Foster Healthy Weight in Youth

- Assess
- Prevent
- Treat

Nebraska's Clinical Childhood Obesity Model

Healthcare Provider Toolkit

Dear Colleague:

Welcome to Foster Healthy Weight in Youth: Nebraska's Clinical Childhood Obesity Model, where you will find the clinical resources and patient education materials to help you effectively address the childhood obesity epidemic.

The childhood obesity epidemic has reached alarming levels. Multiple studies show a tripling of prevalence over the last thirty years. According to the Robert Wood Johnson Foundation, "we are raising the first generation of youth who will live sicker and shorter lives than their parents."

As healthcare providers, we see the impact this epidemic has on the children and families we care for. It affects not only the physical and emotional health of children, but their academic and economic potential as well as the overall health and economics of our communities.

Within the Nebraska Department of Health and Human Services, we are focusing on creating a culture of wellness in the home, schools, workplaces, and healthcare settings. The message is clear, wellness works, and together we can create a culture of wellness throughout the state. With this model, you now have the tools to be a part of creating a culture in healthcare founded in prevention.

Nebraska's Clinical Childhood Obesity Model, which includes the Youth Physical Activity and Nutrition (PA-N) Assessment Form, was developed to assist healthcare providers to incorporate the 2007 Expert Committee Recommendations and to create a culture of wellness in every practice.

The Foster Healthy Weight in Youth resources include:

- Pocket Reference Algorithm
- Provider Toolkit
- Youth PA-N Assessment Form
- Training Video
- Office Posters
- Patient Education Postcards

All of the resources may be found on the Nebraska Medical Association's Childhood Obesity Prevention Project website at www.nebmed.org/copp.aspx.

Become a physician champion by integrating Nebraska's Clinical Childhood Obesity Model into practice, advocating in your community and joining the Nebraska Medical Association's Childhood Obesity Prevention Project. Together we can improve the health of Nebraska's children.

Sincerely,

Joann Schaefer, M.D.
Chief Medical Officer
State of Nebraska

DHHS
Nebraska Department of Health and Human Services

Acknowledgements

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Special recognition goes to the primary developers:

Karla Lester, MD, Teach a Kid to Fish

Cristina Fernandez, MD, Creighton University, Children's Physicians

Holly Dingman, MS, RD, DHHS, Nutrition and Activity for Health

Other collaborating partners include:

Brian Coyle, MPH, PAPHS, DHHS, Nutrition and Activity for Health

Bruce Rowe, DHHS, Nutrition and Activity for Health

Creighton University, Children's Physicians Staff

Deb Raven, RN, Children's Hospital and Medical Center

Dianna Seiffert, DHHS, Communications and Legislative Services

Ericka Welsh, PhD, DHHS, Nutrition and Activity for Health

Jamie Hahn, M.Ed, DHHS, Cardiovascular Health Program

Jeff David, MD, Lincoln Pediatric Group

Jeff Klein, Creighton University, Continuing Medical Education Division

Jennifer Dunavan, MS, RD, DHHS, Comprehensive Cancer Control Program

Jerry Crisp, DHHS, Communications and Legislative Services

Joann Schaefer, MD, DHHS, Chief Medical Officer

Karla Roscoe, Indigo Moon Design

Kathy Leeper, MD, MilkWorks

Kimberly Barrett, M.Ed, University of Nebraska, Lincoln

Kirti Gupta, MD, PhD, Alegent Health Clinic

Laura Wilwerding, MD, University of Nebraska Medical Center

Mary Jo Gillespie, RD, LMNT, MPA, Lancaster County Medical Society

Mike Wight, DHHS, Communications and Legislative Services

Molly O'Dell, MD, Alegent Health, Live Well Omaha Kids

Robert Cusick, MD, Children's Hospital Pediatric Surgery

Robert Rauner, MD, Lincoln Family Medicine Center

Sally O'Neill, PhD, Creighton University, Continuing Medical Education Division

Steven Darrow, MD, University of Minnesota

Sue Springman, MD, Complete Children's Health

Suzanne Greenquist, DO, Lincoln Family Medicine Center

Tami Frank, Nebraska Medical Association

Tom Johnson, Creighton University, Creative Services

William Wiley, DHHS, Communications and Legislative Services

Zainab Rida, MS, RD, University of Nebraska Extension in Lancaster County

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The Childhood Obesity Epidemic

- Role of the Healthcare Provider
- Epidemiology
- Etiology
- Childhood Obesity Defined
- Health Consequences of Obesity

Role of the Healthcare Provider

The 2007 Expert Committee Recommendations on the assessment, prevention and treatment of child and adolescent overweight and obesity define the role of healthcare providers.(1) *Nebraska's Clinical Childhood Obesity Model* was developed to assist healthcare providers readily integrate the Expert Committee Recommendations into practice by resourcing clinicians with the tools necessary to carry out the defined roles as below:

ASSESS

The first step in the universal assessment of children ages 2 to 18 for obesity and obesity risk is to chart BMI%. Perform a clinical evaluation, including a history and exam and order appropriate laboratory tests. Using Nebraska's Youth Physical Activity and Nutrition (PA-N) Assessment Form, assess health behaviors and attitudes, and set patient-driven healthy lifestyle goals.

PREVENT

Prevention of obesity starts with promoting the initiation of breastfeeding and providing support for breastfeeding through the first year of life. For children ages 2 to 18 who are in the healthy weight category, follow the universal assessment steps, give consistent prevention messages, and reevaluate annually.

TREAT

The Expert Committee recommends a staged protocol for treatment with the level of intervention to be based on a patient's BMI% and age. The keys to successful treatment are to chart BMI% at every visit, follow the staged protocol, target comorbidities, use Nebraska's Youth PA-N Form to set patient driven goals, and engage the entire family in behavior change. Stay the course because small changes yield big rewards.

ADVOCATE

As a healthcare provider, you can advocate as a role model by being physically active and making healthy food choices. Integrate *Nebraska's Clinical Childhood Obesity Model* into practice by resourcing your office with the patient educational materials and office posters. Engage the entire clinic in your efforts. Serve as a conduit to community resources and programs. Advocate for environmental policy changes in your community and join the Nebraska Medical Association's *Childhood Obesity Prevention Project* at www.nebmed.org. Together, we can Foster Healthy Weight in Youth.

Epidemiology

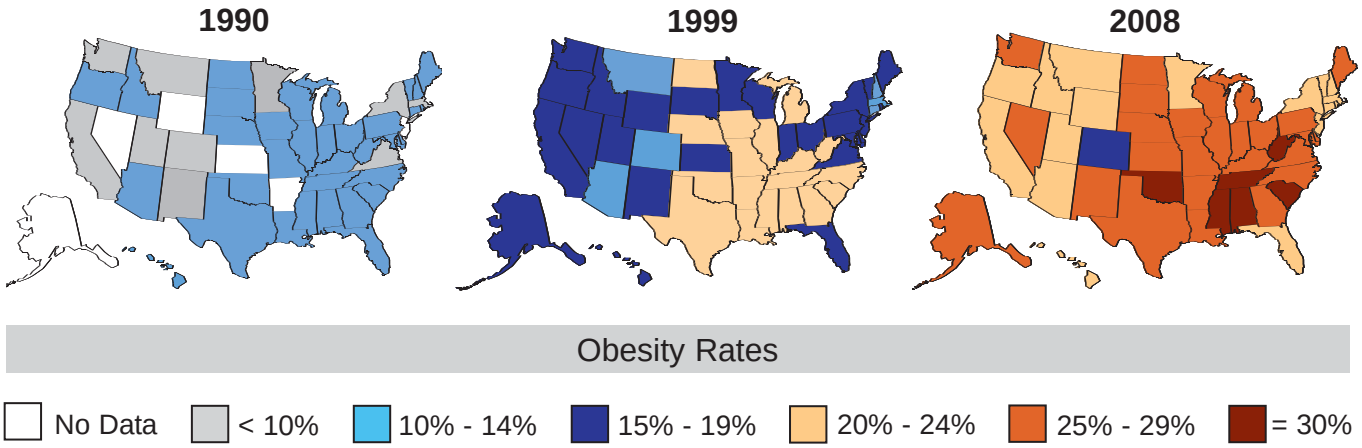
Obesity Among U.S. Adults

As obesity rates have increased dramatically over the last 30 years in the U.S. in both adults and children, obesity has become a national epidemic. Data from the CDC from 2003-2004 and 2005-2006 indicated that two-thirds of U.S. adults were either obese or overweight.(2)

Obesity Trends* Among U.S. Adults

BRFSS, 1990, 1999, 2008

*BMI >30, or about 30 lbs. overweight for 5'4" person



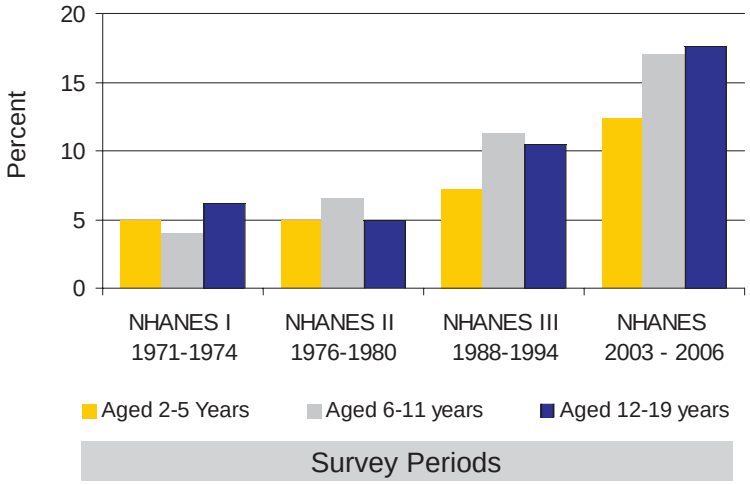
Obesity Among U.S. Children

Based on representative samples of U.S. children, nationally 1/3 of children are overweight or obese. Prevalence rates in children have tripled since 1980.(2)

Prevalence of Obesity* Among U.S. Children and Adolescents (Aged 2 -19 Years)

*National Health and Nutrition Examination Surveys Prevalence of Obesity

Among U.S. Children and Adolescents (Aged 2 -19 Years)



Obesity Among Nebraska Children

According to a July 2009 report, published by Trust for America's Health, Nebraska ranks as having the 21st highest percentage of obese and overweight children in the U.S., with 31.5% of Nebraska children measured as obese or overweight.(3)

Etiology

Obesity is the result of an imbalance of energy intake and energy expenditure. Genetics, environment and behavior, all contribute to obesity risk. The rapid increase in prevalence of children who are obese and overweight cannot be explained by genetics alone. Changes in nutrition and physical activity behaviors and environments which are unhealthy have caused this public health problem to move to epidemic proportions.

