

**D7 - Obesity Prevention and Treatment**

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FirstHealth of the Carolinas**

**2009 NASBHC Convention**

**Presenter Disclosures**

**The following personal financial relationships with commercial interests relevant to this presentation existed during the past 12 months:**

< " " " "  
**Laura Brey  
Regina Smith**  
**No relationships to disclose**

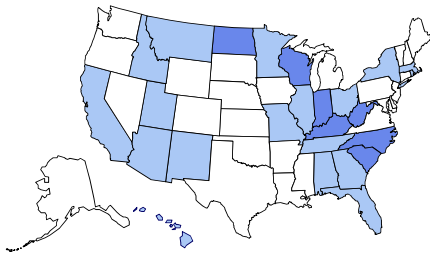
**Ice Breaker**



**Objectives**

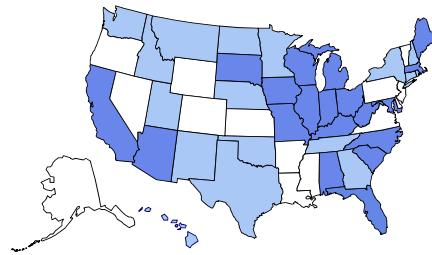
- Describe the magnitude of the child and adolescent obesity epidemic in the US
- Summarize the national recommendations for child and adolescent prevention, assessment, and intervention
- Utilize the national resources available to providers for assisting in implementation of the national recommendations and guidelines
- List the 4 stages of pediatric overweight treatment
- List for the 4 stages of pediatric blood pressure/hypertension management
- Utilize motivational interviewing in the treatment of overweight children and adolescents

Obesity Trends\* Among U.S. Adults  
BRFSS, 1986



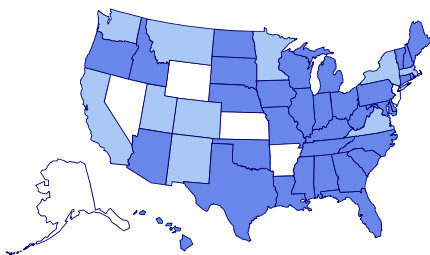
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Obesity Trends\* Among U.S. Adults  
BRFSS, 1988



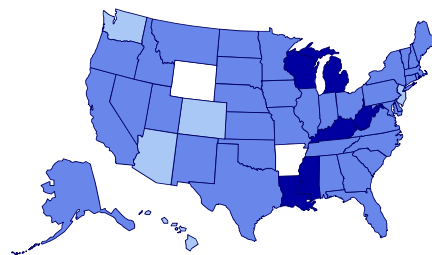
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Obesity Trends\* Among U.S. Adults  
BRFSS, 1990



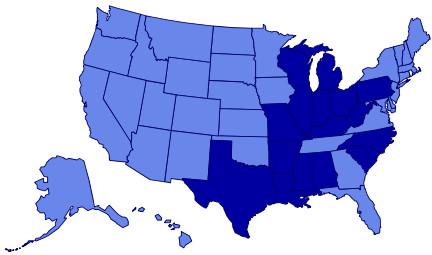
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Obesity Trends\* Among U.S. Adults  
BRFSS, 1992



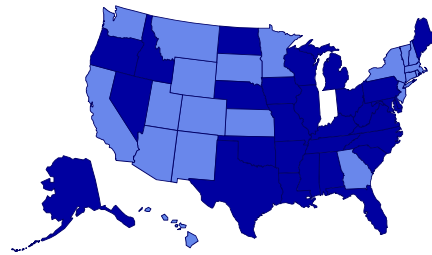
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Obesity Trends\* Among U.S. Adults  
BRFSS, 1994



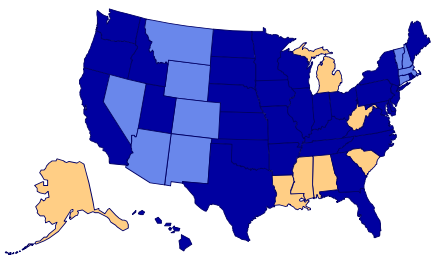
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Obesity Trends\* Among U.S. Adults  
BRFSS, 1996



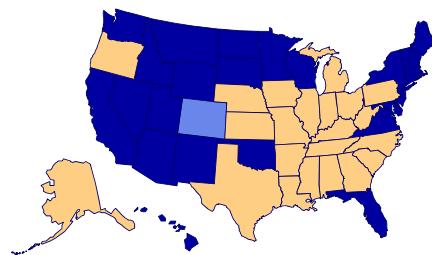
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Obesity Trends\* Among U.S. Adults  
BRFSS, 1998



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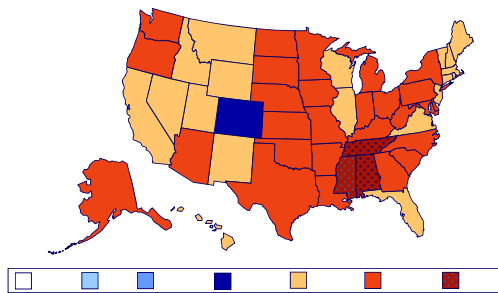
Obesity Trends\* Among U.S. Adults  
BRFSS, 2000



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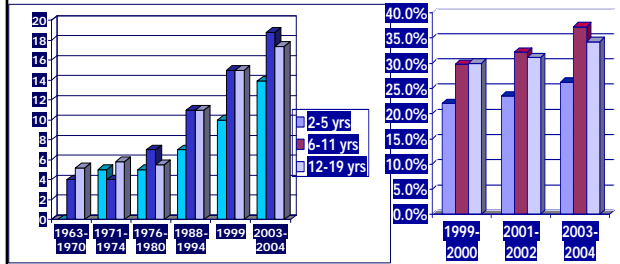


### Obesity Trends\* Among U.S. Adults BRFSS, 2007



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### Prevalence of At-Risk & Overweight Among Children and Adolescents



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### Suicide Risk



- Actual and perceived overweight is an important risk factor for suicidal behaviors in youth
- Risk factor for suicidality even after controlling for alcohol and illicit drug use
- More studies needed to better understand association between perceived and actual overweight and risk for suicide attempts

(Swahn, M., Reynolds, M., Tice, M., et. al, *Journal of Adolescent Health*, 2009.)

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### Health Risks: Psychosocial

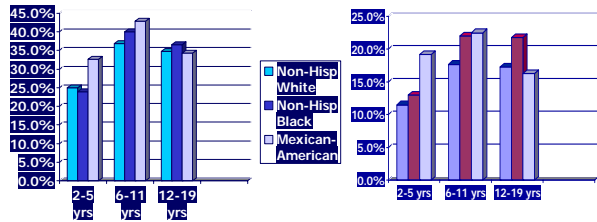


Obese children and their parents rate the quality of life as similar to pediatric cancer patients.

*Schimmer, Burwinkle, & Varni, 2003*

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## Ethnic Disparity: At Risk for Overweight or Overweight 2003-2004



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## Health Risks of Obesity

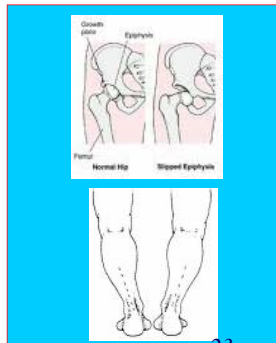
- Pulmonary
  - Sleep disorders
  - Asthma
  - Obesity-linked hypoventilations
- Neurologic
  - Pseudotumor cerebri



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## Health Risks of Obesity

- Orthopedic
  - Slipped capital epiphysis
  - Tibia vara (Blount's disease)
  - Tibial torsion
  - Flat feet
  - Ankle sprain
  - Fractures



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## Health Risks of Obesity

- Cardiovascular
  - Hypertension
  - Dyslipidemia
  - Fatty deposits
  - Left ventricular hypertrophy
- Other
  - Systemic inflammation



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## Health Risks of Obesity

- Gastrointestinal
  - Cholelithiasis
  - Non-alcoholic fatty liver disease
  - Gastro-esophageal reflux
- Endocrine
  - Insulin resistance/Type II Diabetes
    - Acanthosis nigricans
  - Menstrual abnormalities
  - Polycystic ovary syndrome
  - Hypertoricism



## Significance of Problem

- 80% of obese adolescents will become obese adults



## Significance: What about their future?

Leading Causes of Death in the US

<i>Cause of Death</i> <i>rate/100,000</i>	<i>Death</i>
Heart disease	258.2
Cancer	200.9
Cerebrovascular disease	60.9

*Minino, Arias, Kochanek, Murphy, & Smith 2002*

## Economic Consequences

- Obesity increased 30% in last 20 years
- Medical expenses for obesity = 9.1% of US medical expenditure
- Direct and indirect costs in US
  - \$78.5 billion in 1998
  - \$92.6 billion in 2002



*Finkelstein, Fiebelkorn, & Wang(2003). Health Affairs (Millwood).*

## Etiology: Family



Cohort of 854 mostly white subjects followed up to age 21-29 years

	Odds Ratio
Maternal obesity	3.6 (2.1-5.9)
Paternal obesity	2.9 (1.7-4.9)
Two obese parents	13.6 ( 3.7-50.4)

Whitaker, et al. (1997). NEJM, 337(13).



