



Pediatric Obesity: To Treat or Not To Treat?

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Objectives

- Overview Pediatric Obesity Epidemic
- Clinical Practice Guidelines for Pediatric Obesity
- Medical Co-Morbidities of Pediatric Obesity
- Treatment vs. Prevention



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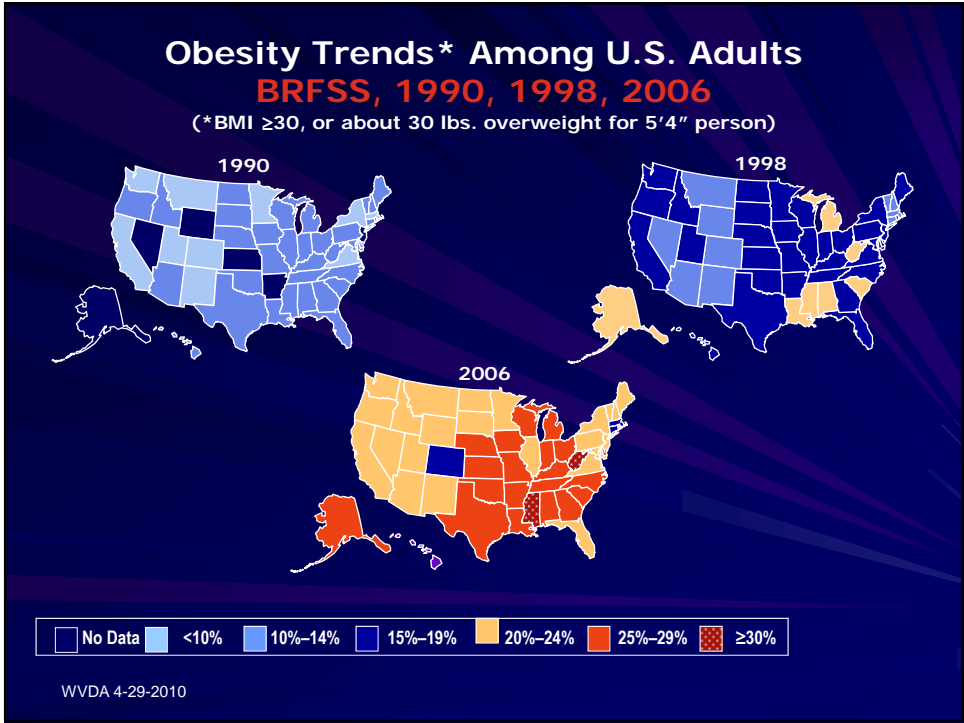
Obesity Trends Among U.S. Adults between 1985 and 2006

Definitions:

- **Obesity:** having a very high amount of body fat in relation to lean body mass or BMI ≥ 30
- **Body Mass Index (BMI):** a measure of an adult's weight in relation to height, specifically the adult's weight in kilograms divided by the square of his/her height in meters.
- **BMI = Wt / Ht^2**

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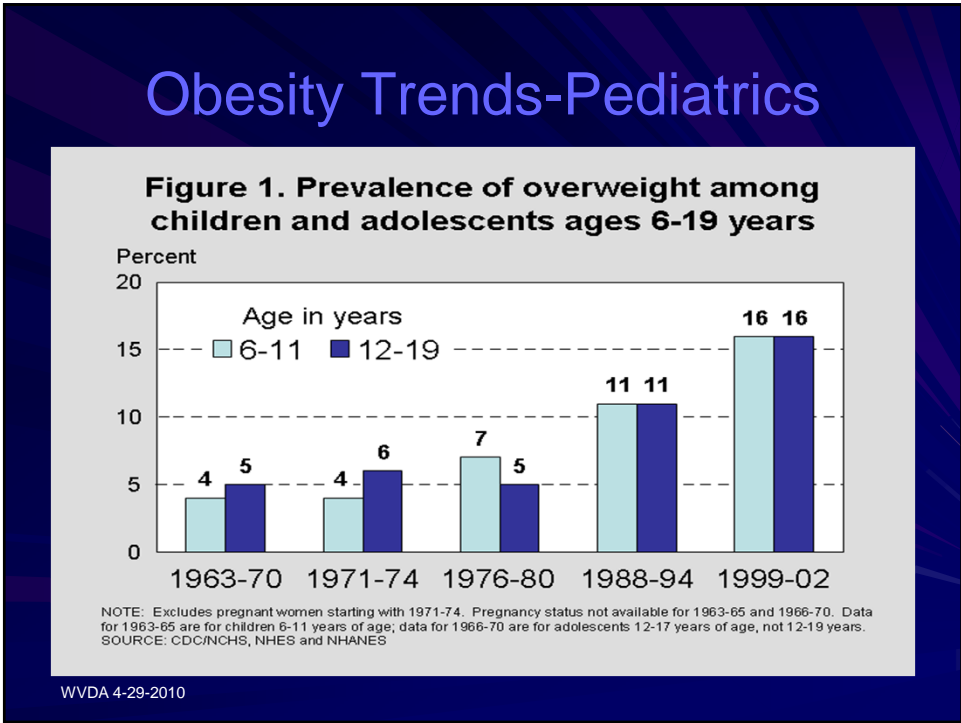
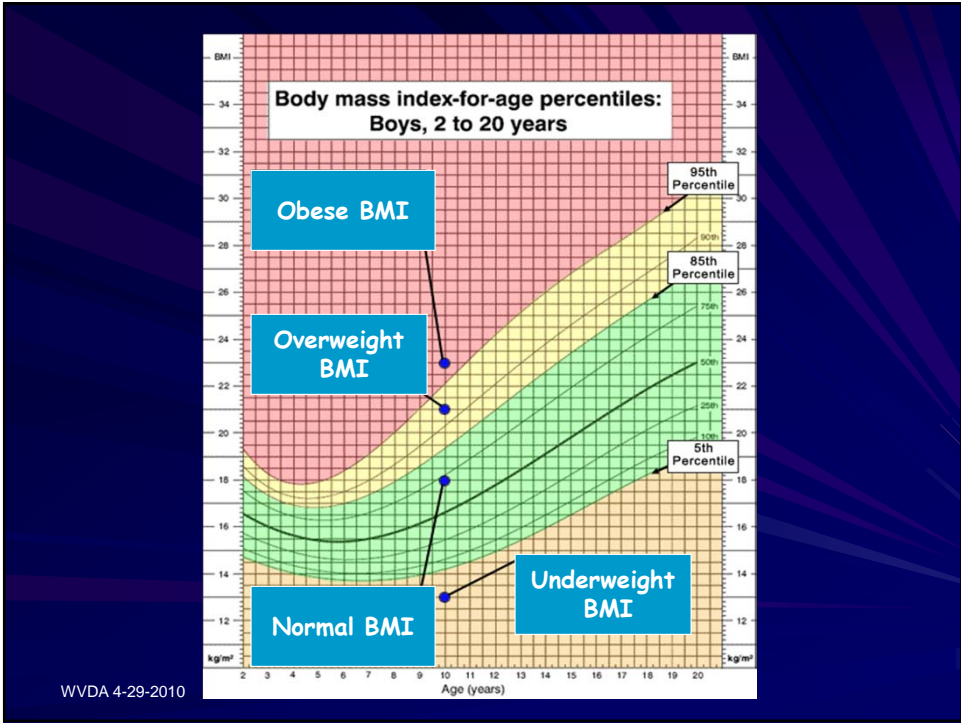