Ubiquitous shifts in food practices, changes in our built communities, a marked increase in sedentary activity opportunities, and a food industry which spends billions marketing unhealthy food choices to children at very young ages, are all major causes of the epidemic. Although diet and exercise are key determinants of weight, environmental factors beyond the control of individuals (including lack of access to full-service grocery stores, high costs of healthy foods, and lack of access to safe places to play and exercise) contribute to increased obesity rates by reducing the likelihood of healthy eating and active living behaviors.(2)

Childhood Overweight/Obesity Defined

Overweight and obesity is defined in children by the Body Mass Index (BMI) measurement, or the measure of weight adjusted for height using age and gender specific growth charts. BMI is defined as weight (in kilograms) divided by the square of height (in meters). BMI is a useful assessment tool to assess body fat in children. BMI levels correlate with body fat and also correlate with concurrent health risks,including cardiovascular risk factors.(4)

For children, the distribution of BMI changes with age. As a result, percentiles specific for age and gender define underweight, healthy weight, overweight, and obesity in children. Obesity risk is also determined by screening family history, assessing physical activity and nutrition behaviors, a review of systems and physical examination for comorbidities, which taken altogether determine the need for intervention.(4)

BMI =

$$\frac{\text{weight (kg)}}{\text{height squared (m}^2\text{)}} \quad \textbf{OR} \quad \frac{\text{weight (lbs) x 703}}{\text{height squared (in}^2\text{)}}$$

Health Consequences by Body System

CARDIOVASCULAR	Dyslipidemia Hypertension Atherosclerosis
ENDOCRINE	Metabolic Syndrome Polycystic Ovarian Syndrome Menstrual Irregularities Type 2 Diabetes Insulin Resistance
GASTROINTESTINAL	Nonalcoholic Fatty Liver Disease Gastroesophageal Reflux Gallstones
NEUROLOGIC	Pseudotumor Cerebri
ORTHOPEDIC	Slipped Capital Femoral Epiphysis Blounts Disease Flat Feet Knee and Leg Pain Gait Abnormalities
PSYCHOLOGIC	Depression Negative Self-Image Social Isolation Eating Disorders
PULMONARY	Asthma Obstructive Sleep Apnea

Assess

- Clinical Algorithm
- Chart BMI% for Age
- Clinical Evaluation
- Health Behaviors and Attitudes

Foster Healthy Weight in Youth

■ Assess ■ Prevent ■ Treat

Nebraska's Clinical Childhood Obesity Model

ASSESS

STEP 1 ■ Chart BMI % for Age in All Patients ages 2 to 18
- Calculate BMI and plot % on age/gender specific growth charts
- Determine weight category (table 1)

STEP 2 ■ Clinical Evaluation
- Document use of medications associated with weight gain (steroids, antipsychotics, antiepileptics)
- Screen family history (table 2)
- BP, ROS and physical exam for comorbidities (table 3), order laboratory tests (table 4)

STEP 3 ■ Health Behaviors and Attitudes
- Request patient/parent to complete the "current activity" column of the Youth PA-N Form
- See "Health Behaviors and Attitudes" Section
- Refer to "Healthy Kid Recommendations"

STEP 4 ■ Follow Prevention and Treatment Algorithm
- Determine Plan of Action

TABLE 1
Weight Category by BMI Percentile

BMI Percentile	Weight Category
<5th%	Underweight
5th to <85th%	Healthy weight
85th to <95th%	Overweight
95th to <99th%	Obese
≥99th%	Obese with increased risk

TABLE 2
Family History Screening

1st and 2nd degree relatives

- Obesity
- Type 2 Diabetes
- Hypertension
- Hyperlipidemia
- Heart Disease
- Early Cardiovascular Deaths
- Strokes

HEALTH BEHAVIORS & ATTITUDES

Assess Physical Activity & Nutrition Behaviors in ALL Patients

- Have patient/family complete the PA-N Form prior to meeting with the clinician.
- Review the "current activity" column of the PA-N Form and compare to the "Healthy Kid Recommendations" (adjacent panel).
- Reinforce healthy behaviors by providing positive feedback. *"You are doing a great job eating breakfast everyday."*
- Provide neutral feedback for behaviors which are NOT optimal. *"Your child watches 4 hours of TV after school. What do you think about that?"*

Assess Attitudes & Motivation

- Using the readiness scale at the bottom of the PA-N Form, assess patient's readiness for change.
- If the patient/parent is not ready (3 or below), give feedback: *"Sounds like you aren't quite ready to make any changes now. We will follow up at your child's next visit."* **OR** *"Although you aren't ready to make changes today, you might want to think about your child's weight gain and the importance of lowering his diabetes risk."*
- If the patient/parent is ready to change (4 or above), advance to Goal Setting.

Goal Setting Using the PA-N Form

- Determine, along with parent/patient, ONE specific, and no more than TWO, goal(s). *"Which one of these habits would you like to work on?"*
- Set goal change no more than 20-50% from current activity (i.e., if currently drinking two sweetened beverages per day, goal would be one per day).
- Engage the parent/entire family to join in on the new behavior. *"Healthy behaviors are a family, team effort and everyone at home should help each other make healthy choices everyday."*
- Encourage patient to track the progress of their goal using the Goal Tracker section on the PA-N Form.
- Turn the form over and circle the age-appropriate activity and nutrition recommendations.
- Sign the contractual signature box along with the patient to affirm your commitment.

HEALTHY KID RECOMMENDATIONS

Youth Physical Activity & Nutrition (PA-N) Assessment Form

Set 1-2 goals: no more than 20-50% from current

	Physical Activity	Activity Goal
MORE	**1. Daily Physical Activity** Moderate - vigorous intensity Ex: active play, jumping, biking, brisk walking, running, sports	1. 60 min/day 7 days/wk
MORE	**2. High-Intensity Activity*** Activities that cause fast breathing and sweating	2. 3 days/wk
MORE	**3. Strengthening Activity*** Bone & muscle strengthening Ex: jumping, climbing, lifting	3. 3 days/wk
LESS	**4. Screen Time** (outside for the school day) Ex: TV, video games, computer	4. 0-2 hrs./day

	Nutrition	Nutrition Goal
MORE	**1. Breakfast** Eating within 2 hours of waking	1. 7 days/wk
MORE	**2. Fruits & Veggies** fresh, canned, dried frozen 1 cup = 1 lg. potato or orange 1/2 cup = 4 strawberries, 6 baby carrots, beans (whole or refried)	2. Fruits 1-2 cups per Circle: (Day) or Week Veggies 1-3 cups per Circle: (Day) or Week
MORE	**3. Milk or Milk Products** Ex: 1 cup = 8 oz milk, yogurt or 2 slices of cheese (1 1/2 oz)	3. 2-3 cups/day
MORE	**4. Whole Grains** Whole grain cereal,oatmeal, whole wheat bread, brown rice	4. 2-3 times/day
LESS	**5. High Fat & Sugary Foods** "Junk foods" - chips, candy, fried foods, ice cream	5. 0-1 times/day
LESS	**6. Sugar-Sweetened Drinks** Regular soda, lemonade, fruit punch, non-100% juice	6. 0-1 times/day
LESS	**7. Eating Out** Meals out of home or school	7. 0-2 days/wk

*For patients age 6 and older

TABLE 3
Symptoms and Signs of Comorbidities

Symptoms or Signs	Suspected Diagnosis
Elevated blood pressure	HTN (Hypertension)
Polydipsia, polyuria, weight loss, acanthosis nigricans	Type 2 Diabetes
Small stature (decreasing height velocity), goiter	Hypothyroidism
Small stature (decreasing height velocity), purple striae, Cushingoid facies	Cushings" Syndrome
Hirsutism, excessive acne, menstrual irregularity	Polycystic Ovary Syndrome
Abdominal pain	GE Reflux, Constipation, Gall Bladder Disease
Hepatomegaly, increased LFTs	Nonalcoholic Fatty Liver Disease
Snoring, daytime somnolence, tonsillar hypertrophy, enuresis, headaches, elevated BP	Sleep Apnea, Hypoventilation Syndrome
Hip or knee pain, limp, limited hip range of motion, pain walking	Slipped Capital Femoral Epiphysis
Lower leg bowing	Blount Disease
Severe headache, papilledema	Pseudotumor Cerebri
Depression, school avoidance, social isolation, sleep disturbance	Depression
Binge eating, vomiting	Bulimia
Dysmorphic features, small hands and feet, small genitalia, no menses, undescended testes	Prader-Willi Syndrome

TABLE 4
Laboratory Evaluation Recommendations

BMI Percentile	Laboratory Study
85th to 94th%	Fasting Lipid Profile If other risk factors*- Fasting Glucose, ALT, AST every 2 years
≥95th%	Fasting Lipid Profile, Fasting Glucose, ALT, AST every 2 years Other tests indicated by history and physical

*Risk factors: family history of type 2 diabetes, high cholesterol, hypertension, heart disease, stroke, early cardiovascular death, or patient with hypertension, h/o hyperlipidemia, tobacco use.