## Etiology: Decreased Activity

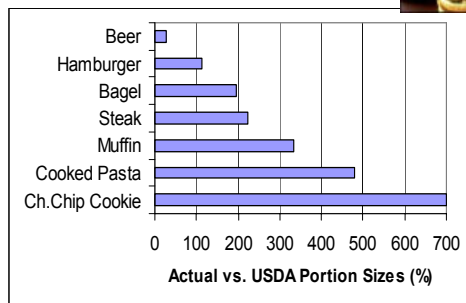


- 29% of US children have daily PE
- 50% of 12-21 year olds have no regular physical activity

Foster, et al., 2003; Ogden, et al., 2002



## Etiology: Portion Size Comparisons



Young and Nestle (2002) Am J Public Health. 2(2):246-249.



## Etiology Portion Sizes: Paris vs. Philadelphia

Restaurant	Mean Size Ratio (US/France)
McDonald's	1.28
Hard Rock Café	0.92
Pizza Hut	1.32
Haagen Dazs	1.42
Local Chinese	1.72



On average, American portions were 25% larger!

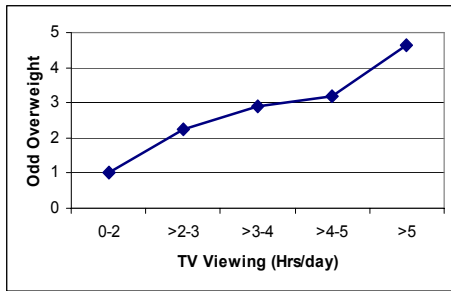


Rozin et al., (2003). Physiological Science. 14(5):450-4.



Etiology: Inactivity

TV Viewing Predicts Childhood Overweight



Gortmaker et al. (1996) Arch  
Pediatr Adolesc Med. 150(4):356-62



What's happening in primary care?



Time for Anticipatory Guidance during WCC

- Average visit length **17.8 minutes**
- Average time in advisement **2.4 minutes**
- Nutrition **31.7 seconds**
- Growth **6.4 seconds**
- Exercise **1.6 seconds**



Barriers to Care

Barrier	Percentage Responding "Most of Time" and "Often"		
	RDs (n=441)	PNPs (n=293)	Pediatricians (n=201)
Lack of parent motivation	61.9*	78.2*	85.7*
Lack of parent involvement	71.8*	82.5*	81.2*
Lack of clinician time	31.2*	45.9*	58.0*
Lack of reimbursement	68.1*	46.8*	45.8*
Lack of clinician knowledge	23.8*	32.2*	44.0*
Lack of treatment skills	27.3*	32.2*	45.0*
Lack of support services	55.5	57.0	60.0
Treatment futility	37.4*	52.6*	53.0*
Eating disorder concerns	17.2*	12.9*	10.0*

\* Percentages are significantly different from one another; ps .05

Story, Neumark-Stzainer, Sherwood et al. 2002





**Expert Committee Recommendations, (AMA, HRSA, and CDC) June 2005**

**Current Recommendations & Guidelines**

**Expert Committee Recommendations - 2007**  
An Implementation Guide  
Childhood Obesity Action Network, NICHQ, 2007

**Pediatric Metabolic Syndrome Working Group Recommendations, 2008**

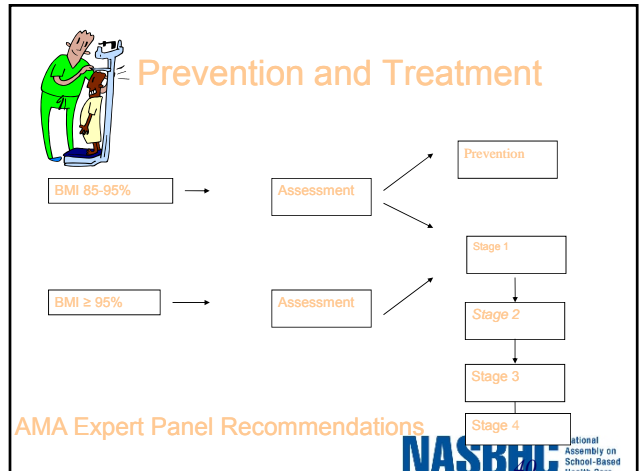
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### NASBHC CQI Tool Sentinel Conditions

Elementary School-Aged	Middle School-Aged	High School-Aged
Risk assessment and physical exam	Risk assessment and physical exam	Risk assessment and physical exam
Asthma	Asthma	Asthma
Risk for type 2 diabetes	Risk for type 2 diabetes	Risk for type 2 diabetes
Poor school performance	Poor school performance	Poor school performance
Depression	Depression	Depression
Psychological trauma	Psychological trauma	Psychological trauma
Oral health	Oral health	Oral health
	Tobacco use	Tobacco use
	Substance use	Substance use
	Chlamydia screening	Chlamydia screening
	Immunizations	

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		spirometry	<ul style="list-style-type: none"> <li>2. Night awakenings</li> <li>3. no interference with school</li> <li>4. SABA use &lt; 2x/week</li> <li>5. Peak Flow/FEV<sub>1</sub> &gt; 80%</li> <li>6. 0-1 exacerbation req.</li> </ul>
2	<ul style="list-style-type: none"> <li>AMA</li> <li>AAP</li> <li>American Diabetes Association</li> <li>AHRQ</li> <li>NCHD</li> <li>NICHQ</li> <li>NICHQ</li> </ul>	<ul style="list-style-type: none"> <li>BMI growth charts</li> <li>Blood pressure</li> <li>Parental permission &amp; programs</li> <li>Ability to collect laboratory specimens or referral source for lab tests</li> <li>Specialty practice(s) for Referrals</li> </ul>	<ul style="list-style-type: none"> <li>% of students with BMI identified as at risk</li> <li>% of students at risk family history in medical (obesity, Type 2 diabetes, early death, disease or stroke)</li> <li>% of students with BMI and no family risk factor</li> <li>or</li> <li>% of students with BMI and family risk factor ALT and AST, fasting glucose</li> <li>or</li> <li>% of students with BMI age 10 or older with AST, fasting glucose, creatinine</li> </ul>



**Step One : Obesity Prevention at Well Care Visit  
(Assessment and Prevention)**

### Action Steps and Recommendations

- Assess all children for obesity at all well care visits 2-18
- Physician and allied health professional should perform at a minimum a yearly assessment

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### Action Steps and Recommendations

- Use Body Mass Index (BMI) to screen for obesity
- Accurately measure height and weight
- Calculate BMI
- Plot BMI on BMI growth chart

*\*Skinfold thickness, and waist circumference are not recommended*

### Measurement of Growth

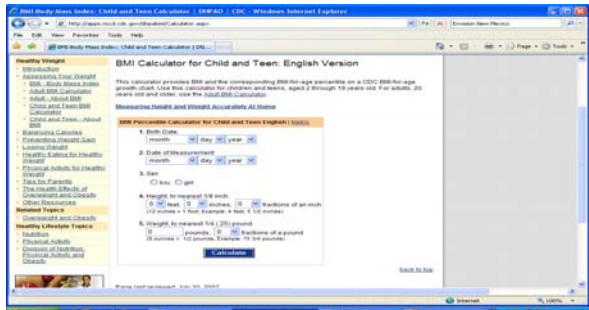
Body Mass Index (BMI)  
Surrogate measure of body fat

- Correlates well with specific measures of adiposity
- BMI =  $\frac{\text{Weight in Kilograms}}{(\text{Height in Meters})^2}$
- Chart BMI percentile