Obesity Trends-Pediatrics

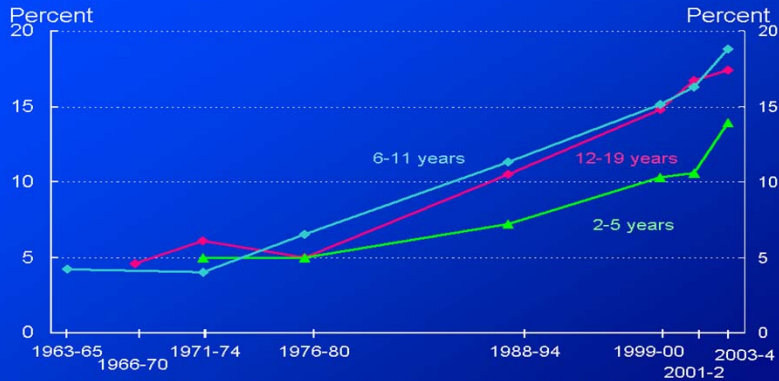
- National Health & Nutrition Exam Survey (NHANES)
- BMI $>95\%$ on gender specific BMI-for-age growth charts

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NHANES Prevalence Data

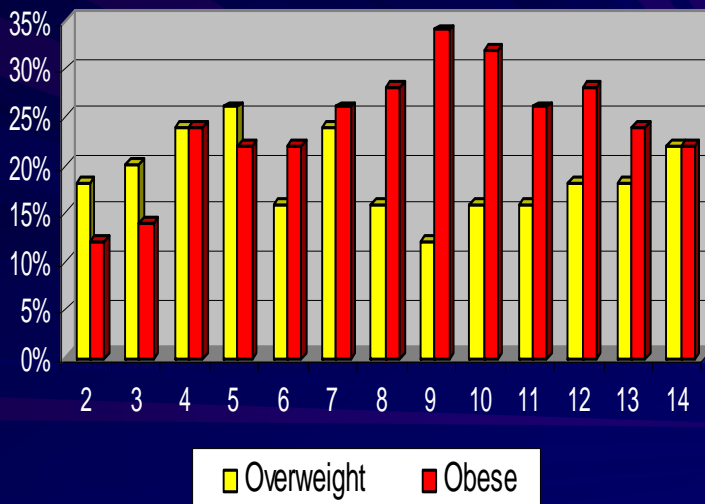
Trends in Child and Adolescent Overweight



