Arizona Nevada California Hawai'i Pacific Islands

WESTERN REGION Public Health Training Center

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SOUTHWEST TELEHEALTH RESOURCE · CENTER™ TRC

Weight Loss and Weight Management: Current Theories and Best Practices

Presented by the

Western Region Public Health Training Center &
the Southwest Telehealth Resource Center

Welcome

WRPHTC region – Arizona, California, Hawai'i, Nevada, and the US Affiliated Pacific Island

SWTRC region – Arizona, Colorado, New Mexico, Nevada, and Utah

Fellow HRSA grantees

All other participants from the US & abroad

Continuing Nursing Education Information

Series Purpose

The purpose of the Weight Loss and Weight Management: Current Theories & Best Practices series is explore and describe the components of a successful weight loss and management program for children and adults in family and community practice settings.

Continuing Nursing Education Information

Learning Objectives

Upon completion of this presentation, the participants will be able to:

1. Identify how pediatric obesity is measured and assessed.
2. Describe pediatric obesity treatment options.

Continuing Nursing Education Information

Nursing Evaluations & Disclosures

Criteria for successful completion:

- Attendance requirements
  - You must be present and logged into the webinar by 12:10 PM (Arizona time)
- Complete an online **NURSING** evaluation
  - Available online at: cne.nursing.arizona.edu/evaluations
- **Wendy Scinta** has declared a **financial relationship** with **Takeda, Eisai, Covidian, and 3 Pound Health**. All other planners and presenters have no relevant financial relationships to declare.

Webinar Series

Weight Loss and Weight Management: Current Theories & Best Practices

This four session, interactive webinar series brings together national leaders in nutrition, exercise and bariatric medicine who will address what is needed to have a successful weight loss and management program for children and adults in family and community practice settings. The series will start with a presentation and discussion on dynamic energy balance, an important new perspective on what metabolic changes occur during weight loss and how these changes have to be taken into account as part of a weight loss program. The second session will focus specifically on exercise and energy expenditure and weight loss. The final two sessions will present pediatric and adult case studies to highlight the promoters and challenges that lead to successful patient care, in regards to weight loss and maintaining weight loss.

Webinar Tips & Notes

- Mute your phone &/or computer microphone
- Time is reserved at the end for Q&A
- Please fill out the post-webinar survey
- Webinar is being recorded
- Recordings will be posted on the SWTRC website (http://www.southwesttrc.org) and the WRPHTC YouTube channel (https://www.youtube.com/user/azphtc)

“The Treatment of Pediatric and Adolescent Obesity”

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Medical Director, Medical Weight Loss of New York
Founder, BOUNCE Weight Loss Program for Kids
Chief Medical Officer, Three Pound Health

Disclosures

Eisai- speaker

Takeda- speaker

Covidien- speaker

3 Pound Health – CMO

Agenda

1. Stats/General Facts
2. Evaluation of an overweight or obese child
3. Treatment
    - Dietary considerations
    - Behavioral Modification
    - Exercise
    - Medications
4. Case studies