<http://www.cdc.gov/growthcharts/>

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<http://apps.nccd.cdc.gov/dnpabmi/Calculator.aspx>



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## Action Steps and Recommendations

- Make a weight category diagnosis using a BMI percentile



- BMI  $\geq$  95% - Obese
- BMI 85-94% - Overweight
- BMI 5-84% - Normal weight
- BMI  $<$  5% - Underweight

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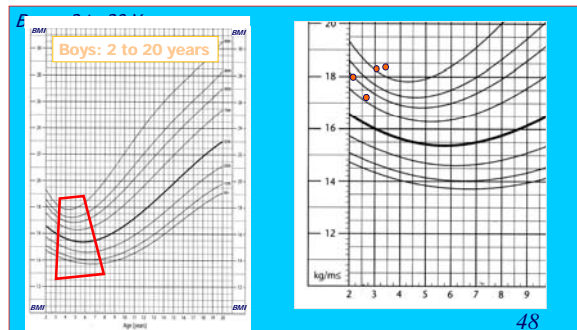
## Early Identification of Obesity

- BP  $\geq$  3 yrs-chart % for age, sex, ht
- Determine BMI and BP risk status
- Chart & discuss findings with parents
- AR = point of maximal leanness or minimal BMI
- Number of adipose cells established around AR
- AR usually age 5-6
- The earlier AR occurs, the greater the risk of adult obesity



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## "Adiposity" Rebound



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## Action Steps and Recommendations

- **Measure Blood Pressure Annually**

- Use a cuff large enough to cover 80% of the arm
- Diagnose hypertension using NHLBI tables  
[http://www.nhlbi.nih.gov/health/prof/heart/hbp/hbp\\_ped.htm](http://www.nhlbi.nih.gov/health/prof/heart/hbp/hbp_ped.htm)

Blood Pressure 95% by Age, Sex and Height %				
AGE	BOYS HEIGHT %		GIRLS HEIGHT %	
	50%	90%	50%	90%
<b>2 Yr</b>	106/81	106/83	105/83	106/85
<b>5 Yr</b>	112/72	115/74	110/72	112/73
<b>8 Yr</b>	116/75	119/78	115/75	118/78
<b>11 Yr</b>	121/80	124/82	121/78	123/81
<b>14 Yr</b>	126/82	132/84	126/82	129/84
<b>17 Yr</b>	135/87	139/88	129/84	131/85

Pediatrics Vol. 114 No. 2 August 2004 pp. 555-576

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## Recommended Dimensions for BP Cuff Bladders

Small cuffs may overestimate BP  
Large cuffs may underestimate BP

TABLE 2. Recommended Dimensions for BP Cuff Bladders

Age Range	Width, cm	Length, cm	Maximum Arm Circumference, cm*
Newborn	4	8	10
Infant	6	12	15
Child	9	18	22
Small adult	10	24	26
Adult	13	30	34
Large adult	16	38	44
Thigh	20	42	52

\* Calculated so that the largest arm would still allow the bladder to encircle arm by at least 80%.

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## Hypertension: How to Screen

- Ideal conditions
  - Manual measurement with cuff and stethoscope
  - Child is resting for 5 mins
  - Right antecubital fossa at heart level
  - Properly fitting cuff
  - Child is not on sympathomimetic medications
- Can bill as "elevated BP" (796.2) until dx of HTN is established

The fourth report on the diagnosis, evaluation, and treatment of high blood pressure in children and adolescents. *Pediatrics* 2004; 114(2): 555-576

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## Action Steps and Recommendations

- **Take a Focused Family History**
  - *Using a clinical documentation tool*
    - Obesity
    - Type 2 diabetes
    - Cardiovascular disease (hypertension, cholesterol)
    - Early deaths from heart disease or stroke

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## Action Steps and Recommendations

- Take a focused review of systems
  - *Using a clinical documentation tool*
- Assess behaviors and attitudes
  - (attitudes, diet and physical activity behaviors)
  - *Using behavioral risk assessment*
- Perform a thorough physical examination
  - *Using a clinical documentation tool*

## Symptoms of Conditions Associated with Obesity

- Anxiety, school avoidance, social isolation (Depression)
- Polyuria, polydipsia, weight loss (Type 2 diabetes mellitus)
- Headaches (Pseudotumor cerebri)
- Night breathing difficulties (Sleep apnea, hypoventilation syndrome, asthma)
- Daytime sleepiness (Sleep apnea, hypoventilation syndrome, depression)
- Abdominal pain (Gastroesophageal reflux, Gall bladder disease, Constipation)
- Hip or knee pain (Slipped capital femoral epiphysis)
- Oligomenorrhea or amenorrhea (Polycystic ovary syndrome)

## Signs of Conditions Associated with Obesity

- Poor linear growth (Hypothyroidism, Cushing's, Prader-Willi syndrome)
- Dysmorphic features (Genetic disorders, including Prader-Willi syndrome)
- Acanthosis nigricans (NIDDM, insulin resistance)
- Hirsutism and Excessive Acne (Polycystic ovary syndrome)
- Violaceous striae (Cushing's syndrome)
- Papilledema, cranial nerve VI paralysis (Pseudotumor-cerebri)
- Tonsillar hypertrophy (Sleep apnea)
- Abdominal tenderness (Gall bladder disease, GERD, NAFLD)
- Hepatomegaly (Nonalcoholic fatty liver disease (NAFLD))
- Undescended testicle (Prader-Willi syndrome)
- Limited hip range of motion (Slipped capital femoral epiphysis)
- Lower leg bowing (Blount's disease)

## Action Steps and Recommendations

- Order the appropriate laboratory tests
  - BMI 85-94% without risk factors
    - Fasting Lipid Profile
  - BMI ≥ 85 - 94% age 10 or older with risk factors
    - Fasting Lipid Profile
    - ALT and AST
    - Fasting Glucose
  - BMI ≥ 95% age 10 and older
    - Fasting Lipid profile
    - Fasting Glucose
    - Other tests as indicated by health risks



## Action Steps and Recommendations

- Give consistent evidence-based messages for all children regardless of weight
  - 5 fruits and vegetables
  - 3 structured meals a day
  - 2 hours or less of TV per day
  - 1 hour or more of physical activity
  - 0 servings of sweetened beverages

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[http://www.eatsmartmovemorenc.com/programs\\_tools/PediatricObesityTools.html](http://www.eatsmartmovemorenc.com/programs_tools/PediatricObesityTools.html)

The image shows three educational tools. On the left and middle are two identical 'Prescription for Health' cards. Each card has a header with the 'U.S. Army' logo and the title 'Prescription for Health'. Below the title is a form for 'Name' and 'Date'. The main content is a list of five numbered items: 5 (5 or more servings of fruits and vegetables daily), 3 (3 structured meals daily...), 2 (2 hours or less of TV or video games daily), and 1 (1 hour or more of moderate to vigorous physical activity daily). At the bottom of each card is a section for 'Almost' with a note to 'Limit sugar sweetened drinks. Choose "diet" instead!'. On the right is a 'Blood Pressure Levels' chart for 'GIRLS'. The chart has columns for 'Age' (5-10, 11-12, 13-14, 15-16) and 'Systolic Blood Pressure' and 'Diastolic Blood Pressure' with corresponding numerical ranges.

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## Action Steps and Recommendations

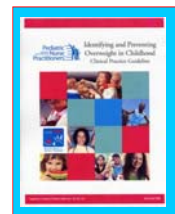
### Use

- **Empathize/Elicit**
  - Reflect
  - What is your understanding?
  - What do you want to know?
  - How ready are you to make a change on a (1-10 scale)
- **Provide**
  - Advice or information
  - Choices or options
- **Elicit**
  - What do you make of that ?
  - Where does that leave you?

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keep ME healthy  
POWER UP



### Resources



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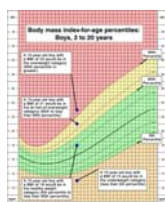
## Other Resources...