PREVENTION AND TREATMENT ALGORITHM

BMI 5th to ≤ 85th%

- Assess health behaviors and attitudes using PA-N Form (page 1)
- Goal setting using PA-N Form (page 1)
- Prevention counseling: Deliver consistent prevention messages (table 5) and refer to community resources

- Weight goal: maintain weight velocity
- Follow-up: re-evaluate annually

BMI 85th to ≤ 94th% -FHx, -PE

- Assess health behaviors and attitudes using PA-N Form (page 1)
- Goal setting using PA-N Form (page 1)
- Prevention counseling: Deliver consistent prevention messages (table 5) and refer to community resources

- Weight goal: maintain weight velocity
- Follow-up: re-evaluate annually

BMI 85th to ≤ 94th% +FHx, +PE

- Assess health behaviors and attitudes using PA-N Form (page 1)
- Goal setting using PA-N Form (page 1)
- Referral to subspecialists for comorbidities
- Consider referrals to behavioral specialist and dietitian
- Deliver consistent prevention messages (table 5) and refer to community resources

BMI 95th to < 99th%

Stage 1: Prevention Plus

- Behavioral Goals: more focused attention to lifestyle changes and more frequent follow-up
- Weight Goal: weight maintenance, then BMI reduction with growth
- Follow-up: family visits with clinician every 1-3 months

After 3-6 months, if no improvement in BMI/weight status, advance to Stage 2

Stage 2: Structured Weight Management

- Behavioral Goals: more structured physical activity, screen time and nutrition changes, as guided by physician or health professional specifically trained in weight management
- Weight Goal: weight maintenance, then BMI reduction with growth
- Follow-up: monthly family visits with clinician

After 3-6 months, if no improvement in BMI/weight status, advance to Stage 3

Stage 3: Comprehensive Multidisciplinary Program

- Evaluation and follow-up with multidisciplinary team experienced in pediatric weight management
- Weight Goal: weight maintenance or gradual weight loss
- Follow-up: weekly visits for 8-12 weeks

BMI ≥ 99th%

Stage 4: Tertiary Care Center

- Recommended for children with BMI >95th% with comorbidities unsuccessful with Stages 1-3 and children with BMI >99th% who have shown no improvement under Stage 3
- Multidisciplinary team with expertise in childhood obesity working under a designated protocol
- Additional treatment options: meal replacement, very low calorie diet, medication, and bariatric surgery

TABLE 5 Consistent Prevention Messages

Encourage

- 60+ minutes of moderate to vigorous physical activity every day
- More fruits and veggies - at every meal and for snacks
- Breakfast - everyday
- Family meal time

Limit

- Screen time (TV, computer, video games) - no more than 2 hours per day
- Sugar-sweetened beverages (soda, non-100% juice, sport drinks, etc.)
- High fat & sugar foods (chips, candy, fried foods, etc.)
- Eating out - eat out less often and reduce portions

Resources

www.nebmed.org
www.aap.org/obesity
www.cdc.gov/growthcharts
www.brightfutures.aap.org
www.mypyramid.gov

References

Adapted from the Expert Committee Recommendations on the Assessment, Prevention and Treatment of Child and Adolescent Overweight and Obesity, 2007

Check Out "Foster Healthy Weight in Youth" clinical resources available online at: www.nebmed.org

Childhood Obesity Prevention Project
An Initiative of the Nebraska Medical Association

DHHS
Nebraska Department of Health and Human Services

Assess

This section of the toolkit addresses the assessment steps for obesity and obesity risk in the clinical setting. Universal assessment in patients ages 2 to 18 presenting for well child examinations requires the four following steps:

- **STEP 1: Chart BMI % for Age in All Patients Ages 2 to 18**
  - Calculate BMI and plot% on age/gender specific growth charts
  - Determine weight category
- **STEP 2: Clinical Evaluation**
  - Document use of medications associated with weight gain (steroids, antipsychotics, antiepileptics)
  - Screen family history
  - BP, ROS and physical exam for comorbidities, order laboratory tests
- **STEP 3: Health Behaviors and Attitudes**
  - Request patient/parent to complete the "current activity and nutrition" column of the Youth PA-N Form
  - See "Health Behaviors and Attitudes" Section
  - Refer to "Healthy Kid Recommendations"
- **STEP 4: Follow Prevention and Treatment Algorithm**
  - Determine plan of action

Step 1: Chart BMI% in Patients Ages 2 to 18

BMI may be calculated using:

- **Mathematical Formula**
- **BMI Wheel**
- **BMI Calculator**
- **Computer Program**

BMI =

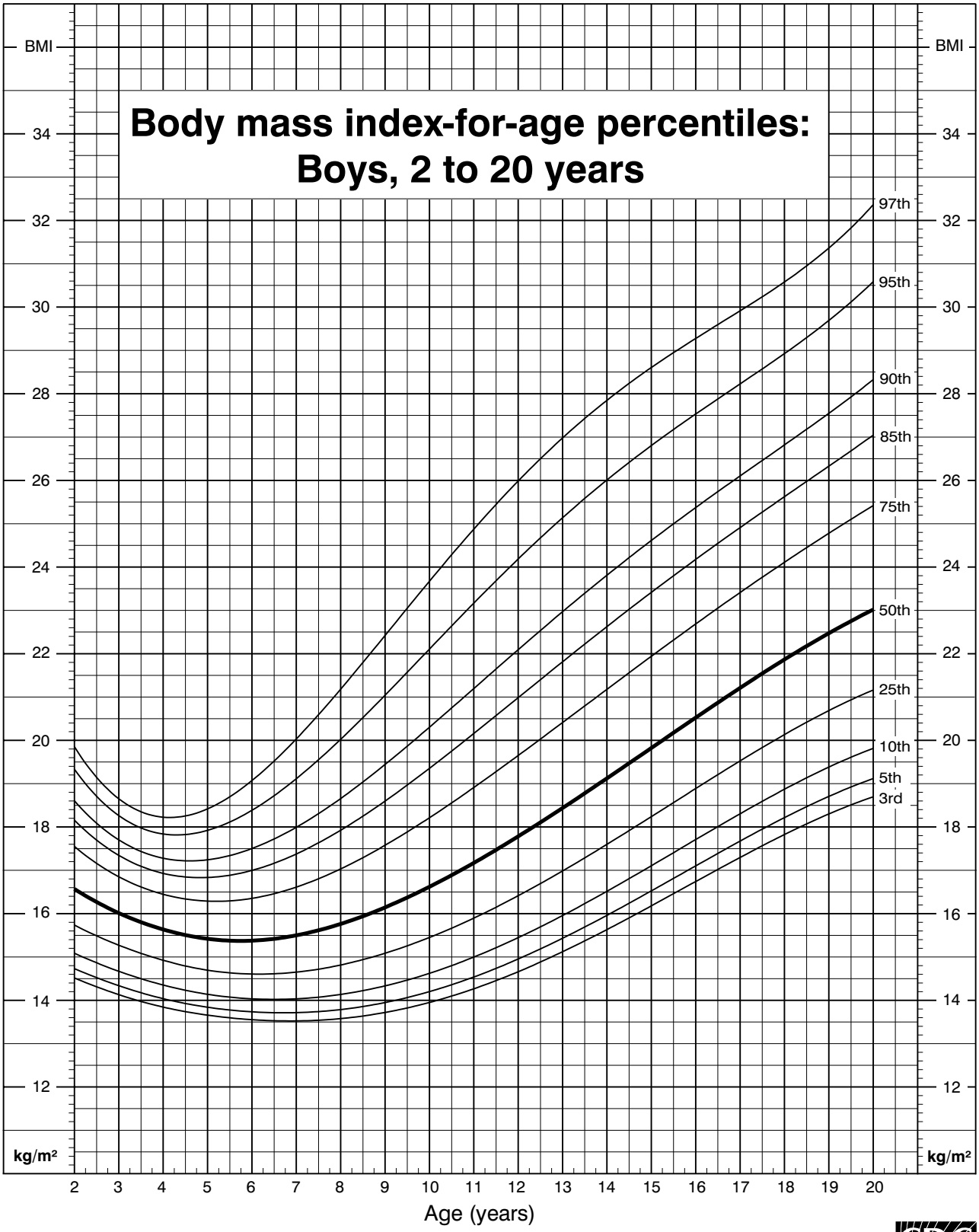
$$\frac{\text{weight (kg)}}{\text{height squared (m}^2\text{)}} \quad \textbf{OR} \quad \frac{\text{weight (lbs)} \times 703}{\text{height squared (in}^2\text{)}}$$

- Plot BMI percentile on age and gender specific growth charts. Charts available at www.cdc.gov/growthcharts
- Document weight category

Weight Category by BMI Percentile

BMI Percentile	Weight Category
<5th%	Underweight
5th to <85th%	Healthy weight
85th to <95th%	Overweight
95th to <99th%	Obese
≥99th%	Obese with increased risk

BOYS CDC Growth Charts: United States



Published May 30, 2000.
SOURCE: Developed by the National Center for Health Statistics in collaboration with the National Center for Chronic Disease Prevention and Health Promotion (2000).

CDC
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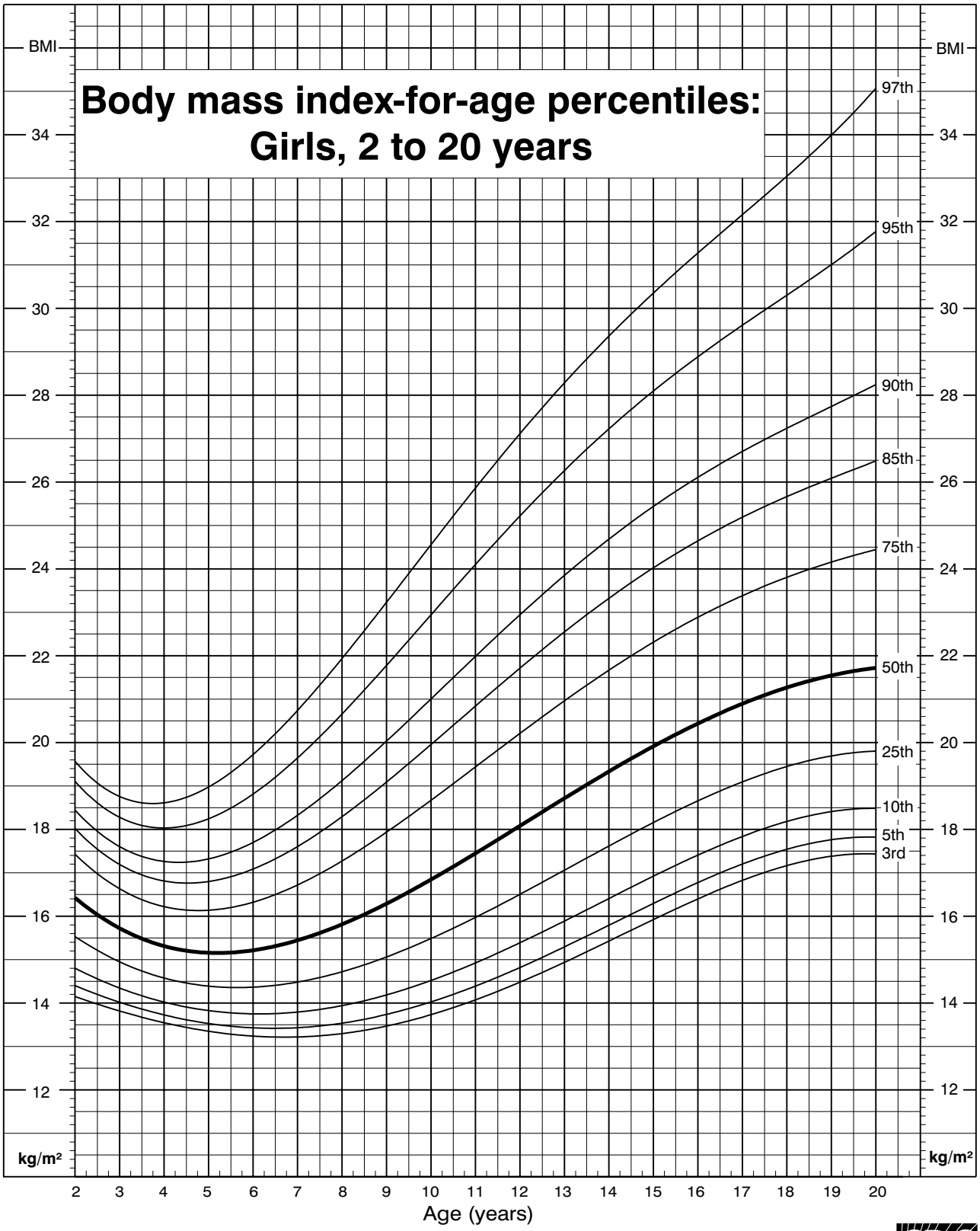
GIRLS CDC Growth Charts: United States



Published May 30, 2000.
SOURCE: Developed by the National Center for Health Statistics in collaboration with the National Center for Chronic Disease Prevention and Health Promotion (2000).