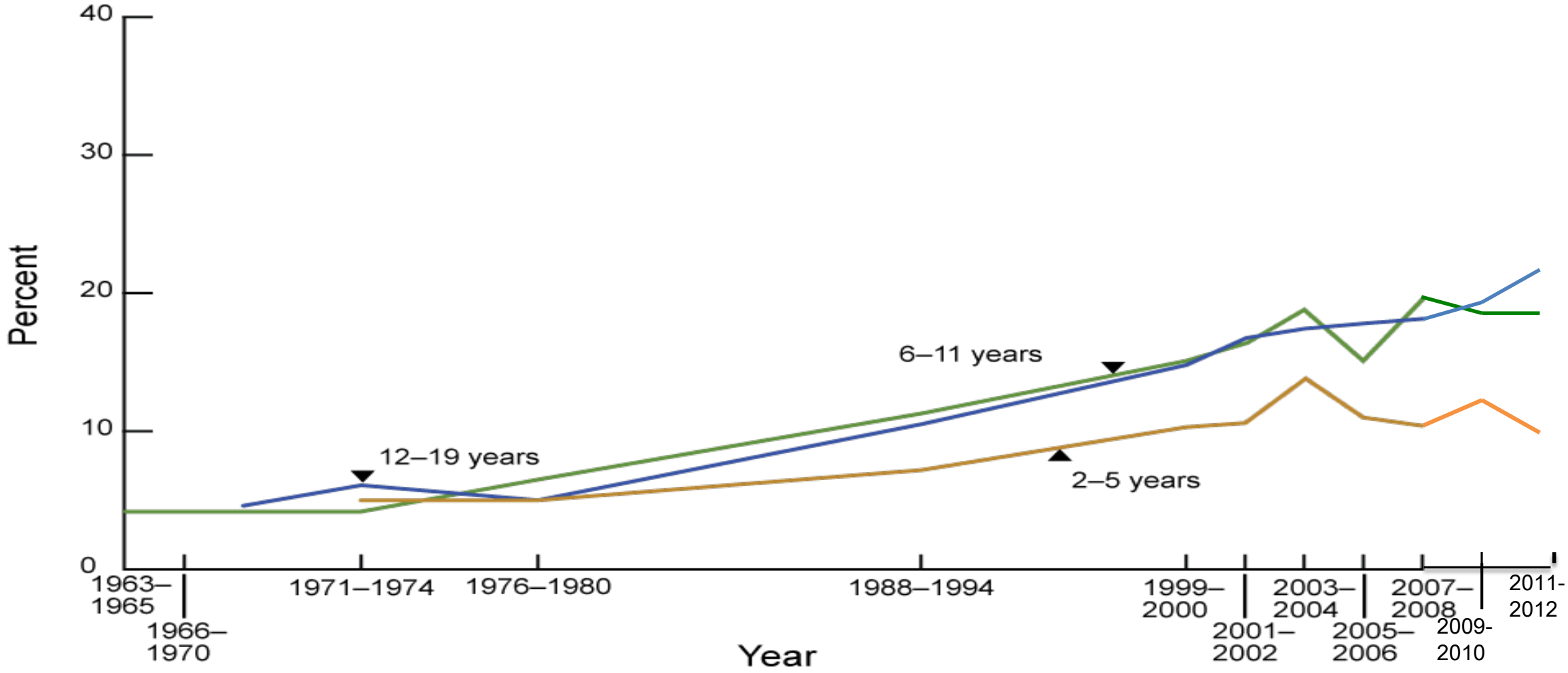
Stats and Facts

- 35% of American children are overweight and 17% of are obese.

- Overall, there have been no significant changes in obesity prevalence in youth between 2003-4 and 2011-12.”

NHANES 2011-2012 reported in JAMA: 311 (8) Feb 2014

Figure 1. Trends in obesity among children and adolescents: United States, 1963- 2012