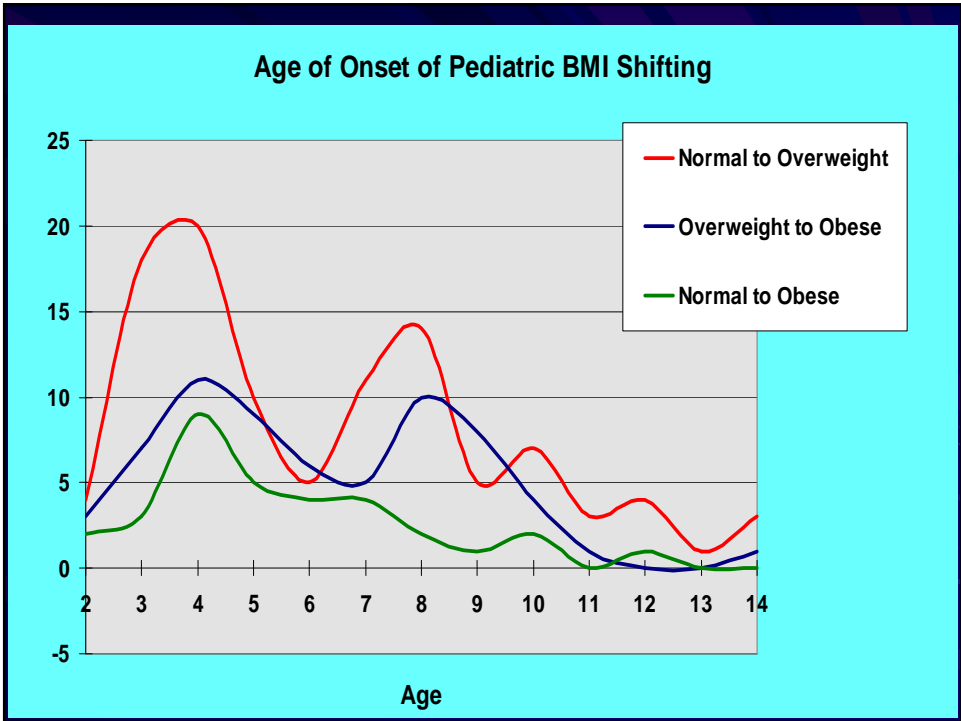
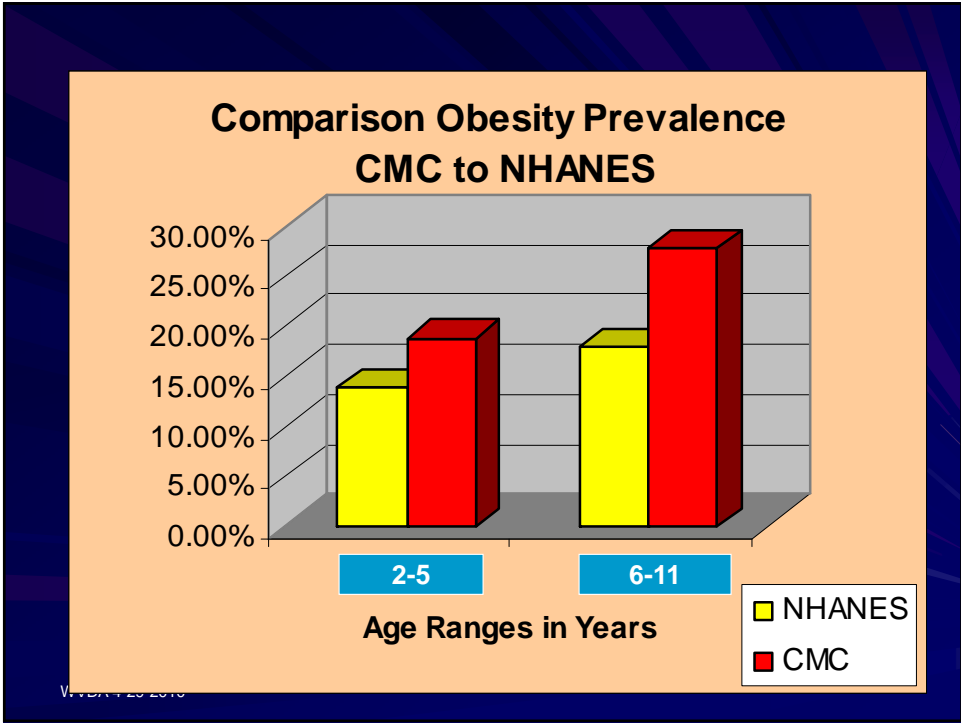
Note: Overweight is defined as BMI \geq gender- and weight-specific 95th percentile from the 2000 CDC Growth Charts.
 Source: National Health Examination Surveys II (ages 6-11) and III (ages 12-17), National Health and Nutrition Examination Surveys I, II, III and 1989-2004, NCHS, CDC.

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Overweight and Obesity BMI in CMC



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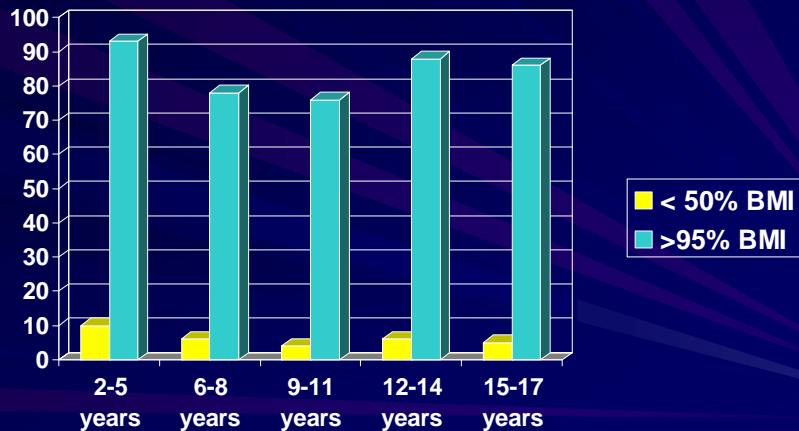


Bogalusa Heart Study

- Cohort Based 1973-1996
- 2,610 Children 2-17 years followed to ages 18-37 years
- Mean follow-up 17.6 years
- BMI-for-age & Skinfold (SF) thickness in childhood compared to adult mean SF (subscapular & triceps SF)

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Bogalusa: Proportion of Children Who Become Obese Adults



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American Heart Association Meeting, 11-2008

- 70 Children Ages 10-16 with abnormal cholesterol and most obese
 - Ultrasound determined “vascular age” by wall thickness of carotid
 - The group age was 30 years old than their actual age
 - Indicative of increased risk of heart disease

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Complications of Pediatric Obesity

- Diabetes, Type II
- Hypertension
- Dyslipidemia
- Metabolic Syndrome
- Sleep Apnea
- NASH
- Gallbladder Disease
- Asthma
- Depression/Anxiety
- Bullying
- PCOS
- Blount's Disease
- Symptomatic Pes Planus
- Chronic Knee Pain
- Pseudotumor Cerebri
- Osteoarthritis

