

## Obesity Basics 101: Role of the Primary Care Provider

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## Objectives

After this session, participants will be able to...

- ◆ Interpret growth charts, exam findings
- ◆ Elicit focused diet and activity history
- ◆ Assess risk: co-morbidities & persistence
- ◆ Describe best practices for achieving behavior change;
- ◆ Code strategically for reimbursement
- ◆ “Practice” cases

## Step 1: Assess BMI & Growth

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If there was an infectious disease that had...

- double - tripled in prevalence,
- was afflicting 25-30% of children of all ages,
- had life life-long, potentially life threatening impact...

*Would we be acting?*

*Would we take 10 sec to plot a point?*

## Are MD's Using the BMI Charts?

- ◆ 31 % of pediatricians: “Never”
- ◆ 11% : “Always”
- ◆ Use of BMI (*cf* ht & wt) associated with:
  - Greater assessment of “obesity”
  - Greater concern about co-morbidities
- ◆ “Visual diagnosis” subject to under-diagnosis

*Perrin et al, J Peds 2004*

## Body Mass Index

◆ Metric measurements:

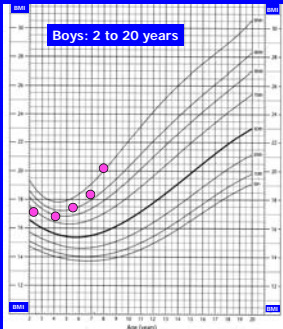
$$\frac{\text{Weight}}{\text{Height}^2} \quad \frac{\text{kg}}{\text{m}^2}$$

(weight (kg) ÷ height (cm) ÷ height (cm))

◆ English measurements:

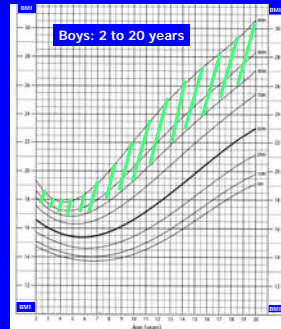
Weight (lb) ÷ Height (in) ÷ Height (in) x 703

## BMI Charts: Why BMI?



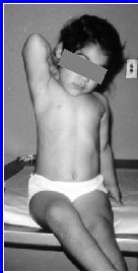
- BMI  $\propto$  body fatness
- BMI = screening tool
- Allows tracking of weight relative to height
- Age-specific BMI values
- Identify high risk patterns:
  - Rapid changes in BMI
  - Risk of complications
- Childhood BMI tracks into adulthood

## BMI Charts: Definitions



- At risk of overweight: 85-95<sup>th</sup> BMI % for age
- Overweight:
  - > 95<sup>th</sup> BMI % for age

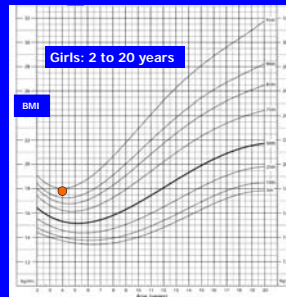
## Can you see risk?



- 4 year old girl
- Is her BMI-for-age
  - 5<sup>th</sup> to <85<sup>th</sup> percentile: normal?
  - $\geq$ 85<sup>th</sup> to <95<sup>th</sup> percentile: "at risk for overweight"?
  - $\geq$ 95<sup>th</sup> percentile: "overweight" ?

Photo from UC Berkeley Longitudinal Study, 1973

## Plotted BMI-for-Age



Measurements:  
Age = 4 y

Height = 99.2 cm  
(39.2 in)

Weight = 17.55 kg  
(38.6 lb)

BMI = 17.8 =  
85-95<sup>th</sup> percentile  
"At risk for overweight"

## Can you see risk?

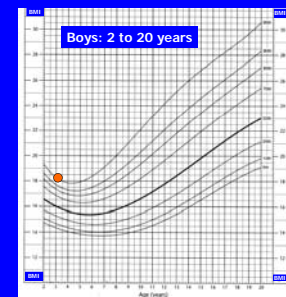


- 3 year old boy
- Is his BMI-for-age
  - 5<sup>th</sup> to <85<sup>th</sup> percentile: normal?
  - $\geq$ 85<sup>th</sup> to <95<sup>th</sup> percentile:
  - $\geq$ 95<sup>th</sup> percentile: overweight?