NHANES 2011-2012 reported in JAMA: 311 (8) Feb 2014

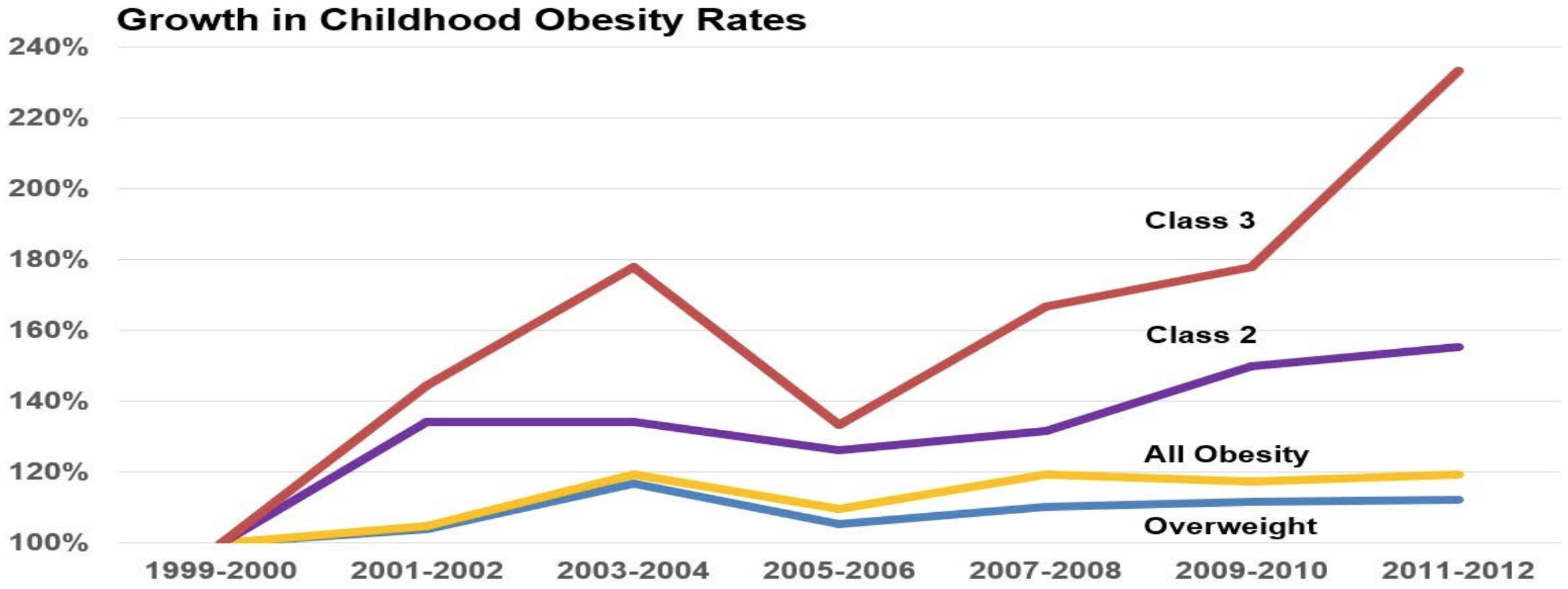
NHANES National Obesity Data

(Obesity = BMI ≥ 95th percentile)

Age	1963-1970	2007-2008	2009-2010	2011-2012
2-5 years	**<5%**	**10.4 %**	**12.1%**	**8.4%**
6-11 years	**4.2%**	**19.6 %**	**18.0 %**	**17.7%**
12-19 years	**4.6%**	**18.1%**	**18.4 %**	**20.5%**
Total	**<5%**	**16.9 %**	**16.9%**	**16.9%**

Flegal KM. *JAMA*. 2010.
Ogden CL. *JAMA.* 2012, 2014

The big kids are getting bigger



JAMA Pediatrics- 2014; 168 (6) June.

Cost of Childhood Obesity

TABLE 3 Summary of Adjusted Incremental Lifetime Direct Medical Cost Estimates From the Perspective of a 10-y-Old Child With Obesity Relative to a 10-y-Old Child With Normal Weight, in 2012 US Dollars