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Etiologies

Nature Vs
Nuture



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Expert Committee Recommendations (June, 2007)



www.ama-assn.org/ama/pub/category/11759.html

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Maine "Keep Me Healthy"



**Pediatric Obesity Clinical
Decision Support Chart**

keep ME healthy

5210

- 5 Eat fruit and vegetables at least 5 per 100 times per day
- 2 Limit screen time to no more than 2 hours per day
- 1 Get 1 hour or more of moderate to vigorous physical activity every day and 60 minutes of vigorous activity at least 3 times a week
- 0 Drink less sugary water and the fat risk instead of super-saturated drinks

Treatment Interventions for the Overweight Child (Feeding Guide for Children over)

Tips for Busy Clinicians (Resources over)

Obesity Assessment

Medical Screening by BMI Category (Reference Values over)

10-Minute Obesity Prevention Protocol

Universal Assessment of Obesity Risk

Hypertension in Children (Hypertension Management Algorithm over)

Blood Pressure Levels—Boys (Girls over)

Coding for Obesity and Related Comorbidities

Body Mass Index (BMI)—Girls (Boys over)

Body Mass Index 90th Percentile Cut-Points/Weight Loss Targets

www.aap.org

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Let's Move and 5210



R_x for Healthy Active Living

Name _____ Date _____

Ideas for Living a Healthy Active Life

- 1 Eat at least 5 fruits and vegetables every day.
- 2 Limit screen time (for example, TV, video games, computer) to 2 hours or less per day.
- 3 Get 1 hour or more of physical activity every day.
- 4 Drink fewer sugary sweetened drinks. Try water and low-fat milk instead.

My Goals (choose one you would like to work on first)

<input type="checkbox"/> Eat _____ fruits and vegetables each day.	<input type="checkbox"/> Get _____ minutes of physical activity each day.
<input type="checkbox"/> Reduce screen time to _____ minutes per day.	<input type="checkbox"/> Reduce number of sugary drinks to _____ per day.

Patient or Parent/Guardian signature _____ From Your Doctor _____

Doctor signature _____

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UNIVERSAL ASSESSMENT OF OBESITY RISK

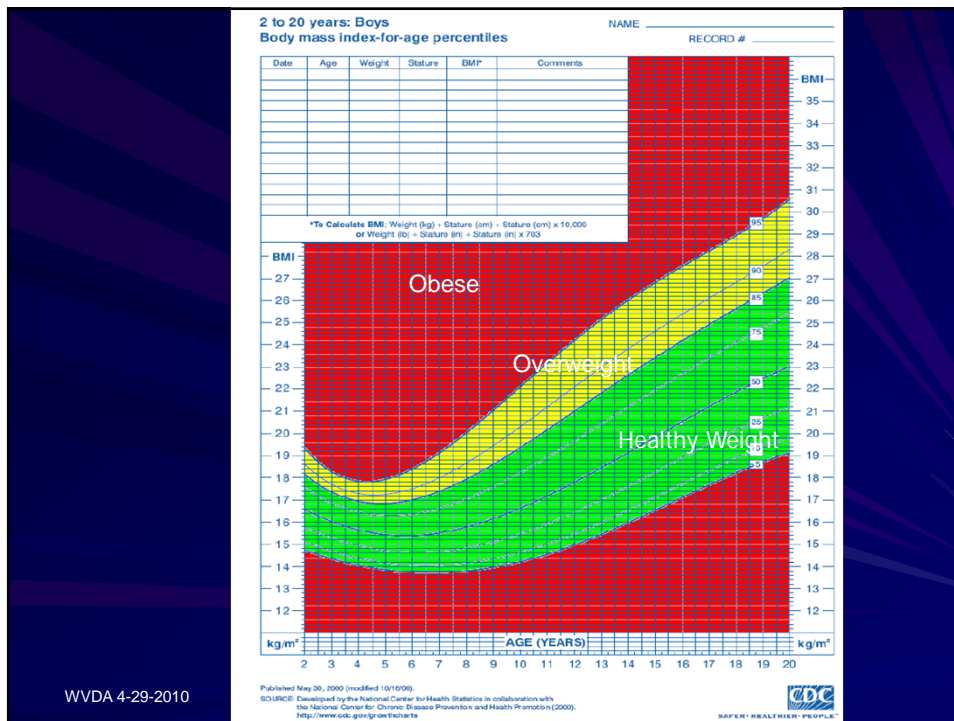
- **Identification:** Calculate and plot BMI at every WCC
- **Assessment:** Identify medical risk, problem behaviors, and attitudes about healthy lifestyle
- **Prevention:** Make a plan based on patients motivation, BMI category and risk factors