- NICHQ Implementation Guide  
[http://www.lets-go.org/For\\_You/documents/NICHQImplementationGuide.pdf](http://www.lets-go.org/For_You/documents/NICHQImplementationGuide.pdf)
- Expert Committee Recommendations Regarding the Prevention, Assessment, and Treatment of Child and Adolescent Overweight and Obesity: Summary Report  
[http://pediatrics.aappublications.org/cgi/reprint/120/Supplement\\_4/S164](http://pediatrics.aappublications.org/cgi/reprint/120/Supplement_4/S164)
- Eat Smart, Move More –  
[www.eat-smart-move-more.com](http://www.eat-smart-move-more.com)



## Other Resources...

- NASBHC CQI Tool –  
[http://www.nasbhc.org/site/c.jsJPKWPFJrH/b.2719357/k.6312/EQ\\_Quality\\_Improvement.htm](http://www.nasbhc.org/site/c.jsJPKWPFJrH/b.2719357/k.6312/EQ_Quality_Improvement.htm)
- CDC BMI Calculator for Children & Teens  
<http://apps.nccd.cdc.gov/dnpabmi/>
- NICHQ Website  
<http://www.nichq.org/NICHQ/Programs/ConferencesAndTraining/ChildhoodObesityActionNetwork.htm>



Step Two: Prevention Plus Visit (Treatment)



## Action Steps and Recommendations

- Stage 1 – Prevention Plus
  - Family visits with physician or health professional trained in pediatric weight management /behavioral counseling
  - Can be individual or group visits
  - Frequency – individualized to family needs and risk factors, consider monthly



## Stage 1- Prevention Plus



### Behavioral Goals

- ≥ 5 servings of fruits and vegetables per day
- ≤ 2hrs of television per day
- no television in bedroom
- ↓ sugar sweetened beverages
- Portion control
- Daily breakfast
- ↓ eating out
- Family meals
- ≥ 60 minutes of physical activity per day

### Weight Goals

- Weight maintenance or a decrease in BMI velocity.
- Long term BMI goal <85 % tile.
- Some children healthy with a BMI 85-94 tile
- Visits- based upon readiness to change & severity of condition
- Advance stage based upon progress, medical condition, risks, length of time, & readiness to change.

## Action Steps and Recommendations

- Use patient centered counseling - motivational interviewing (MI) at Prevention Plus visits
  - For ambivalent families and
  - To improve the success of action planning

## Action Steps and Recommendations

- Develop a reimbursement strategy for Prevention Plus visits
  - Coding strategies can help
  - Advocacy through professional organization to address reimbursement policies

## BREAK



## Motivational Interviewing

Creating a Working Partnership  
Using Motivational Interviewing



## Motivational Interviewing: A Paradigm Shift



- Empowering, client centered, and collaborative

- Focus on individual beliefs

- Believe in client's abilities

- Positive reinforcement

- Providing tools for life skills and behavior change

Benson, A. & Latter, S. 1998. J Adv Nurs 27, 100-107.



### Traditional Counseling



Confrontational and  
Argumentative

↓  
Resistance

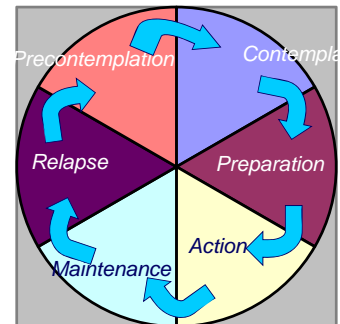
Denial of Need to  
Change Behavior

Miller, WR, Benefield, RG, Tonigan JS, 1993, J  
Consult Clin Psychol 61, 455-61.

### Behavioral Counseling Motivational Interviewing Problem Solving



Identify Barriers  
Patient Generated  
Solutions  
Select Solution to Test  
Evaluate Solution



## Basic Principles

- Express empathy
- Avoid argumentation
- Support self-efficacy
- Roll with resistance
- Develop discrepancy



## Components of MI



- Establishing a relationship
- Data gathering
- Setting a collaborative agenda
- Exploring ambivalence
- Assess individual change potential
- Summary and next steps



## Components of Motivational Interviewing

- Establishing a relationship



## Components of Motivational Interviewing

- Data gathering
  - Family history
  - Patient history
  - Physical assessment

The part we are most practiced at!



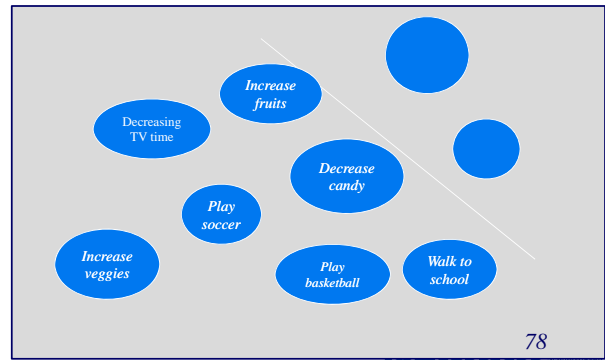
## Components of Motivational Interviewing

- Setting a collaborative agenda
  - Showing the data (i.e., family data)
  - Asking them “what they make of this”
  - Options tool to assist with agenda setting
  - Reflective summarizing



## Tools that can be used

- Options



## Components of Motivational Interviewing



- Exploring ambivalence
  - Pros and cons
  - Develop discrepancy
    - Asking key questions
    - Reflecting witnessed inconsistencies
    - Summarizing

## Components of Motivational Interviewing

- Assess individual change potential
  - Personal importance
    - On a scale of 0-10...
  - Personal confidence
    - On a scale of 0-10...
  - Personal readiness
    - On a scale of 0-10...

**Affirming statements are very important!**

## Components of Motivational Interviewing

- Assessments may include:
  - Alternative ways to measure
    - Ruler, probing questions
  - Scaling questions
    - What would it take to move you higher?
    - Why not lower on the scale?

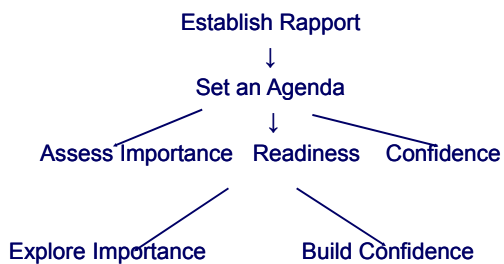


## Components of Motivational Interviewing

- Negotiating a plan
  - Next steps and follow-up
  - Reaffirming confidence
- Summary and next steps
  - Summarize pros and cons of change
    - So what I heard you say is that...
  - Possible next steps
    - What might be a good first step for you and your child?
    - What might you do in the next week to help move things along?



## Motivational Interviewing Process



Miller & Rollnick, 1991. Motivational Interviewing: Preparing people to change addictive behaviors.



## Assess importance & confidence



## Strategies

- Based upon Readiness to Change
- Based upon Importance of Change
- Based upon Confidence in Ability to Change



## Precontemplation

Patient does not perceive behavior as a problem

### Tasks in Precontemplation

1. Establish discrepancy between goals & behavior
2. Increase the perception of risk of behavior

*As your healthcare provider, I need to tell you that am worried about your blood pressure and weight. With your family history you are at risk for diabetes.*

## Precontemplation: Increase perception of risk



## Contemplation

Perceives behavior as problem but not ready to change so may defend behavior.

### Tasks in contemplation:

1. Elicit pros and cons
2. Evoke reasons for change
3. Explore risks of not changing
4. Strengthen self efficacy for change

*If you decided you were going to change what would that look like? What would be the benefits? What would make it difficult?*

## Contemplation: Evoke reasons for change & Strengthen self efficacy



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## Preparation for Action

Patient perceives problem and is concerned but cannot change on own.

Tasks in Preparation for Action:

1. Negotiate alternatives
2. Help determine the best plan

*What I hear you saying is that if you continue to gain weight your clothes won't fit and other kids will continue to make fun of you. You would really like to lose some weight before school starts.*

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## Preparation for Action: Negotiate Alternatives



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## Action

The patient is ready to try something new to change the problem behavior.

Tasks in the Action Stage

1. Assist the person in changing.
2. Problem solve.
3. Identify road blocks.

*So you think that it might work for you to cut back on the soda and walk home from school three times a week.*

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## Action: Identify Barriers



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## Maintenance

Maintaining change involves building a new, supportive behaviors that “fill the gaps” left by reduction of problem behavior

### Tasks in the Maintenance Stage:

1. The goal is relapse prevention.
2. Identify risks of relapse.
3. Help client achieve stable change.

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## Maintenance: Relapse Prevention



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## Relapse

A return to old, problem behavior



### Tasks in Relapse Stage

1. Debrief the client.
  - What went wrong?
  - What was working?
2. Help client refocus on change.
3. Identify, clarify, and resolve ambivalence.