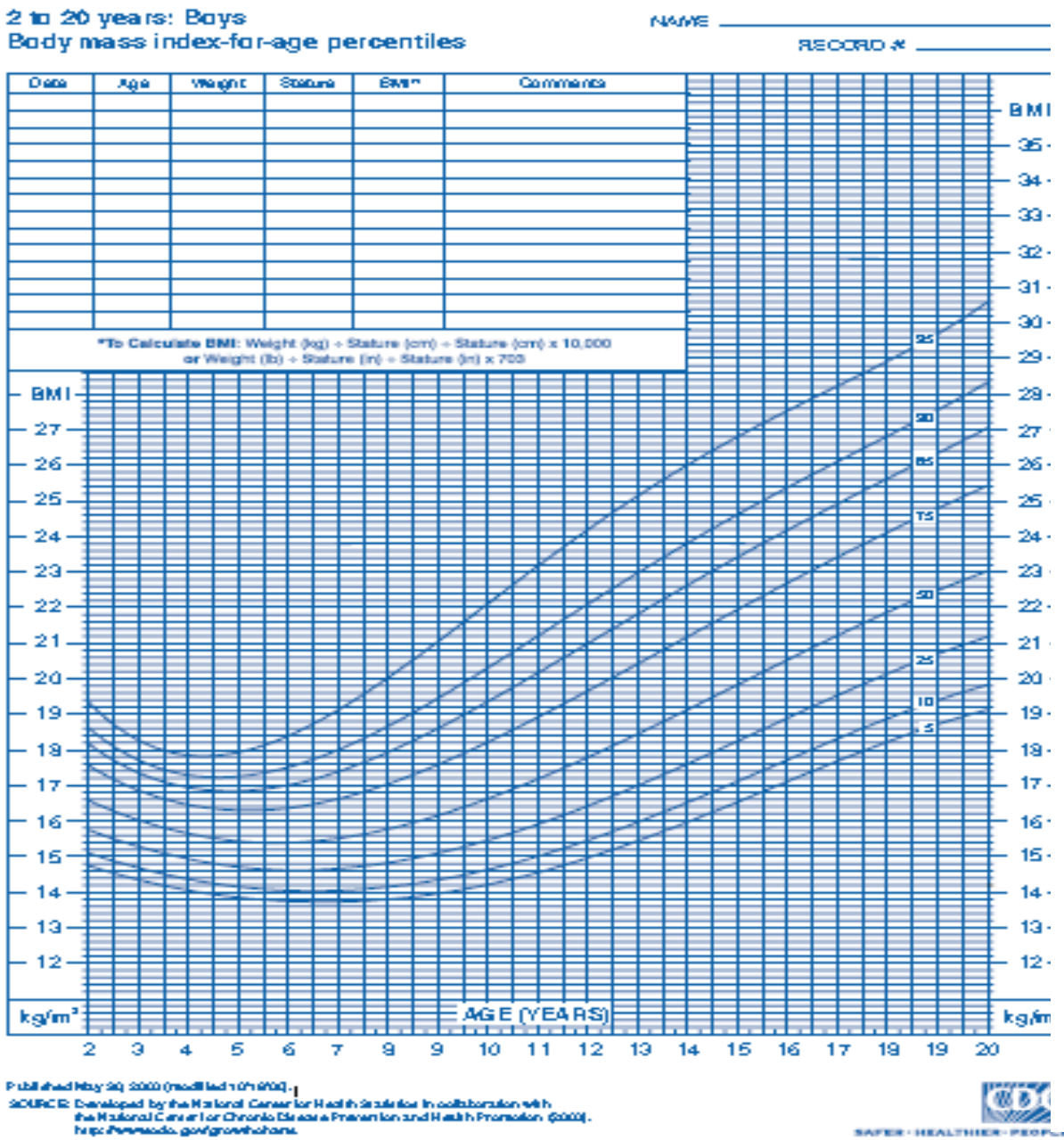
Characteristic	Tucker et al 2006[37]	Trasande 2010[40]	Thompson et al 1999[36]	Wang et al 2010[39]	Finkelstein et al 2008[38]	Ma and Frick 2011[41,a]
Study accounted for wt gain among normal wt children	Yes	Yes	No	No	No	No
Gender						
Male	$10 840	$19 650	$16 210	$19 300	$16 420 ($11 190, $21 660)[b]	$33 590
Female	$14 490	$19 620	$16 410	$18 950	$22 290 ($17 350, $27 200)[b]	$44 570
Race or ethnicity						
White						
Male	$11 150	—	—	—	$17 050 ($12 240, $21 900)[b]	$38 680 ($34 190)[c]
Female	$14 440	—	—	—	$24 280 ($19 210, $29 320)[b]	$49 230 ($44 780)[c]
Black or African American						
Male	$9640	—	—	—	$14 020 ($7240, $20 750)[b]	$30 830 ($26 670)[c]
Female	$14 670	—	—	—	$14 730 ($10 310, $19 170)[b]	$44 490 ($40 480)[c]
Hispanic						
Male	—	—	—	—	—	$27 390 ($22 380)[c]
Female	—	—	—	—	—	$36 760 ($32 840)[c]
Overall	$12 660	$19 630	$16 310	$19 120	$19 350 ($14 270, $24 430)[b]	$39 080[d]