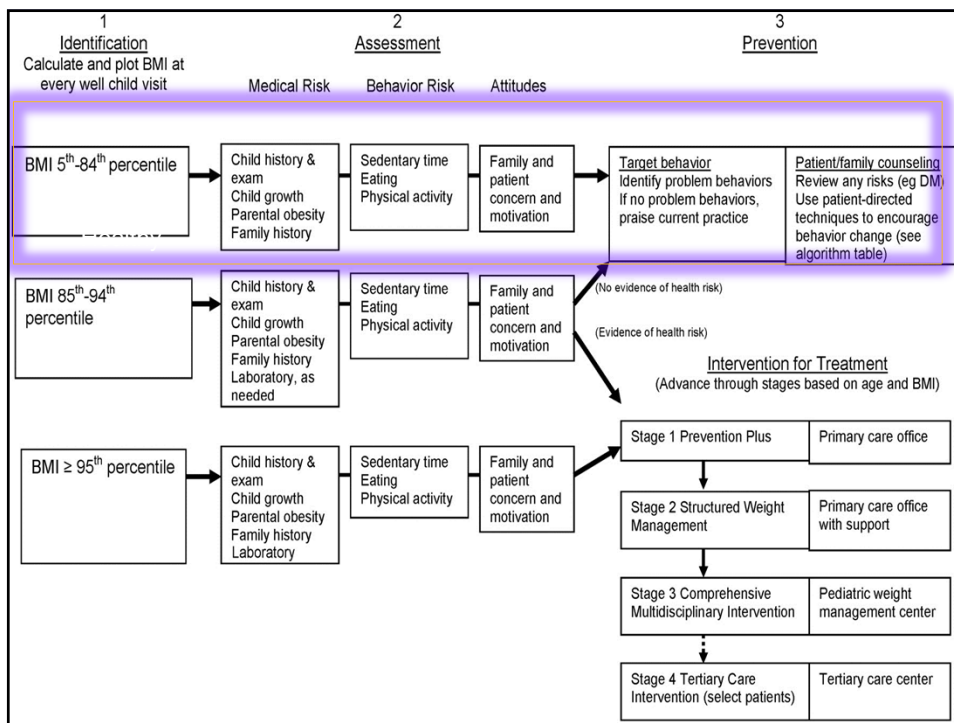
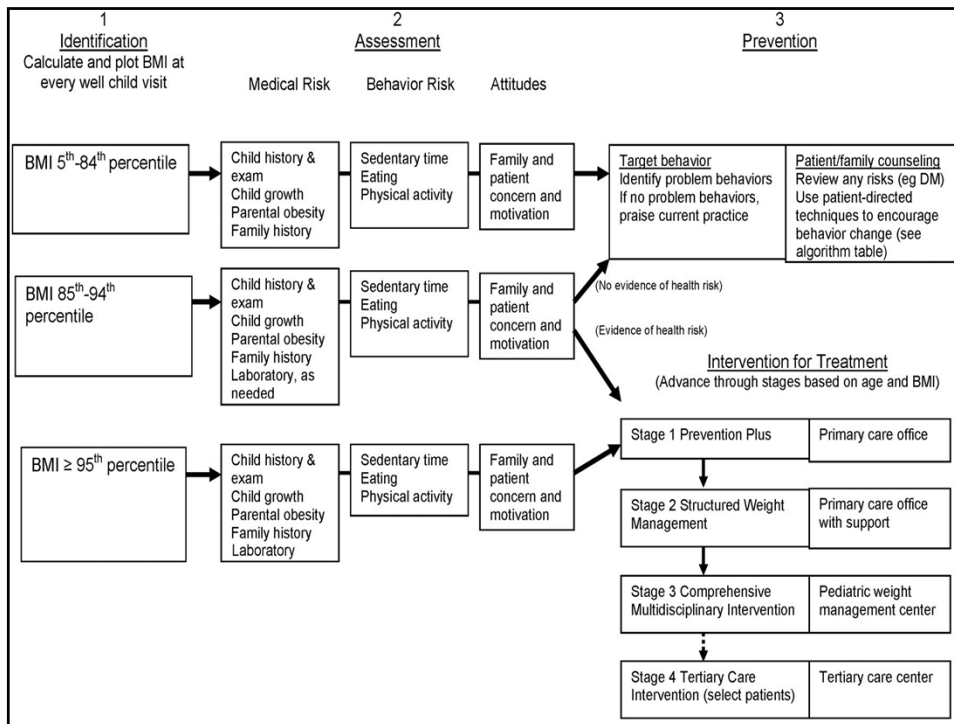
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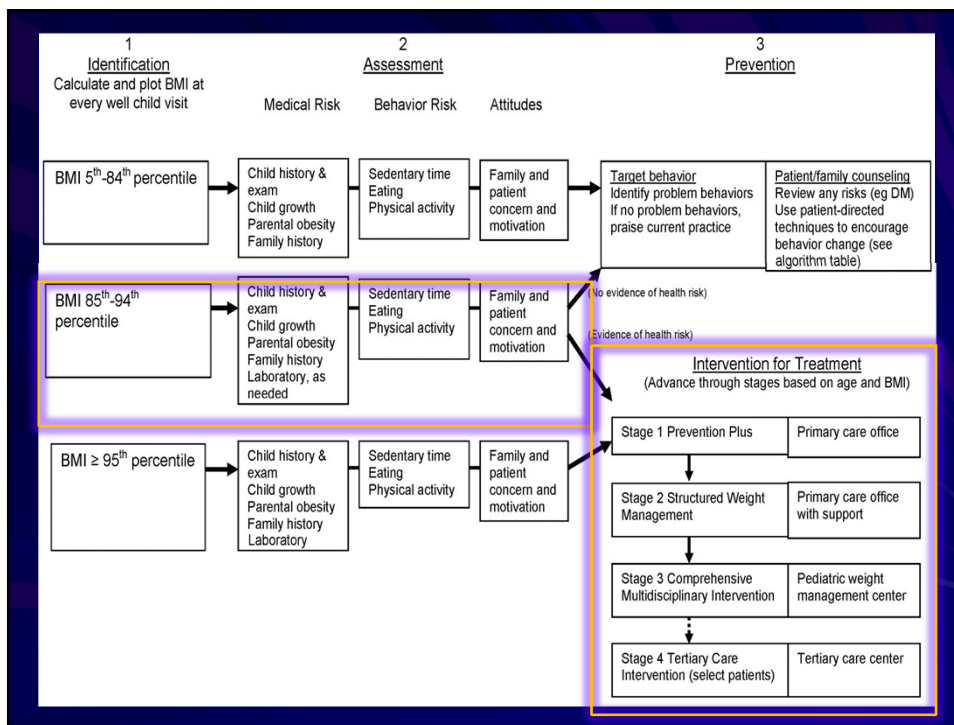
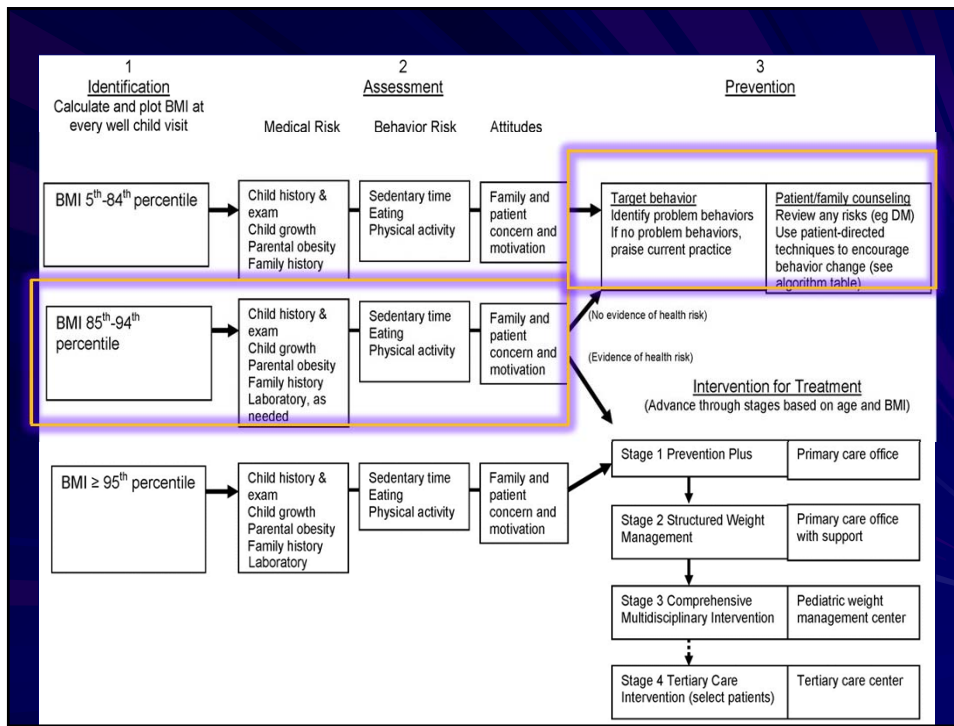
BASIC DEFINITIONS