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## General Strategies: Open-ended Questions

Establish an atmosphere of acceptance

1. Tell me about your eating?
2. Describe a typical day?
3. What concerns you about your current pattern?

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## Open-Ended Questions



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## General Strategies: Listen Reflectively

- Summarize what you heard
- Create a hypothesis
- 3:1 ratio  
3 reflective statements for each open ended question
  1. What I hear you saying is...
  2. Do you mean?
  3. Repeating
  4. Rephrasing
  5. Paraphrasing
  6. Reflection of feelings

*Any self motivational statement should be reflected!*

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## General Strategies: Affirm the Patient

- Without hope little change is likely
- Emphasize patient has control
- Exploring self-efficacy can help identify resistance
- Reflective listening is affirming



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## Affirm the Patient



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## Strategies: Summary Statements

- Patient hears their motivation for change again
- Components of summary statement
  1. Problem recognition
  2. Concerns
  3. Reasons for change
  4. Optimism about change
  5. Ambivalence
  6. End with "what have I missed?"

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## Strategies: Summary Statements



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## Strategies: Elicit Motivational Statements

- Patient presents the argument for change
- Components
  1. Problem recognition
  2. Expression of concern
  3. Intent to change
  4. Optimism about change

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## Strategies: Eliciting Change Talk

- Ask evocative questions
  - What else have you noticed?
  - Why else could you succeed?
- Assume ambivalence
  - Elicit pros and cons of change
- Pull for elaboration once change has been raised.
  - Give me an example.
  - How else is this a problem?

## Strategies: Eliciting Change Talk

- Use extremes
  - What concerns you the most?
  - What's the best that could come of this?
- Change perspectives
  - Looking back before the problem emerged...
  - Looking forward to envision the future...
- Explore goals
  - Develop discrepancy
- Side with the negative
  - By suggesting not changing,
  - the patient has to verbalize reasons for change

## Eliciting change talk



## Resistance

- Resistance is normal
  - Degree is determined by counselor style
  - Problematic when pattern emerges
- Categories
  - Arguing
  - Interrupting
  - Denying
  - Ignoring

## Resistance



## Strategies for Handling Resistance

- Simple Reflection
- Amplified Reflection
- Double-sided Reflection
- Agreement with a twist
- Reframing
- Shift Focus
- Emphasize Personal Responsibility & Control
- Paradox



## Mapping the Change Process

- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li>• If the client is:</li> <li>Arguing</li> <li>Interrupting</li> <li>Denying the problem</li> <li>Ignoring the counselor</li> </ul>                          | <ul style="list-style-type: none"> <li>• If the client is talking about</li> <li>Problem recognition</li> <li>Concern re. the problem</li> <li>Intent to change</li> <li>Optimism about change</li> </ul>  |
| <ul style="list-style-type: none"> <li>• Strategies to Handle Resistance</li> <li>Reflection</li> <li>Reframe</li> <li>Shift focus</li> <li>Emphasize personal control</li> <li>Paradox</li> </ul> | <ul style="list-style-type: none"> <li>• Then use strategies to elicit change talk</li> <li>Evocative questions</li> <li>Pull for elaboration</li> <li>Use extremes</li> <li>Change perspectives</li> <li>Explore goals</li> <li>Side with negative</li> </ul> |



## Review Barriers - Traps to Avoid

- Some traps that others have experienced...
  - Premature focus trap
  - Confrontation trap
  - Labeling trap
  - Blaming trap
  - Question/answer trap
  - Expert trap



## Traps to Avoid



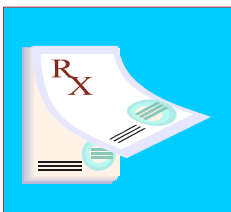
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## Practical Application: Components of Motivational Interviewing

- Establishing a relationship
- Gathering data
- Setting a collaborative agenda
- Explore ambivalence
- Assess change potential
- Summarize and next steps

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Don't Forget to Provide an Individualized and General Prescription for Health!



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## Results



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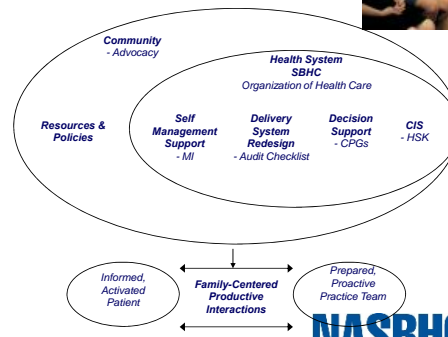


### Step Three: Going Beyond Your Practice Prevention and Treatment



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## Chronic Care Model



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### Advocate for Improved Access to Fresh Fruit and Vegetables and Safe Physical Activity in Your Community and Schools

- Federal government to increase physical activity at school through intervention programs grade 1 – end of HS
- Supporting efforts to preserve and enhance parks as areas for physical activity, informing local development initiatives regarding the inclusion of walking and bicycle paths, and promoting families' use of local physical activity options by making information and suggestions about physical activity alternatives available in doctors' offices

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### Identify and promote community services which encourage healthy eating and physical activity

- Promote physical activity at school and in child care
- settings (including after school programs), by asking
- children and parents about activity in these settings
- during routine office visits.

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## Identify or develop more intensive weight management interventions for your families who do not respond to Prevention Plus

- The Expert Committee recommends the following staged approach for children between the ages of 2 and 19 years whose BMI is 85-94%ile with risk factors and all whose BMI is  $\geq$  95%ile:



## Stage 2- Structured Weight Management



- Stage 1 interventions
- Balanced macronutrient diet
- Limit energy-dense foods
- High protein
- Self/parent monitoring
- Medical screening – laboratory tests
- Mental health referral for parenting skills, family conflict, motivation (as needed)
- Setting- PCP office + dietician
- Personnel- PCP + RD
- Visits- monthly tailored & based upon readiness to change & severity of condition
- Advance stage based upon progress, age, medical condition, risks, length of time, & readiness to change

AMA Expert Panel Recommendations



## Stage 3 – Comprehensive Multidisciplinary Treatment



- (referral to community weight management center or specially trained staff) in addition to all of above
- more frequent visits (monthly) with assessment of measures
- multidisciplinary approach (dietician, psych, physical therapist, MD, NP, PA)
- behavioral modification training for parents
- strong parental involvement initially
- group sessions may be helpful
- Setting- PCP coordinates care
  - Wt management program
- Personnel- interdisciplinary team: behavior, RD, PCP
- Visits weekly include nutrition, exercise & behavioral counseling
- Advance depending on response, age, health risk & motivation

AMA Expert Panel Recommendations



## Stage 4- Tertiary Care Treatment

- Pediatric wt management center



- Multidisciplinary team
- Personnel- behavioral counselor, MSW, psychologist, RN, NP, RD, mental health care provider, exercise specialist, may involve surgeon.
- Visits- according to protocol.

AMA Expert Panel Recommendations





### Diagnosis, Evaluation, and Treatment of High Blood Pressure in Children and Adolescents

National Heart Blood and Lung Institute  
May, 2005



### Hypertension: Whom to Screen

- Children over 3 y.o. at every visit
- Children < 3 y.o. if special circumstances
- If >90<sup>th</sup> percentile, re-check twice at same visit

The fourth report on the diagnosis, evaluation, and treatment of high blood pressure in children and adolescents. *Pediatrics* 2004; 114(2): 555-576



### HTN: Diagnosis

- Normal – BP < 90%
- Document BP percentile according to age, gender and height percentile.
  - <http://pediatrics.aappublications.org/cgi/content/full/114/2/S2/555/T3>
  - <http://pediatrics.aappublications.org/cgi/content/full/114/2/S2/555/T4>
- HTN (401.9) = 3 elevated SBP or DBP ≥ 95% on three separate occasions
- White coat hypertension - > 95% in office while <90% outside clinic setting
- 24-hr ambulatory BP monitor



### Confirming High BPs

- To confirm HTN, BP should be measured in both arms and in one leg.
- Normally, BP is 10 to 20 mm Hg higher in the legs than the arms.
- If the leg BP is lower than the arm BP or if femoral pulses are weak or absent, **coarctation** of the aorta may be present. (if pt. is too large to check femoral pulses check pedal pulses)
- Obesity alone is an insufficient explanation for diminished femoral pulses in the presence of high BP.