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Step 2: Clinical Evaluation

Clinical History

- Screen family history in all children regardless of BMI.
- Document use of medications associated with weight gain:
  - Steroids
  - Antipsychotics
  - Antiepileptics

Family History Screening *1st and 2nd degree relatives*	Obesity Type 2 Diabetes Hypertension Hyperlipidemia Heart Disease Early Cardiovascular Deaths Strokes

Clinical Exam

- Blood Pressure using appropriate cuff size, so that the cuff bladder is large enough to cover 80% of the arm.
- Hypertension is defined as average SBP and/or DBP that is ≥ 95th percentile for gender, age and height on ≥ 3 occasions.(5) See blood pressure tables on pages 13 & 14.
- Review of Systems and Physical Examination for comorbidities if patient is overweight or obese.
- Order lab tests

Laboratory Evaluation Recommendations

BMI Percentile	Laboratory Study
85th to 94th%	Fasting Lipid Profile If other risk factors*- fasting glucose, ALT, AST every 2 years
≥95th%	Fasting Lipid Profile, fasting glucose, ALT, AST every 2 years Other tests indicated by history and physical

*Risk factors: family history of type 2 diabetes, high cholesterol, hypertension, heart disease, stroke, early cardiovascular death, or patient with hypertension, h/o hyperlipidemia, tobacco use.

Symptoms and Signs of Comorbidities

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Small stature (decreasing height velocity), purple striae, Cushingoid facies	Cushings' Syndrome
Hirsutism, excessive acne, menstrual irregularity	Polycystic Ovary Syndrome
Abdominal pain	GE Reflux, Constipation, Gall Bladder Disease
Hepatomegaly, increased LFTs	Nonalcoholic Fatty Liver Disease
Snoring, daytime somnolence, tonsillar hypertrophy, enuresis, headaches, elevated BP	Sleep Apnea, Hypoventilation Syndrome
Hip or knee pain, limp, limited hip range of motion, pain walking	Slipped Capital Femoral Epiphysis
Lower leg bowing	Blount Disease
Severe headache, papilledema	Pseudotumor Cerebri
Depression, school avoidance, social isolation, sleep disturbance	Depression
Binge eating, vomiting	Bulimia
Dysmorphic features, small hands and feet, small genitalia, no menses, undescended testes	Prader-Willi Syndrome

See the Treat section of the toolkit for more detailed management of the obese child.

BOYS Blood Pressure Chart

Blood Pressure Levels for the 90th and 95th Percentiles of Blood Pressure for Boys Age 1 to 17 Years by Percentiles of Height

Age	Height Percentiles* → / BP† ↓	Systolic BP (mm Hg) 5%	10%	25%	50%	75%	90%	95%	Diastolic BP (mm Hg) 5%	10%	25%	50%	75%	90%	95%
1	90th	94	95	97	98	100	102	102	50	51	52	53	54	54	55
	95th	98	99	101	102	104	106	106	55	55	56	57	58	59	59
2	90th	98	99	100	102	104	105	106	55	55	56	57	58	59	59
	95th	101	102	104	106	108	109	110	59	59	60	61	62	63	63
3	90th	100	101	103	105	107	108	109	59	59	60	61	62	63	63
	95th	104	105	107	109	111	112	113	63	63	64	65	66	67	67
4	90th	102	103	105	107	109	110	111	62	62	63	64	65	66	66
	95th	106	107	109	111	113	114	115	66	67	67	68	69	70	71
5	90th	104	105	106	108	110	112	112	65	65	66	67	68	69	69
	95th	108	109	110	112	114	115	116	69	70	70	71	72	73	74
6	90th	105	106	108	110	111	113	114	67	68	69	70	70	71	72
	95th	109	110	112	114	115	117	117	72	72	73	74	75	76	76
7	90th	106	107	109	111	113	114	115	69	70	71	72	72	73	74
	95th	110	111	113	115	116	118	119	74	74	75	76	77	78	78
8	90th	107	108	110	112	114	115	116	71	71	72	73	74	75	75
	95th	111	112	114	116	118	119	120	75	76	76	77	78	79	80
9	90th	109	110	112	113	115	117	117	72	73	73	74	75	76	77
	95th	113	114	116	117	119	121	121	76	77	78	79	80	80	81
10	90th	110	112	113	115	117	118	119	73	74	74	75	76	77	78
	95th	114	115	117	119	121	122	123	77	78	79	80	80	81	82
11	90th	112	113	115	117	119	120	121	74	74	75	76	77	78	78
	95th	116	117	119	121	123	124	125	78	79	79	80	81	82	83
12	90th	115	116	117	119	121	123	123	75	75	76	77	78	78	79
	95th	119	120	121	123	125	126	127	79	79	80	81	82	83	83
13	90th	117	118	120	122	124	125	126	75	76	76	77	78	79	80
	95th	121	122	124	126	128	129	130	79	80	81	82	83	83	84
14	90th	120	121	123	125	126	128	128	76	76	77	78	79	80	80
	95th	124	125	127	128	130	132	132	80	81	81	82	83	84	85
15	90th	123	124	125	127	129	131	131	77	77	78	79	80	81	81
	95th	127	128	129	131	133	134	135	81	82	83	83	84	85	86
16	90th	125	126	128	130	132	133	134	79	79	80	81	82	82	83
	95th	129	130	132	134	136	137	138	83	83	84	85	86	87	87
17	90th	128	129	131	133	134	136	136	81	81	82	83	84	85	85
	95th	132	133	135	136	138	140	140	85	85	86	87	88	89	89

*Height percentile determined by standard growth curves.
†Blood pressure percentile determined by a single measurement.

Source: The Fourth Report on the Diagnosis, Evaluation, and Treatment of High Blood Pressure in Children and Adolescents. Pediatrics. 2004; 114:555-576 (5)

GIRLS Blood Pressure Chart

Blood Pressure Levels for the 90th and 95th Percentiles of Blood Pressure for Girls Age 1 to 17 Years by Percentiles of Height

Age	Height Percentiles* → / BP† ↓	Systolic BP (mm Hg) 5%	10%	25%	50%	75%	90%	95%	Diastolic BP (mm Hg) 5%	10%	25%	50%	75%	90%	95%
1	90th	97	98	99	100	102	103	104	53	53	53	54	55	56	56
	95th	101	102	103	104	105	107	107	57	57	57	58	59	60	60
2	90th	99	99	100	102	103	104	105	57	57	58	58	59	60	61
	95th	102	103	104	105	107	108	109	61	61	62	62	63	64	65
3	90th	100	100	102	103	104	105	106	61	61	61	62	63	63	64
	95th	104	104	105	107	108	109	110	65	65	65	66	67	67	68
4	90th	101	102	103	104	106	107	108	63	63	64	65	65	66	67
	95th	105	106	107	108	109	111	111	67	67	68	69	69	70	71
5	90th	103	103	104	106	107	108	109	65	66	66	67	68	68	69
	95th	107	107	108	110	111	112	113	69	70	70	71	72	72	73
6	90th	104	105	106	107	109	110	111	67	67	68	69	69	70	71
	95th	108	109	110	111	112	114	114	71	71	72	73	73	74	75
7	90th	106	107	108	109	110	112	112	69	69	69	70	71	72	72
	95th	110	110	112	113	114	115	116	73	73	73	74	75	76	76
8	90th	108	109	110	111	112	113	114	70	70	71	71	72	73	74
	95th	112	112	113	115	116	117	118	74	74	75	75	76	77	78
9	90th	110	110	112	113	114	115	116	71	72	72	73	74	74	75
	95th	114	114	115	117	118	119	120	75	76	76	77	78	78	79
10	90th	112	112	114	115	116	117	118	73	73	73	74	75	76	76
	95th	116	116	117	119	120	121	122	77	77	77	78	79	80	80
11	90th	114	114	116	117	118	119	120	74	74	75	75	76	77	77
	95th	118	118	119	121	122	123	124	78	78	79	79	80	81	81
12	90th	116	116	118	119	120	121	122	75	75	76	76	77	78	78
	95th	120	120	121	123	124	125	126	79	79	80	80	81	82	82
13	90th	118	118	119	121	122	123	124	76	76	77	78	78	79	80
	95th	121	122	123	125	126	127	128	80	80	81	82	82	83	84
14	90th	119	120	121	122	124	125	126	77	77	78	79	79	80	81
	95th	123	124	125	126	128	129	130	81	81	82	83	83	84	85
15	90th	121	121	122	124	125	126	127	78	78	79	79	80	81	82
	95th	124	125	126	128	129	130	131	82	82	83	83	84	85	86
16	90th	122	122	123	125	126	127	128	79	79	79	80	81	82	82
	95th	125	126	127	128	130	131	132	83	83	83	84	85	86	86
17	90th	122	123	124	125	126	128	128	79	79	79	80	81	82	82
	95th	126	126	127	129	130	131	132	83	83	83	84	85	86	86

*Height percentile determined by standard growth curves.
†Blood pressure percentile determined by a single measurement.

Source: The Fourth Report on the Diagnosis, Evaluation, and Treatment of High Blood Pressure in Children and Adolescents. Pediatrics. 2004; 114:555-576 (5)

Step 3: Health Behaviors and Attitudes

This section of the toolkit will focus on how to use the Youth Physical Activity and Nutrition or Youth PA-N Assessment Form (pages 20 and 21), to assess health behaviors and attitudes and for goal setting. The Youth PA-N Form is an objective assessment tool that facilitates the conversation between healthcare providers and patients around weight, nutrition and activity habits. The Youth PA-N Form also is infused with consistent prevention messages, therefore it is a tool that integrates the expert committee recommendations in the clinic setting.