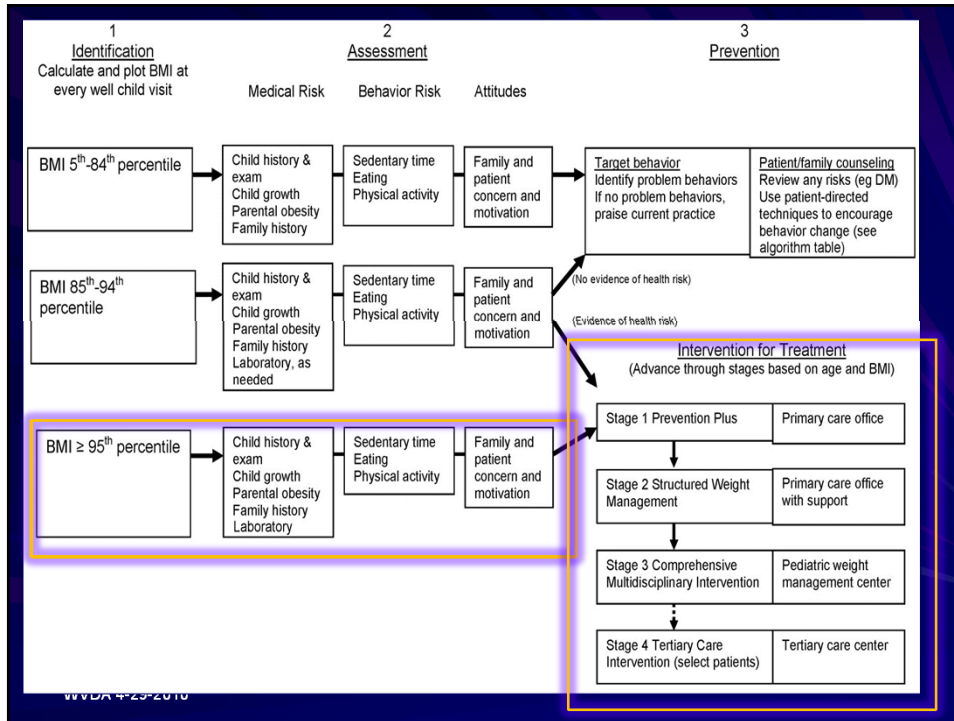
- Body Mass Index (BMI)=
 $\text{Weight (kg)}/\text{Height (m)}^2$
- BMI <5th %ile - **Underweight**
- BMI 5-84th %ile - **Healthy Weight**
- BMI 85-95th %ile, **Overweight**
- BMI >95th %ile or older adolescents with BMI > 30 kg/m², **Obese**

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Medical Screening By BMI

BMI Percentile	Review of Systems	Family History	Physical Examination	Laboratory Tests
5 th -84 th Normal BMI		Obesity, DM-2, HTN, Lipids, CAD	BP (correct cuff)	
85 th - 94 th Overweight	Snoring/sleep abdominal pain; HA; menstrual irregularities; hip, knee, leg pain; polyuria; thirst; depression	Same as above	BP, acanthosis nigricans, tonsils, goiter, tender abdomen, liver, bowing of legs, limited hip ROM, optic discs, acne, hirsutism	Fasting Lipid Profile (FLP) If other risk factors fasting glucose, ALT, AST every 2 years
95 th - 99 th Obese	Same as above	Same as above	Same as above	FLP, Fasting glucose, ALT, AST every 2