Photo from UC Berkeley Longitudinal Study, 1973

CDC

## Plotted BMI-for-Age



Measurements:

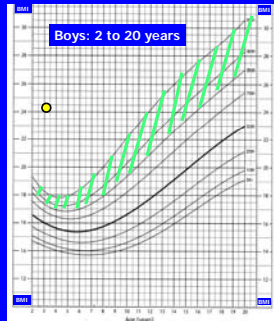
Age = 3 y 3 wks

Height = 100.8 cm  
(39.7 in)

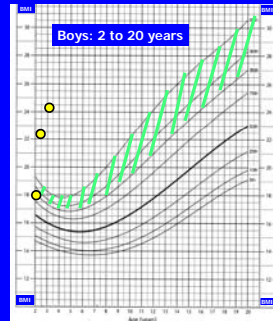
Weight = 18.6 kg  
(41 lb)

BMI = 18.3  
BMI-for-age ~ 95<sup>th</sup> percentile  
"overweight"

### Use of BMI: Progression of Excessive Weight Gain



### Use of BMI: Progression of Excessive Weight Gain



### Early Identification – BMI vs Visual Diagnosis



### BMI: Summary

- ◆ BMI > 95<sup>th</sup> % strongly correlates with body fat
- ◆ BMI crossing major percentile line warrants anticipatory guidance (at minimum)

### Step 2 Assessment:

History, history, history!

### 4 Essential Components of History

- ◆ Diet
- ◆ Physical activity
- ◆ Family History
- ◆ Review of Systems
- ◆ GOALS:
  1. Identify targets for behavior change
  2. Assess risk (co-morbidities, risk of persistence)

## Targeted Diet Assessment

## Diet History: 4 points (2 B's, 2 Fs')

- ◆ **B**everages
  - Juice/soda/sports drinks/milk
- ◆ **B**reakfast
  - Skipping meals promotes later overeating
  - Content? Simple carbs?
  - Eating routines
- ◆ **F**ruits & vegetables
  - Goal  $\geq 5$  servings/d
- ◆ **F**requency of eating out (*any* restaurant/take out)
  - High risk for excessive portion sizes + high fat

## Targeted Feeding History – Young Patients

- ◆ **I**nfant feeding
  - **B**ottle practices (adding cereal?)
  - Responsive to infant hunger cues or propping
  - Food choices
- ◆ **T**oddlers
  - Beverages – juice/milk
  - Food choices – F/V vs sweets, French fries
  - Frequency/routines - grazing
  - Portions – toddler vs adult



## Early Introduction of Solids?

- ◆ 29% of infants receive solids before 4 mo
- ◆ Only 6% of infants reached 6 mo w/o solids!!
- ◆ > 50% of a WIC sample put cereal in bottle – “because the doctor said my milk was too thin”
- ◆ Early solids (0-3 mo) = problem?
  - ↑ risk of developing early markers of type 1 diabetes (islet autoimmunity);
  - ↑ risk of obesity = ???
- ◆ Reflection of maternal/family feeding behaviors

## Portion Sizes: Toddler vs Adult



### Recommended Serving Sizes for Toddlers:

- Fruits: ½ piece
- 2-4 oz juice
- Grains: ½ sl bread
- ¼ - ½ c pasta
- Milk: 4 oz x 4/d

## Feeding practices & structure

- ◆ **F**amily meals
  - ↑ F/V; ↓ soft drinks
- ◆ **S**tructured eating routines
  - (not grazing, not skipping meals)
- ◆ **A**void eating in front of TV
  - ↓ F/V, ↑ soft drinks
  - ↑ TV time, ↑ probability of TV in bedroom
- ◆ **P**resent appropriate portions
  - “You provide, they decide”

## Targeted Physical Activity Assessment

## Physical Activity Hx: 4 points (SSOB)

- ◆ Screen time - hr/day
  - TV, video, video games, computer
  - TV in bedroom?
- ◆ Sports/organized physical activity
- ◆ Outdoor time
  - After-school, weekend activities (w/ family?)
- ◆ Barriers
  - To walking/biking to school, free play

