nutrition risk criterion for hypertension in pregnancy. July 2007. Unpublished.
 2. National Heart, Lung and Blood Institute. Report of the working group on research on hypertension during pregnancy, 2001. www.nhlbi.nih.gov. Accessed May 2009.
 3. National Heart, Lung and Blood Institute. Working group report on high blood pressure in pregnancy; 2000 Jul. NIH Publication no. 00-3029.
 4. National Heart Lung and Blood Institute. www.nhbi.nih.gov. Accessed May 2009.
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Clarification

Self-reporting of a diagnosis by a medical professional should not be confused with self-diagnosis, where a person simply claims to have or to have had a medical condition without any reference to professional diagnosis. A self-reported medical diagnosis (“My doctor says that I have/my son or daughter has...”) should prompt the CPA to validate the presence of the condition by asking more pointed questions related to that diagnosis.

Pregnant with Multiples – PG Women
Pregnant with Multiples (This PG) – BF/PP Women

Federal Risk 335

**Definition/
cut-off value**

Pregnancy: more than one fetus in the current pregnancy.

Breastfeeding and Postpartum: more than one fetus in the most recent pregnancy.

**Client category
and priority level**

Category	Priority
Pregnant women	1
Breastfeeding women	1
Postpartum women	6

Justification

Multifetal gestations are associated with low birth weight, fetal growth restriction, placental and cord abnormalities, preeclampsia, anemia, shorter gestation, and an increased risk of infant mortality. Twin births account for 16% of all low birth weight infants. The risk of pregnancy complications is greater in women carrying twins and increases markedly as the number of fetuses increases. (1, 2)

For twin gestations, the 2009 IOM recommendations provide provisional guidelines: normal weight women should gain 37-54 pounds; overweight women, 31-50 pounds; and obese women, 25-42 pounds (3). There was sufficient information for the IOM committee to develop even provisional guidelines for underweight women with multiple fetuses. A consistent rate of weight gain is advisable. A gain of 1.5 pounds per week during the second and third trimesters has been associated with a reduced risk of preterm and low-birth weight delivery in twin pregnancy (2). In triplet pregnancies the overall gain should be around 50 pounds with a steady rate of gain of approximately 1.5 pounds per week throughout the pregnancy (2). Education by the WIC nutritionist should address a steady rate of weight gain that is higher than for singleton pregnancies.

Pregnant or breastfeeding women with twins have greater requirements for all nutrients than women with only one infant. Postpartum, non-breastfeeding women delivering twins are at greater nutritional risk than similar women delivering only one infant. All three groups of women would benefit greatly from the nutritional supplementation provided by the WIC Program.

Pregnant with Multiples (continued)
Pregnant with Multiples (This PG) – BF/PP Women

References

1. Brown JE and Carlson M. Nutrition and multifetal pregnancy. *J Am Diet Assoc.* 2000;100:343-348.
2. Institute of Medicine: WIC Nutrition Risk Criteria: A Scientific Assessment. National Academy Press, Washington, D. C.; 1996.
3. Institute of Medicine. Weight gain during pregnancy: reexamining the guidelines (Prepublication Copy). National Academy Press, Washington, D.C.; 2009. www.nap.edu. Accessed June 2009.

Additional Related References

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3. Williams, RL, Creasy RK, Cunningham GC, Hawes WE, Norris FD, Tashiro M. Fetal growth and perinatal viability in California. *Obstet Gynecol*; 1982; 59:624-32.
4. Worthington-Roberts, B.: Weight gain patterns in twin pregnancies with desirable outcomes; *Clin Nutr*; 1988; 7:191-6.

Premature \leq 37 Weeks Gestation (< 24 months)

Federal Risk 142

**Definition/
cut-off value**

Birth at \leq 37 weeks gestation for infants and children < 24 months.

Note: See “Guidelines for Growth Charts and Gestational Age Adjustment for Low Birth Weight and Very Low Birth Weight Infants” located in the Appendix of this chapter for more information on the anthropometric assessment and nutritional care of premature infants.

**Client category
and priority level**

Category	Priority
Infants	1
Children < 2 years	3

Justification

Premature infants may have physical problems that have nutritional implications, including immature sucking, swallowing and immature digestion and absorption of carbohydrates and lipids. Premature infants have increased nutrient and caloric needs for rapid growth. Premature infants grow well on breast milk. WIC promotes breastfeeding and provides nutrition education about infant feeding.

References

Institute of Medicine: WIC Nutrition Risk Criteria: A Scientific Assessment. Washington (DC): National Academy Press; 1996. p. 215.

Premature \leq 37 Weeks Gestation (Hx) – PG Women
Premature \leq 37 Weeks Gestation (This PG) – BF/PP Women

Federal Risk 311

**Definition/
cut-off value**

Birth of an infant at \leq 37 weeks gestation.
 Pregnant Women: any history of preterm delivery.
 Breastfeeding/Postpartum Women: most recent pregnancy.

**Client category
and priority level**

Category	Priority
Pregnant women	1
Breastfeeding women	1
Postpartum women	6

Justification

Preterm birth causes at least 75% of neonatal deaths not due to congenital malformations (1). In most cases of preterm labor, the cause is unknown. Epidemiologic studies have consistently reported low socioeconomic status, nonwhite race, maternal age of \leq 18 years or \geq 40 years, and low prepregnancy underweight as risk factors. A history of one previous preterm birth is associated with a recurrent risk of 17-37% (2, 3); the risk increases with the number of prior preterm births and decreases with the number of term deliveries.

References

1. American College of Obstetricians and Gynecologists. Preterm Labor. Technical Bulletin 206; Washington, D. C. ACOG, 1995.
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Pre-Diabetes

Federal Risk 363
High Risk Factor

**Definition/
 cut-off value**

Impaired fasting glucose (IFG) and/or impaired glucose tolerance (IGT) are referred to as pre-diabetes. These conditions are characterized by hyperglycemia that does not meet the diagnostic criteria for diabetes mellitus (1). (See Clarification for more information.)

Presence of pre-diabetes diagnosed by a physician as self-reported by applicant/participant/caregiver; or as reported or documented by a physician, or someone working under physician’s orders.

**Client category
 and priority level**

Category	Priority
Breastfeeding women	1
Postpartum women	6

Justification

An individual who is identified as having pre-diabetes is at relatively high risk for the development of type 2 diabetes and cardiovascular disease (CVD).

The Expert Committee on the Diagnosis and Clarification of Diabetes Mellitus (2, 3) recognized a group of individuals whose glucose levels, although not meeting criteria for diabetes, are nevertheless too high to be considered normal. The blood tests used to measure plasma glucose and to diagnose pre-diabetes include a fasting plasma glucose test and a glucose tolerance test (see Clarification for more information). Individuals with a fasting plasma glucose level between 100-125 mg/dl are referred to as having impaired fasting glucose (IFG). Individuals with plasma glucose levels of 140-199 mg/dl after a 2-hour oral glucose tolerance test are referred to as having impaired glucose tolerance (IGT).

Many individuals with IGT are euglycemic and, along with those with IFG, may have normal or near normal glycosylated hemoglobin (HbA1c) levels. Often times, individuals with IGT manifest hyperglycemia only when challenged with the oral glucose load used in standardized oral glucose tolerance test.

The prevalence of IFG and IGT increases greatly between the ages of 20-49 years. In people who are > 45 years of age and overweight (BMI ≥ 25), the prevalence of IFG is 9.5%, and for IGT, it is 12.8% (4).

Pre-Diabetes (continued)

Screening for pre-diabetes is critically important in the prevention of type 2 diabetes. The American Diabetes Association recommends (5) that testing to detect pre-diabetes should be considered in all asymptomatic adults who are overweight (BMI \geq 25) or obese (BMI \geq 30) and who have one or more additional risk factors (see Table 1 in Clarification).

IFG and IGT are not clinical entities in their own right, but, rather, risk factors for future diabetes as well as CVD. (Note: During pregnancy, IFG and IGT are diagnosed as gestational diabetes.) They can be observed as intermediate stages in many of the disease processes. IFG and IGT are associated with the metabolic syndrome, which includes obesity (especially abdominal or visceral obesity), dyslipidemia (the high-triglyceride and/or low HDL type), and hypertension. Dietary recommendations include monitoring of calories, reduced carbohydrate intake and high fiber consumption. Medical nutrition therapy (MNT) aimed at producing 5-10% loss of body weight and increased exercise have been variably demonstrated to prevent or delay the development of diabetes in people with IGT. However, the potential impact of such interventions to reduce cardiovascular risk has not been examined to date (2, 3).

WIC nutrition services can support and reinforce the MNT and physical activity recommendations that participants receive from their health care providers. In addition, WIC nutritionists can play an important role in providing women with counseling to help them achieve or maintain a healthy weight after delivery.

The WIC food package provides high fiber, low fat foods emphasizing consumption of whole grains, fruits, vegetables and dairy products. This will further assist WIC families in reducing their risk for diabetes.

References

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 3. The Expert Committee on the Diagnosis and Classification of Diabetes Mellitus. Follow-up report on the diagnosis of the diabetes mellitus. *Diabetes Care*. 2003; 26:3160-3167.
 4. American Diabetes Association National Institute of Diabetes and Digestive and Kidney Diseases. Position statement on prevention or delay of type 2 diabetes. *Diabetes Care*. 2004; 27:S47.
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Pre-Diabetes (continued)

5. American Diabetes Association. Executive summary: standards of medical care in diabetes. *Diabetes Care*. 2008 Jan; 31 Suppl 1:S5-11.

Additional Related Reference

Garber A-J, et al. Diagnosis and management of pre-diabetes in the continuum of Hyperglycemia: When do the risks of diabetes begin? A consensus statement from the American College of Endocrinology and the American Association of Clinical Endocrinologists. *ACE/AACE Consensus Statement Endocrine Practice* 2008 Oct; 14(7):933-946.

Clarification

Self-reporting of a diagnosis by a medical professional should not be confused with self-diagnosis, where a person simply claims to have or to have had a medical condition without any reference to professional diagnosis. A self-reported medical diagnosis (“My doctor says that I have/my son or daughter has...”) should prompt the CPA to validate the presence of the condition by asking more pointed questions related to that diagnosis.

Hyperglycemia is identified through a fasting blood glucose or an oral glucose tolerance test (1).

Impaired fasting glucose (IGT) is defined as fasting plasma glucose (FPG) ≥ 100 or ≥ 125 mg/dl (≥ 5.6 or ≥ 6.1 mmol/l), depending on study guidelines (2).

Impaired glucose tolerance (IGT) is defined as a 75-g oral glucose tolerance test (OGTT) with 2-h plasma glucose values of 140 – 199 mg/dl (7.8 – 11.0 mmol/l).

The cumulative incidence of diabetes over 5 – 6 years was low (4 – 5 %) in those individuals with normal fasting and normal 2-h OGTT values, intermediate (20 – 34 %) in those with IFG and normal 2-h OGTT or IGT and a normal FPG, and highest (38 – 65%) in those with combined IFG and IGT (4).

Recommendations for testing for pre-diabetes in asymptomatic, undiagnosed adults are listed in Table 1 below.

Pre-Diabetes (continued)

Table 1. Criteria and Methods for Testing for Pre-Diabetes and Diabetes in Asymptomatic Adults

1. Testing should be considered in all adults who are overweight (BMI \geq 25) and have additional risk factors:
 - Physical inactivity
 - First-degree relative with diabetes
 - Members of a high-risk ethnic population (e.g. African American, Latino, Native American, Asian American, Pacific Islander)
 - Women who delivered a baby weighing > 9 lb or were diagnosed with gestational diabetes mellitus
 - Hypertension (blood pressure \geq 140/90 mmHg or on therapy for hypertension)
 - HDL cholesterol level < 35 mg/dl and/or triglyceride level > 250 mg/dl
 - Women with polycystic ovarian syndrome (PCOS)
 - IGT or IFG on previous testing
 - Other clinical conditions associated with insulin resistance (e.g. severe obesity and acanthosis nigricans)
 - History of CVD
 2. In the absence of the above criteria, testing for pre-diabetes and diabetes should begin at age 45 years.
 3. If results are normal, testing should be repeated at least at 3-year intervals, with consideration of more frequent testing depending on initial results and risk status.
 4. To test for pre-diabetes or diabetes, either an FPG test or 2-hour oral glucose tolerance (OGTT; 75-g glucose load), or both, is appropriate.
 5. An OGTT may be considered in patients with impaired fasting glucose (IFG) to better define the risk of diabetes.
 6. In those identified with pre-diabetes, identify and if appropriate, treat other CVD risk factors.
-

Pre-Pregnancy BMI < 18.5 – PG
Pre Pregnancy BMI < 18.5 (BF and PP) (< 6 months postpartum)

Federal Risk 101

**Definition/
cut-off value**

Pregnant women: pre-pregnancy Body Mass Index (BMI) < 18.5.

Breastfeeding and Postpartum women (< 6 months postpartum): pre-pregnancy Body Mass Index (BMI) < 18.5.

Note: Until research supports the use of different BMI cut-offs to determine weight status categories for adolescent pregnancies, the same BMI cut-offs will be used for all women, regardless of age, when determining WIC eligibility (1). (See Justification for a more detailed explanation.)

Refer to the Appendix for a BMI table for determining weight classification for women.

**Client category
and priority level**

Category	Priority
Pregnant women	1
Breastfeeding women	1
Postpartum women	6

Justification

Underweight women who become pregnant are at a higher risk for delivery of low birth weight (LBW) infants, retarded fetal growth, and perinatal mortality. Pre-pregnancy underweight is also associated with a higher incidence of various pregnancy complications, such as antepartum hemorrhage, premature rupture of the membranes, anemia, endometriosis, and cesarean delivery (2).

The goal in prenatal nutritional counseling provided by WIC is to achieve recommended weight gain by emphasizing food choices of high nutritional quality; and for the underweight woman, by encouraging increased consumption and/or the inclusion of some calorically dense foods.

The 2009 Institute of Medicine (IOM) report: *Weight Gain During Pregnancy: Reexamining the Guidelines* (1) updated the pregnancy weight categories to conform to the categories developed by the World Health Organization and adopted by the National Heart, Lung and Blood Institute in 1998 (3). The reexamination of the guidelines consisted of a review of the determinants of a wide range of short- and long-term consequences of variation in weight gain during pregnancy for both the mother and her infant. The IOM prenatal weight gain recommendations based on pre-pregnancy weight status categories are associated with improved maternal and child health outcomes (1).

Pre-Pregnancy BMI < 18.5 (PG)**Pre-Pregnancy BMI < 18.5 (< 6 months postpartum) (BF, PP) (continued)**

Included in the 2009 IOM guidelines is the recommendation that the BMI weight categories used for adult women be used for pregnant adolescents as well. More research is needed to determine whether special categories are needed for adolescents. It is recognized that both the IOM cut-offs for defining weight categories will classify some adolescents differently than the CDC BMI-for-age charts. For the purpose of WIC eligibility determination, the IOM cut-offs for pregnant and postpartum adolescents, professionals should use all of the tools available to them to assess these applicants' anthropometric status and tailor nutrition counseling accordingly.