Blood Pressure

- **Correct Cuff Size**
 - Cuff width cover $\frac{3}{4}$ between acromion & olecranon
 - Cuff bladder length 80-100% of arm circumference



- **Manual vs Dynamap**



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Blood Pressure-4th Report

- | | |
|------------|------------|
| ■ Pre-HTN | ■ 90%-<95% |
| ■ Stage I | ■ 95%- 99% |
| ■ Stage II | ■ >99% + 5 |

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Acanthosis Nigricans



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Acanthosis Nigricans



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Acanthosis Nigricans



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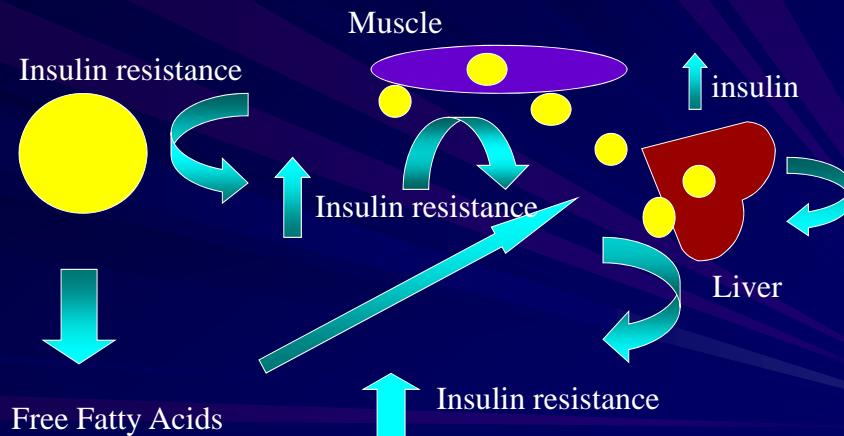
? Acanthosis Nigricans?



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10

INSULIN RESISTANCE AND FAT DEPOSITION



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LABORATORY WORK-UP

1. Fasting Lipid Profile (FLP)
2. CMP (FBS, ALT/AST)

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Diabetes Work-Up

- Pre-DM
- Impaired Fasting Glucose
 - FBS 100-125 mg/dl
- Impaired Glucose Tolerance
 - 2 hr post 75g glucose
 - 140-199 mg/dl
- DM
- Random BS ≥ 200 with symptoms
 - Polyuria
 - Polydipsia
 - Weight loss
- FBS ≥ 126 mg/dl
- GTT 2 hr ≥ 200 mg/dl

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STAGE 1-PREVENTION PLUS

- **Dietary Habits & Physical Activity**
 - Review 5 2 1 0
- **Behavioral Counseling**
 - Eating breakfast daily
 - Limiting meals outside the home
 - Family meals 5-6 times a week
 - Allow child to self regulate at meals without overly restrictive behavior

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5 2 1 0

- **5** Eat at least **5** servings of fruits and vegetables daily
- **2** Limit screen time to **<2** hours/day
- **1** Get **1** hour or more of physical activity daily
- **0** “**Zero**” sugar sweetened drinks

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STAGE 1- PREVENTION PLUS

- **Goal**
 - **Weight maintenance** with growth resulting in decreased BMI
 - Monthly Follow-up
 - After 3-6 months, no BMI change, advance to Stage 2 Treatment

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American Feast's Sustainable Food Blog

STRUCTURED WEIGHT MANAGEMENT

- **Dietary Habits and Physical Activity**
 - Plan for balanced diet, emphasizing low amounts of energy dense foods.
 - Increased structured daily meals and snacks
 - Supervised active play at least 60 min/day
 - Screen time 1 hour or less a day
 - Increased monitoring by provider, patient and/or family

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STRUCTURED WEIGHT MANAGEMENT

■ Goal:

- Weight Maintenance with decreasing BMI
- **Weight loss not to exceed 1 lb/mo in ages 2-11**
- Average weight loss of **2 lb/week** in older children and adolescents
- Monthly Follow-up
- If no BMI improvement, advance Stage 3

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STAGE 3-MULTIDISCIPLINARY INTERVENTION

■ Dietary habits and physical activity

- Same as stage 2.

■ Behavioral Counseling

- Structured behavioral modification with food and activity monitoring. Short term diet and activity goals.
- Involvement of families for behavioral modification in children < 12 years

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STAGE 3-MULTIDISCIPLINARY INTERVENTION

■ Goals

- Weight maintenance or gradual weight loss until BMI <85th %
- Not to exceed 1lb/month in 2-5 year olds
- 2 lbs/week children >5 years old

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STAGE 4-TERTIARY CARE INTERVENTION

- Hospital setting with expertise in childhood obesity
- Multidisciplinary team under designated protocol
 - Includes meal replacement, VLCD, meds & surgery
- For BMI > 95% & significant co-morbidities unsuccessful with stages 1-3 and BMI>99% who have shown no improvement with stage 3

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Shift in Treatment Paradigm

- Educate, Educate, Educate



- Pick issues important to patient →
Educate, Educate, Educate

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Shift in Treatment Paradigm

- COLLABORATE!!