### Limit Screen Time



- ◆ ↓ energy expenditure w/ ↓ physical activity  
(TV < videogames, school work, arts)
- ◆ ↑ energy intake – during or from ads
- ◆ Low income preschoolers:
  - 40% with TV in bedroom
  - TV in bedroom  $\alpha$  ↑ TV hrs & overweight
- ◆ *Reduction of TV time: relative ↓ in BMI*
- ◆ AAP: NO TV < 2 yr

### Promote Physical Activity



- ◆ Unstructured gross motor play important for development:
  - Brain/cognitive
  - Social & emotional
- ◆ Parental support for child's activity positively associated w/ children's level of activity
- ◆ Outdoor time is one of strongest predictors of children's overall activity level

## Kids CAN Now Be Little Adults!



- ◆ Stroller capacity now for children 4-6 yr olds
- ◆ 45 lb in front, 50 lb back capacity (max = 66 lb)
- ◆ "Safer & faster" in crowds
- ◆ Accessories: cup holders, food tray, cell phone pocket, storage bins, "all terrain wheels"
- ◆ "Containerizing children?"

## Physical Activity: Issues



- Environments/facilities
- Safety (developmental benefit vs risks)
- Family structures/working parents / busy schedules
- Encourage  $\leq$  60 min sedentary time at a stretch

## Family History

## Family Hx: Risk for Persistence



- ◆ 1 parent ob: O.R. = 3
- ◆ 2 parent ob: O.R. > 10
- ◆ < 3 yr, parental obesity stronger predictor of child's weight

## Family History: Risk of Co-morbidities

- ◆ Obesity
- ◆ Cardiovascular disease
  - Hyperlipidemia/metabolic syndrome
  - Hypertension
- ◆ Type 2 diabetes
- ◆ Psychologic history
  - Depression, disordered eating

## Review of Systems

## Risk Factors for Co-Morbidities

### History

- Developmental delay
- Poor linear growth
- Headaches
- Night-time breathing problems
- Daytime sleepiness
- Abdominal pain
- Hip or knee pain
- Menstrual abnormalities
- Binge eating/purging

### Condition?

- Genetic disorder
- Endocrinopathy
- Pseudotumor
- Sleep apnea
- Sleep apnea
- Gall bladder dis
- Slip cap fem epiph
- PCO
- Eating disorder

## Physical Exam

## Physical Exam Findings

- ◆ Short stature
- ◆ Depressed affect
- ◆ ↑ blood pressure
- ◆ Skin: acanthosis nigricans, dark striae
- ◆ Eyes: papilledema
- ◆ Hepatomegaly
- ◆ Extremities  
(tenderness, small hands/feet, bowed legs)
- ◆ Neuro – DTR's



## Laboratory Studies

## Labs - Considerations

- ◆ Risk factors, impact on treatment, motivation, cost
- ◆ Fasting:
  - Lipoprotein profile
  - Glucose (+/- insulin?)
    - » ≥ 10 yr, BMI ≥ 85<sup>th</sup> %, + FHx/non-Caucasian/Signs of insulin resistance (2/3)
- ◆ Hepatic transaminases
- ◆ ? Glucose tolerance
- ◆ ? Sleep study
- ◆ ? ECHO

## After Assessment, Then What?!

## Principles of Treatment

- ◆ Assess – USE BMI Charts!!
- ◆ Readiness to change
  - Barriers to change (“What’s going to be hard?”)
  - Motivators for change (variable; kid vs parent)
  - Involve patient/parent in identifying changes
- ◆ Family involvement
- ◆ BOTH eating/diet + physical activity recommendations
- ◆ Value the child

See Barlow et al,  
*Pediatrics* 1998;102(3)

## Principles of Treatment

- ◆ Establish rapport
  - Who is this person?
  - Typical day
- ◆ Set the agenda
  - Multiple behaviors: Which is *patient* most interested in changing? Diet, activity?
  - Single behaviors (I’m concerned about...)
- ◆ Assess Confidence & Importance
  - Scale 1-10