Weight during the early postpartum period, when most WIC certifications occur, is very unstable. During the first 4-6 weeks fluid shifts and tissue changes cause fluctuations in weight. After 6 weeks, weight loss varies among women. Pre-pregnancy weight, amount of weight gain during pregnancy, race, age, parity and lactation all influence the rate of postpartum weight loss. By 6 months postpartum, body weight is more stable and should be close to the pre-pregnancy weight. In most cases therefore, pre-pregnancy weight is a better indicator of weight status than postpartum weight in the first 6 months after delivery. The one exception is the woman with a BMI of < 18.5 during the immediate 6 months after delivery. Underweight at this stage may indicate inadequate weight gain during pregnancy, depression, an eating disorder or disease; any of which need to be addressed (4).

While being on the lean side of normal weight is generally considered healthy, being underweight can be indicative of poor nutritional status, inadequate food consumption, and/or an underlying medical condition. Underweight women who are breastfeeding may be further impacting their own nutritional status. Should she become pregnant again, an underweight woman is at a higher risk for delivery of low birth weight (LBW) infants, retarded fetal growth, and perinatal mortality. The role of the WIC Program is to assist underweight women in the achievement of a healthy dietary intake and body mass index.

Pre-Pregnancy BMI < 18.5 (PG)

Pre-Pregnancy BMI < 18.5 (< 6 months postpartum) (BF, PP) (continued)

References

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2. Institute of Medicine. WIC Nutrition Risk Criteria: A Scientific Assessment. National Academy Press, Washington, D.C.; 1996.
3. National Heart, Lung, and Blood Institute (NHLBI), National Institutes of Health (NIH). Clinical guidelines on the identification, evaluation, and treatment of overweight and obesity in adults. NIH Publication No. 98-4083, 1998. www.nih.gov. Accessed June 2009.
4. Crowel DT. Weight changes in the postpartum period: a review of the literature. Journal of Nurse-Midwifery. Vol. 40, No. 5, September/October 1995; pgs 418-423.

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2. Siega-Riz AM, Adair LS, Hobel CJ. Institute of Medicine maternal weight gain recommendations and pregnancy outcomes in a predominately Hispanic population. Obstet Gynecol, 1994; 84:565-73.
3. Suitor CW, editor. Maternal weight gain: a report of an expert work group. Arlington, Virginia: National Center for Education in Maternal and Child Health; 1997. Sponsored by Maternal and Child Health Bureau, Health Resources and Services Administration, Public Health Service, U. S. Department of Health and Human Services.

Pre-Pregnancy BMI 25 – 29.9 (PG)**Pre-Pregnancy BMI \geq 30 (PG)****Pre-Pregnancy BMI 25 – 29.9 (< 6 months postpartum) (BF, PP)****Pre-Pregnancy BMI \geq 30 (< 6 months postpartum) (BF, PP)**

Federal Risk 111

**Definition/
cut-off value**

Pregnant women:

- Pre-pregnancy Body Mass Index (BMI) 25 – 29.9
- Pre-pregnancy Body Mass Index (BMI) \geq 30

Breastfeeding and Postpartum women (< 6 months postpartum):

- Pre-pregnancy Body Mass Index (BMI) 25 - 29.9
- Pre-pregnancy Body Mass Index (BMI) \geq 30

Note: Until research supports the use of different BMI cut-offs for adolescent pregnancies, the same BMI cut-offs will be used for all women, regardless of age, when determining WIC eligibility (1). (See Justification for a more detailed explanation.)

Refer to the Appendix for a BMI table for determining weight classification for women.

**Client category
and priority level****Category****Priority**

Pregnant women	1
Breastfeeding women	1
Postpartum women	6

Justification

Maternal overweight and obesity are associated with higher rates of cesarean delivery, gestational diabetes mellitus, preeclampsia and other pregnancy-induced hypertensive disorders, as well as postpartum anemia (2). Several studies have established an association between obesity and an increased risk for hypertension, dyslipidemia, diabetes mellitus, cholelithiasis, coronary heart disease, osteoarthritis, sleep apnea, stroke and certain cancers (1).

One goal of prenatal nutritional counseling is to achieve recommended weight gain during pregnancy. For the overweight woman, emphasis should be on selecting food choices of high nutritional quality and avoiding calorie rich foods, thereby minimizing further risks associated with increased overweight and obesity.

Pre-Pregnancy BMI 25 – 29.9 (PG) (continued)
Pre-Pregnancy BMI \geq 30 (PG) (continued)
Pre-Pregnancy BMI 25 – 29.9 (< 6 months postpartum) (BF, PP) (continued)
Pre-Pregnancy BMI \geq 30 (< 6 months postpartum) (BF, PP) (continued)

Justification

The 2009 Institute of Medicine (IOM) report: *Weight Gain During Pregnancy: Reexamining the Guidelines* (1) updated pregnancy weight categories to conform to the categories developed by the World Health Organization and adopted by the National Heart, Lung and Blood Institute in 1998 (3). The reexamination of the guidelines consisted of a review of the determinants of a wide range of short- and long-term consequences of variation in weight gain during pregnancy for both the mother and her infant. The IOM prenatal weight gain recommendations based on prepregnancy weight status categories are associated with improved maternal and child health outcomes (1).

Included in the 2009 IOM guidelines is the recommendation that the BMI weight categories used for adult women be used for pregnant adolescents as well. More research is needed to determine whether special categories are needed for adolescents. It is recognized that the IOM cut-offs for defining weight categories will classify some adolescents differently than the CDC BMI-for-age charts. For the purpose of WIC eligibility determination, the IOM cut-offs will be used for all women regardless of age. However, due to the lack of research on relevant BMI cut-offs for pregnant and postpartum adolescents, professionals should use all the tools available to them to assess these applicants' anthropometric status and tailor nutrition counseling accordingly.

Weight during the early postpartum period, when most WIC certifications occur, is very unstable. During the first 4-6 weeks fluid shifts and tissue changes cause fluctuations in weight. After 6 weeks, weight loss varies among women. Prepregnancy weight, amount of weight gain during pregnancy, race, age, parity and lactation all influence the rate of postpartum weight loss. By 6 months postpartum, body weight is more stable and should be close to the prepregnancy weight. In most cases therefore, prepregnancy weight is a better indicator of weight status than postpartum weight in the first 6 months after delivery (4).

The percentage of adolescents who are overweight is increasing rapidly and more than 60% of adults in the US are overweight. Due to the significant impact that overweight and obesity have on morbidity and mortality, it is imperative that every effort be made to identify individuals who are overweight and to assist them in achieving a more healthful weight. The WIC Program is in a position to play an important role in helping to reduce the prevalence of overweight not only by working with postpartum women on improving their own weight status, but also by helping them to see their role in assisting their children to learn healthful eating and physical activity behaviors.

Pre-Pregnancy BMI 25 – 29.9 (PG) (continued)**Pre-Pregnancy BMI \geq 30 (PG) (continued)****Pre-Pregnancy BMI 25 – 29.9 (< 6 months postpartum) (BF, PP) (continued)****Pre-Pregnancy BMI \geq 30 (< 6 months postpartum) (BF, PP) (continued)**

References

1. Institute of Medicine. Weight gain during pregnancy: reexamining the guidelines (Prepublication Copy). National Academy Press; Washington D.C.; 2009. www.nap.edu. Accessed June 2009.
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Recent Major Surgery, Trauma, Burns

Federal Risk 359

**Definition/
cut-off value**

Major surgery (including C-sections), trauma or burns severe enough to compromise nutritional status.

Any occurrence:

- within the past two (≤ 2) months may be self-reported.
- more than two (>2) months previous must have the continued need for nutritional support diagnosed by a physician or a health care provider working under the order of a physician.

**Client category
and priority level**

Category	Priority
Pregnant women	1
Breastfeeding women	1
Postpartum women	6
Infants	1
Children	3

Justification

The body's response to recent major surgery, trauma, or burns may affect nutrient requirements needed for recovery and lead to malnutrition. There is a catabolic response to surgery; severe trauma or burns cause a hypermetabolic state. Injury causes alterations in glucose, protein and fat metabolism.

Metabolic and physiological responses vary according to the individual's age, previous state of health, preexisting disease, previous stress, and specific pathogens. Once individuals are discharged from a medical facility, a continued high nutrient intake may be needed to promote the completion of healing and return to optimal weight and nutrition status.

References

Institute of Medicine: WIC Nutrition Risk Criteria: A Scientific Assessment; National Academy Press, Washington, D. C. 1996.

Recipient of Abuse (past 6 months)

Federal Risk 901

**Definition/
cut-off value**

Battering or child abuse/neglect within the past 6 months as self-reported, or as documented by a social worker, health care provider or on other appropriate documents, or as reported through consultation with a social worker, health care provider, or other appropriate personnel.

“Battering” generally refers to violent physical assaults on women.

Child abuse/neglect: “Any recent act or failure to act resulting in imminent risk of serious harm, death, serious physical or emotional harm, sexual abuse, or exploitation of an infant or child by a parent or caretaker (2).”

Washington State law requires the reporting of known or suspected child abuse or neglect. WIC staff must report such information to the appropriate State officials.

**Client category
and priority level**

Category	Priority
Pregnant women	4
Breastfeeding women	4
Postpartum women	6
Infants	4
Children	5

Justification

Battering during pregnancy is associated with increased risks of low birth weight, preterm delivery, and chorioamnionitis, as well as poor nutrition and health behaviors. Battered women are more likely to have a low maternal weight gain, be anemic, consume an unhealthy diet, and abuse drugs and alcohol, and cigarettes.

Serious neglect and physical, emotional, or sexual abuse have short and long-term physical, emotional, and functional consequences for children. Nutritional neglect is the most common cause of poor growth in infancy and may account for as much as half of all cases of nonorganic failure to thrive.

References

1. An Act to Modify and Reauthorize the Child Abuse and Prevention and Treatment Act, and for other Purposes 1996, Pub. L. No. 104-235 (Oct. 3, 1996).
2. Institute of Medicine: WIC Nutrition Risk Criteria: A Scientific Assessment; National Academy Press, Washington, D. C. 1996.
3. The Child Abuse Prevention and Treatment Act Reauthorized; October 1996; Public Law 104-25.

Reduced-fat or Non-fat Milk (12 – 23 Months)

Federal Risk 425.1

**Definition/
cut-off value** Routinely feeding reduced-fat or non-fat milk as the primary milk source between 12 and 23 months of age.

Client category and priority level	Category	Priority
	Children	5

Justification Non-fat and reduced-fat milks are not recommended for use with children from 1 to 2 years of age because of the lower calorie density compared with whole-fat products (1, 2). The low-calorie, low-fat content of these milks requires an increase volume in caloric intake to meet energy needs. Infants and children under two using reduced fat milks gain at a slower growth rate, lose body fat as evidenced by skinfold thickness, lose energy reserves, and are at risk of inadequate intake of essential fatty acids. Additionally, essential fatty acids are a critical component of infant and child brain development with deficits early in life leading to significantly altered brain structure and function (3 – 5). Similar malnourishment has been associated with negative health outcomes including, but not limited to, slower language development, poorer motor function, lower IQ, poorer school performance, and eyesight problems (6).

WIC Regulations [7 CFR 246.10e], however, include the option for WIC State agencies to issue reduced-fat milk to children (1 to 2 years of age) for whom overweight or obesity is a concern, as determined by the Registered Dietitian (Food Package Guidance, May 2014). This option is consistent with the American Academy of Pediatrics (AAP) recommendation in the clinical report: *Lipid Screening and Cardiovascular Health in Childhood* (7). The AAP identifies parental history of obesity, lipidemia, and cardiovascular disease as determinants for a child for whom overweight or obesity is a concern. WIC State agencies that choose to authorize reduced-fat milk for the 1 year old child must develop policy that defines the assessment criteria the RD will use to determine if the child should be given reduced-fat milk.

- See [Volume 1, Chapter 23 – WIC Foods](#) for the criteria for providing reduced-fat milk to children 1 – 2 years of age.

Reduced-fat or non-fat milk (12 – 23 Months) (continued)

References

1. Committee on Nutrition, American Academy of Pediatrics. Pediatric nutrition handbook. 6th ed. Elk Grove Village, Ill: American Academy of Pediatrics, 2009.
 2. Tamborlane, WV, editor. The Yale guide to children's nutrition. Connecticut: Yale University; 1997.
 3. Hansen AE, Wiese HF, Boelsche AN, Haggard ME, Adam DJ, Davis H. role of Linoleic Acid in Infant Nutrition: Clinical and Chemical Study of 428 Infants Fed on Milk Mixtures Varying in Kind and Amount of Fat. Pediatrics. 1963;31(1), 1712-19.
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Clarification

“Routinely” is defined as a regular or routine practice that occurs frequently enough to have an impact on a client’s nutrition or health status. Staff use professional discretion to determine that a client’s health and nutrition status are impacted by the frequency of a particular practice.

Regression

Federal Risk 501

Definition/ cut-off value

A participant who has previously been certified eligible for the Program may be considered to be at nutrition risk in the next certification period if the competent professional authority determines there is a possibility of regression in nutritional status without the benefits that the WIC program provides.

Note: The Washington State WIC Program does not currently serve this priority or utilize this risk factor, unless the client transfers in from another state with a current eligibility based on this risk.

Client category and priority level

Category	Priority
Breastfeeding women	7
Children	7

Justification

On occasion, a participant's nutritional status may be improved, to the point that s/he rises slightly above the cutoff of the initial risk condition by the end of the certification period. This occurs most frequently with those conditions that contain specific cutoffs or thresholds, such as anemia or inappropriate growth. Removal of such individuals from the Program can result in a "revolving-door" situation where the individual's recently improved nutritional status deteriorates quickly, so that s/he then re-enters the Program at equal or greater nutrition risk than before. Therefore, WIC Program regulations permit State agencies to certify previously certified individuals who do not demonstrate a current nutrition risk condition against the possibility of their reverting to the prior existing risk condition if they do not continue to receive WIC benefits. This policy is consistent with the preventative nature of the WIC program, and enables State and local agencies to ensure that their previous efforts to improve a participant's nutrition status, as well as to provide referrals to other health care, social service, and/or public assistance programs are not wasted.

Competent Professional Authorities and other certifying staff should keep in mind that every nutrition risk condition does not necessarily lead itself to the possibility of regression. For example, gestational diabetes or gingivitis of pregnancy are not conditions to which a new mother could regress, since they are directly associated with pregnancy, and the breastfeeding woman cannot regress to being pregnant if she is no longer receiving WIC benefits.

References

WIC Program Regulations: Section 246.7(e)(1)(iii).

Respiratory Infection (3x/6 months)

Federal Risk 352
High Risk Factor

**Definition/
cut-off value**

Severe respiratory infection such as bronchiolitis, 3 episodes in the last 6 months.

The respiratory infection must be diagnosed by a physician as self-reported by applicant/participant/caregiver; or as reported or documented by a physician, or someone working under physician's orders.

**Client category
and priority level**

Category	Priority
Infants	1

Justification

Chronic, prolonged, or repeated infections adversely affect nutritional status through increased nutrient requirements as well as through decreased ability to take in or utilize nutrients.