## Pediatric HTN Etiology

- 15-20% Essential  
(especially children >10 yrs old)
- 80-85% Secondary
- 60-80% Renal
- 8-10% Renovascular
- 2% Coarctation



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## Pre-hypertension\*: Definition and Intervention



- Definition
  - BP  $\geq$  90<sup>th</sup> and <95<sup>th</sup> percentile, OR
  - BP >120/80 even if <90<sup>th</sup>, up to 95<sup>th</sup> percentile
- Intervention
  - Lifestyle modifications
  - Re-check in 6 months
  - Pharmacological Tx only if compelling complications

Can bill as elevated AP 796.2 until dx of HTN established

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## Primary (Essential) HTN



- Primary HTN is identifiable in childhood
- Usually characterized by mild or Stage 1 hypertension
- Often associated with a positive family history of hypertension or cardiovascular disease (CVD).

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## Primary (Essential) HTN



- 1° HTN clusters with other risk factors for adult cardiovascular disease (CVD):
  - Obesity, particularly truncal
  - Dyslipidemia -  $\uparrow$  tricyclerides &  $\downarrow$  HDL
  - Insulin resistance/metabolic syndrome
  - Hyperinsulinemia
  - Family hx of HTN and CVD
  - Sleep disorders

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## Secondary HTN



- 90%  
Of HTN in children < 10 years old is secondary.
- 80-85%  
Found in a child with a condition associated with HTN .
- 10-15%  
Discovered incidentally.
- 5%  
Presents with CNS findings in a previously "normal" child.

## Hypertension Staging. Why?



- Guides the pace of diagnostic and therapeutic approaches.
- HTN and Pre-HTN are important Public Health issues because of their association with childhood obesity and adult cardiovascular disease.
- Evaluation should include assessment for additional cardiovascular risk factors.

## Hypertension Staging



SBP or DBP (x 3)	Classification
< 90%	Normal
90 to < 95% >120/80 mmHg in adolescent	Pre-Hypertension
95 to 99% <b>+5 mmHg*</b>	Stage 1 Hypertension
> 99% <b>+5 mmHg</b>	Stage 2 Hypertension

\*The difference between 95% and 99% is only 7-10 mmHg.  
The report recommends a little leeway before starting evaluation or meds.

## Stage 1 HTN: Definition and Intervention



- Definition
  - BP **95 to 99% +5 mmHg\***
  - Re-check twice in 1-2 wks, or sooner if symptomatic, to establish diagnosis
- Intervention
  - Evaluative work up
  - Lifestyle modifications
  - Pharmacological Therapy if
    - HTN is symptomatic
    - Secondary HTN
    - Hypertensive target organ damage
    - Diabetes, types 1 or 2
    - Persistent HTN despite non-pharmacological measures

## Stage 2 Hypertension: Definition and Intervention



- Definition
  - BP > 99% +5 mmHg
- Intervention
  - Evaluative work up
  - Refer (as needed) within 1 wk. or immediately if pt. is symptomatic.
  - Lifestyle modifications
  - Initiate pharmacological therapy

## Target-Organ Abnormalities

- Left ventricular hypertrophy (LVH) is the most prominent evidence of target-organ damage.
- Pediatric patients with established hypertension should have echocardiographic
- Assessment of left ventricular mass at diagnosis and periodically thereafter.
- The presence of LVH is an indication to initiate or intensify antihypertensive
- Hypertensive retinal abnormalities

## HTN (Stage 1 or Stage 2): Evaluative work up



- Why:
  - To look for end organ damage
  - To look for secondary HTN
- What
  - BUN, Creatinine, electrolytes
  - UA and UC
  - CBC
  - Renal Ultrasound
  - Echocardiogram
  - Retinal exam referral

	HTN Work Up	Pre-Hypertension	Stage 1 HTN	Stage 2 HTN
<b>Definition</b>	BPs on 3 different occasions: systolic or diastolic	≥90 <sup>th</sup> % to <95 <sup>th</sup> % or ≥ 120/80 mmHg in adolescent	95 <sup>th</sup> % to 99 <sup>th</sup> % + 5mmHg above	>99 <sup>th</sup> % +5mmHg above
<b>Evaluation</b>	UA/UC		√	√
	BUN/CR, electrolytes		√	√
	CBC		√	√
	Renal ultrasound		√	√
	ECHO cardiogram		√	√
	Retinal exam (referral)		√	√
	Further imaging and labs			Refer to peds renal w/in 2 wks, immed. if symptomatic
<b>Lifestyle Mod.</b>	Weight loss, if indicated	√	√	√
	Exercise: 30-60 mins/d	√	√	√
	↓ sedentary activities	√	√	√
	DASH diet	√	√	√
	Tobacco cessation	√	√	√
<b>Medications if...</b>	(Refer as needed)	Compelling complications, only	End organ damage HTN is secondary Symptomatic Diabetes, 1 or 2	Always

## "BEARS" Sleep History



- **B = Bedtime problems** Do you have any problems falling asleep at bedtime? What is the sleep schedule? Is there anxiety, inappropriate napping, excessive caffeine, drug/alcohol use, inadequate sleep hygiene?
- **E = Excessive daytime sleepiness** Are you often sleepy during the day or while driving? Is it uncontrollable, sudden, and frequent (eg, Kleine-Levine syndrome) or continuous and chronic (eg, sleep paralysis, cataplexy, hypnagogic hallucinations, narcolepsy, idiopathic hypersomnolence)?
- **A = Awakenings during the night** Do you wake up a lot during the night? Do you have kicking or leg discomfort? Restless legs syndrome/periodic limb movement disorder? Urination schedule? Shortness of breath? Other painful episodes?
- **R = Regulation and duration of sleep** How much sleep do you usually get a night on school nights and weekends? What time do you go to bed and wake up on these nights?
- **S = Sleep-disordered breathing** Ask the parent whether the teenager snores loudly or nightly and ask the teen whether anyone has told him or her about loud snoring at night. Are there episodes of apnea?

(Mindell JA, Owens JA. A clinical guide to pediatric sleep: Diagnosis and management of sleep problems. Philadelphia, PA: Lippincott Williams & Wilkins; 2003, p. 10, Table 1.1.)

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## HTN: Therapeutic Lifestyle Changes

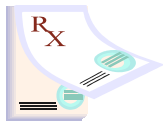


- Weight management, if indicated
- Dietary modifications - **DASH diet**: [www.nhlbi.nih.gov/health/public/heart/hbp/dash/new\\_dash.pdf](http://www.nhlbi.nih.gov/health/public/heart/hbp/dash/new_dash.pdf)
- Portion control, limit sugar sweetened drinks, increase fruits/veggies, 3 regular meals including breakfast, high fiber, low fat dairy
- 60 minutes/day of moderate to vigorous aerobic exercise
- Reduction of sedentary activities – TV/video/computer time ≤2 hrs/day
- Intervention targeting the family improves success

Sacks et al. Effects on blood pressure of reduced dietary sodium and the Dietary Approaches to Stop Hypertension (DASH) diet. DASH-Sodium Collaborative Research Group. *NEJM* 2001 Jan 4;344(1):3-10

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## Pharmacotherapy for Pediatric HTN

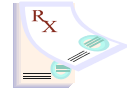


- Few controlled trials in children exist.
- Pediatric trials look at BP lowering ability rather than clinical endpoints (CVD, atherosclerosis, mortality, etc).
- The long term effects of anti-hypertensive on growth and development are unknown.
- The long term effects of HTN in children are unknown.
- Therapy will likely be lifelong.

**So,...we want to be pretty sure that meds are needed before starting them.**

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## Indications for Antihypertensive Drug Therapy in Children



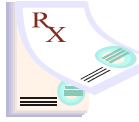
- Symptomatic hypertension
- Secondary hypertension
- Hypertensive target-organ damage
- Diabetes (types 1 and 2)
- Persistent hypertension despite nonpharmacologic measures

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## Drug choices for Pediatric HTN

### Good Agents for Kids:

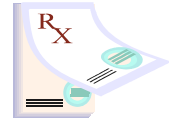
- Calcium Channel Blockers (excluding verapamil)
  - Unless heart disease present (not LVH)
- ACE Inhibitors
  - Unless Bilateral RAS or likely to get pregnant and not tell you.
- Labetolol / Atenolol
  - Unless diabetes or asthma present
- Clonidine
  - Good control but sedating, good if ADHD also present



## Drug choices for Pediatric HTN

### Second Line Agents:

- Hydralazine or Dioxizide
- Propranolol
- Diuretics
  - adjunct, not first line therapy
  - Kids don't like 'em
- Minoxidil
  - Unpopular (hirsutism)
- Avoid combination agents- they are not designed for kids.
- [http://www.nhlbi.nih.gov/health/prot/heart/hbp/hbp\\_ped.pdf](http://www.nhlbi.nih.gov/health/prot/heart/hbp/hbp_ped.pdf) (Table 9)



## After Diagnosis and Treatment?

- The goal should be reduction of BP to <95th percentile, unless concurrent conditions are present. In that case, BP should be lowered to <90th percentile.
- Ongoing BP monitoring.
- Target organ effect monitoring
  - Echo q 1-2 year
- Monitor for drug side effects
  - Electrolytes, CBC, LFTs, and Cr q 6 mos
- Consider "Step-Down" therapy
  - Gradually reduce med doses if BP controlled for a prolonged period (>12 months).
  - Especially in obese children with successful weight loss.