## Guiding Principles

- ◆ Effective communication
  - “Are you concerned about your child’s weight?”
  - “I’m concerned [child’s] weight is getting ahead of his height.”
  - To older child: “Is your weight ever a problem for you?”
- ◆ Beware/avoid pejorative terms (obesity)
- ◆ Negotiate for *family* change

## Principles of Treatment

- ◆ Diet: simple & explicit
- ◆ Physical activity: choice, fun
- ◆ Goals & rewards
  - Proximal vs distal, weight vs behavior
- ◆ Individualized *joint* problem solving – choose a few things
- ◆ Barriers to change usually bigger problem than motivation; choose your “battles”
- ◆ Avoid being judgmental & avoid stigmatization

## Goals, Strategies, Targets: General to Specific

<u>Goal</u>	<u>Strategy</u>	<u>Target</u>
↓ Wt	↓ fatty foods	Cut out fried potatoes Change to low fat milk
	Eat new food	Eat one fruit every day
	Be more active	Walk to/from school [x] d/wk Limit TV to 2 hr/d max

*[Adapted from Rollnick et al, Health Behavior Change]*

## Motivators for Children



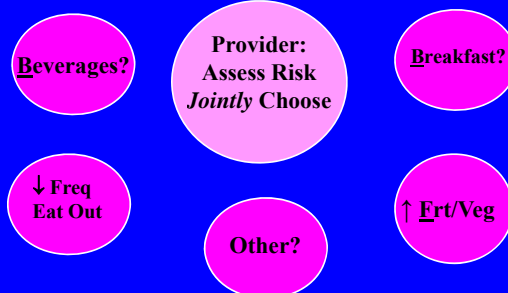
- ◆ Fun
- ◆ Challenge
- ◆ “Ask for less, they’ll give you more”
- ◆ Responsive to peer/social approval (want to please adults)
- ◆ Sensitive to looks
- ◆ Social interaction
- ◆ Simple & explicit
- ◆ “If you can’t count it, you can’t change it”

## 4 Components of Behavioral Strategies

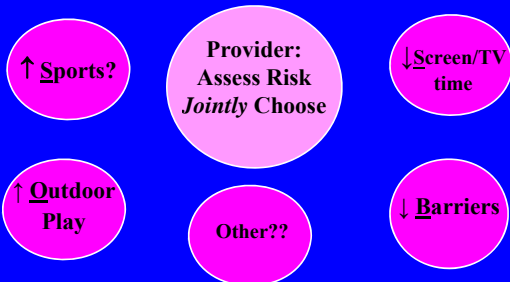
- ◆ Clean up / Control the environment
  - E.g. Eliminate sugar sweetened beverages from home; serve fruits & veg
- ◆ Self-monitoring behavior
- ◆ Set achievable, specific goals
- ◆ “If you can’t count it you can’t change it”
- ◆ Rewarding successful behavioral change
  - E.g. Praise, privileges, time w/ parents; Ø food, \$\$\$

*Dietz & Robinson, NEJM, 2005*

## Setting the Agenda/Negotiating Change Where to Begin? DIET



## Setting the Agenda/Negotiating Change Where to Begin? PHYSICAL ACTIVITY

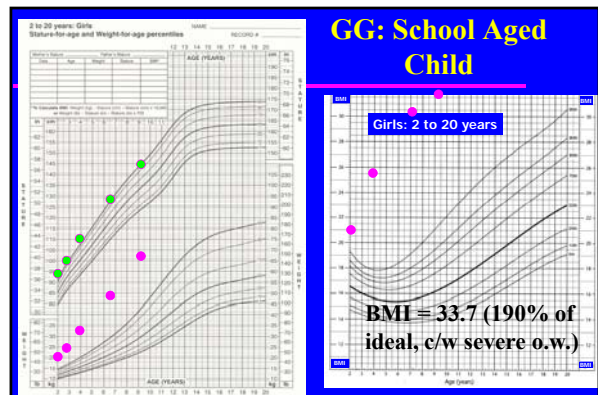


## Billing and Coding

- ◆ A “tricky” concept
- ◆ Make sure document time spent with family as much of the time spent is in counseling
- ◆ BMI coding
  - V85.5 series
- ◆ Overweight code
  - 278.02
- ◆ Coding for “Obesity”
  - 278 series