Bronchiolitis is a lower respiratory tract infection that affects young children, usually under 24 months of age. It is often diagnosed in winter and early spring, and is caused by the respiratory syncytial virus (RSV). Recurring episodes of bronchiolitis may affect nutritional status during a critical growth period and lead to the development of asthma and other pulmonary diseases.

References

1. Hamill PV, Drizd TA, Johnson CL, Reed RB, Roche AF, Moore WM. Physical Growth. National Center for Health Statistics Percentiles. Am. J. Clin. Nutr. 1979;32:607-29.
 2. Institute of Medicine: WIC Nutrition Risk Criteria: A Scientific Assessment; National Academy Press, Washington, D. C. 1996.
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Clarification

Self-reporting of a diagnosis by a medical professional should not be confused with self-diagnosis, where a person simply claims to have or to have had a medical condition without any reference to professional diagnosis. A self-reported medical diagnosis (“My doctor says that I have/my son or daughter has...”) should prompt the CPS to validate the presence of the condition by asking more pointed questions related to that diagnosis.

Secondhand Smoke

Federal Risk 904

Definition and cut-off value

Environmental tobacco smoke (ETS) exposure, or secondhand smoke, is defined for WIC eligibility purposes as exposure to smoke from tobacco products inside the client’s home. *(1, 2, 3)

* See Clarification for background information

Client category and priority level

Category	Priority
Pregnant women	1
Breastfeeding women	1
Postpartum women	6
Infants	1
Children	3

Justification

ETS, secondhand smoke, is a mixture of the smoke given off by a burning cigarette, pipe, or cigar (sidestream smoke), and the smoke exhaled by smokers (mainstream smoke). Secondhand smoke is a mixture of about 85% sidestream and 15% mainstream smoke (4) made up of over 4,000 chemicals, including Polycyclic Aromatic Hydrocarbons (PAHs) and carbon monoxide (5). Sidestream smoke has a different chemical make-up than main-stream smoke. Sidestream smoke contains higher levels of virtually all carcinogens, compared to mainstream smoke (6). Mainstream smoke has been more extensively researched than sidestream smoke, but they are both produced by the same fundamental processes.

ETS is qualitatively similar to mainstream smoke inhaled by the smoker. The 1986 Surgeon General’s report: *The Health Consequences of Involuntary Smoking. A Report of the Surgeon General* concluded that ETS has a toxic and carcinogenic potential similar to that of the mainstream smoke (7). The more recent 2006 Surgeon General’s report, *The Health Consequences of Involuntary Exposure to Tobacco Smoke: A Report of the Surgeon General*, reaffirms and strengthens the findings of the 1986 report, and expands the list of diseases and adverse health effects caused by ETS (8).

ETS is a known human carcinogen (2). Women who are exposed to ETS are at risk for lung cancer and cardiovascular diseases (9). Prenatal or postnatal ETS exposure is related to numerous adverse health outcomes among infants and children, including sudden infant death syndrome (SIDS) (10, 11), upper respiratory infections (12), periodontal disease (13), increased severity of asthma/wheezing (12), metabolic syndrome (14), decreased cognitive function (15), lower birth weight and smaller head circumference (16).

Secondhand Smoke (continued)

Infants born to women exposed to ETS during pregnancy have a small decrease in birth weight and a slightly increased risk of intrauterine growth retardation compared to infants of unexposed women (17).

Studies suggest that the health effects of ETS exposure at a young age could last into adulthood. That includes cancer (18), specifically lung cancer (19, 20), and cardiovascular diseases (14, 21, 22). There is strong evidence that ETS exposure to the fetus and/or infants results in permanent lung damage (23, 24, 25, 26).

ETS exposure increases inflammation and oxidative stress (27, 28, 29). Inflammation is associated with asthma (30), cardiovascular diseases (31, 32), cancer (33), chronic obstructive pulmonary disease (34), and metabolic syndrome (14, 35). PAHs are the major class of compounds that contribute to the ETS-related adverse health outcomes. These compounds possess potent carcinogenic and immunotoxic properties that aggravate inflammation.

Oxidative stress is a general term used to describe the steady state of oxidative damage caused by highly reactive molecules known as free radicals. The free radicals can be generated both during the normal metabolic process and from ETS and other environmental pollutants. When free radicals are not neutralized by antioxidants, they can cause oxidative damage to the cells. This damage has been implicated in the cause of certain diseases. ETS provokes oxidant damage similar to that of active smoking (36).

Antioxidants may modulate oxidative stress-induced lung damage among both smokers and on-smokers (22, 27 – 29, 37 – 40). Fruits and vegetables are the major food sources of antioxidants that may protect the lung from oxidative stress (1). Research indicates that consuming fruits and vegetables is more beneficial than taking antioxidant supplements (1). This suggests that other components of fruits and vegetables may be more relevant in protecting the lung from oxidative stress. Dietary fiber is also thought to contribute to the beneficial health effects of fruits and vegetables (1).

The Institute of Medicine (IOM) reports that an increased turnover in vitamin C has been observed in nonsmokers who are regularly exposed to tobacco smoke (41). The increased turnover results in lowered vitamin C pools in the body.

Although there are insufficient data to estimate a special requirement for non-smokers regularly exposed to ETS, the IOM urges those individuals to ensure that they meet the Recommended Dietary Allowance for vitamin C (36, 41).

Secondhand Smoke (continued)

The WIC food package supplements the participant intake of vitamin C. In addition, many WIC State Agencies participate in the WIC Farmers' Market Nutrition Program, which provides coupons for participants to purchase fresh fruits and vegetables. WIC Program benefits also include counseling to increase fruit and vegetable consumption, and to promote a healthy lifestyle, such as protecting participants and their children from ETS exposure. WIC staff may also make appropriate referrals to participants, and/or their caregivers, to other health and social services, such as smoking cessation programs.

Clarification

In a comprehensive scientific report, the Surgeon General concluded that there is no risk-free level of exposure to secondhand smoke (8). However, for the purpose of risk identification, the definition used for this risk criterion is based on the Centers for Disease Control and Prevention (CDC) Pediatric Nutrition Surveillance System (PedNSS) and the Pregnancy Nutrition Surveillance System (PNSS) to determine Environmental Tobacco Smoke (ETS) exposure:

1. Does anyone living in your household smoke inside the home? (infants, children)
2. Does anyone else living in your household smoke inside the home? (women)

Because the definition used by other Federal agencies for ETS exposure is specific to “inside the home” and has been validated (3), the definition used for WIC eligibility must also be as specific. In addition, FNS encourages the use of the PedNSS and PNSS ETS exposure questions for WIC nutrition assessment.

There are other potential sources of ETS exposure, such as work and daycare environments. However, no other validated questions/definitions could be found that were inclusive of other environments and applicable to WIC.

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Secondhand Smoke (continued)

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Severe Nausea/Vomiting**Federal Risk 301**

**Definition/
cut-off value**

Severe nausea and vomiting to the extent that the pregnant women becomes dehydrated and acidotic. Presence of Hyperemesis Gravidarum diagnosed by physician as self-reported by applicant/participant/caregiver, or as reported or documented by a physician, or someone working under physician's orders.

**Client category
and priority level****Category****Priority**

Pregnant women

1

Justification

Nausea and vomiting are common early in gestation; 50% or more of normal pregnant women experience some vomiting. However, pregnant women with severe vomiting during pregnancy are at risk of weight loss, dehydration, and metabolic imbalances. Nutrition risk is based on chronic conditions, not single episodes.

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Clarification

Self-reporting of a diagnosis by a medical professional should not be confused with self-diagnosis, where a person simply claims to have or to have had a medical condition without any reference to professional diagnosis. A self-reported medical diagnosis ("My doctor says that I have/my son or daughter has...") should prompt the CPA to validate the presence of the condition by asking more pointed questions related to that diagnosis.

Slow Weight Gain

**Federal Risk 135
 High Risk Factor**

**Definition/
 cut-off value** An inadequate rate of weight gain as defined below.

- Infants < 1 month of age: not back to birth weight by 2 weeks of age, or
- Infants < 6 months of age: having a two-channel change downward on the Weight/Age graph (only) in a six month period, based on two weights taken at least one month apart, or
- Infants \geq 6 months of age to Children 1 – 5 years of age: having a two-channel change downward on the Weight/Age graph (only) in a six month period, based on two weights taken at least three months apart.

Client category and priority level	Category	Priority
	Infants	1
	Children	3

Justification Weight for age is a sensitive indicator of acute nutritional inadequacy. The rate of gain during infancy, especially early infancy is rapid, and abnormalities in rate of weight gain may often be detected in just a few months. There is little question that decrease in the rate of weight gain during infancy is the earliest indication of nutritional failure. In contrast, children beyond infancy grow rather slowly and many months of observation may be required to demonstrate that the rate of weight gain is unusually slow. During the first eighteen months of life, the rate of change in weight fluctuates and then declines rapidly. Because of this deceleration it may be difficult to differentiate normal growth slowing from an abnormal rate. After 18 months, weight gain becomes more linear so assessment becomes easier.

Infants and children with abnormally slow growth rates can benefit from nutrition and health interventions to improve weight and height gain. The diagnosis of slow growth must consider possible causes of growth changes including under eating and disease conditions. Under eating, for any number of reasons, and disease conditions are the main causes of abnormally slow growth. Factors associated with under eating by an infant or child include inadequate sources of nutrient dense foods; lack of social support for the caregiver; an adverse social and psychological environment; a disorganized family; depressed parents or caregivers; and the caregiver’s lack of education, health and nutrition knowledge, mental and physical abilities, and responsibility for child care. There is good evidence that through nutrition education, supplemental foods, and referrals to other health and social services, participation in the WIC Program, will benefit infants and children with slow growth. In keeping with the preventative nature of the WIC Program, a cut-off point approximating the 10th percentile of change in weight for age was chosen.

Slow Weight Gain (continued)

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Small for Gestational Age

Federal Risk 151

**Definition/
cut-off value**

For infants and children < 24 months of age:

Presence of small for gestational age (SGA) diagnosed by a physician as self-reported by applicant/participant/caregiver; or as reported or documented by a physician, or someone working under physician's orders.

Note: See "Guidelines for Growth Charts and Gestational Age Adjustment for Low Birth Weight and Very Low Birth Weight Infants" located in the Appendix of this chapter for more discussion on the anthropometric assessment and nutritional care of SGA infants.

**Client category
and priority level**

Category	Priority
Infants	1
Children < 24 months of age	3

Justification

Impairment of fetal growth can have adverse effects on the nutrition and health of children during infancy and childhood, including higher mortality and morbidity, slower physical growth, and possible slower mental development. Infants who are small for gestational age (SGA) are also more likely to have congenital abnormalities. Severely growth-retarded infants are at markedly increased risk for fetal and neonatal death, hypoglycemia, hypocalcemia, polycythemia, and neurocognitive complications of pre- and intrapartum hypoxia. Over the long term, growth-retarded infants may have permanent mild deficits in growth and neurocognitive development (1).

WIC staff should routinely complete anthropometric assessments and follow-up (to include coordination with and referral to, other health care providers and services) for infant/children with a diagnosis/history of SGA who have not yet demonstrated normal growth patterns.

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Small for Gestational Age (continued)

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Clarification

Self-reporting of a diagnosis by a medical professional should not be confused with self-diagnosis, where a person simply claims to have or to have had a medical condition without any reference to professional diagnosis. A self-reported medical diagnosis (“My doctor says that I have/my son or daughter has...”) should prompt the CPA to validate the presence of the condition by asking more pointed questions related to that diagnosis.

Spontaneous Abortion, Fetal or Neonatal Loss (Hx) – PG women
Spontaneous Abortion, Fetal or Neonatal Loss (This PG) – BF/PP women

Federal Risk 321

**Definition
cut-off value**

A spontaneous abortion (SAB) is the spontaneous termination of a gestation at < 20 weeks gestation or < 500 grams.

Fetal death is the spontaneous termination of a gestation at \geq 20 weeks.
 Neonatal death is the death of an infant within 0 – 28 days of life.

Pregnant women: any history of fetal or neonatal death or 2 or more spontaneous abortions.

Breastfeeding women: most recent pregnancy in which there was a multifetal gestation with one or more fetal or neonatal deaths, but with one or more infants still living.

Postpartum women: most recent pregnancy.

Presence of condition diagnosed by a physician as self-reported by applicant/participant/caregiver; or as reported or documented by a physician, or someone working under physician’s orders.

**Client category
and priority level**

Category	Priority
Pregnant women	1
Breastfeeding women	1
Postpartum women	6

Justification

A spontaneous abortion (SAB) has been implicated as an indicator of a possible neural tube defect in a subsequent pregnancy. Women who have just had a SAB or a fetal or neonatal death should be counseled to increase their folic acid intake and delay a subsequent pregnancy until nutrient stores can be replenished.

The extent to which nutritional interventions (dietary supplementation and counseling) can decrease the risk for repeat poor pregnancy outcomes, depends upon the relative degree to which poor nutrition was implicated in each woman’s previous poor pregnancy outcome. WIC Program clients receive foods and services that are relevant and related to improving adverse pregnancy outcomes. Specifically, WIC food packages include good sources of implicated nutrients. Research confirms that dietary intake of nutrients provided by WIC foods improve indicators of nutrient status and/or fetal survival in humans and/or animals.

Spontaneous Abortion, Fetal or Neonatal Loss (continued)

Previous fetal and neonatal deaths are strongly associated with preterm low birth weight (LBW) and small for gestational age (SGA) and the risk increases as the number of previous poor fetal outcomes goes up.

Spinnillo et al found that the risk for future small for gestational age outcomes increased two fold if a woman had 2 or more SAB. Adverse outcomes related to history of SAB include recurrent SAB, low birth weight (including preterm and small for gestational age infants), premature rupture of membranes, neural tube defects and major congenital malformations. Nutrients implicated in human and animal studies include energy, protein, folate, zinc, and vitamin A.

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Spontaneous Abortion, Fetal or Neonatal Loss (continued)

Clarification

Self-reporting of a diagnosis by a medical professional should not be confused with self-diagnosis, where a person simply claims to have or to have had a medical condition without any reference to professional diagnosis. A self-reported medical diagnosis (“My doctor says that I have/my son or daughter has...”) should prompt the CPA to validate the presence of the condition by asking more pointed questions related to that diagnosis.

Thyroid Disorder

Federal Risk 344

**Definition
cut-off value**

Thyroid dysfunctions that occur in pregnant and postpartum women, during fetal development, and in childhood are caused by the abnormal secretion of thyroid hormones. The medical conditions include, but are not limited to, the following:

Thyroid Dysfunction	Definition
Hyperthyroidism	Excessive thyroid hormone production (most commonly known as Grave’s disease and toxic multinodular goiter).
Hypothyroidism	Low secretion levels of thyroid hormone (can be overt or mild/subclinical). Most commonly seen as chronic autoimmune thyroiditis (Hashimoto’s thyroiditis or autoimmune thyroid disease). It can also be caused by severe iodine deficiency.
Congenital Hyperthyroidism	Excessive thyroid hormone levels at birth, either transient (due to maternal Grave’s disease) or persistent (due to genetic mutation).
Congenital Hypothyroidism	Infants born with an under active thyroid gland and presumed to have had hypothyroidism in-utero.
Postpartum Thyroiditis	Transient or permanent thyroid dysfunction occurring in the first year after delivery based on an autoimmune inflammation of the thyroid. Frequently, the resolution is spontaneous.