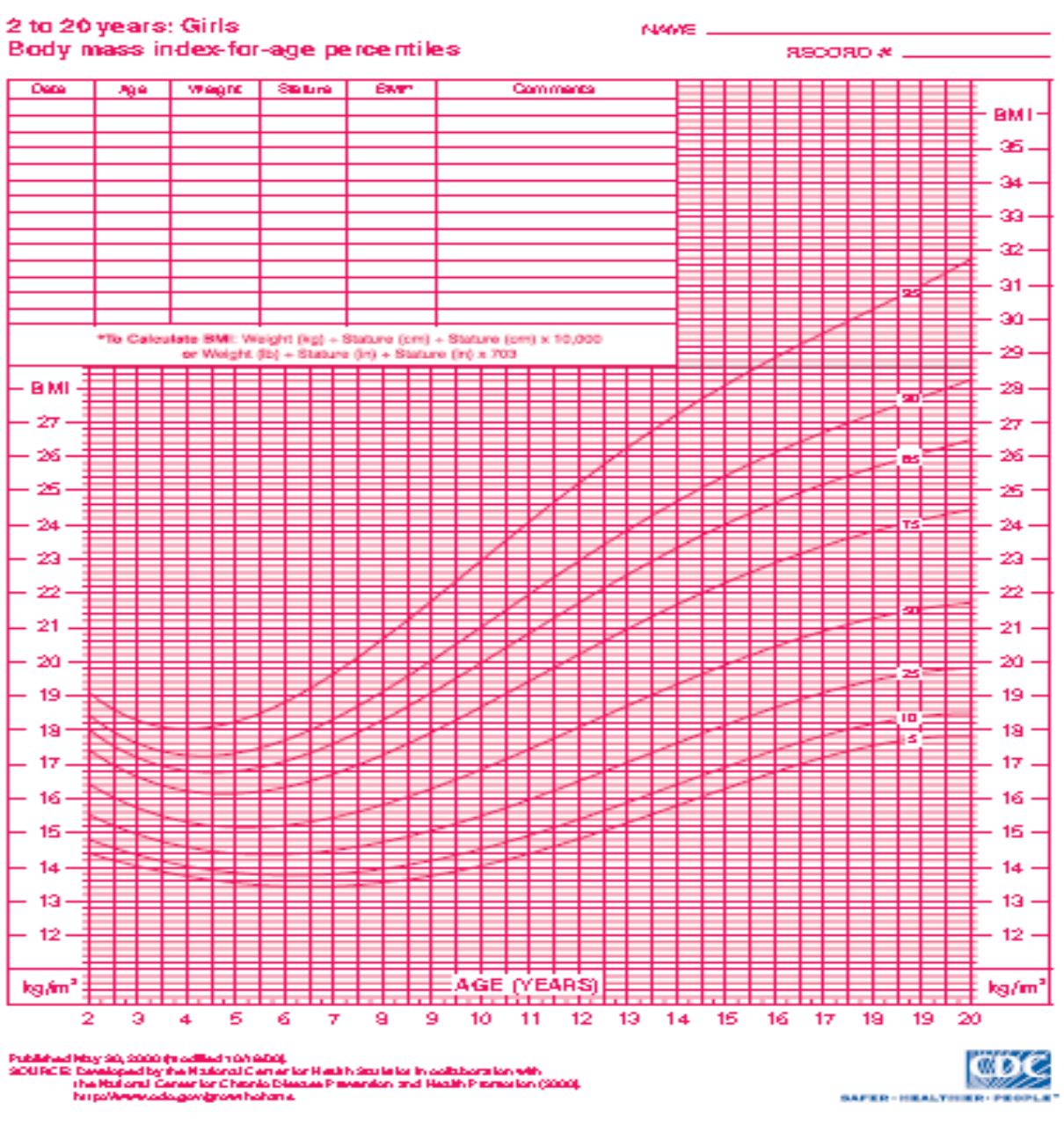
[a] Original estimates from this study were inflated by 4 y because their estimates began at age 6.
[b] The 95% confidence intervals are presented in parentheses.
[c] Estimates for smokers are presented in parentheses.
[d] This estimate is for smokers and nonsmokers combined.

Incremental direct medical costs are $19,000 per obese child (when compared to a normal weight child who remains normal for the rest of his or her life.)