## GG

- ◆ 9-1/2 yr old girl, healthy
- ◆ Cc: Parents:
  - concern about ↑g wt & effects on health
  - Want pt to become more committed to health
  - Importance: 10/10; Confidence: 9/10
- ◆ What is the problem?
  - “She loves food; watches food network on cable, cookbooks, etc”
  - Patient: eating makes her “feel better”
  - Importance: 5/10; Confidence: 7/10)



## GG: School Aged Child

BMI = 33.7 (190% of ideal, c/w severe o.w.)

## 9 yr old GG

### Diet hx:

[Brk: 2 sl pizza + ice cream (2 scoops)  
Lunch: double cheeseburger & fries  
Dinner: hamburger, bun, 2 scoops of ice cream]

Fruits & Vegetables: nil!

Breakfast: poor choices; routines: few limits;  
“doesn’t know when to stop eating”

Often skips lunch, eats through evening

## GG

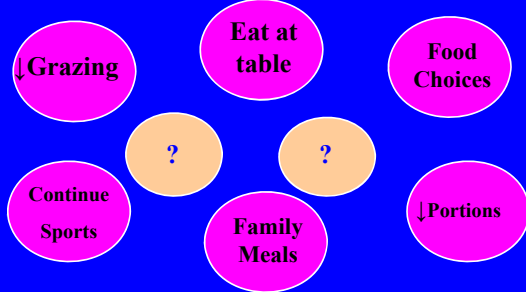
### Activity history:

- ◆ Screen time: < 2 hr TV/d; computer < 1x/wk
  - ◆ Sports: Competitive jump roping, soccer – 2-4x/wk
- PMHX: benign; h/o hyperlipidemia  
FHx: BMI: Dad 26; Mom 22; + hx T2DM, obesity, hypertension, g.b. disease  
ROS: mild joint c/o; o/w negative

## GG

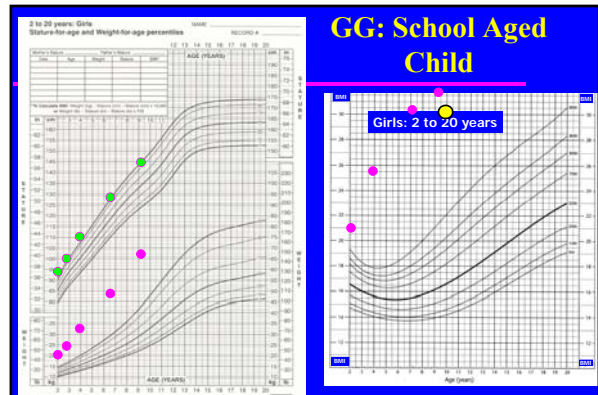
- ◆ Exam: positive acanthosis nigricans, o/w unremarkable except for overweight status
- ◆ Assessment:
  - Severe overweight
  - At risk for insulin resistance, hyperlipidemia
  - Multiple dietary problems
    - » Excessive portion sizes
    - » Lack of structure/limits on eating
    - » High risk foods in household

## Setting the Agenda: A Joint Proposition



## GG: Recommendations

- ◆ Diet & Eating
  - ↓ portions/size of breakfast (max 2-3 pancakes *or* 1 piece french toast) [**achievable goal**]
  - Eat only in the kitchen, w/ adult present [a.g.]
  - “Close the kitchen” between meals/snacks
  - Keep ice cream out of house [**clean up environment**]
- ◆ Activity – continue soccer & jump rope
- ◆ Behavior
  - Kept “health calendar” [**self monitoring**]
  - Weigh self q 2 wk (set a start date) [s.m.]



## Essential Components of History + Strategy for Intervention

- ◆ Assess BMI
- ◆ Diet (2 F's, 2 B's) - + P.E.
- ◆ Physical activity (SSOB) - +/- Labs
- ◆ Family History
- ◆ Review of Systems

### Behavior Change:

- ◆ Clean up Environment
- ◆ Self-monitoring
- ◆ Set achievable goals
- ◆ Reward successful behavior