Presence of thyroid disorders diagnosed by a physician as self-reported by applicant/participant/caregiver; or as reported or documented by a physician, or someone working under a physician’s orders.

**Client category
and priority level**

Category	Priority
Pregnant women	1
Breastfeeding women	1
Postpartum women	6
Infants	1
Children	3

Thyroid Disorder (continued)

Justification

The thyroid gland manufactures three thyroid hormones: thyroxine (T₄), triiodothyronine (T₃), and calcitonin. The thyroid hormones regulate how the body gets energy from food (metabolism). Iodine is an essential component of the T₄ and T₃ hormones (1) and must come from the diet. (Note: In nature, iodine does not exist as a free element; rather, it forms compounds such as sodium iodide (2, 3). For more information see Clarification section.) Iodine is available from various foods, and is present naturally in soil and sea water. A dysfunctional thyroid gland can become enlarged (goiter) as a result of an overproduction of thyroid hormones (hyperthyroidism) or conversely, form insufficient thyroid hormone production (hypothyroidism). Thyroid hormones influence virtually every organ system in the body.

Maternal needs for dietary iodine and thyroid hormone medication (if prescribed) increase during pregnancy as maternal thyroid hormones and iodine are transferred to the fetus along with an increased loss of iodine through the maternal kidneys (3). Concurrently, the fetus is unable to produce thyroid hormones during the first trimester and is entirely dependent on the maternal supply of thyroid hormones. As a result, maternal production of T₄ must increase by at least 50% during pregnancy (4). If the pregnant woman is receiving thyroid hormone therapy, often a 30% - 50% increase in thyroid hormone medication is also needed.

Hyperthyroidism

Hyperthyroidism is a condition in which the thyroid gland is overactive, manufacturing too much thyroid hormone (T₄ and T₃). An excessive consumption of iodine (> 1000 ug/d) may cause fetal and maternal hyperthyroidism (5). In other circumstances, the thyroid might develop nodules which secrete excessive amounts of thyroid hormone regardless of iodine status (5). Enlargement of the thyroid gland (goiter) is a common symptom, as well as weight loss, fatigue, muscle weakness and irregular heartbeat.

Hyperthyroidism is relatively uncommon in pregnancy (4). However, when it occurs, uncontrolled hyperthyroidism (especially in the second half of pregnancy) may result in infection, miscarriage, preterm delivery, preeclampsia, or congestive heart failure. Fetal complications may include prematurity, small for gestational age, fetal or neonatal thyrotoxicosis, or death (6). Postpartum maternal hyperthyroidism is likely in women with prenatal hyperthyroidism (7).

The primary medical therapy for hyperthyroidism is radioactive iodine therapy which is contraindicated during pregnancy and lactation (7). If hyperthyroidism occurs during this period, low doses of thiomide (antithyroid drug) are given instead.

Thyroid Disorder (continued)

Hypothyroidism

Hypothyroidism is a condition in which the thyroid gland does not make enough thyroid hormone. Maternal and fetal hypothyroidism may occur when preconception maternal iodine stores are insufficient and there is inadequate maternal iodine intake in early pregnancy. In this instance, the maternal iodine balance may become negative and may never be restored, even with eventual iodine supplementation (4).

Mothers with iodine deficiency during the first half of pregnancy may produce offspring with severe, irreversible brain damage (8). Maternal thyroid deficiency has been associated with neonatal developmental problems which may cause lasting changes in the brain structure and cognitive function.

Uncontrolled hypothyroidism in the second half of pregnancy can cause maternal complications such as anemia, preeclampsia, miscarriage, premature delivery, and postpartum thyroid disease. Fetal or neonatal complications include prematurity, low birth weight, congenital anomalies, poor neuropsychological development, and stillbirth (6).

When iodine nutrition status is adequate, autoimmune thyroid disease (AITD) – also called Hashimoto’s thyroiditis – is the most common type of hypothyroidism during pregnancy (4). Pregnant women with AITD are at increased risk of miscarriage and postpartum thyroid disease (including thyroiditis, hyperthyroidism and hypothyroidism). There is an increased risk of permanent and significant impairment in cognitive function for their infants (9).

Congenital Hyperthyroidism and Hypothyroidism

Congenital hyperthyroidism is rare in neonates. Transient congenital hyperthyroidism is caused by maternal Grave’s disease. Thyroid stimulating immunoglobulin passes from the mother to the fetus via the placenta and causes thyrotoxicosis in the fetus and subsequently, the neonate. After the baby is born, improvement is rapid if the condition is treated using antithyroid drugs and the hyperthyroidism will subside within several weeks (10). Persistent congenital hyperthyroidism is a familial non-autoimmune disease. It is caused by a genetic mutation resulting in an increase in the constitutive activity of the TSH receptor (11).

Thyroid Disorder (continued)

Congenital hypothyroidism due to maternal iodine deficiency is a leading cause of preventable mental retardation (10). Over-treatment of thyroid hormone, during pregnancy, as well as prolonged maternal iodine therapy (more than two weeks of therapy or more than 1000ug/iodine) can also cause congenital hypothyroidism (6). The condition is exacerbated by coexisting selenium and vitamin A deficiencies or iron deficiency (5). Treatment for neonatal hypothyroidism should be started as soon as possible, as every day of delay may result in loss of IQ. Unless treated shortly after birth (within the first 18 days of life), the resulting mental retardation will be irreversible (10).

Postpartum Thyroiditis

Postpartum thyroiditis, an autoimmune inflammation of the thyroid, occurs within the first year after delivery or sometimes after termination of pregnancy. It can be a transient thyroid dysfunction with a brief thyrotoxic phase followed by hypothyroidism, usually with spontaneous resolution (10). Smoking is a significant precipitating factor in the onset of postpartum thyroiditis (9). Women with a past history of postpartum thyroiditis have a risk of long-term permanent hypothyroidism and recurrence of postpartum thyroiditis in subsequent pregnancies (12). Tests for this condition consist of radioactive products necessitating a temporary cessation of breastfeeding (usually up to 3 days)

**Implications
for WIC
Nutrition Services**

Individuals with thyroid disorders can benefit from WIC foods and WIC nutrition services can reinforce and support the medical and dietary therapy prescribed by the participants' health care provider. The following nutrition education messages may be appropriate depending on the type of thyroid disorder:

- Encourage iodine sufficiency, unless contraindicated, with an adequate intake of foods high in iodine such as iodized table salt, bread, saltwater fish, kelp, egg yolks (because of iodine supplementation in chicken feed), milk and milk products (because of the treatment of cows with supplemental dietary iodine) (5). It is important to note that the salt used in manufactured foods is not iodized.
 - Advise women to review the iodine content of their prenatal supplement. It is recommended that all prenatal vitamin-mineral supplements for use during pregnancy and lactation contain at least 150 micrograms of iodine a day (13). Currently, less than 50 percent of prenatal vitamins on the market contain iodine (5, 7).
-

Thyroid Disorder (continued)

- Promote breastfeeding, as there are no contraindications to breastfeeding and thyroid hormone replacement therapy as long as normal thyroxine levels in the maternal plasma are maintained. Breast milk provides iodine to the infant and is influenced by the dietary intake of the pregnant and lactating mother (14). Hyperthyroidism can develop for the first time during the postpartum period, but the mother's ability to lactate is not affected. However, if a woman with untreated hypothyroidism breastfeeds, her milk supply may be insufficient. In such instances, replacement thyroid hormone therapy is necessary to help increase milk production.
- Weight management – hyperthyroidism: The elevated plasma levels of thyroid hormones may cause increased energy expenditure and weight loss along with increased appetite. Following medical treatment, individuals with hyperthyroidism usually regain their typical body weight with a concurrent decrease in appetite (4). Therefore, the monitoring of weight status and dietary adequacy are recommended.
- Weight management – hypothyroidism: Many individuals with hypothyroidism experience an increase in weight due to both a decrease in basal metabolic rate and an excessive accumulation of water and salt. Most of the weight gained is due to the excess water and salt retention. After medical treatment, a small amount of weight may be lost, usually less than 10% of body weight (15). Once hypothyroidism has been treated and thyroid hormones are within normal levels, it is less likely that the weight gain is solely due to the thyroid. If an overweight condition persists, weight control therapy may be necessary.
- Recommend the cautionary use of soy formula and the avoidance of foods or supplements rich in soy, fiber, or iron when therapeutic thyroid medications are prescribed, since soy, iron, calcium, fiber and phytates may interfere with the absorption of oral thyroid hormone therapy (16, 17).
- Discourage smoking as the compound thiocyanate found in tobacco smoke inhibits iodine transport (9).

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Thyroid Disorder (continued)

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Clarification

Self-reporting of a diagnosis by a medical professional should not be confused with self-diagnosis, where a person simply claims to have or to have had a medical condition without any reference to professional diagnosis. A self-reported medical diagnosis (“My doctor says that I have/my son or daughter has...”) should prompt the CPA to validate the presence of the condition by asking more pointed questions related to that diagnosis.

Iodine (I₂) is an element. In the ambient temperature, it is volatile and forms blue-violet gas. In nature, it does not exist as free element. Instead, it forms compounds, such as sodium **iodide** (NaI), and potassium **iodide** (KI). To prevent iodine deficiency, potassium iodide is added to the salt (most commonly to table salt) to form iodized salt (2, 3).

Two Pregnancies/Two Years – PG women
Two Pregnancies/Two Years (This PG) – BF/PP women

Federal Risk 332

**Definition/
cut-off value**

Short Interpregnancy Interval (IPI) is defined as an interpregnancy interval of less than 18 months from the date of a live birth to the conception of the subsequent pregnancy for the following:

Pregnant Women: current pregnancy.

Breastfeeding/Postpartum Women: most recent pregnancy.

Note: The evidence-based information supporting this risk is specific to live births and did not include women who had miscarriages or stillbirths. Thus, the definition for this risk is specific only to women who experienced live birth. Women whose pregnancies did not result in a live birth may be assigned, as appropriate the risk Spontaneous Abortion, Fetal or Neonatal Loss (Hx).

**Client category
and priority level**

Category	Priority
Pregnant women	1
Breastfeeding women	1
Postpartum women	6

Justification

Adverse maternal and infant health outcomes have been associated with short Interpregnancy Intervals (IPIs). While there is no standard definition for short IPI, an IPI of less than 18 months has been associated with increased risk for adverse outcomes (1, 2). An interval of 18 to 24 months has been associated with the lowest relative risk (2). Evidence associated with the lowest relative risk for an IPI following a miscarriage or abortion is still unclear (see Clarification section with more information) therefore only health effects associated with a short IPI following a live birth were reviewed for this risk.

Historically, the World Health Organization (WHO) and other international authorities had recommended at least 2 – 3 years between pregnancies and the United States Agency for International Development (USAID) had suggested an interval of 3 – 5 years. Given the inconsistency, various countries and regional programs request the WHO to further review the research and provide recommendations. As a result, the report from the 2005 WHO Technical Consultation and Scientific Review of Birth Spacing recommended an interval of at least 24 months after a live birth to reduce the risk of adverse maternal, perinatal, and infant outcomes. (3) A more recent review of data suggests that there are increased risks for adverse perinatal and maternal outcomes of IPI with less than

Two Pregnancies/Two Years
Two Pregnancies/Two Years (This PG) (continued)

18 months (1, 2, 4) and increased risks for perinatal (1, 4) and maternal (4, 5, 6) outcomes longer than 59 months while 18 to 24 months was associated with the lowest relative risk (2). Parallel to recent findings, Healthy People 2020 has proposed a 10% improvement in reducing the proportion of pregnancies conceived within 18 months of a previous birth (7).

Outcomes associated with short IPI have included maternal complications such as uterine rupture in women attempting a vaginal birth after a previous cesarean delivery (also known as VBAC) (8, 9); and perinatal and neonatal complications such as preterm birth (1, 2, 10), low birth weight (1, 2), small for gestational age (1, 2), birth defects (11), and autism (12, 13).

Short interpregnancy interval has been identified as a risk for increasing uterine rupture in women attempting a VBAC delivery (8, 9, 14). Yet when comparing short interpregnancy interval to labor type – induced labor and spontaneous, there was a decrease rate in VBAC success in women who were induced, and no difference with spontaneous labor (15). Given the lack of specific IPI recommendation for women with a previous cesarean delivery and the inconsistencies in study designs there appears to be no specific guidelines for interval length after a cesarean delivery (16). The short interpregnancy interval definition cut-off of 18 months, however, appears to be inclusive of women who delivered by cesarean with their previous pregnancy.

Factors contributing to adverse outcomes and short IPI remain controversial. It was thought that socioeconomic factors contributed to adverse outcomes. However, when controlled for possible cofounders, short IPI remained an independent risk factor (1, 2). Nutrition-related hypothetical causal mechanisms have been proposed to explain the effects short IPIs have on health, yet research remains inconclusive (4). The Maternal Depletion Syndrome hypothesized that mothers who have a short IPI often do not have adequate time to replenish macro- and micro-nutrients which may lead to the mother and fetus competing for nutrients (17). However, a recent systematic review of the literature found no evidence to support this hypothesis (4). Studies to support the folate depletion theory have had differing results (11, 18). When folate intake is inadequate, concentrations begin to decrease in the fifth month of pregnancy and for several weeks after birth (19). Women who did not take folic acid supplementation during pregnancy, compared to women who did, were at greater risk of fetal growth restriction with a short (less than six months) IPI and, this risk was found to decrease as IPI increased (18). Of interest, a retrospective Canadian study of 46,243 women found an association between IPI (less than six months) and folate-independent anomalies, however not for folate-dependent anomalies such as neural tube defects, cleft lip and palate, and cardiovascular defects (11). In addition, the association between short IPI and anemia was found inconclusive (2).