Youth PA-N Form Highlights

- **Target Population**
  To be used in ALL children ages 2-18 years, regardless of BMI status.
- **11 Health Behaviors are Assessed** *(see Assess Nutrition and Physical Activity Behaviors for more specifics)*
  The front of the form assesses current information regarding the top 11 health behaviors associated with recommended activity and eating patterns that promote healthy weight and optimal growth and development.
- **Organized in More vs Less Healthy Behaviors**
  It is organized so the healthy behaviors are listed first and the less healthy behaviors are in the lower part of the section.
- **Quick Reference**
  Age-specific physical activity and nutrition tables are on the back of the form. Circling the age specific column can help guide parents to understand their child's specific needs.
- **Assesses Attitudes and Motivation**
  The bottom of the form has a numerical scale which assesses the patient and/or parent's readiness to change any one of the behaviors assessed on the Youth PA-N Form.
- **Goal Setting and Tracker Sections**
  A separate column is provided for setting 1-2 goals with the patient and a goal tracker section which helps patients monitor their health behaviors.
- **Contractual Signature Box**
  The contractual signature box is to be signed by the provider and patient to affirm commitment to goals set.

Purpose for Providers

- Prevention and Treatment Tool: structures discussion around healthy lifestyle behaviors
- Language that is reflective of national guidelines (consistent messaging)
- Ability to set individualized, measurable goals
- Encourages follow-up and serves a critical referral point
- Educate and raise awareness among families on importance of nutrition and activity for lifelong health

Purpose for Parents/Patients

- Assess current activity, sedentary and nutrition behaviors
- Understand the recommended amounts of activity needed for health
- Understand age-specific eating patterns needed to meet nutritional adequacy and promote healthy growth patterns
- Give parents and youth a chance to share concerns

Youth Physical Activity and Nutrition Assessment

DHHS NEBRASKA

Youth's Name: _____ Age: _____ Date: ___ / ___ / ___

Please complete the "Current" column (shaded area) based on the previous 7 days for youth ages 2-18.
The "Goal" and "Follow-Up" columns will be completed by the clinician. If you're unsure how to respond, leave blank.

Physical Activity	Current Activity	Activity Goal	Comments
1. *Daily Physical Activity* Moderate-Vigorous Intensity Ex: Active play, jumping, biking brisk walking, running, sports	1. _____ min/day _____ days/wk	1. _____ min/day _____ days/wk	Note to Clinician: Have youth set only 1-2 behavioral goals at a time. Goals should be specific and measurable.
Do not complete questions 2 & 3 for children aged 2-5 years old. Go to question 4.			
2. *High-Intensity Activity* Activities that cause fast breathing and sweating	2. _____ days/wk	2. _____ days/wk	
3. *Strengthening Activity* Bone & muscle strengthening Ex: Jumping, climbing, lifting	3. _____ days/wk	3. _____ days/wk	
4. *Screen Time* (outside of the school day) Ex: TV, video games, computer	4. _____ hours/day	4. _____ hours/day	

Nutrition	Current Nutrition	Nutrition Goal
1. *Breakfast* Eating within 2 hours of waking	1. _____ days/wk	1. _____ days/wk
2. *Fruits & Veggies* • **fresh, canned, dried, frozen** 1 cup = 1 large potato or orange 1/2 cup = 4 strawberries, 6 baby carrots, beans (whole or refried)	2. Fruits: _____ cups per **Circle: DAY or WEEK** Veggies: _____ cups per **Circle: DAY or WEEK**	2. Fruits: _____ cups/day Veggies: _____ cups/day
3. *Milk or Milk Products* 1 cup = 8 oz milk, yogurt or 2 slices of cheese (1 1/2 oz)	3. _____ cups/day	3. _____ cups/day* *fat free or low fat
4. *Whole Grains* Whole grain cereal, oatmeal, whole wheat bread, brown rice	4. _____ times/day	4. _____ times/day
5. *High Fat and Sugary Foods* "Junk Foods" - chips, candy, fried foods, ice cream	5. _____ times/day	5. _____ times/day
6. *Sugar-Sweetened Drinks* Regular soda, lemonade, fruit punch, non-100% juice	6. _____ times/day	6. _____ times/day
7. *Eating Out* Meals eaten out of home or school	7. _____ days/wk	7. _____ days/wk

Goal Tracker

Check a box each day you meet your nutrition and activity goal(s).

I MET MY GOAL!

Week #1: ☐☐☐☐☐☐☐
Week #2: ☐☐☐☐☐☐☐
Week #3: ☐☐☐☐☐☐☐
Week #4: ☐☐☐☐☐☐☐
Week #5: ☐☐☐☐☐☐☐
Week #6: ☐☐☐☐☐☐☐
Week #7: ☐☐☐☐☐☐☐
Week #8: ☐☐☐☐☐☐☐

Way To Go!

If you've met your goal, keep it up and set a new activity or nutrition goal. Use another sheet to continue tracking your goals.

On a scale of 1-5 with 1 being not ready and 5 being very ready - How ready or interested are you in changing any of the behaviors above?

Not Ready — 1 2 3 4 5 — Very Ready

Complete after form is discussed:
I, _____ (youth or parent signature), agree to the goal(s) set above and understand how important nutrition and activity are to staying healthy.
Clinician's Signature: _____

Referral:

Follow-Up:

How Much Physical Activity Each Day?

2-5 years	6-18 years
60+ minutes of activity every day Get 60 minutes per day with: Structured Play (planned activity) Unstructured Play (free play) Focus on movement and coordination skills.	**60+ minutes of activity every day** Add up to 60 minutes per day with: **Moderate Aerobic Activity:** Daily **Vigorous Aerobic Activity**: 3 times/week **Muscle/Bone Strengthening Activities**: 3 times/week
Less than 2 hours of screen time a day. (TV, video games, computer)	**Less than 2 hours of screen time a day.** (TV, video games, computer)

*Note: Long periods of continuous, vigorous activity are not recommended for youth ages 6-12 unless chosen by the youth and not forced by an adult.

Physical Activity Basics

Type of Activity	Definition	Examples
Moderate Aerobic Activity	Activities that increases the heart rate, warms the body and causes a light sweat	Brisk walking, active play, bike riding, rollerblading, hiking
Vigorous Aerobic Activity	More challenging activity that increases the heart rate, causes fast breathing and more sweating	Running, active games (tag), sports such as soccer, swimming, tennis, martial arts
Muscle Strengthening	Activities that create a force or overload on muscles	Climbing, push-ups, sit-ups, weight lifting
Bone Strengthening	Activities that create a force or impact on bones that promotes bone growth and strength	Jumping, skipping, hopscotch, running, gymnastics

For more physical activity information visit: www. cdc.gov/physicalactivity/

MyPyramid For Kids
Eat Right. Exercise. Have Fun.

How Much Food Each Day?**

2-3 years	4-8 years	9-13 years	14-18 years
1 cup fruit	1 - 1.5 cups fruit	1.5 cups fruit	1.5 - 2 cups fruit
1 cup veggies	1.5 cups veggies	2 - 2.5 cups veggies	2.5 - 3 cups veggies
3 oz of grains	4-5 oz grains	5-6 oz grains	6-7 oz grains
2 cups milk	2 cups milk	3 cups milk	3 cups milk
2 oz meat/beans	3-4 oz meat/beans	5 oz meat/beans	5-6 oz meat/beans

**Food intake based on estimated calorie needs for boys and girls that get light physical activity.

Healthy Eating Basics

Fruits Focus on fruits	Veggies Vary your veggies	Grains Make half your grains whole	Milk Get your calcium-rich foods	Meats and Beans Go lean with protein
Fruits are nature's treats - sweet and delicious. Eat them at meals, and at snack time, too. Choose fresh, frozen, canned, or dried. Go easy on juice and make sure it's 100%.	Color your plate with all kinds of great-tasting veggies. What's green and orange and tastes good? Veggies! Go dark green with broccoli and spinach or try orange veggies like carrots and sweet potatoes.	Just because bread is brown doesn't mean it's a whole grain. Look for the word "whole" to top the label ingredient list. Did you know, 1 ounce of whole-grain = a slice of whole-wheat bread, 1/2 cup of oatmeal, brown rice, or 1 cup whole-grain cereal.	Move to the milk group to get your calcium. Calcium builds strong bones. Look at the carton or container to make sure your milk, yogurt or cheese is low-fat or fat-free!	Eat lean or lowfat meat, chicken, turkey and fish. Bake, broil or grill meat instead of frying. A deck of cards = 3 ounces of meat. Nuts, seeds, peas, and beans are all great sources of protein, too!

Change your oil. We all need oil. Get yours from fish, nuts, and liquid oils such as canola, corn, soybean, and olive oil.

Don't sugarcoat it. Choose foods and beverages that do not have sugar and caloric sweeteners as one of the first ingredients. Added sugars contribute calories with few, if any, nutrients.

For more nutrition information visit: www. MyPyramid.gov

NE DHHS Nutrition & Activity for Health - 2009

Assess Physical Activity & Nutrition Behaviors

The Youth PA-N Form can easily be integrated into a routine clinic visit by following these steps:

- Give the patient and/or parent the Youth PA-N Form while in the waiting room and instruct them to complete the "current activity" column (shaded grey column) based on their health behaviors over the last 5 to 7 days.
- The nurse checks the Youth PA-N Form for completeness and asks the patient and family if they have any questions.
- The clinician reviews the "current activity" column and compares to the "Healthy Kids Recommendations". Refer to page 23 for reference information on the physical activity and nutrition behaviors addressed on the Youth PA-N Form.
- Reinforce healthy behaviors by providing positive feedback. *"You are doing a great job eating breakfast everyday."*
- Provide neutral feedback for behaviors which are NOT optimal. *"Your child watches 4 hours of TV after school. What do you think about that?"*

HEALTHY KID RECOMMENDATIONS

Youth Physical Activity & Nutrition (PA-N) Assessment Form

Set 1-2 goals: no more than 20-50% from current

	Physical Activity	Activity Goal
MORE	**1. Daily Physical Activity** Moderate - vigorous intensity Ex: active play, jumping, biking, brisk walking, running, sports	1. 60 min/day 7 days/wk
MORE	**2. High-Intensity Activity*** Activities that cause fast breathing and sweating	2. 3 days/wk
MORE	**3. Strengthening Activity*** Bone & muscle strengthening Ex: jumping, climbing, lifting	3. 3 days/wk
LESS	**4. Screen Time** (outside for the school day) Ex: TV, video games, computer	4. 0-2 hrs./day

	Nutrition	Nutrition Goal
MORE	**1. Breakfast** Eating within 2 hours of waking	1. 7 days/wk
MORE	**2. Fruits & Veggies** fresh, canned, dried frozen 1 cup = 1 lg. potato or orange 1/2 cup = 4 strawberries, 6 baby carrots, beans (whole or refried)	2. Fruits 1-2 cups per Circle: (Day) or Week Veggies 1-3 cups per Circle: (Day) or Week
MORE	**3. Milk or Milk Products** Ex: 1 cup = 8 oz milk, yogurt or 2 slices of cheese (1 1/2 oz)	3. 2-3 cups/day
MORE	**4. Whole Grains** Whole grain cereal,oatmeal, whole wheat bread, brown rice	4. 2-3 times/day
LESS	**5. High Fat & Sugary Foods** "Junk foods" - chips, candy, fried foods, ice cream	5. 0-1 times/day
LESS	**6. Sugar-Sweetened Drinks** Regular soda, lemonade, fruit punch, non-100% juice	6. 0-1 times/day
LESS	**7. Eating Out** Meals out of home or school	7. 0-2 days/wk

**For patients age 6 and older*

Physical Activity Behaviors

MORE

Daily Physical Activity includes moderate and/or vigorous intensity activities such as active play, biking, brisk walking, running, etc. The Youth PA-N Form collects total minutes per day and days per week. The goal for Daily Physical Activity is 60 minutes per day, 7 days per week.