Source: Pediatrics 2014;133:1–9

Evaluation



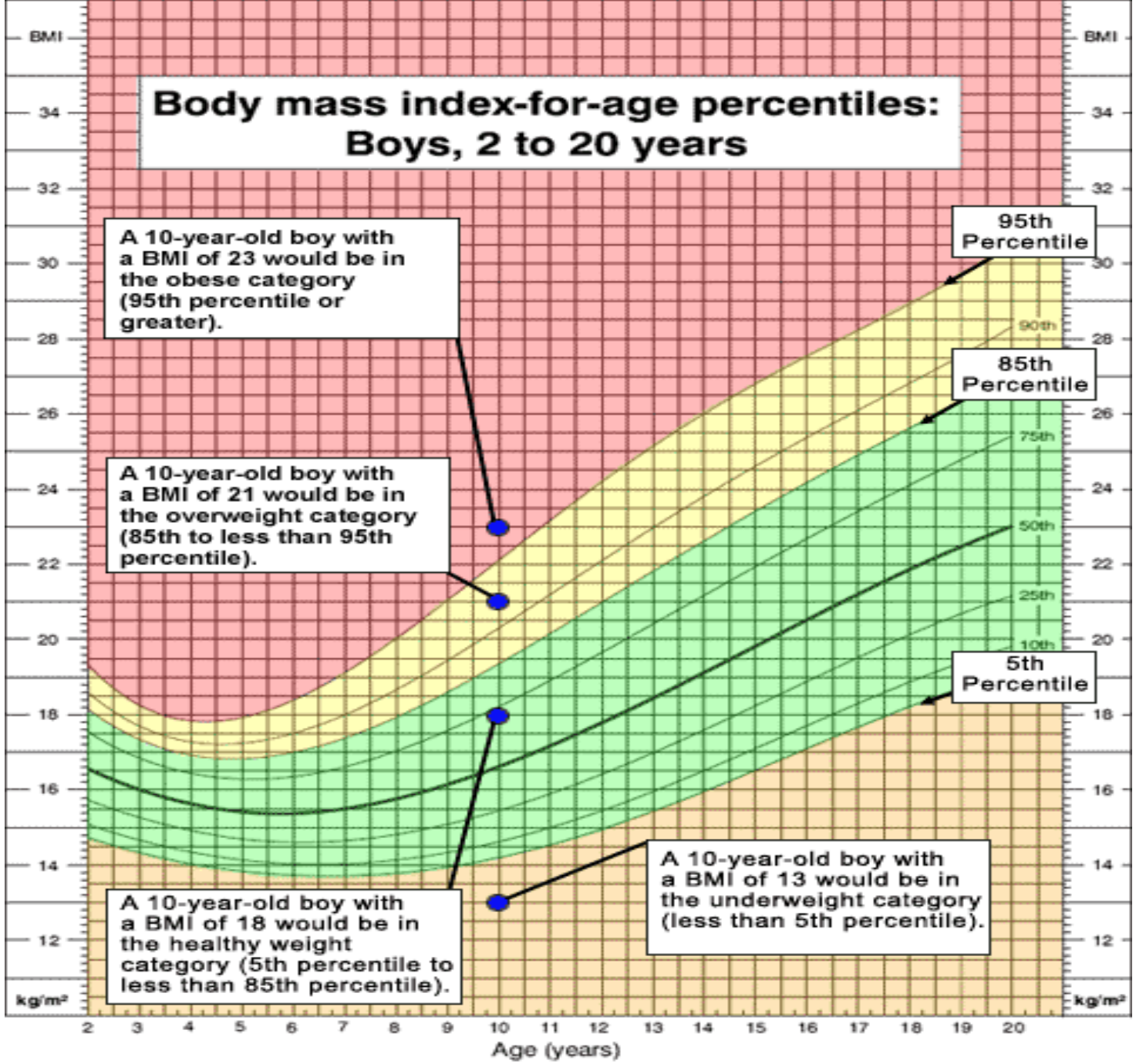


CDC. Determining % BMI. Accessed 2015.

Childhood “Overweight” and “Obese”

Percentile Range (% BMI)	Weight Status Category *
Less that 5%	Underweight
5 % to < 85 %	Healthy Weight
85 % to < 95 %	Overweight
95 % to < 99 %	Obese
>= 99 %	Severely Obese

Barlow SE. *Pediatrics*. 2007.



CDC. Determining % BMI. Accessed 2015.