Two Pregnancies/Two Years
Two Pregnancies/Two Years (This PG) (continued)

**Implications
for WIC
Nutrition Services**

Findings from a small pilot study found coordination of primary health care and social support services reduced adverse pregnancy outcomes and the average number of pregnancies conceived within 18 months among low-income African-American women who previously delivered a very low birth weight baby (20). Results from a 2007 U. S. survey found that among women of childbearing age, those aged 18 – 24 years were the least aware of the need for folic acid prior to pregnancy and least likely to report daily use of supplements containing folic acid. Of equal concern, only 17% of women aged 18 – 24 years were likely to hear about folic acid from their healthcare provider. (21)

Initiations of healthcare referrals for family planning, early prenatal care, and folic acid supplementation have the potential to improve health outcomes for women, infants, and children. Given that half of all pregnancies nationwide are unintended (22), WIC can help to reduce the risk of adverse pregnancy outcomes by:

- Encouraging postpartum women and their partner to meet with their healthcare provider to discuss developing a reproductive plan and birth spacing, as appropriate.
<http://www.cdc.gov/preconception/documents/rlphealthproviders.pdf>
- Encouraging folic acid supplementation.
<http://www.cdc.gov/features/folicacidbenefits/>
- Encouraging healthful eating patterns consistent with the Dietary Guidelines for Americans. <http://www.cnpp.usda.gov/DietaryGuidelines>

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Two Pregnancies/Two Years
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Two Pregnancies/Two Years
Two Pregnancies/Two Years (This PG) (continued)

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Clarification

Study results for an optimal Interpregnancy Interval (IPI) following a termination or miscarriage have been inconsistent (3, 10, 23, 24). The WHO Technical Consultation on Birth Spacing Report recommended a minimum interval of at least six months between a miscarriage or induced abortion and the next pregnancy. This recommendation was based on a large retrospective cross-sectional study, a review of 258,108 hospital records from several Latin American countries between 1985-2002, that found women whose previous pregnancy resulted in a spontaneous or induced abortion and had an IPI shorter than 6 months had an increased risk for adverse maternal and perinatal outcomes (21). Given several limitations in the study, the WHO cautioned against generalizing the results to other regions or even within the Latin American region since service operations and conditions may differ from the study sample (3). However, more recently a review of approximately a million California births found a decreased risk for preterm birth

Two Pregnancies/Two Years
Two Pregnancies/Two Years (This PG) (continued)

for women with an IPI of less than six months after a terminated pregnancy (10). An overview of the research found that there may be little benefits from delaying pregnancy after an uncomplicated miscarriage, and to that end pregnancy spacing recommendations following a miscarriage should be individually tailored to the person. (25)

Unsafe Handling/Storage of Breastmilk/Formula

Federal Risk 411.9

**Definition
cut-off value**

Routinely using inappropriate sanitation in preparation, handling, and storage of expressed breastmilk or formula.

This risk includes:

Limited or no access to a:

- Safe water supply.
- Heat source for sterilization; and/or
- Refrigerator or freezer for storage.

Unsafe handling or storage of breastmilk or formula. Examples include:

Breastmilk:

- Thawing in a microwave
- Refreezing
- Adding freshly expressed unrefrigerated breastmilk to already frozen breastmilk in a storage container
- Adding refrigerated breastmilk to frozen breastmilk in an amount that is greater than the amount of frozen breastmilk
- Feeding thawed breastmilk more than 24 hours after it was thawed
- Saving breastmilk from a used bottle for another feeding
- Failure to clean breast pump per manufacturer’s instruction

Infant Formula:

- Storing at room temperature for more than 1 hour
- Failure to store prepared formula per manufacturer’s instructions
- Using formula in a bottle one hour after the start of a feeding
- Saving formula from a used bottle for another feeding
- Failure to clean baby bottle properly

**Client category
and priority level**

Category

Priority

Infants

4

Unsafe Handling/Storage of Breastmilk/Formula (continued)

Justification

Lack of sanitation in the preparation, handling and storage of expressed breastmilk or formula may cause gastrointestinal infection. The water used to prepare concentrated or powdered infant formula and prepare bottle and nipples (for formula or breastmilk) must be safe for consumption. Water contaminated with toxic substances (for formula and breastmilk) must be safe for consumption. Water contaminated with toxic substances (such as nitrates, lead, or pesticides) poses a hazard to an infant's health and should NOT be used (1). In addition, a heat source is necessary to sterilize bottles and other items used in the storage of both breastmilk and formula. Adequate refrigeration (40 Degrees Fahrenheit or below) is necessary to safely store human milk and prepared formula (9).

Breastmilk

Published guidelines on the handling and storage of breastmilk may differ among pediatric nutrition authorities (1 – 6). However, there is consensus on the following breastmilk feeding, handling, and storage practices that are considered inappropriate and unsafe (1, 3, 7 – 9):

- Thawing frozen breastmilk in the microwave oven
- Refreezing breastmilk
- Adding freshly expressed unrefrigerated breastmilk to already frozen milk in a storage container*
- Feeding previously frozen breastmilk thawed in the refrigerator that has been refrigerated for more than 24 hours
- Saving breastmilk from a used bottle for another use at another feeding
- Failure to clean a breast pump per manufacturer's instruction

* The appropriate and safe practice is to add chilled freshly expressed breastmilk, in an amount that is smaller than the milk that has been frozen for no longer than 24 hours.

As stated above, there are variations in breastmilk storage guidelines among recognized entities, e.g., AAP and Academy of Breastfeeding Medicine (ABM) (2, 6). The ABM guidelines have longer refrigerated storage time than AAP and are cited for several organizations (2, 6). However, the ABM guidelines are for healthy term infants, and while they may be appropriate for a large percentage of the general population, the WIC population is considered an "at risk population". Therefore, it is not possible at this time to identify a clear cut-off to determine unsafe refrigeration limits for WIC risk determination.

Another consideration when recommending length of storage time is its effect on protective properties in breastmilk. There is evidence that after 48 hours of refrigeration, breastmilk significantly loses important antibacterial and antioxidant

Unsafe Handling/Storage of Breastmilk/Formula (continued)

properties (10). These properties of breastmilk are specifically important for the prevention of necrotizing enterocolitis, retinopathy, and bronchopulmonary dysplasia of premature infants (10). Although some properties may be reduced with longer refrigerated storage, this does not diminish the overall superiority of breastmilk over formula, as formula does not contain these protective properties or many of the other benefits of human milk.

Participant circumstances (e.g., adequate refrigeration, safe water, heat source) as well as health of the infant need to be considered when recommending the length of time human milk may be stored in the refrigerator. Please see the WIC Works Resource System for handling and storage recommendations: http://www.nal.usda.gov/wicworks/WIC_Learning_Online/support/job_aids/safety.pdf. These recommendations are based on the AAP's guidelines for the safe handling and storage of breastmilk.

If the breastfeeding mother uses a breast pump, it is essential for her to fully understand the importance of and the specific manufacturer's instructions for cleaning the breast pump. Improper cleaning of breast pumps and pump parts can increase the risk of expressed human milk contamination (9).

Formula

Formula must be properly prepared in a sanitary manner to be safe for consumption. Furthermore, prepared infant formula is a perishable food, and must be handled and stored properly in order to be safe for consumption (1, 11, 12).

Most babies who are hospitalized for vomiting and diarrhea are bottle fed. This has often been attributed to the improper handling of formula rather than sensitivities to the formula. During the manufacturing process, powdered formulas can become contaminated with harmful bacteria. In rare cases, the contaminated powdered formulas may cause infections in preterm or immune compromised infants. To reduce the risk of infection in infants it is important that formulas be carefully prepared and handled. Instructions for the sanitary preparation of formulas can be obtained from the WIC Works Resource System at: http://www.nal.usda.gov/wicworks/WIC_Learning_Online/support/job_aids/formula.pdf and from the World Health Organization at: <http://www.who.int/foodsafety/publications/micro/pif2007/en/>. It is generally recommended to boil the water used for infant formula preparation during the first 3 months of life (1). Caregivers should consider the safety of their water source and the health status of the infant in addition to consulting with the health care provider regarding whether to continue boiling the water when preparing infant formula for the infant older than 3 months.

Unsafe Handling/Storage of Breastmilk/Formula (continued)

Manufacturer's instructions vary, depending on the product, in the length of time it is considered safe to store prepared infant formula without refrigeration before bacterial growth accelerates to an extent that the infant is placed at risk (1, 2, 12). Published guidelines on the handling and storage of infant formula indicate that it is unsafe to use prepared formula which (1, 2):

- Has been held at room temperature longer than 1 hour or longer than recommended by the manufacturer
 - Has been held in the refrigerator longer than the safe storage time indicated by the manufacturer
 - Remains in a bottle one hour after the start of feeding
 - Remains in a bottle from an earlier feeding
 - Is fed using improperly cleaned baby bottles
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Unsafe Handling/Storage of Breastmilk/Formula (continued)

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Clarification

The Washington State WIC Nutrition Program uses guidelines published by the Department of Health and Human Services, located at: <http://www.womenshealth.gov/breastfeeding/pumping-and-milk-storage/#b>. These guidelines were developed using information from the American Academy of Family Physicians, the American Academy of Pediatrics, Centers for Disease Control, and La Leche League International and allow more flexibility for breastfeeding mothers who need to refrigerate their breastmilk.

“Routinely” is defined as a regular or routine practice that occurs frequently enough to have an impact on a client’s nutrition or health status. Staff use professional discretion to determine that a client’s health and nutrition status are impacted by the frequency of a particular practice.

Very Low Birth Weight \leq 3 lbs, 5 oz.

Federal Risk 141
High Risk Factor

Definition
cut-off value

Very low birth weight (VLBW) is defined as \leq 3 pounds 5 ounces (\leq 1500g), for infants.

Note: See “Guidelines for Growth Charts and Gestational Age Adjustment for Low Birth Weight and Very Low Birth Weight Infants” located in the Appendix of this chapter for more information about the anthropometric assessment and nutritional care of LBW and VLBW infants.

Client category
and priority level

Category	Priority
Infants	1

Justification

Low birth weight (LBW) is one of the most important biologic predictors of infant death and deficiencies in physical and mental development during childhood among those babies who survive and continues to be a strong predictor of growth in early childhood. Infant and children born with LBW, particularly LBW caused by fetal growth restriction, need an optimal nutrient intake to survive, meet the needs of an extended period of relatively rapid postnatal growth, and complete their growth and development (1).

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Very Low Hemoglobin/Hematocrit

**Federal Risk 201
 High Risk Factor**

**Definition/
 cut-off value**

Hemoglobin or hematocrit concentration that is below cut-off values listed below.

The cut-off values for very low hemoglobin and hematocrit are:

Pregnant Women:

1st Trimester: ≤ 10.3 g/dl Hgb ($\leq 31\%$ Hct)

2nd/3rd Trimester: ≤ 10.0 g/dl Hgb ($\leq 30\%$ Hct)

Breastfeeding and Postpartum Women: ≤ 10.3 g/dl Hgb ($\leq 31\%$ Hct)

Infants:

6 – 12 months: ≤ 10.3 g/dl Hgb ($\leq 31\%$ Hct)

Children:

≤ 10.3 g/dl Hgb ($\leq 31\%$ Hct)

**Client category
 And priority level**

Category	Priority
Pregnant women	1
Breastfeeding women	1
Postpartum women	6
Infants	1
Children	3

Justification

Hemoglobin (Hb) and hematocrit (Hct) are the most commonly used tests to screen for iron deficiency anemia. Measurements of Hb and Hct reflect the amount of functional iron in the body. Changes in Hb concentration and Hct occur at the late stages of iron deficiency. While neither an Hb nor Hct test are direct measures of iron status and do not distinguish among different types of anemia, these tests are useful indicators of iron deficiency anemia.

Iron deficiency is by far the most common cause of anemia in children and women of childbearing age. It may be caused by a diet low in iron, insufficient assimilation of iron from the diet, increased iron requirements due to growth or pregnancy, or blood loss. Anemia can impair energy metabolism, temperature regulation, immune function, and work performance. Anemia during pregnancy may increase the risk

Very Low Hematocrit/Hemoglobin (continued)

of prematurity, poor maternal weight gain, low birth weight, and infant mortality. In infants and children, even mild anemia may delay mental and motor development. The risk increases with the duration and severity of anemia, and early damages are unlikely to be reversed through later therapy.

References

1. CDC: Criteria for Anemia in Children and Childbearing-Aged Women. MMWR 1998;47:RR-3.
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 7. Institute of Medicine: Iron Deficiency Anemia: Recommended Guidelines for the Prevention, Detection, and Management Among US Children and Women of Childbearing Age; 1993.
 8. Institute of Medicine: Nutrition During Pregnancy; National Academy Press; Washington, D. C., 1990.
 9. Institute of Medicine: WIC Nutrition Risk Assessment; 1996.
-

Clarification

Basis for blood work assessment:

For pregnant women being assessed for iron deficiency anemia, bloodwork must be evaluated using trimester values established by CDC. Thus the blood test result for a pregnant woman would be assessed based on the trimester in which her bloodwork was taken.

Definition of Trimester:

CDC defines a trimester as a term of three months in the prenatal gestation period with the specific trimesters defined as follows in weeks:

- First Trimester: 0-13 weeks
- Second Trimester: 14-26 weeks
- Third Trimester: 27-40 weeks.

Further, CDC begins the calculation of weeks starting with the first day of the last menstrual period. If that date is not available, CDC estimates that date from the estimated date of confinement (EDC). This definition is used in interpreting CDC's Prenatal Nutrition Surveillance System data, comprised primarily of data on pregnant women participating in the WIC Program.

Very Restrictive Diet - Children

Federal Risk 425.6 High Risk Factor

**Definition/
cut-off value**

Routinely feeding a diet very low in calories and/or essential nutrients.

Examples include:

- Vegan diet
 - Macrobiotic diet, and
 - Other diets very low in calories and/or essential nutrients
-

**Client category
and priority level**

Category

Priority

Children

3

Justification

Highly restrictive diets prevent adequate intake of nutrients, interfere with growth and development, and may lead to other adverse physiological effects (1). Well-balanced vegetarian diets with dairy products and eggs are generally associated with good health. However, strict vegan diets may be inadequate in calories, vitamin B12, vitamin D, calcium, iron, protein and essential amino acids needed for growth and development (2). The more limited the diet, the greater the health risk. Given the health and nutrition risks associated with very restrictive diets, WIC can help the parent to assure that the child consumes an adequate diet to optimize health during critical periods of growth as well as for the long term.

References

1. Institute of Medicine. WIC nutrition risk criteria a scientific assessment. National Academy Press, Washington, D.C.; 1996.
 2. Duyff RL. American Dietetic Association. The American Dietetic Association's complete food and nutrition guide. Minneapolis, MN: Chronimed Pub; 1996.
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Clarification

“Routinely” is defined as a regular or routine practice that occurs frequently enough to have an impact on a client’s nutrition or health status. Staff use professional discretion to determine that a client’s health and nutrition status are impacted by the frequency of a particular practice.

Very Restrictive Diet - Women

**Federal Risk 427.2
 High Risk Factor**

**Definition/
 cut-off value** Consuming a diet very low in calories and/or essential nutrients; or impaired caloric intake or absorption of essential nutrients following bariatric surgery.

Examples include:

- Strict vegan diet
- Low-carbohydrate, high-protein diet
- Macrobiotic diet, and
- Any other diet restricting calories and/or essential nutrients

Client category and priority level	Category	Priority
	Pregnant Women	4
	Breastfeeding Women	4
	Postpartum Women	6

Justification Women consuming highly restrictive diets are at risk for primary nutrient deficiencies, especially during critical developmental periods such as pregnancy. Pregnant women who restrict their diets may increase the risk of birth defects, suboptimal fetal development and chronic health problems in their children. Examples of nutrients associated with negative health outcomes are:

- Low iron intake and maternal anemia and increased risk of preterm birth or low birth weigh (1, 2).
- Low maternal vitamin D status and depressed infant vitamin D status (3).
- Low folic acid and NTD (4, 5, 6).

Low calorie intake during pregnancy may lead to inadequate prenatal weight gain, which is associated with infant intrauterine growth restriction (IUGR) (7) and birth defects (4, 5, 8). The pregnant adolescent who restricts her diet is of particular concern since her additional growth needs compete with the developing fetus and the physiological changes of pregnancy (8).

Strict vegan diets may be highly restrictive and result in nutrient deficiencies. Nutrients of potential concern that may require supplementation are: Riboflavin (9, 10), Vitamin D (9, 10, 12), Iron (9), Calcium (9, 10, 12, 13) Zinc (9, 11), Selenium (10), and Vitamin B12 (9, 10, 12).