High-Intensity Activity is a vigorous activity that is challenging, causes increased heart rate, fast breathing and sweating. Any activity can be done at a high-intensity. High-Intensity Activities are a part of the recommended 60 minutes per day, but the goal is to get High-Intensity Activity at least 3 days per week. Because national guidelines do not provide specific recommendations for 2-5 year olds on high-intensity and strengthening activities, those behaviors should only be collected on patients age 6 or older.

Strengthening Activity is an activity such as jumping, skipping, climbing, gymnastics, running, and weightlifting. The recommendation for Strengthening Activity is 3 days per week and can also be a part of the total Daily Physical Activity time of 60 minutes per day.

LESS

Screen Time should be assessed for all patients and includes time spent watching TV, playing video games, and computer time. Screen time is assessed in hours/day and the recommendation is that children 2 and older, spend no more than 2 hours per day at a screen.

Nutrition Behaviors

MORE

Breakfast is defined as eating within two hours of waking and the recommendation is to eat breakfast everyday.

Fruits and Veggies are assessed in amount, cups per day or week, and not servings. All forms should be counted: fresh, frozen, dried or canned. It is recommended that kids get 1-2 cups of fruit per day and 1-3 cups of vegetables, with overall intake based on the child's age.

Milk or Milk Products recommendation is 2-3 cups per day of fat free or low fat milk, yogurt and/or cheese.

Whole Grains are assessed in frequency by times per day. Whole grains include whole wheat, oatmeal, brown rice, etc. Whole grains are recommended at 2-3 times per day.

LESS

High Fat and Sugar Foods include foods high in added fats and sugars, such as chips, candy, fried foods, ice cream, etc. These foods are also assessed in frequency by times per day. The recommendation is to limit the consumption of foods high in fat and sugar to zero to 1 time per day.

Sugar-Sweetened Drinks are those beverages with added sugar and include regular soda, lemonade, fruit punch, sport drinks, and non-100% juice. These drinks are assessed in frequency by times per day. The recommendation is to limit the consumption of sugar-sweetened beverages to zero to 1 time per day.

Eating Out includes those meals eaten out of the home or school and is assessed by days per week. The recommendation is to limit eating out to zero to 2 days per week.

Assess Attitudes & Motivation

Assess Attitudes & Motivation

- Using the readiness scale at the bottom of the Youth PA-N Form, assess patient's readiness for change.
- If the patient/parent is not ready (3 or below), give feedback: *"Sounds like you aren't quite ready to make any changes now. We will follow up at your child's next visit."* **OR** *"Although you aren't ready to make changes today, you might want to think about your child's weight gain and the importance of lowering his diabetes risk."*
- If the patient/parent is ready to change (4 or above), advance to Goal Setting.

On a scale of 1-5 with 1 being not ready and 5 being very ready - ***How ready or interested are you in changing any of the behaviors above?***

1	2	3	4	5
Not ready				Very ready

For a number of reasons, it can be difficult to counsel children and families on such a touchy subject as obesity. Listed below are the ABCs of counseling and motivating overweight children and families:

- **Ask Open-Ended Questions**
  - *How do you feel about us talking about your physical activity, TV watching, and eating today?*
  - *How concerned are you about your child's weight? Why?*
  - *What are some of the things you might like to change?*
- **Body Language**
  - Put patient at ease.
  - Use eye contact without barriers.
  - Convey respect.
  - Counsel in a private setting.
- **Care and Empathy**
  - Do not criticize.
  - Acknowledge patient's feelings.
  - Answer questions without sign of judgment.
  - Use language that is nonjudgmental.
    "Healthier" food vs. "bad" food
    "Healthier" weight vs. "ideal" weight

Simple acronyms, such as **OARS** can help as well.

- Ask **Open-ended** questions.
  "Are you planning to make some changes in your eating and physical activity?"
- Give **Affirmation**.
  "You're right. It is hard to make changes."
- Be **Reflective** of patient/parent comments.
  "Sounds like time and money make it difficult for your family to eat healthy foods."
- Give **Summarizations** that include patient / parent comments.
  "From what you are telling me, you are willing to make a change to low-fat milk starting today."

It is important to know whether to set goals with the parent, the patient or both

UNDER 12 YEARS	12 - 14 YEARS	HIGH SCHOOL AGED TEEN
Parent or guardian - they control the foods coming into the home and access to physical activity, television and other screen time.	Work with the motivated person or persons, but be sure to interview the teen individually and ask about goals separately as well.	Work with teen in confidence. Ask the teen's permission whether or not they want to involve the parent.

Goal Setting Using the PA-N Form

- If the patient and/or parent is motivated to change, use the Youth PA-N Form to set patient/parent directed healthy lifestyle goals. A column on the Youth PA-N Form is provided for goal setting.
- Determine, along with parent/patient, ONE specific and no more than TWO goal(s). Goal setting should be patient and/or parent directed depending on the patient's age and readiness to change. ***Ask: "Which one of these habits would you like to work on?"***
- Set goal(s) change no more than 20-50% from current activity. The goal should be a small change from current activity to increase the chance of success (i.e., if currently drinking two sweetened beverages per day, goal would be one per day). Too large of a change has less potential to become a long-term lifestyle behavior change. ***Ask: "Is this goal reasonable and achievable?"***
- Engage the parent/entire family to join in on the new behavior. ***"Healthy behaviors are a family, team effort and everyone at home should help each other make healthy choices everyday."***
- Encourage the patient to track the progress of their goal by using the Goal Tracker section on the Youth PA-N Form.
- Turn the Form over and circle the age-appropriate activity and nutrition recommendations.

How Much Physical Activity Each Day?

2-5 years	6-18 years
60+ minutes of activity every day Get 60 minutes per day with: Structured Play (planned activity) Unstructured Play (free play) Focus on movement and coordination skills.	**60+ minutes of activity every day** Add up to 60 minutes per day with: **Moderate Aerobic Activity:** Daily **Vigorous Aerobic Activity**: 3 times/week **Muscle/Bone Strengthening Activities**: 3 times/week
Less than 2 hours of screen time a day. (TV, video games, computer)	**Less than 2 hours of screen time a day.** (TV, video games, computer)

How Much Food Each Day?**

2-3 years	4-8 years	9-13 years	14-18 years
1 cup fruit	1 - 1.5 cups fruit	1.5 cups fruit	1.5 - 2 cups fruit
1 cup veggies	1.5 cups veggies	2 - 2.5 cups veggies	2.5 - 3 cups veggies
3 oz of grains	4-5 oz grains	5-6 oz grains	6-7 oz grains
2 cups milk	2 cups milk	3 cups milk	3 cups milk
2 oz meat/beans	3-4 oz meat/beans	5 oz meat/beans	5-6 oz meat/beans

Goal Tracker

Check a box each day you meet your nutrition and activity goal(s).

I MET MY GOAL!

Week #1: ☐☐☐☐☐☐☐

Week #2: ☐☐☐☐☐☐☐

Week #3: ☐☐☐☐☐☐☐

Week #4: ☐☐☐☐☐☐☐

Week #5: ☐☐☐☐☐☐☐

Week #6: ☐☐☐☐☐☐☐

Week #7: ☐☐☐☐☐☐☐

Week #8: ☐☐☐☐☐☐☐

Way To Go!

If you've met your goal, keep it up and set a new activity or nutrition goal. Use another sheet to continue tracking your goals.

- Sign the contractual signature box along with the patient to affirm your commitment.

Complete after form is discussed:
I, Amy Green (youth or parent signature), agree to the goal(s) set above and understand how important nutrition and activity are to staying healthy.
Clinician's Signature: Dr. Schaefer

Prevent

- Why Prevention?
- Breastfeeding and Obesity Prevention
- Obesity Prevention Birth to 2 years
- Obesity Prevention 2 to 18 Years
- Consistent Prevention Messages

Why Prevention?

Following the guidelines for health supervision at well child visits, pediatricians and family physicians give anticipatory guidance regarding health, safety, and development, including educating patients and families on age-appropriate nutrition and physical activity guidelines. Our prevention efforts are even more important in light of the severity of the childhood obesity epidemic. Not only does prevention work when put into practice, but prevention is important because:

- The probability of childhood obesity persisting into adulthood is estimated to increase from:
  - 20% at 4 years of age to
  - 80% by adolescence
- Prevention of obesity is critical because long-term outcome data for successful treatment approaches are limited.(1,6)
- Early physical activity and dietary patterns track into adolescence and correlate with adult obesity risk.(1,6)

Breastfeeding and Obesity Prevention

Multiple studies show the positive association between obesity prevention and breastfeeding.(7,8,9,10,11,12,13) USBC (United States Breastfeeding Committee) Chair Joan Younger Meek, MD, MS, RD, IBCLC affirms breastfeeding's important role in obesity prevention:

> *"When investigating the relationships between breastfeeding and obesity," says Dr. Meek, "both the duration and exclusivity of breastfeeding must be considered. The duration of breastfeeding has been shown to be inversely related to overweight-meaning that the longer the duration of breastfeeding, the lower the odds of overweight. And although further research is needed, exclusive breastfeeding appears to have a stronger protective effect than breastfeeding combined with formula feeding."*

Though it is not specifically known why breastfeeding has a significant inverse relationship with the development of overweight and obesity, it is speculated that it promotes internal self-regulation, promotes less rapid early weight gain, is associated with lower rates of diabetes, and affects long-term programming of leptin metabolism.(14)

Breastfeeding not only supports the individual health of both the mother and child, but the overall public health of our communities. Organizations such as the Institutes of Medicine and Centers for Disease Control and Prevention have listed, "Encourage breastfeeding and promote breastfeeding-friendly communities" as one of their main strategies in obesity prevention recommendations for communities.(2,15)

Breastfeeding Resources for Providers

Breastfeeding promotion should begin with encouragement of initiation of breastfeeding and continue with support for breastfeeding through the first year of life. Positive breastfeeding support from physicians, nurses, and other health professionals has been shown to increase the initiation and duration of breastfeeding. Listed below are local, state and national resources to support healthcare providers in their role as breastfeeding advocates.