## BP Management in Children

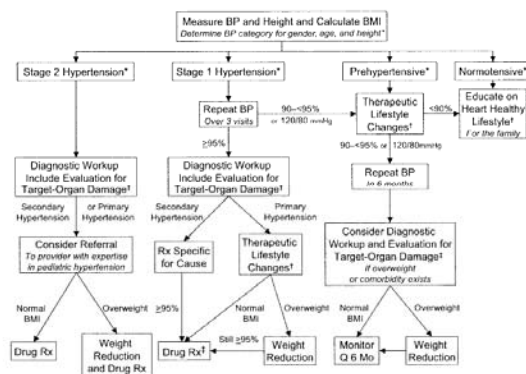


Fig 1. Management algorithm. Rx indicates prescription; Q, every. \* See Tables 3, 4, and 5; 1, diet modification and physical activity; 1, especially if younger, very high BP, little or no family history, diabetic, or other risk factors.

## Sports Participation for Hypertensive Children\*

1) Mid to Mod HTN (90-95%) with no end organ damage or CV disease (CVD)

- May play all sports, monitor BP every 2 months.



2) Severe HTN (>99%)

- If no end organ damage or CVD
  - Restricted, especially static sports, until BP controlled.
- If end organ damage;
  - May play if sport does not exacerbate damage or place child at risk.

3) HTN and CV disease

- Restricted participation dependent on nature of CV disease.



\*AAP Committee on Sports Medicine and Fitness, 1995

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## Adolescent Case Study

- What are diagnoses?
- Joe is a 16 year old Hispanic male in for a sports physical.
- You have talked to him about his weight before.
- BMI is 32 and his blood pressure is 128/90.
- Your schedule is full!
- What is your approach?

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Example of NC SBHCs Going Beyond Their Practice (Prevention and Treatment)

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## The Role of SBHCs in Addressing Childhood Obesity

- Leader in child health to emphasize prevention and early intervention
- Sensitive to unique needs of children and adolescents with the ability to provide culturally sensitive, age-appropriate services
- Opportunity for access to students with services provided regardless of the ability to pay
- Qualified, highly trained, interdisciplinary teams comprised of RD, nutritionist, FNP, RN

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*FirstHealth of the Carolinas*  
*Montgomery County School Health Centers,*  
*East & West*  
*(Middle Schools Grades 6-8)*



## Childhood Obesity Committee

- Subcommittee of the Continuous Quality Improvement (CQI)/Advisory Board
- Formed Fall 2007 to explore childhood obesity in Montgomery County Schools
- Chaired by SBHC RN
- Recruited key stakeholders/members – SBHC FNP, SBHC nutritionist & RD, school nurses, middle school principal, Director of Student Services, School Nutrition Director, PE teacher, Health Department educator



## Childhood Obesity Committee – Topics for Discussion

- Cafeteria food and drinks
- Cafeteria snacks
- Vending machines
- Fundraisers
- Classroom rewards
- Parent provided snacks
- Physical Activity
- Back-pack Pals – program designed to meet the needs of hungry children, who have little to eat over the weekend
- School/SBHC staff – lead by example
- BMI data collection



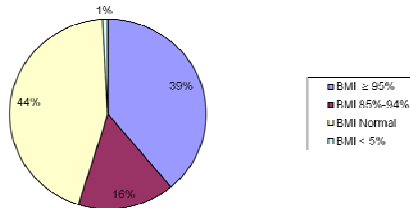
## BMI Data Collection

- Great partnership with Montgomery County Schools
- Collaboration with school nurses, teachers and students
- SBHC nurses
- SBHC Nutritionist
- SBHC FNP



## BMI Discovery

Page Street 3rd Graders  
2007-08



## Page Street Intervention – HEAP “Healthy Eating Active Play”

- 3<sup>rd</sup> Graders – 39% obese; 16% overweight
- Intervention developed –RD, Nutritionist, FNP
- Nutritionist as instructor
- 4-week program
- Pretest of knowledge and behaviors
- One 45 minute class/week . Fun activities & healthy snacks focusing on healthy eating and increasing physical activity
- Post-test
- BMIs recalculated

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## HEAP Process

- Childhood obesity committee review
- Superintendent approval
- School Board approval
- Principal involvement
- Enlisted 3<sup>rd</sup> grade teachers
- Letter to parents – description of program and invitation for participation

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## Week 1

- 45 minute session
- Pretest to test knowledge and behaviors
- Nutrition education – healthy snacks vs. unhealthy snacks
- Child-friendly handout to be placed on refrigerator at home as reminders
- Exercises using stretch bands
- Baby carrots for snack

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## Week 1 - What to Dump

SODA  
SWEET TEA  
KOOL-AID  
LEMONADE  
SUNNY DELIGHT  
POWERADE  
GATORADE  
FRUITOPIA  
YOOHOO  
CAPRI-SUN  
NABS  
RICE KRISPY TREATS  
KLONDIKE BARS



CHIPS  
COOKIES  
CANDY  
DORITOS  
HOT FRIES  
CHEETOS  
LITTLE DEBBIES  
CAKES & PIES  
BROWNIES  
CHOCOLATE  
HONEY BUNS

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## Week 1 – What to Pick Up



1% OR SKIM MILK  
WATER  
CAFFEINE FREE/ UNSWEETENED TEA  
CAFFEINE FREE / DIET SODA  
HOMEMADE LEMONADE WITH SPLENDA  
100% JUICE ONCE A DAY ONLY  
LITE MICROWAVE POPCORN  
CELERY / PEANUT BUTTER  
CARROTS WITH LOW FAT DRESSING  
PEANUT BUTTER CRACKERS (whole wheat)  
APPLES-ORANGES-BANANAS-FROZEN GRAPES  
STRING CHEESE  
NUTS  
RAISINS, DRY CHEERIOS, PRETZELS  
FROZEN YOGURT

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## Week 2

- 45 minute session
- Nutrition education - fruits and vegetables to add to breakfast, lunch and dinner
- Physical activity – exercises to do while watching TV – Squats, lunges, jumping jacks, push-ups
- Child friendly handout
- Healthy snack – presliced apples

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## Week 2



### WHAT FRUITS TO ADD TO BREAKFAST

Bananas  
Raisins  
Apples  
Peaches

Cut up fruit to top your waffles versus syrup  
Yogurt in place of syrup

Eat your fruit & vegetables that come with lunch!

### FRUITS & VEGETABLES TO ADD TO

#### LUNCH & SUPPER

Carrots & celery sticks  
Cucumber slices  
Applesauce cups

Apples, oranges, or bananas

Bring salad to school

Supper – 1/2 of your plate should be vegetables

Try the vegetables your mom makes at least three times before you say you don't like it.

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**Week 2 – Healthy Eating and Physical Activity Go Hand in Hand**

Exercise can be fun – in fact it's child's play!



Make it a family affair



Limit TV viewing time to 2 hours or less/day

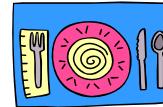


Be physically active for 60 minutes every day



**Week 3**

**HOW SHOULD YOUR PLATE LOOK?**



One-half (1/2) of your plate should have vegetables

One-fourth (1/4) of the plate should have your meat or protein

One-fourth (1/4) of the plate should have your starches (bread, pasta, rice, potatoes)



**Week 4**

- 45 minute session
- Nutrition education – how to make healthy choices when eating out
- Physical activity – stretching and relaxation
- Child friendly handout
- Healthy snack – ½ banana



**Week 4 – Healthy Meals on the Run**



**RESTAURANTS**  
McDonalds

**CHOICES**

1% milk, mandarin oranges, unsweetened tea, apple dippers, or yogurt with fruit

Zenos

Grilled chicken, vegetable pizza, salad

Sir Pizza

Salad bar, fruit choices, vegetable pizza

Mazatlan

Ask the waiter to take the chips off the table when you sit down. Take ½ of your order home for a later meal.