Very Restrictive Diet - Women (continued)

The pregnant adolescent who consumes a vegan diet is at even greater risk due to her higher nutritional needs (10, 12). The breastfeeding woman who chooses a vegan or macrobiotic diet increases her risk and her baby's risk for vitamin B12 deficiency (12). Severe vitamin B12 deficiency resulting in neurological damage has been reported in infants of vegetarian mothers (12).

With the epidemic of obesity, treatment by gastric bypass surgery has increased more than 600% in the last ten years and has created nutritional deficiencies not typically seen in obstetric or pediatric medical practices (14). Gastrointestinal surgery promotes weight loss by restricting food intake and, in some operations, interrupting the digestive process. Operations that only reduce stomach size are known as "restrictive operations" because they restrict the amount of food the stomach can hold. Examples of restrictive operations are adjustable gastric banding and vertical banded gastroplasty. These types of operations do not interfere with the normal digestive process (15).

Some operations combine stomach restriction with a partial bypass of the small intestine; these are known as malabsorptive operations. Examples of malabsorptive operations are Roux-en-y gastric bypass (RGB) and Biliopancreatic diversion (BPD). Malabsorptive operations carry a greater risk for nutritional deficiencies because the procedure causes food to bypass the duodenum and jejunum, where most of the iron and vitamin B₁₂ are absorbed. Menstruating women may develop anemia because not enough iron and vitamin B₁₂ are absorbed. Decreased absorption of calcium may also contribute to osteoporosis and metabolic bone disease (15). A breastfeeding woman who has had gastric bypass surgery is at risk of vitamin B₁₂ deficiency for herself and her infant (16).

References

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Very Restrictive Diet - Women (continued)

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Very Restrictive Feeding - Infants

Federal Risk 411.8 High Risk Factor

**Definition/
cut-off value**

Routinely feeding a diet very low in calories and/or essential nutrients.

Examples include:

- Vegan diet
 - Macrobiotic diet, and
 - Other diets very low in calories and/or essential nutrients
-

**Client category
and priority level**

Category

Priority

Infants

4

Justification

Highly restrictive diets prevent adequate intake of nutrients, interfere with growth and development, and may lead to other adverse physiological effects (1). Infants older than 6 months are potentially at the greatest risk for overt deficiency states related to inappropriate restrictions of the diet, although deficiencies of vitamins B12 and essential fatty acids may appear earlier (2, 3, 4). Infants are particularly vulnerable during the weaning period if fed a macrobiotic diet and may experience psychomotor delay in some instances (2, 5, 6). Well-balanced vegetarian diets with dairy products and eggs are generally associated with good health. However, strict vegan diets may be inadequate in calories, vitamin B12, vitamin D, calcium, iron, protein and essential amino acids needed for growth and development (7). The more limited the diet, the greater the health risk. Given the health and nutrition risks associated with highly restrictive diets, WIC can help the parent to assure that the infant consumes an adequate diet to optimize health during critical periods of growth as well as for the long term.

References

1. Institute of Medicine. WIC nutrition risk criteria a scientific assessment. National Academy Press, Washington, D.C.; 1996.
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Very Restrictive Feeding - Infants (continued)

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 7. Duyff RL. American Dietetic Association. *The American Dietetic Association's complete food and nutrition guide.* Minneapolis, MN: Chronimed Pub; 1996.
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Clarification

“Routinely” is defined as a regular or routine practice that occurs frequently enough to have an impact on a client’s nutrition or health status. Staff use professional discretion to determine that a client’s health and nutrition status are impacted by the frequency of a particular practice.

Weight/Length \leq 2nd Percentile
Weight/Length $>$ 2nd and \leq 5th Percentile

Federal Risk 103
High Risk Factor - Weight/Length \leq 2nd Percentile

**Definition/
cut-off value** Growth that is \leq 2nd percentile or \leq 5th percentile weight for length as plotted on the Centers for Disease Control and Prevention (CDC) Birth to 24 months gender specific growth charts (1).

Client category and priority level	Category	Priority
	Infants	1
	Children (< 24 months)	3

Justification The Centers for Disease Control and Prevention (CDC) uses the 2.3rd weight-for-length (for birth to 24 months of age) and the 5th percentile BMI-for age (for 2 – 5 years of age), as the cut-offs to define underweight in its Pediatric Nutrition Surveillance System (1, 2). However, CDC does not have a position regarding the cut-off percentile, which should be used to determine at risk of underweight as a nutrition risk in the WIC Program.

A review of literature on weight for length or stature cut-off percentiles reveals that: a) many children at or below the 5th percentile are in need of nutrition intervention, and b) those at or below the 10th percentile may be at nutritional risk and in need of preventative nutrition intervention, or at least further evaluation (4).

Weight-for-length/stature describes body proportionality and is sensitive to acute undernutrition, but can also reflect long-term status (5). Physical growth delay is used as a proxy for the deleterious effects undernutrition can have on immune function, organ development, hormonal function and brain development (6).

Weight/Length \leq 2nd
Weight/Length $>$ 2nd and \leq 5th Percentile (continued)

**Implications
for WIC
Nutrition Services**

Participation in WIC has been associated with improved growth in both weight and height in children (7). An infant or child determined to be underweight at WIC certification should be monitored at regular intervals during the certification period, as appropriate. Through client-centered counseling, WIC staff can assist families in making nutritionally balanced food choices to promote adequate weight gain. Also, the foods provided by the WIC Program are scientifically-based and intended to address the supplemental nutritional needs of the Program's target population, and can be tailored to meet the needs of individual participants.

In addition, WIC staff can greatly assist families by providing referrals to medical providers and other services, if available, in their communities. Such resources may provide the recommended medical assessments, in order to rule out or confirm medical conditions, and offer treatment when necessary and/or in cases where growth improvement is slow to respond to dietary interventions.

References

1. Centers for Disease Control and Prevention. Use of World Health Organization and CDC growth charts for children aged 0 – 59 months in the United States. MMWR 2010; 59(No. RR-9). Available at: http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5909a1.htm?s_cid=rr5909a1w. Accessed September 2010.
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Weight/Length \leq 2nd**Weight/Length $>$ 2nd and \leq 5th Percentile (continued)**

Clarification

The cut-off for underweight for infants and children $<$ 24 months is 2.3; however, for ease of use, CDC labels it as the 2nd percentile on the hard copy Birth to 24 months growth charts. Electronic charts and risk calculation uses the 2.3rd percentile as the cut-off.

Weight/Length \geq 98th Percentile
Weight/Length \geq 98th Percentile (< 24 months)

Federal Risk 115
High Risk Factor

**Definition/
 cut-off value**

Growth that is \geq 98th percentile weight-for-length as plotted on the Centers for Disease Control and Prevention (CDC), Birth to 24 months gender specific growth charts (1).

**Client category
 and priority level**

Category	Priority
Infants	1
Children (< 24 months)	3

Justification

In 2006, WHO released international growth standards for infants and children aged 0-59 months (2), similar to the 2000 CDC growth references. Since then, the CDC has developed Birth to 24 months growth charts, based on WHO growth standards, and recommends their use in the United States (1). For persons 2 – 20 years, the 2000 CDC growth charts will continue to be used (1).

The WHO and CDC growth charts are similar in that both describe weight-for-age, length (or stature)-for-age, weight-for-length (or stature) and body mass index (BMI) for age. However, they differ in the approach taken to create the growth charts. The WHO growth charts are growth standards that describe how healthy children grow under optimal environmental and health conditions. The 2000 CDC charts are a growth reference, not a standard, and describe how certain children grew in a particular place and time (2).

The WHO growth standards for children < 24 months are based on data collected from 1997-2003 in 6 countries (including the U.S.), from children who were born between 37 and 42 weeks gestation, breastfed for at least 12 months, and introduced to complementary food by at least 6 months but not before 4 months. Infants and children of low-income mothers and/or mothers who smoked were not included in the data sample (2).

The 2000 CDC charts for infants and children < 36 months are based on birth weight (from 1968 to 1980 and from 1985 to 1994) and birth length data (from 1989 to 1994) obtained from U.S. birth certificates; National Health and Nutrition Examination Survey (NHANES) data; and, measurements from infants who had been breastfed and formula fed (approximately 50% ever breastfed and approximately 33% who were still breastfeeding at 3 months). Very low birth weight infants were not included in the sample population. This was the only exclusion criterion applied to the sample population (2, 3).

Weight/Length \geq 98th (continued)
Weight/Length \geq 98th (< 24 months) (continued)

Prior to making its recommendation, CDC convened an Expert Panel with the National Institutes of Health and the American Academy of Pediatrics to review the scientific evidence and discuss the potential use of the WHO growth standards in the U.S. The recommendation to use WHO growth standards for infants and children < 24 months was made on the basis of input from the Expert Panel. In addition, CDC concluded that the WHO growth standards are based on a high quality study and, since breastfeeding is the recommended infant feeding practice, it is appropriate to use the breastfed infant as the standard against which all other infants are compared (2).

The WHO growth standards use values of 2 standard deviations away from the median to identify children whose growth might be indicative of adverse health conditions (1). The CDC Birth to 24 months growth charts (based on the WHO growth standards) labels 2 standard deviations above the median as the 97.7th percentile. Thus an infant or child (< 24 months) is categorized as high weight-for-length when plotted at or above the 97.7th percentile, labeled as the 98th percentile on the CDC Birth to 24 months growth charts regardless of type of feeding (formula or breastfed) (2). (See Clarification for information about standard deviations and the cut-off used to determine high weight-for-length.)

**Implications for
WIC Nutrition
Services**

The WIC Program plays an important role in public health efforts to reduce the prevalence of obesity by actively identifying and enrolling infants and young children who may be at risk of overweight/obesity in later childhood or adolescence. When identifying this risk, it is important to communicate with parents/caregivers in a way that is supportive and nonjudgmental, and with a careful choice of words that convey an empathetic attitude and minimize embarrassment or harm to a child's self-esteem (4). In recognition of the importance of language, the 2007 American Medical Association Expert Committee Report recommends the use of more neutral terms such as *weight disproportional to height*, *excess weight*, and *high weight-for-length* when communicating with the parent/caregiver (5).

Height and weight measurements are plotted on growth charts at each WIC certification. However, growth charts are meant to be used as a screening tool and comprise only one aspect of the overall growth assessment. A clinical assessment to determine if a child is at a healthy weight is more complex. Weight classification (derived from the growth chart) should be integrated with the growth pattern, familial obesity, medical risks, and dietary and physical activity habits to determine the child's obesity risk (3, 6).

Weight/Length \geq 98th (continued)
Weight/Length \geq 98th (< 24 months) (continued)

The goal in WIC nutrition counseling is to help the child achieve recommended rates of growth and development. WIC staff can frame the discussion to make achieving normal growth a shared goal of the WIC Program and the parent/caregiver. Studies have shown that the early childhood eating environment provides a great opportunity for preventive intervention (7). Parents/caregivers of infants and toddlers may need education on recognition of satiety cues and other physiological needs that lead to crying, and ways to comfort a child (holding, reading, rocking) other than by feeding. Young children look upon their parents as role models for eating behaviors. Through client-centered counseling, WIC staff can emphasize the importance of prevention and can assist families in making changes that improve parenting skills that promote healthy eating, physical activity behaviors and a healthy weight in children. Also, the foods provided by the WIC Program are scientifically-based and intended to address the supplemental nutritional needs of the Program's target population and can be tailored to meet the needs of individual participants.

Beliefs about what is an attractive or healthy weight, the importance of physical activity, what foods are desirable or appropriate for parents to provide to children, family mealtime routines, and many other lifestyle habits are influenced by different cultures, and should be considered during the nutrition assessment and counseling (8). The following resources for obesity prevention can be found at:

- Fit WIC Materials:
http://www.nal.usda.gov/wicworks/Sharing_Center/gallery/families.html.
- MyPyramid for Preschoolers:
<http://www.choosemyplate.gov/preschoolers.html>.

In addition, WIC staff can greatly assist families by providing referrals to medical providers and other services, if available, in their community. Such resources may provide the recommended medical assessments, in order to rule out or confirm medical conditions, and offer treatment when necessary and/or in cases where growth improvement is slow to respond to dietary interventions.

References

1. Centers for Disease Control and Prevention. Use of World Health Organization and CDC charts for children aged 0-59 months in the United States. MMWR 2010; 59(No. RR-9). Available at:
http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5909a1.htm?s_cid=rr5909a1w. Accessed September 2010.
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Weight/Length \geq 98th (continued)
Weight/Length \geq 98th (< 24 months) (continued)

References

2. World Health Organization. WHO child growth standards: Length/Height-for-age, weight-for-age, weight for height and body mass index-for-age: Methods and development. Geneva, Switzerland: World Health Organization; 2006. Available at: http://www.who.int/childgrowth/publications/technical_report_pub/en/index.html. Accessed September 2010.
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Clarification

Standard deviation is a measurement widely used in statistical analysis. It shows how much variation there is from the median. The WHO growth charts use standard deviations to illustrate the proximity of a given child's growth from that of the average child of the same age and gender. For infants and children < 24 months of age, 2 standard deviations above the median indicates high weight-for-length. A measurement of 2 standard deviations below the median indicates underweight. Since most health care providers in the U.S. are more familiar with percentiles, the CDC developed growth charts based on the WHO growth standards, but converted standard deviations into percentile readings. Two standard deviations above the median is the 97.7th percentile; however, for ease of use, CDC labels it as the 98th percentile on the hard copy Birth to 24 months growth charts. Electronic charts and risk calculation use the 97.7th percentile.

Weight Loss 1st Tri < Pre-preg Wt
Weight Loss 2nd/3rd Tri ≥ 2 lbs

Federal Risk 132
High Risk Factor - Weight Loss in 2nd/3rd Trimester ≥ 2 lbs

**Definition/
cut-off value**

- Any weight loss below pre-pregnancy weight during the 1st trimester, or
- Weight loss of ≥ 2 pounds (≥ 1 kg) in the 2nd or 3rd trimesters (14-40 weeks gestation).

Client category And priority level	Category	Priority
	Pregnant women	1

Justification

Weight loss during pregnancy may indicate underlying dietary or health practices or health or social conditions associated with poor pregnancy outcomes. These outcomes could be improved by the supplemental food, nutrition education, and referrals provided by the WIC Program.

References

1. Brown JE. Prenatal weight gain considerations for WIC. Final Report. Commissioned by the Risk Identification and Selection Collaborative. 1998.
2. Centers for Disease Control and Prevention: Prenatal Nutrition Surveillance System User’s Manual. Atlanta: CDC, 1994.
3. Institute of Medicine: WIC Nutrition Risk Criteria: A Scientific Assessment. National Academy Press, Washington, D. C.; 1996.
4. Metropolitan Life Insurance Company. New weight standards for men and women. Stat.Bull.Metrop.LifeInsur.Co., 1959.

Clarification

The Centers for Disease Control and Prevention (CDC) defines a trimester as a term of three months in the prenatal gestation period with the specific trimesters defined as follows in weeks:

First Trimester: 0-13 weeks
 Second Trimester: 14-26 weeks
 Third Trimester: 27-40 weeks.