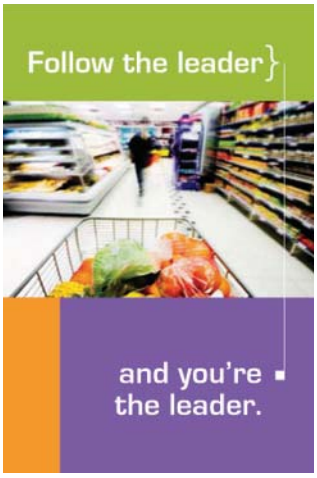
- The American Academy of Pediatrics works to ensure that health professionals are educated about breastfeeding and able to support breastfeeding families. Go to www.aap.org/breastfeeding to find out more.
- The Nebraska Breastfeeding Coalition is a network of individuals and organizational partners dedicated to improving the health of Nebraskans by making breastfeeding the norm through education, advocacy and collaboration. You can join them by becoming a member at: www.nebreastfeeding.org.
- The Centers for Disease Control and Prevention protects, promotes and supports breastfeeding with the overall goal to improve the public's health. Check out the CDC's resources at: www.cdc.gov/breastfeeding.
- Academy of Breastfeeding Medicine: www.bfmed.org.
- A video demonstrating how a pediatrician can help a breastfeeding mother during an office visit: www.newborns.standord.edu/breastfeeding.
- To find an Internationally Board Certified Lactation Consultant go to: www.ilca.org.
- Milkworks is a non-profit breastfeeding center in Lincoln designed to help mothers have a positive breastfeeding experience: www.milkworks.org.

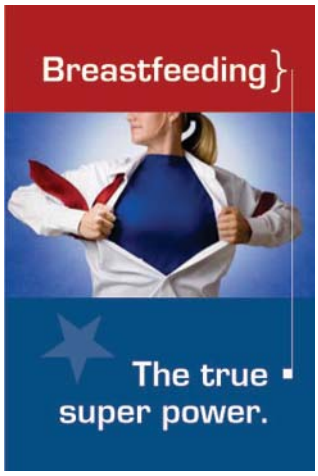
Obesity Prevention Birth to 2 years

1. Measure and plot weight/length for age/gender
2. Review weight/length trend with family

- Assess Risk
  - Parental Obesity
  - Small or Large for Gestational Age (SGA or LGA) or Gestational Diabetic Mother (GDM)
  - Race/Ethnicity and Socioeconomic Status

- Assess Behaviors/Anticipatory Guidance
  - Breastfeeding support for initiation and continued breastfeeding for the first year of life
  - Offer a variety of fruits and vegetables on multiple occasions
  - No sugar-sweetened beverages
  - Encourage tummy/floor time
  - Minimal swing/bouncer/saucer time
  - Almost no TV or other screen use
  - Do not place TV or computer in toddler's bedroom





Obesity Prevention 2 to 18 Years

If the patient is at a healthy weight or is overweight without risk factors (-FHx, -PE), follow the prevention algorithm which is also found on page 2 of the Clinical Algorithm.

BMI 5th to ≤ 85th%	BMI 85th to ≤ 94th% -FHx, -PE

- Assess health behaviors and attitudes using Youth PA-N Form
- Goal setting using Youth PA-N Form
- Prevention counseling: Deliver consistent prevention messages and refer to community resources

- Weight goal: maintain weight velocity
- Follow-up: re-evaluate annually

Consistent Prevention Messages

Consistent prevention messages are those that have been identified by the Expert Committee and the Centers for Disease Control and Prevention to prevent obesity and are unlikely to cause harm. Delivering one or two consistent prevention messages at each visit can positively reinforce goals and behaviors.

Consistent Prevention Messages

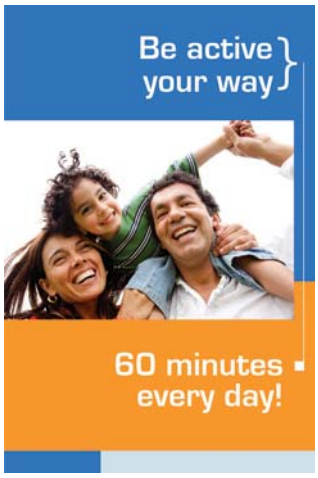
Encourage

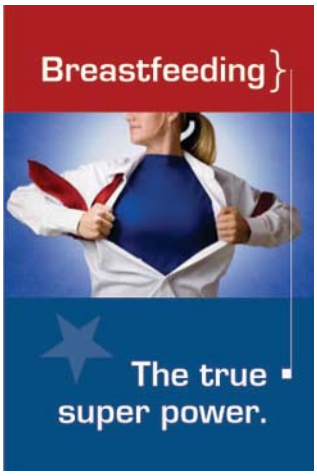
- 60+ minutes of moderate to vigorous physical activity every day
- More fruits and veggies - at every meal and for snacks
- Breakfast - everyday
- Family meal time

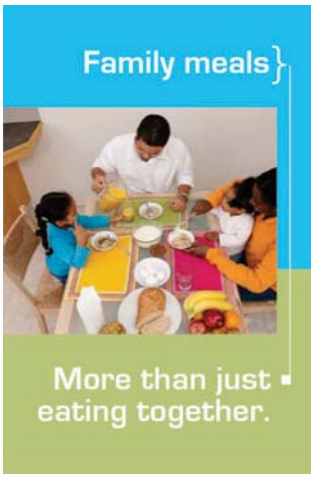
Limit

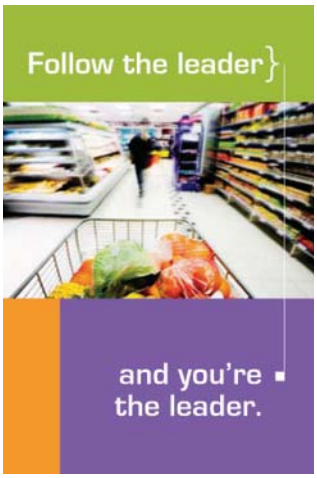
- Screen time (TV, computer, video games) - no more than 2 hours per day
- Sugar-sweetened beverages (soda, non-100% juice, sport drinks, etc.)
- High fat & sugar foods (chips, candy, fried foods, etc.)
- Eating out - eat out less often and reduce portions.

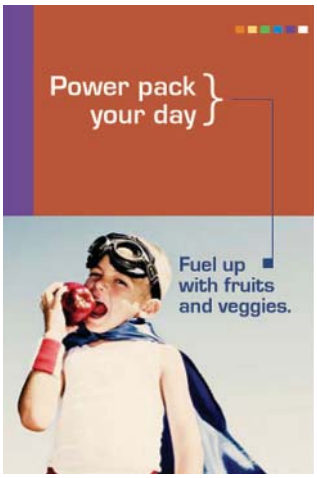
A series of patient education materials has been developed to compliment the Consistent Prevention Messages. The clinic posters and brochures can be ordered via the enclosed order form or online at: www.nebmed.org/copp.aspx.











Treat

- Target Comorbidities
- Staged Protocol for Treatment
- Weight Loss Targets
- Pharmacotherapy/Bariatric Surgery Indications

Target Comorbidities

Symptoms or Signs	Suspected Diagnosis	Appropriate Studies	Possible Referral
Elevated blood pressure	HTN (Hypertension)	Three separate blood pressure readings, CBC, BMP, urinalysis, echocardiogram, renal ultrasound	Cardiology
Polydipsia, polyuria, weight loss, acanthosis nigricans	Type 2 Diabetes	Fasting glucose, serum insulin	Endocrine
Overweight/obesity	Dyslipidemia	Fasting lipid panel	Cardiology
Small stature (decreasing height velocity), goiter	Hypothyroidism	Free T4, TSH	Endocrine
Small stature (decreasing height velocity), purple striae, Cushingoid facies	Cushing's Syndrome	Late night salivary cortisol, 24-hour urine cortisol, low-dose dexamethasone suppression test	Endocrine
Hirsutism, excessive acne, menstrual irregularity	Polycystic Ovary Syndrome	Free testosterone, LH, FSH, prolactin	Adolescent medicine or Endocrine
Abdominal pain	GE Reflux, Constipation, Gall Bladder Disease	Medication trial, lifestyle adjusments for suspected reflux or constipation, abdominal ultrasound for gallbladder disease	Gastroenterology
Hepatomegaly, increased LFTs	Nonalcoholic Fatty Liver Disease	ALT, AST, bilirubin, alkaline phosphatase, GGT	Gastroenterology
Snoring, daytime somnolence, tonsillar hypertrophy, enuresis, headaches, elevated BP	Sleep Apnea, Hypoventilation Syndrome	Polysomnography	Otolaryngology or Pulmonology
Hip or knee pain, limp, limited hip range of motion, pain walking	Slipped Capital Femoral Epiphysis	X-rays of hip	Orthopedics
Lower leg bowing	Blount Disease (Tibia vara)	X-rays of lower extremities, knees	Orthopedics
Severe headache, papilledema, diplopia, visual field loss	Pseudotumor Cerebri	Head CT Scan	Neurology or Neurosurgery
Depression, school avoidance, social isolation, sleep disturbance	Depression	Validated depression screen	Psychiatry or Psychology
Binge eating, vomiting	Bulimia	Validated eating disorder screen	Psychiatry or Psychology, Eating Disorders Center
Dysmorphic features, small hands and feet, small genitalia, no menses, undescended testes, developmental delay, hyperphagia	Prader-Willi Syndrome	Chromosome study for Prader-Willi Syndrome	Genetics

Check out:
Obesity and Related Comorbidities Coding Fact Sheet for Primary Care Pediatricians at www.aap.org/obesity
Comorbidities References (1,5,16)

Staged Protocol for Treatment

BMI 85th to ≤ 94th% +FHx, +PE	BMI 95th to < 99th%	BMI ≥ 99th%

The Expert Committee recommends a staged protocol for treatment with the level of intervention to be based on the patient's BMI% and age.