Focused Family History

- Obesity
- Diabetes Mellitus
- Cardiovascular disease including cardiac events, hypertension, dyslipidemia
- Hypothyroidism

Focused Social History

- Get a sense of family dynamics
- Progress in school/ feedback from teachers
- Who else feeds child besides parents and school?
- Events such as a divorce, death, move, school change and other life changing events

Focused Birth and PMHx

Pregnancy and Birth History

- Weight of Mother and Father of baby at conception
- Pregnancy complications (e.g. Gestational Diabetes)
- Maternal weight gain (especially third trimester)
- Birth weight: Small or Large for gestational age.
- Breastfed or formula fed

Past Medical History

- Rapid rise in weight
- Absence of rebound adiposity in toddlers
- Use of steroids or weight-gaining meds
- Previously diagnosed co-morbidities
- Genetic disorders (Prader-Willi, congenital hypothyroidism, Bardet-Biedl, Cohen, Alstroms)

Weight Gaining Medications

Antidepressants

Paroxetine
Sertraline
Citalopram
Escitalopram

Antipsychotics / Mood Stabilizers

Aripiprazole
Risperidone
Quetiapine
Lithium carbonate
Divalproex sodium
Olanzapine

Hormones / Steroids

OCPs
Medroxyprogesterone
Prednisone (+ other steroids)

Other Medications

Insulin
Gabapentin
Beta Blockers

Dietary History

What, where, when and with whom?

EATING BEHAVIORS OF SCHOOL-AGED KIDS

1. Too much sugar.
2. Too much fat.
3. Not enough whole grains.
4. Not enough fruits and vegetables.
5. Skipping breakfast.
6. Too much fast food.
7. Drinking the wrong fluids (SSB).
8. Not enough protein.

Ebbeling CB. *Lancet*. 2002.

Exercise History

- Is the child exercising at all?
- Does he have PE at his school?
- What does she enjoy doing?
- How often is he/she gaming or watching TV?
  - There is a significant association between high screen time and prevalence of childhood obesity.[1]
  - The response, in all age groups, seems to be dose dependent. [2,3]

[1]Anderson SE. *BMC Public Health*. 2008.
[2]Dietz WH. *Pediatrics*. 1985.
[3]Hume C. *Int J Ped Obes*. 2009.

Focused Review of Systems

Symptoms	Related Co-morbidity
Nervousness, school avoidance, social inhibitions	Depression, anxiety, bullying
Fatigue, Muscle Aches	Vit D deficiency
Polyuria Polydipsia, fatigue	Type 2 Diabetes
Headaches, facial numbness	Pseudotumor cerebri
Skin pigmenting, skin tags, increased hunger	Insulin resistance
Daytime somnolence, loud snoring, witnessed apnea	Sleep apnea
Abdominal Pain, Indigestion	GERD, Gall bladder dz, Constipation
Hip or Knee pain	SCFE, early osteoarthritis
In-toeing, leg bowing, mild knee pain	Blount's Disease

Stovitz SD. *Acta Paediatrica*. 2008.

Physical Exam - Skin

Acanthosis Nigricans

Hirsutism

Striae

Intertrigo

Mouth and Neck

Tonsillar Hypertrophy

- **30% of severely obese children have sleep apnea- sleep study may be needed**

Mallory GB. *J Pediatr*. 1989.

Goiter

- **10-23% of all obese children have an ↑TSH (4-10 iu/l) and nl T4 and nl to slightly ↑ fT3, f T4.**
- **Believed to be due to low grade inflammation of thyroid tissue, and Leptin mediated production of pro-TRH. (incr leptin → incr TSH).**

Reinehr T. *Curr Opin Pediatr*. 2011.