Penny's

Order the small order and stay away from sauces.

BoJangles

Grilled chicken, no biscuit. Ask for a bun instead.

Subway

Ask for the kid's meal, salad and no chips.



## Results???

BMI – 1% decrease in obese students  
from 39% to 38%

Correct answers:

Pretest – 51%

Post-test – 98%

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## 2008 NC Stars Fruit and Veggies Silver Award – Healthcare Division



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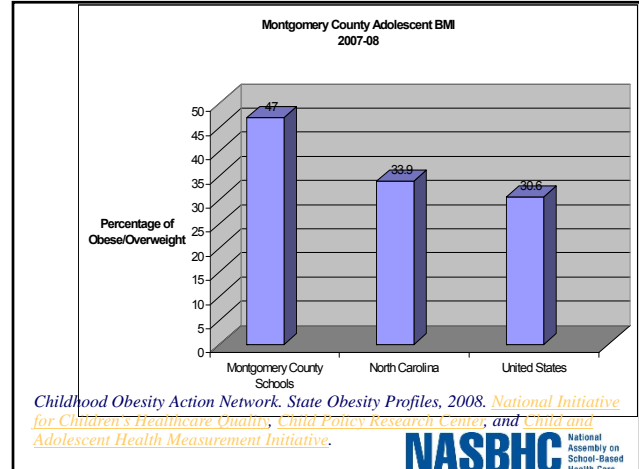
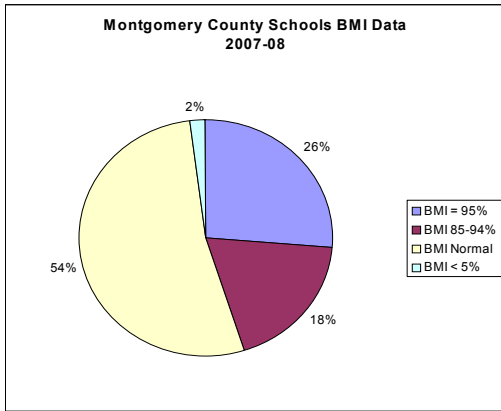


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## BMI Completion



## 2007-08 BMI Data

Data reported to:

- CQI/Advisory Board
- Childhood Obesity Committee
- School Superintendent
- School Board
- FirstHealth of the Carolinas
- Health Department
- Regional Childhood Obesity Summit

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## SBHC 2008-09 Childhood Obesity Efforts

- Nutritional assessment utilizing HEAP quiz on all students enrolled at the SBHCs (EMS/WMS)
- Ht/wt/BMI calculated and plotted
- Early referrals made to SBHC nutritionist for BMI  $\geq$  85%
- Referral to SBHC RD for BMI  $\geq$  95%
- 2-3 nutritional counseling sessions – **1345** nutrition visits

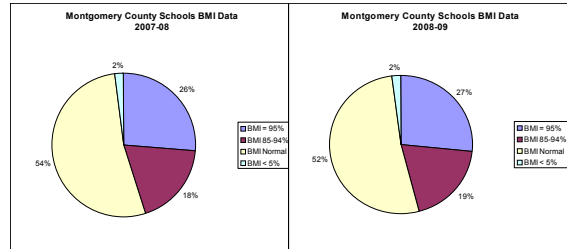
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## SBHC/school-wide 2008-09 Efforts

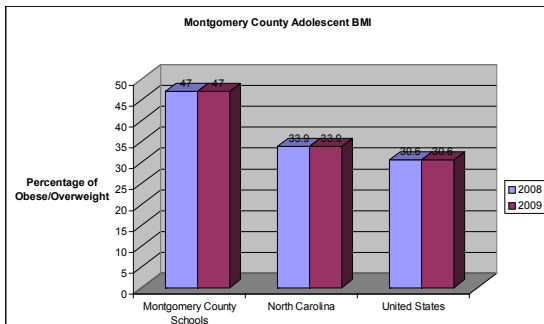
- Alignment with MCS system goals – **“Promote a child-centered culture of health, rigor, and high expectations”**
- Nutritionist collaborated with school staff in forming after school walking clubs at both middle schools – 130 miles walked
- Health Eating Every Day (HEED) classes for school staff
- HEAP classes for targeted grades
- BMI data collection for all MCS students grades pre-K-12



## 2008-09 BMI Trends



## 2008-09 BMI Trends

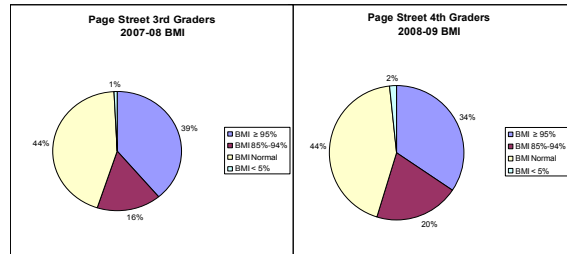


Childhood Obesity Action Network. State Obesity Profiles, 2008. National Initiative for Children's Healthcare Quality, Child Policy Research Center, and Child and Adolescent Health Measurement Initiative.



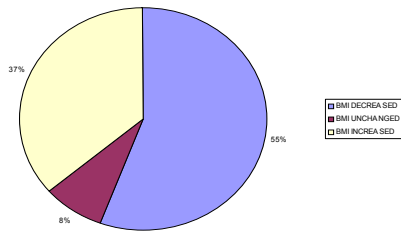
## 2008-09 BMI Trends

### Page Street HEAP Students



## SHC BMI Trends

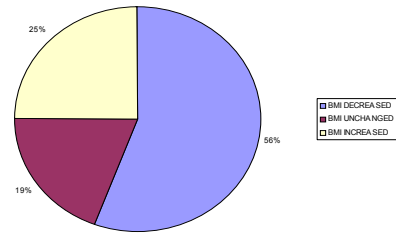
BMI after 2nd Nutrition Visit  
SHC East 2008-09



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## SHC BMI Trends

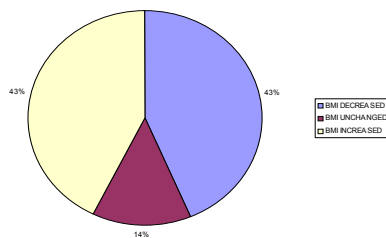
BMI after 3rd Nutrition Visit  
SHC East 2008-09



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## SHC BMI Trends

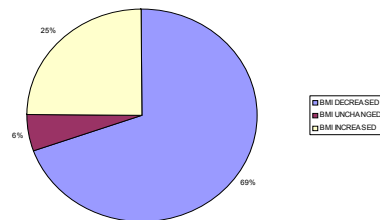
BMI after 2nd Nutrition Visit  
SHC West 2008-09



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## SHC BMI Trends

BMI after 3rd Nutrition Visit  
SHC West 2008-09



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## SHC BMI Trends

Overall **decrease** in BMI of  
OB/OW students: 71%  
*n = 279*



## “HEAP” – Healthy Eating Active Play

2008-09

- Presented to Candor 3<sup>rd</sup> graders – last year were most obese in MCS at **41%** obese
- Green Ridge 3<sup>rd</sup> graders
- Mt. Gilead 4<sup>th</sup> graders
- 176 *HEAP* students this year



## 2008-09 HEAP Outcomes

Candor/Green Ridge/Mt. Gilead

**Pretest – 58% Correct**  
**Post-test – 93% Correct**



## Additional school-wide efforts

- SPARK curriculum in K-8  
[www.spark.org](http://www.spark.org)
- Fitnessgram software to track BMI
- Healthy Kids/Healthy Communities grant
- School Nutrition Director developing healthier menus
- 3 schools received fruit grants
- Target grades with highest BMIs for HEAP



## 2009-10 SBHC Efforts

- Nutritional assessment on all SBHC enrollees
- Prevention/early intervention
- 5-3-2-1-Almost None
- Increased nutritional services for SHCS in 2009-10 by increased nutritional services to 4 days total/week
- Actively seek resources/funding for innovative methods for addressing childhood obesity

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## SHC Successes...



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## QUESTIONS



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