- Assess health behaviors and attitudes using Youth PA-N form
- Goal setting using Youth PA-N form
- Referral to subspecialists for comorbidities
- Consider referrals to behavioral specialist and dietitian
- Deliver consistent prevention messages and refer to community resources

Stage 1: Prevention Plus

- Behavioral Goals: more focused attention to lifestyle changes and more frequent follow-up
- Weight goal: weight maintenance, then BMI reduction with growth
- Follow-up: family visits with clinician every 1-3 months

After 3-6 months, if no improvement in BMI/weight status, advance to Stage 2

Stage 2: Structured Weight Management

- Behavioral Goals: more structured physical activity, screen time and nutrition changes, as guided by physician or health professional specifically trained in weight management
- Weight goal: weight maintenance, then BMI reduction with growth
- Follow-up: monthly family visits with clinician

After 3-6 months, if no improvement in BMI/weight status, advance to Stage 3

Stage 3: Comprehensive Multidisciplinary Program

- Evaluation and follow-up with multidisciplinary team experienced in pediatric weight management
- Weight goal: weight maintenance or gradual weight loss
- Follow-up: weekly visits for 8-12 weeks

Stage 4: Tertiary Care Center

- Recommended for children with BMI >95th% with comorbidities unsuccessful with Stages 1-3 and children with BMI >99th% who have shown no improvement under Stage 3
- Multidisciplinary team with expertise in childhood obesity working under a designated protocol
- Additional treatment options: meal replacement, very low calorie diet, medication, and bariatric surgery

Body Mass Index 99th Percentile Cut Points (kg/m²)

AGE, Y	BOYS	GIRLS
5	20.1	21.5
6	21.6	23.0
7	23.6	24.6
8	25.6	26.4
9	27.6	28.2
10	29.3	29.9
11	30.7	31.5
12	31.8	33.1
13	32.6	34.6
14	33.2	36.0
15	33.6	37.5
16	33.9	39.1
17	34.3	40.8

Weight Loss Targets

Age, Y	BMI 85th - 94th Percentile No Risks	BMI 85th - 94th Percentile With Risks	BMI 95th - 98th Percentile	BMI ≥99th Percentile
2-5	Maintain weight velocity	Decrease weight velocity or weight maintenance	Weight maintenance	Gradual weight loss of up to 1 lb/mo if BMI is very high (>21 or 22 kg/m²)
6-11	Maintain weight velocity	Decrease weight velocity or weight maintenance	Weight maintenance or gradual loss (1 lb/mo)	Weight loss not to exceed an average of 2 lb/wk[a]
12-18	Maintain weight velocity. After linear growth is complete, maintain weight.	Decrease weight velocity or weight maintenance	Weight loss not to exceed an average of 2 lb/wk[a]	Weight loss not to exceed an average of 2 lb/wk[a]

Abbreviation: BMI, body mass index

[a]If greater loss is noted, monitor for causes of excessive weight loss.

Pharmacotherapy/Bariatric Surgery Indications

Pharmacotherapy

The use of medications to help control appetite and weight in obese children is controversial. Agents may have adverse side effects when used in children, and often do not have FDA approval. Pharmacotherapy should be prescribed by physicians experienced in their use, working with obese patients with serious comorbidities enrolled in a formal behavior modification program.

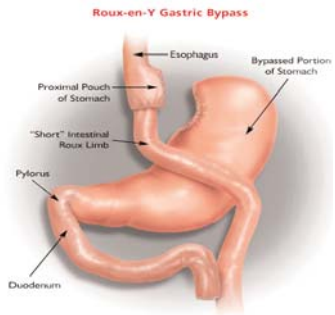
Bariatric Surgery Indications

These indications are based on BMI and comorbidities. Bariatric surgery is only considered after a minimum of a 6 month trial of a medically directed weight loss program.(17)

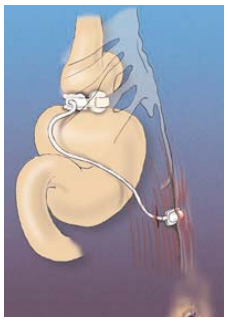
- Failed > 6 months of organized attempts at weight loss
- Attained physiologic maturity (girls > 13, boys > 15)
- BMI > 40 with serious comorbidities
- BMI > 50 with less severe comorbidities
- Demonstrated commitment to medical and psychological evaluations before and after surgery
- Agree to avoid pregnancy for 1 year postoperatively
- Be capable and willing to adhere to nutritional guidelines postoperatively
- Provide informed assent to surgery
- Demonstrate decisional capacity
- Have a supportive environment

Bariatric Centers:
Children should only be cared for by a multi-disciplinary team trained in the management of pediatric obesity. Key members include: pediatrician, surgeon, orthopedic surgeon, psychologist, nutritionist, exercise specialist, social worker, psychologist, endocrinologist, pulmonologist, cardiologist, gastroeneterologist, and an anesthesiologist. Centers should also be primarily focused on medical management with surgery for patients who fail standard care. There is concern these procedures will be performed in centers focused on the surgery alone, which is only a small part of the care of these patients.

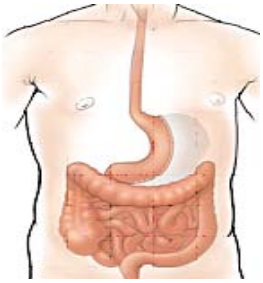
Procedures:
These are the three standard procedures described. Long-term outcomes for children have not been reported. Early reports have been excellent with an acceptable complication rate. Which procedure is the best has also not been determined, and probably all three procedures likely have a role.



Gastric Band



Gastric Sleeve Resection



Advocate

- Integrate Nebraska's Model
- Resourcing the Office
- Advocate in the Community
- Resources

Integrate Nebraska's Model

- Assess what your clinic is currently doing to assess, prevent and treat childhood overweight and obesity.
- Form a group of those interested who will champion this issue in your practice.
- Develop a plan of action for your clinic taking small steps toward change starting with Charting BMI% in all patients ages 2 to 18 presenting for well child exams.
- Set patient-driven healthy lifestyle goals using the Youth PA-N Assessment Form.
- Resource your office with the Foster Healthy Weight in Youth patient and office resources.
- Incorporate Nebraska's model into practice taking a step at a time.
- Evaluate your progress along the way.

Resourcing the Office

- Display the Foster Healthy Weight in Youth consistent prevention message posters throughout the clinic.
- Give out the patient educational postcards at well child examinations.
- Create a bulletin board for community partners to update.
- Keep a list of Web sites to give your patients. Have appropriate books and magazines available in your waiting room. Provide books, puzzles, and activity sheets that help promote healthy eating and active living.
- Know your community resources, including trails, parks and recreation centers, cultural centers, after school programs, breastfeeding support groups and programs, nutrition education, WIC, etc. and refer patients and families to them.
- Involve the clinical team and entire staff in your efforts to resource the office.

The Foster Healthy Weight in Youth clinical resources are available online for download at www.nebmed.org/copp.aspx and by using the order form found in the folder of the toolkit.

Advocate in the Community

As healthcare providers we know full well the barriers our patients and their families face to lead healthy lives. Often there is a lack of time, lack of access to healthy foods, the high costs of healthy foods, lack of culturally appropriate community programs and resources, and decreased opportunities for safe physical activity opportunities. All of these barriers make it difficult to grow up healthy. Our voice becomes their voice in the community. To become an advocate in the community, it is important to:

- Be a role model by being physically active every day and work to make healthy food choices.
- Integrate Nebraska's Clinical Childhood Obesity Model, Foster Healthy Weight in Youth into practice.
- Work within your circle of connection - your family, your child's school, family's faith group, neighborhood association, and community-based organizations to advocate for increased physical activity and healthier food options. Increase awareness about the childhood obesity epidemic and educate children, families and the community about the consistent prevention messages.
- Join your local coalition. Communities across Nebraska have initiatives working to find solutions for the growing epidemic of childhood obesity.
- Become a physician champion by joining the NMA's *Childhood Obesity Prevention Project* at www.nebmed.org/copp.aspx.

National Resources

- CDC Growth Charts
  www.cdc.gov/growthcharts
- American Academy of Pediatrics
  www.aap.org/obesity
- Childhood Obesity Action Network
  www.nichq.org
- Alliance for a Healthier Generation
  www.healthiergeneration.org
- Robert Wood Johnson Foundation
  www.rwjf.org/childhoodobesity
- Bright Futures
  www.brightfutures.aap.org

Statewide Resources

- **The NMA Childhood Obesity Prevention Project**
  The Nebraska Medical Association advocates for physicians and the health of all Nebraskans. The NMA Childhood Obesity Prevention Project works as a statewide collaboration to provide healthcare professionals access to and assistance with: education and community outreach; policy advocacy; and clinical resources. Find out about the project and join the statewide cause at: www.nebmed.org/copp.aspx.

- **Nebraska Action for Healthy Kids**, affiliated with national Action for Healthy Kids, is the only statewide, nonprofit organization in Nebraska formed specifically to address the epidemic of overweight, sedentary, and undernourished youth by focusing on changes in schools to improve nutrition and increase physical activity. Nebraska Action for Healthy Kids is made up of state and local leaders in public health, education and community outreach organizations. Join them. You can become a member at: www.actionforhealthykids.org/nebraska.

- **Local Public Health Departments.** You can find the contact information for your health department at: http://www.dhhs.ne.gov/puh/oph/lhd.htm. You may be able to join in on existing efforts or assist in leading new community-wide strategies aimed at childhood obesity prevention.

- **The Nutrition and Activity for Health Program** within the Nebraska Department of Health and Human Services is a good resource for additional information regarding the core prevention messages. Visit at: www.dhhs.ne.gov/nafh.

- To locate a registered dietitian in your area, visit the **Nebraska Dietetic Association** website at: www.eatrightnebraska.org. Registered dietitians are trained nutrition experts that should be utilized in behavioral interventions, programs and for referrals.

- For patients receiving or those eligible for federal assistance programs - such as WIC, SNAP (formerly Food Stamps), and the National School Lunch Program - they can participate in the **Nebraska Nutrition Education Program** which provides training opportunities on meal planning, shopping on a budget, healthy snacking and more. To find out how to get eligible patients involved in the Nebraska Nutrition Program, call 1-877-611-4710.

- **The Nebraska Breastfeeding Coalition** is a network of individual and organizational partners dedicated to improving the health of Nebraskans by making breastfeeding the norm through education, advocacy and collaboration. You can join them by becoming a member at: www.nebreastfeeding.org.

- **Teach a Kid to Fish** is a physician directed nonprofit organization with a mission to prevent and reduce childhood obesity by empowering Lincoln children and families to eat healthy and be active. Learn more at www.teachakidtofish.org.

- **Live Well Omaha** is a community-based partnership working together to achieve measurable improvements in nutrition, physical activity, and healthy living supported by community collaboration and the environments in which they live for all Omaha children. Learn more at: www.livewellomahakids.org.

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