Further, CDC begins the calculation of weeks starting with the first day of the last menstrual period. If that date is not available, CDC estimates that date from the estimated date of confinement (EDC).

Appendix

BMI Table for Determining Weight Classifications for Women (1)

Height (Inches)	Underweight BMI < 18.5	Normal Weight BMI 18.5 – 24.9	Overweight BMI 25.0 – 29.9	Obese BMI ≥ 30.0
58"	< 89 lbs	89 – 118 lbs	119 – 142 lbs	> 142 lbs
59"	< 92 lbs	92 – 123 lbs	124 – 147 lbs	> 147 lbs
60"	< 95 lbs	95 – 127 lbs	128 – 152 lbs	> 152 lbs
61"	< 98 lbs	98 – 131 lbs	132 – 157 lbs	> 157 lbs
62"	< 101 lbs	101 – 135 lbs	136 – 163 lbs	> 163 lbs
63"	< 105 lbs	105 – 140 lbs	141 – 168 lbs	> 168 lbs
64"	< 108 lbs	108 – 144 lbs	145 – 173 lbs	> 173 lbs
65"	< 111 lbs	111 – 149 lbs	150 – 179 lbs	> 179 lbs
66"	< 115 lbs	115 – 154 lbs	155 – 185 lbs	> 185 lbs
67"	< 118 lbs	118 – 158 lbs	159 – 190 lbs	> 190 lbs
68"	< 122 lbs	122 – 163 lbs	164 – 196 lbs	> 196 lbs
69"	< 125 lbs	125 – 168 lbs	169 – 202 lbs	> 202 lbs
70"	< 129 lbs	129 – 173 lbs	174 – 208 lbs	> 208 lbs
71"	< 133 lbs	133 – 178 lbs	179 – 214 lbs	> 214 lbs
72"	< 137 lbs	137 – 183 lbs	184 – 220 lbs	> 220 lbs

(1) Adapted from the Clinical Guidelines on the Identification, Evaluation and Treatment of Overweight and Obesity in Adults. National Heart, Lung and Blood Institute (NHLBI), National Institutes of Health (NIH). NIH Publication No. 98-4083.

Guidelines for Growth Charts and Gestational Age Adjustment for Low Birth Weight and Very Low Birth Weight Infants

Guidelines

- 1.) All low birth weight (LBW) and very low birth weight (VLBW) infants and children (up to 2 years of age) who have reached the equivalent age of 40 weeks gestation, shall be assessed for growth using the 2000 CDC Birth to 36 Months Growth Charts, adjusting for gestational age*.
- 2.) The assignment of nutrition risk criteria #121 (Short Stature) and #152 (Low Head Circumference) for premature infants/children shall be based on adjusted gestational age.
- 3.) Infants born prematurely (less than or equal to 37 weeks gestation) who have not reached the equivalent age of 40 weeks gestation may be assessed for growth using a growth chart for low birth weight (LBW) or very low birth weight (VLBW) infants (e.g., Infant Health and Development Program [IHDP]) consistent with the protocols of the local medical community in which the WIC clinic operates. The Centers for Disease Control and Prevention (CDC) does not recommended the use of the 2000 CDC Growth Charts for preterm infants who have not reached the equivalent age of 40 weeks gestation.

* See Attachment A: Calculating Gestation-Adjusted Age, for instructions on how to adjust for gestational age.

Justification

These growth chart guidelines for preterm, LBW and VLBW infants were developed to ensure the consistency and accuracy of growth assessments of premature infants performed by WIC agencies. The use of weight, length, and head circumference measurements as a component of nutritional assessment is well established. Plotting measurements on growth charts allows comparisons with reference populations. Serial measurements enable determination of improvement or alteration in individual growth patterns. Ideal growth rates and patterns for preterm infants have yet to be established. Specialized reference curves commonly used (e.g., Babson/Benda, Lubchenco, etc.) are not based on current medical and nutritional advances in treatment of these infants (1). Updated reference curves are needed for assessing intrauterine and extrauterine growth for premature LBW and VLBW infants (2).

Growth and a composition of weight gain at a rate similar to that of intrauterine (fetal) growth is considered by some to be the gold standard for premature infants (2). However, controversy exists over the feasibility of replicating intrauterine growth on an extrauterine basis (2,3).

Guidelines for Growth Charts and Gestational Age Adjustment for Low Birth Weight and Very Low Birth Weight Infants (continued)

LBW infants are a heterogeneous group that includes premature infants who have attained weight, length, and proportionality that are appropriate for their gestational age, as well as infants who are small for their gestational age (SGA). Infants who are born small for their gestational age may be preterm or full-term. Premature infants usually fall in the lower percentiles before adjusting for gestational age (4).

For convenience, the following classifications are provided.

Classification Definitions* (1)Gestation

Preterm	less than 37 weeks gestation
Postterm	greater than 42 weeks gestation

Birth Weight

Extremely low birth weight (ELBW)	less than 1000 g
Very low birth weight (VLBW)	less than 1500 g
Low birth weight (LBW)	less than 2500 g

Size for Gestational Age

Small (SGA)	weight less than 10%ile
Appropriate (AGA)	weight greater than or equal to 10%ile and less than or equal to 90%ile
Large (LGA)	weight greater than 90%ile

* The definitions for WIC nutrition risk criteria: Prematurity; LBW; and VLBW are inclusive of the cut-off number (e.g. less than or equal to 37 weeks for Prematurity) for the purpose of WIC nutrition risk determination.

Gestational Age

Gestational age is estimated during the prenatal period using maternal dates of expected delivery based on last menstrual period, and/or fetal characteristics (uterine fundal height, presence of quickening and fetal heart tones, and ultrasound evaluation). These estimates may be inaccurate, due to an irregular menstrual period, inability of mother to recall dates, early trimester bleeding, or lack of use of early ultrasound (1,5). Postnatally, the New Ballard Score or the Dubowitz score is used to assess gestational age by scoring the infant against physical and neurological signs (1,6,7). Ideally, more than one method is used to determine gestational age.

Guidelines for Growth Charts and Gestational Age Adjustment for Low Birth Weight and Very Low Birth Weight Infants (continued)

The Workshop on Low Birth Weight recommends adjusting for gestational age for premature infants (8). Instructions for adjusting for gestational age are found in Attachment A of this document, or may be obtained from the CDC website (website address is cited in Attachment A). For practical reasons, CDC recommends adjusting for gestational age for at least 2 years. There is no other convenient juncture, and for healthy premature infants, there is minimal catch-up growth after 2 years. In addition, the majority of catch-up growth that will occur among healthy SGA infants takes place during the first 2 years of life (9,10). Although the majority of preterm and SGA infants will attain catch-up growth by two years of age, not all will (11). Premature infants with intrauterine growth retardation demonstrate limited catch-up growth, with growth deficits persisting into early childhood (10,11,12); and some VLBW infants may never catch-up completely in their growth (13).

Furthermore, once these children reach the age of 2 and their growth measurements are plotted on the 2 to 20 years (or 2 to 5 years) growth charts and gestational age is not accounted for, they may drop in percentile ranking. As long as the rate of growth (trajectory of the growth curve) continues upward, staff should be cautious when counseling the parent/caregiver to not raise undue concern over the child's percentile ranking. As with all children who demonstrate growth problems or who are at risk for potential growth problems, WIC staff should routinely complete anthropometric assessments and follow-up (to include coordination with, and referral to other health care providers and services) for children with a history of prematurity and/or SGA who have not yet demonstrated normal growth patterns. More information about the assessment and nutritional care of preterm infants can be found at the following two websites:

- 1) www.eatrightoregon.org/PNPG.resource.htm, and
- 2) www.depts.washington.edu/growing/index.html.

Growth Reference Curves

For premature infants, a variety of growth charts are available and in use by medical care providers. Several have been developed from extrauterine growth data. There are also intrauterine growth charts available, which are useful for determining expected growth (weight, length, and head circumference) at various gestational ages (3,14). It should be noted that, to date, there is no one LBW or VLBW growth reference curve recommended for use by the American Academy of Pediatrics or CDC as currently available references do not reflect current growth patterns resulting from advances in nutrition and medical care for preterm infants (15).

Guidelines for Growth Charts and Gestational Age Adjustment for Low Birth Weight and Very Low Birth Weight Infants (continued)

In a recent study, CDC reviewed the scientific evidence and available growth reference curves for VLBW infants (16). The growth reference curves that were evaluated included:

- Infant Health and Development Program (IHDP), Casey, P, et al
- Brandt
- Gairdner and Pearson (Castlemead)
- Babson and Benda

To examine the references, the researchers developed *a priori* criteria for ideal and technically accurate references, compared each reference to the criteria, sought input from experts, and made recommendations for use. The *a priori* criteria included:

- Data that were collected in the 1990s or later;
- U.S. sample, well-nourished, racially/ethnically representative;
- Adequate sample size;
- Appropriate exclusions;
- Standardized, accurate measurements;
- Frequent measurements to capture patterns of growth;
- Age range from at least 24 weeks to three years;
- Available by gender, anthropometric indices, percentiles, z-scores; and
- Accurate gestational age correction.

It should be noted that the commonly used Lubchenco growth reference curves were excluded from the evaluation because the data were too old (data were collected between 1948-1961) and limited to infants born in a high altitude location.

Of the reference curves evaluated, the IHDP reference was considered to be the best available. The IHDP data were collected in 1985, whereas the others were collected from before 1954 to 1975. The IHDP reference had a relatively large sample size and was most representative of the population groups with VLBW infants, whereas the other available references were based on white infants. Although the researchers found the IHDP reference to be the best available reference for VLBW infants, the reference data did not meet all the criteria and had limitations. The IHDP reference is the most current of the available references, however, it was developed before recent advances in nutrition and medical care for premature infants, and does not reflect current growth patterns of preterm infants. In addition, gestational age was calculated based on a less accurate method (an assessment of physical and neurological characteristics) rather than ultrasound and date of last menstrual period (17).

Guidelines for Growth Charts and Gestational Age Adjustment for Low Birth Weight and Very Low Birth Weight Infants (continued)

The other three growth references evaluated in the study were found to have serious limitations, making them inappropriate for assessing the growth status of VLBW infants. The limitations included: data collected before 1976, small sample size and reference data limited to primarily white children.

Once the determination was made that the IHDP reference curves were the best of those evaluated, the next step of the study was to compare them with those of the 2000 CDC Growth Charts. Population data for the 2000 CDC growth charts includes infants who are LBW but does not include VLBW infants (18).

A comparison of the IHDP and CDC/NCHS 2000 charts revealed the IHDP charts demonstrate catch-up growth *to* the CDC charts in length-for-age and head circumference-for-age, and initial falling off, then, stabilization *to* the CDC charts in weight-for-age. A comparison of external VLBW data to IHDP and CDC charts showed the relative position on the charts is closer to IHDP, the pattern of growth for length-for-age is more similar to IHDP, and weight-for-age early pattern is more similar to CDC.

The CDC recommendations are:

1. For LBW infants, use the 2000 CDC Growth Charts adjusted for gestational age.
2. For VLBW infants, adjust for gestational age and use either the IHDP or the 2000 CDC Growth Charts.

WIC Program Implications

The Risk Identification and Selection Collaborative (RISC) considered the CDC study and met with CDC staff to develop the guideline that all premature infants who have attained a gestational age of at least 40 weeks, be assessed for growth using the 2000 CDC Birth to 36 Months Growth Charts, adjusted for gestational age. In addition to the evidence-based rationale for the use of the 2000 CDC Growth Charts, practical implications were also considered. Due to the fact that the 2000 CDC Growth Charts are used for term infants and older children, the use of these same charts for LBW and VLBW infants who are at least 40 weeks gestation, would not create an additional burden on clinic operations.

The WIC staff (depending on WIC resources and staffing) may also want to consider monitoring the growth of VLBW infants/children using the IHPD charts, in addition to the 2000 CDC Growth Charts, to obtain additional growth reference information to use in providing nutrition services to this population of participants.

**Guidelines for Growth Charts and Gestational Age Adjustment
for Low Birth Weight and Very Low Birth Weight Infants
(continued)**

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Guidelines for Growth Charts and Gestational Age Adjustment for Low Birth Weight and Very Low Birth Weight Infants (continued)

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Calculating Gestation-Adjusted Age¹

INSTRUCTIONS*:

- Document the infant's gestational age in weeks. (Mother/caregiver can self-report, or referral information from the medical provider may be used.)
- Subtract the child's gestational age in weeks from 40 weeks (gestational age of term infant) to determine the adjustment for prematurity in weeks.
- Subtract the adjustment for prematurity in weeks from the child's chronological postnatal age in weeks to determine the child's gestation-adjusted age.

* For WIC nutrition risk determination, adjustment for gestational age should be calculated for all premature infants for the first 2 years of life.

EXAMPLE:

Randy was born prematurely on March 19, 2001. His gestational age at birth was determined to be 30 weeks based on ultrasonographic examination. At the time of the June 11, 2001, clinic visit, his chronological postnatal age is 12 weeks. What is his gestation-adjusted age?

- 30 = gestational age in weeks
- 40 - 30 = 10 weeks adjustment for prematurity
- 12 - 10 = 2 weeks gestation-adjusted age

His measurements would be plotted on a growth chart as a 2-week-old infant.

¹ Adapted from the Centers for Disease Control and Disease Prevention (CDC) internet training module: "Overview of the CDC Growth Charts"; www.cdc.gov/nccdphp/dnpa/growthcharts/trainingmodules/module2/text/page5itext.

Guidance for Screening and Referring Women With or At Risk for Depression**Purpose**

This guidance is intended to increase WIC staff awareness and knowledge in assisting participants diagnosed with or who are at risk for depression. (For additional information about women diagnosed with depression, please see nutrition risk criterion #361 *Depression*). It clarifies the WIC practitioner's role in maternal depression and provides training resources. In addition, this guidance identifies focus areas of breastfeeding promotion and support, and nutrition education related to maternal depression. Working within the scope of the Program, State and local WIC agencies, in coordination with mental health services, can screen and refer participants to maximize participant benefit from WIC nutrition services to achieve positive health outcomes.

Justification

Support for WIC involvement in assisting women with depression was outlined in the Institute of Medicine's (IOM's) 1996 Report: *WIC Nutrition Risk Criteria: A Scientific Assessment*. The IOM reported that appetite changes were a distinguishing feature of depression and that the combination of nutrition education and access to nutritious foods may lessen the effects of these changes. Additionally, the report noted that WIC's focus on medical referrals and social support could benefit WIC mothers with diagnosed depression by minimizing the isolation many experience. (1)

According to the World Health Organization (WHO), mental, neurological and substance abuse disorders are major contributors to morbidity and mortality (2). Both globally and in the United States, psychological disorders are chronically under-diagnosed and undertreated. Gender disparities in psychological disorders have been found to be significant with women suffering from certain disorders, namely depression, disproportionately to men (3). In addition, poverty increases the risk of depression. WIC eligible women may be more vulnerable to the onset of depression or have an increase in the severity of their mental illness (4, 5). The incidence of postpartum depression in new mothers can range from approximately 12 to 25 percent, to up to 35 percent or more in some high-risk groups (6). There have been reported rates of subclinical and clinical depression for women in WIC at twice the prevalence for U.S. women overall (7). An analysis of the Pregnancy Risk Assessment Monitoring System (PRAMS) data found that 20% of women enrolled in WIC reported high postpartum depressive symptoms; and subgroups of women with other risk factors had rates as high as 40% (8). Available data suggest that these mothers suffer from a high burden of untreated mental health disorders (8-10).