- Patients Make agenda when ready to change

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SMART Goals

- S-specific
- M-measurable
- A-attainable
- R-realistic
- T-time bound

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The 15 minute Obesity Prevention Protocol

- Step 1-Assessment
 - BMI
 - Ask permission to discuss weight
 - Elicit parents concern
 - Reflect/Probe
 - 5210 Questionnaire (Short vs Long)
 - Reflect/Probe Cycle

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The 15 minute Obesity Prevention Protocol

- Step 2- Agenda Setting
 - Target behavior willing to change
 - 5210 with Goal
 - Goal Trackers

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The 15 minute Obesity Prevention Protocol

- Step 3-Assess Motivation & Confidence
 - Importance/Confidence Ruler
 - Pocket Guide
- Step 4-Summarize and Clarify Goal

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Importance/Confidence Ruler

Willingness/ Importance ?

On a scale of 0—10, how willing/important is it to *you* to make a change toward a healthier lifestyle?

0—1—2—3—4—5—6—7—8—9—10

Not Important

Somewhat

Very Important

Confidence?

On a scale of 0—10, how confident are you that you can succeed?

0—1—2—3—4—5—6—7—8—9—10

Not Confident

Somewhat

Very Confident

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The 15 minute Obesity Prevention Protocol

- Schedule Follow-up Office Visit
 - F/U 1-3 months depending on level of commitment
 - Remember Chronic Care Model

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MOTIVATIONAL INTERVIEWING

- Patient centered care approach
- Nonjudgmental, empathetic and encouraging
- Behavior change influenced more by motivation than by information.
- **Core principle:** People are more likely to accept and act on opinions that they voice themselves.

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MOTIVATIONAL INTERVIEWING-"OARS"

- **O** = Open ended questions (start with asking permission)
- **A** = Affirmation
- **R** = Reflective Listening (Repeat and summarize)
- **S** = Summarize

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MI: OPEN THE ENCOUNTER

- **Ask permission:** Would you be willing to spend a few minutes talking about Suzy's weight? Are you interested in ways to stay healthy and energized?
- **Ask open ended question – Listen – Summarize**
 - What do you think? How do you feel about your lifestyle? What have you tried so far to work towards a healthier lifestyle?

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MI Continued

- **Share BMI/Weight Information**
 - Your BMI is 95nd percentile, the recommended level for your age <85th. Your current weight puts you at risk for developing heart disease and diabetes.
 - Ask for patient's interpretation, what do you make of this?
 - Add your own interpretation/advice as needed after eliciting the response of the patient/parent.

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MI: NEGOTIATE THE AGENDA

- Some ideas for staying healthy include...
- What are your ideas for working toward a healthy weight?
- Introduce 5 2 1 0 and ask if the patient is interested in discussing one of these further, ask if they have other ideas
- Goal Oriented

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MI: ASSESS READINESS & TAILOR THE INTERVENTION

Stage of Readiness	Key Questions
Not ready 0—3 *Raise awareness *Elicit “change talk” *Advise and Encourage	-Would you be interested in knowing more about ways to stay healthy? -How can I help? -What might need to be different for you to consider a change in the future?
Unsure 4—6 *Evaluate Ambivalence *Elicit “change talk” *Build readiness	-Where does that leave you now? -What do you see as your next step? -What are you thinking/feeling at this point? -Where does _____ fit into your future?
Ready 7—10 *Strengthen commitment *Elicit “change talk”	-Why is this important to you now? -What are your ideas for making this work? -What might get in the way? How might you work around these barriers?

EXPLORE AMBIVALENCE

- Step 1: Ask a pair of questions to help patient explore the pros and cons.
 - What are the advantages of keeping things the same? AND What are the advantages of making a change?

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EXPLORE AMBIVALENCE

- Step 2: Summarize ambivalence
 - Let me see if I understand what you've told me so far... (start with reasons for maintaining status quo end with reasons to make a change)

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CLOSE THE ENCOUNTER

- Summarize: Our time is almost up, let's review what you have worked on today.
- Show appreciation for willingness to discuss change.
- Offer advise, emphasize choices, express confidence
- Confirm next steps and schedule follow up.

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Prevention is Key



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From Your Doctor

Patient or Parent/Guardian signature _____

Doctor signature _____

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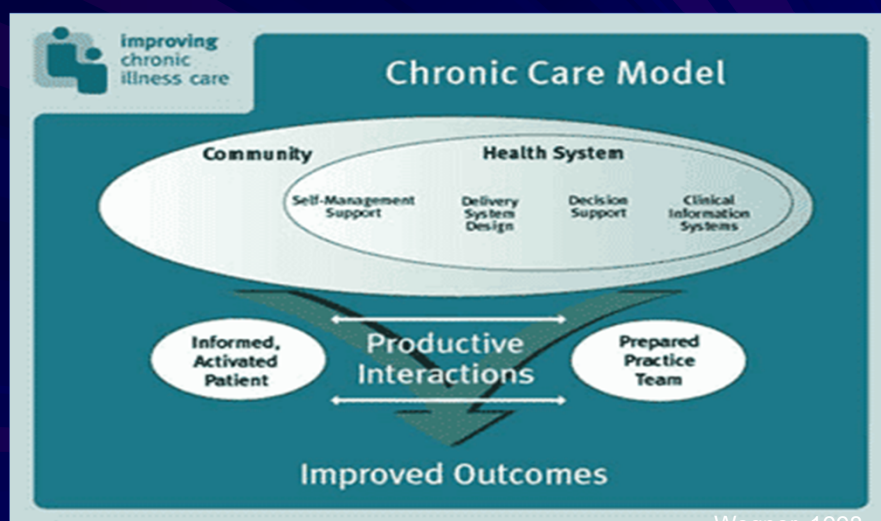
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Chronic Care Model



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Wegner, 1998

Any Questions



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