The Academy of Nutrition and Dietetics, Women's Health Dietetic Practice Group Fall 2009 publication (11), identified the dietitian as the mental health "gatekeeper" and outlined ways nutrition professionals and mental health care specialists can collaborate for the participant's well-being. Nutritionists routinely consider and research participant *medical* comorbidities, i.e., chronic diseases such as diabetes, heart disease and obesity, in order to provide comprehensive care (11). It is equally important for WIC nutrition staff (including paraprofessionals trained as WIC Competent Professional Authorities) to consider a participant's mental health in order to provide quality nutrition services, especially since chronic diseases often coexist with depression (12, 13).

Guidance for Screening and Referring Women With or At Risk for Depression

Evidence suggests that depression can interfere with parenting, potentially leading to problems in physical health and well-being, psychomotor and cognitive development, and increased risk for developing depression or other mental health disorders in children of depressed parents (3, 14). Chronic maternal depression, related to the timing and duration of depression (i.e., third trimester through first postpartum year) may amplify these negative impacts. Premature infants may be even more susceptible to effects of maternal depression. Existing nutrition assistance programs such as WIC and SNAP which serve large numbers of low-income women and families are logical points of contact to link women to mental health services (4). While the diagnosis and treatment of depression are outside the scope of the WIC Program, WIC staff (with appropriate training) are well positioned to identify pregnant and postpartum women who may benefit from initial screening for maternal depression and subsequent referral to mental health services (15,11).

Enhancing WIC's Role in Maternal Depression

WIC's nutrition assessment process and referral services lend themselves well to identifying and linking women with or at risk of depression to appropriate services. Listed below are necessary components of a State and/or local agency process to enhance WIC screening and referral services for maternal depression.

Raising Staff Awareness

It is important for staff to be aware of the prevalence and impact on health outcomes of maternal depression among the WIC target population (see Justification Section). As such, mental health status is an important component of a complete nutrition assessment. According to the Value Enhanced Nutrition Assessment (VENA) Guidance many variables such as an individual's knowledge, lifestyle practices, environment and health status impact food consumption and ultimately his/her health outcomes (15). Addressing depression as part of a complete nutrition assessment for prenatal and postpartum women will lead to a more participant-centered nutrition intervention. WIC nutrition risk criterion #361 *Depression* should only be assigned if a health care provider has provided documentation or if the participant self-reports that she has been diagnosed with depression. However, through the nutrition assessment process, WIC also has the opportunity to identify women at risk for depression who may benefit from additional screening and referral for mental health services. Therefore, in keeping with the intent of the VENA Guidance, the role of WIC staff is not to diagnose or treat depression, but to screen and offer referrals, as appropriate, to assist participants in achieving positive health outcomes.

Establishing Partnerships with Mental Health Providers

Prior to development and implementation of a State and/or local agency screening and referral process to address maternal depression, partnerships with mental health providers and social service agencies at the State and/or local level must be established. A solid network of community partners to collaborate with on screening and referral protocols provides WIC staff with both the knowledge of community resources services available and the confidence in implementing policies to connect participants to needed assistance. Examples of successful collaborations and mental health resources are included in the Staff Training, Screening and Referral sections below.

Guidance for Screening and Referring Women With or At Risk for Depression**Staff Training**

Once a network of community partners are identified and engaged, comprehensive staff training must be developed. Training at a minimum should include a basic overview of maternal depression and its potential health effects for mother and child, description and use of selected screening tools, and specific procedures for referral and follow up. Below is a list of available free staff training resources on depression currently used by State WIC Programs or other sister programs, i.e., Head Start:

- The Contra Costa Health Services have developed extensive resources and staff training materials as part of its Perinatal Depression Screening, Education and Referral Project. Access at: <http://cchealth.org/wic/providers.php>
- A 2009 depression training module developed by the New Hampshire Breastfeeding Task Force is supportive of breastfeeding. Several State and local WIC programs have used this module to train staff: http://www.nhbreastfeedingtaskforce.org/pdf/breastfeeding_depression.pdf
- Two webinars, specifically designed for WIC staff in 2012, were developed by Oregon WIC in collaboration with its Maternal Child Health Program. The webinars are considered to be an effective way to utilize the skills of both programs. After final evaluation, materials will be available on-line at: <http://public.health.oregon.gov/HealthyPeopleFamilies/wic/Pages/training.aspx>.
- A self-study training course is available at <http://fampod.org>. Originally developed for use by Head Start, it is also available to the general public.
- Additional materials relevant to WIC staff, developed for Head Start, can be found at: <http://www.ecmhc.org/maternal-depression/index.html>.

Screening

There are simple and effective screening tools that can be incorporated into the WIC nutrition assessment process. Examples of highly sensitive screening tools include the Edinburgh Postnatal Depression Scale (<http://brightfutures.aap.org/pdfs/Other%203/Edinburgh%20Tool.pdf>) (permission required to copy), Postpartum Depression Screening Scale, and Patient Health Questionnaires (PHQ) (<http://brightfutures.aap.org/pdfs/Other%203/PHQ-9%20Questionnaire.pdf>). These tools and their corresponding instructions can be found at http://brightfutures.aap.org/tool_and_resource_kit.html (16).

Results from recent research suggest that a preliminary screen during the WIC nutrition assessment, with a targeted referral to the health care provider or local mental health services for further evaluation and interventions, if necessary, is a critical step in early identification and treatment of depression (17). In a recent community-based research study conducted in a WIC program in Washington DC, nutritionists used the PHQ-2 questionnaire to screen clients for depression (17). Women who screened positive were referred for a more in-depth screen (using the PHQ-9) conducted by staff at the Federally Qualified Health Center—which was co-located with the WIC program. WIC State agencies can use strategies and lessons learned from this and similar projects to develop their own screening and referral protocols.

Guidance for Screening and Referring Women With or At Risk for Depression**Referral**

Depression screening and subsequent referral are linked. One cannot occur without the other. Effective and timely referral to local health and mental health resources is the last component of a comprehensive process to address maternal depression. For the participant, it may also be the component with the greatest impact. Local staff responsible for identification and provision of referrals should not only be aware of the available community resources, but also be well-versed in what participants can expect from that service when referred. This requires ongoing local maintenance of relationships between WIC and local health and mental health resources. Referral to the health care provider for further evaluation and treatment (if necessary), is also an important referral resource for WIC staff. As outlined in the VENA Guidance (15) the effective use of the referral benefit, i.e., linkages to referred services, the identification and provision of referrals, and timely follow-up to “close the loop” allows for the continuity of care.

States and localities have a variety of programs that address perinatal depression and/or mental health. There are home-based programs, public health department sponsored services, and private providers available through self- or third-party referral. The following are web-based resources for State and local agencies to locate reliable services:

- The *Substance Abuse and Mental Health Services Administration* (SAMHSA) Mental Health Treatment Locator is found at <http://www.samhsa.gov/> and provides comprehensive information on mental health resources and/or facilities. This website provides informational materials about different mental health conditions. The SAMHSA's National Helpline is also available 24-hour-a-day, 365-day-a-year to provide referrals to local support networks and resources for individuals dealing with mental health issues or substance abuse problems at 1-800-662-HELP (4357).
- *MentalHealth.gov* (<http://www.mentalhealth.gov/>) provides one-stop access to U.S. government mental health information and resources from the *Centers for Disease Control and Prevention* (<http://www.cdc.gov/>), *FindYouthInfo.gov* (<http://findyouthinfo.gov/>), *MedlinePlus* (<http://www.nlm.nih.gov/medlineplus/>) and *National Institutes of Health* (<http://www.nih.gov/>), *National Institute of Mental Health (NIMH)* (<http://www.nimh.nih.gov/index.shtml>) and *SAMHSA* (<http://www.samhsa.gov/>). Resources are available for the general public, health and emergency preparedness professionals, policy makers, government and business leaders, school systems and local communities.
- *Mental Health America's* (<http://www.mentalhealthamerica.net/finding-therapy>) website can be used to help individuals locate mental health treatment services, including affordable treatment for those without insurance, in their community. This website also includes links to other sites that provide specialized treatment referrals for specific illnesses and information about the specific illness.

Guidance for Screening and Referring Women With or At Risk for Depression**Core WIC Nutrition Services That Support Women with or At Risk for Depression**

The following is provided for informational or awareness purposes only and does not suggest that WIC staff prescribe treatment for depression.

Breastfeeding Education and Support

WIC promotes breastfeeding as the optimal infant feeding method. The collective impact of prenatal and postpartum breastfeeding promotion and support from WIC nutrition professionals and peer counselors can assist the breastfeeding mother in avoiding breastfeeding complications which may lead to early cessation. Successful breastfeeding can potentially provide some protection from the development of depression (6, 18). Breastfeeding difficulties, especially nipple pain, are a risk factor for depression and need to be addressed promptly. A systematic review in 2009 found depression (or depressive symptoms) may play a role in increased breastfeeding difficulties and decreased duration with depressed mothers being more likely to stop breastfeeding earlier than their non-depressed counterparts (18). This same review found breastfeeding mothers' rates of depression are lower than their non-breastfeeding counterparts.

Breastfeeding may impact maternal mental health and influence infant outcomes in several ways:

- **Breastfeeding is protective of maternal mood.** Breastfeeding reduces the stress responses commonly found in the post-partum period (6). The hormones associated with lactation, oxytocin and prolactin have both antidepressant and anxiolytic (anti-anxiety) effects.
- **Breastfeeding mothers may experience more restful sleep.** It is well documented that new mothers experience sleep disturbances, independent of their feeding choices. This lack of sleep can lead directly to an increase in inflammation and increase in maternal stress, which can lead to depression in the early post-partum period. Several small studies showed that breastfeeding mothers actually get more sleep than their bottle/formula-feeding counterparts (6). One population-based study found that exclusively breastfeeding mothers experienced less disrupted sleep than those who supplemented with formula (19). A discussion about infant sleep patterns and expectations for parental sleep in the early post-partum period can assist mothers in setting goals for duration of breastfeeding and management of stress that accompanies new motherhood.
- **Breastfeeding benefits for infants are well documented.** A 2010 Urban Institute brief found that WIC mothers make use of well-baby visits with their health care providers but rarely adhere to AAP recommendations for breastfeeding (4). The authors suggest important messages are not being received or that these mothers face obstacles to breastfeeding, which may be even more likely if the mother is depressed (4). Awareness of a mother's mental health status can assist the WIC nutrition professional in providing individualized breastfeeding support. Depressed mothers should be encouraged to continue breastfeeding as it can protect infants from the harmful effects of maternal depression. Additionally, if breastfeeding is going well, it may assist in a mother's recovery from depression. (6)

Guidance for Screening and Referring Women With or At Risk for Depression**Nutrition Education**

The following are focus areas for WIC nutrition education that may be beneficial to women diagnosed with or at risk for depression:

- **A diet rich in Omega-3 fatty acids.** Research shows high rates of fish consumption correlate with low rates of mental illness (20). Rich sources of Omega-3 fatty acids are found in cold water fatty fish, and some plant sources. The imbalance between Omega-6 and Omega-3 fatty acids in today's western diets may be impacting the general health of the population. A recommended ratio of Omega-6 to Omega-3 fatty acids is 2:1. In the typical American diet the ratio is approximately 15:1. These two types of fatty acids assist the body in making hormones. Hormones constructed with Omega-3 fatty acids may be beneficial in mitigating depression as they are anti-inflammatory. Conversely, Omega-6 fatty acids are pro-inflammatory. (20) (See Risk Criterion #361 *Depression* for more information on inflammation and the link to maternal depression.) Common sources of Omega-6 fatty acids include palm and soybean oils. The two Omega-3 essential fatty acids of interest in depression research are eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA). DHA can prevent depression in new mothers while EPA is a useful treatment by itself or with medications and/or DHA (6).

Seafood in limited amounts can be part of a healthy diet for women who are pregnant or breastfeeding. Women should be encouraged to consume fish as recommended in the *Dietary Guidelines for Americans*, available from: <http://www.choosemyplate.gov/pregnancy-breastfeeding/eating-fish.html> (21). Although fish may contain contaminants (e.g., mercury) the benefits of limited fish consumption outweigh the concerns associated with the contaminants (22, 23). Women may also want to consult with their health care provider about dietary supplements of Omega-3 fatty acids. Dietary supplements should only be consumed if the health care provider agrees that the supplements would be beneficial to the mother.

- **Physical activity.** Various studies have demonstrated that exercise is anti-inflammatory and boosts mood. Routine exercise helps individuals with depression lower inflammation over time and is a positive coping strategy for stress. Exercise can help boost mood in the short term, but it is the cumulative impact of regular exercise that can stave off depression significantly (6). More information about physical activity during pregnancy and the postpartum period can be obtained at: <http://www.health.gov/paguidelines/guidelines/chapter7.aspx>.
- **Consumption of adequate nutrients.** Research has identified likely links between nutrient deficiency and mood for folate (<http://www.ebi.ac.uk/chebi/searchId.do?chebiId=CHEBI%3A37445>), vitamin B-12 (<http://www.ebi.ac.uk/chebi/searchId.do?chebiId=CHEBI%3A17439>) vitamin D, calcium, iron, selenium (<http://www.ebi.ac.uk/chebi/searchId.do?chebiId=CHEBI%3A27568>), zinc, and Omega-3 fatty acids (23-29). A recent review article investigating the link between diet adequacy and perinatal depression found that nutrient inadequacies of pregnant women who consume a typical western diet might be much more common than researchers and clinicians realize (23). Several studies reported inadequate intakes of Omega-3 fatty acids, folate, B vitamins, iron and calcium in pregnant women. The authors conclude that depletion of nutrient reserves throughout pregnancy (<http://www.ebi.ac.uk/QuickGO/GTerm?id=GO:0007565>) can increase a woman's risk for maternal depression (<http://europepmc.org/search/?page=1&query=%22depression%22>) and recommend future research targeting the effect of nutrient status on maternal mental health. (24-26)

Guidance for Screening and Referring Women With or At Risk for Depression

Promoting adequate consumption of nutrients through foods as well as adequate water intake may be a low risk and cost effective way to prevent or mitigate maternal depression (30). It would be prudent for the WIC nutritionist to highlight the link between nutritional factors and mental health when counseling women who are or are at risk of depression.

Summary

Given the prevalence of depression among low-income mothers, there is an opportunity for WIC to play an important role in addressing maternal depression. With increased staff awareness and collaboration with mental health providers, WIC staff can assist mothers diagnosed with depression or at risk of depression. Therefore, it is appropriate for State and/or local WIC agencies to explore and/or create collaborative efforts with social/mental health services. A healthy mother who is not experiencing depression is likely to utilize her WIC benefits to their maximum potential, initiate and continue to breastfeed her infant (and do so exclusively), and in turn achieve positive health outcomes. (18)

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