Abdominal Exam

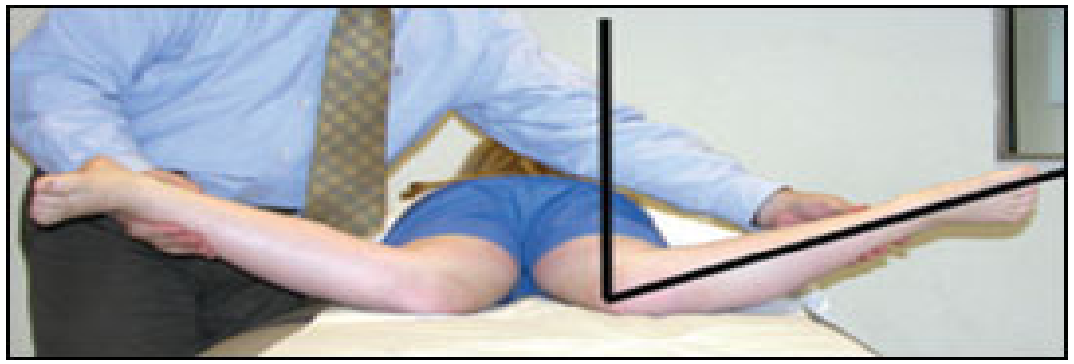
- 1/3 of obese children have fatty liver disease [1]
- Severely obese children have 40% higher risk of GERD than normal weight peers [2]
- Obese children are up to eight times more likely to be diagnosed with gallstones than normal weight peers [3]

[1]Mallory GB. *J Pediatr*. 1989.
[2]Koebnick C. *Int J Pediatr Obes.* 2010.
[3]Koebnick C. *J Pediatr Gastroenterol Nutr*. 2012.

Orthopedic Exam

Blount's Disease

Slipped Capital Femoral Epiphysis



Laboratory Evaluation Recommendations Per 2007 Expert Committee (E.B.P): [1]

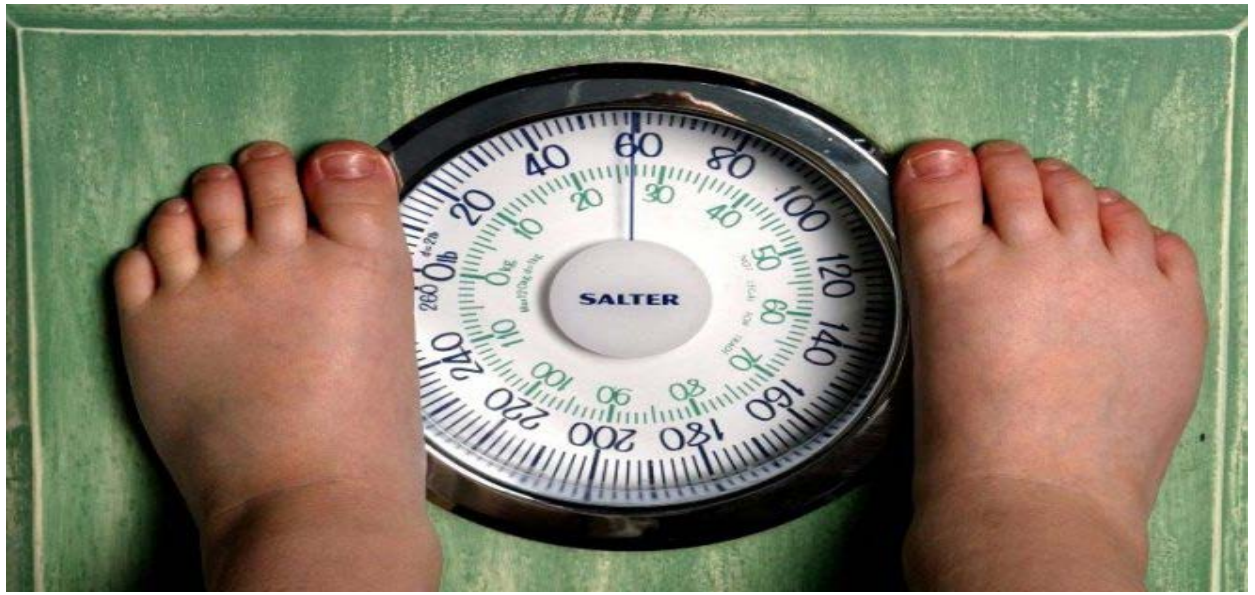
- **BMI 85%ile to 94%ile WITHOUT risk factors:**
  - **Fasting Lipids Profile**
- **BMI 85%ile to 94%ile ages 10 & older WITH risk factors:**
  - **Fasting Lipids Profile and Glucose**
  - **ALT/AST**
- **BMI ≥ 95th%ile Age 10 years and older:**
  - **Fasting Lipids Profile and Glucose**
  - **ALT/AST**
  - **Other tests as indicated by health risk such as TFTs .**

Consider:

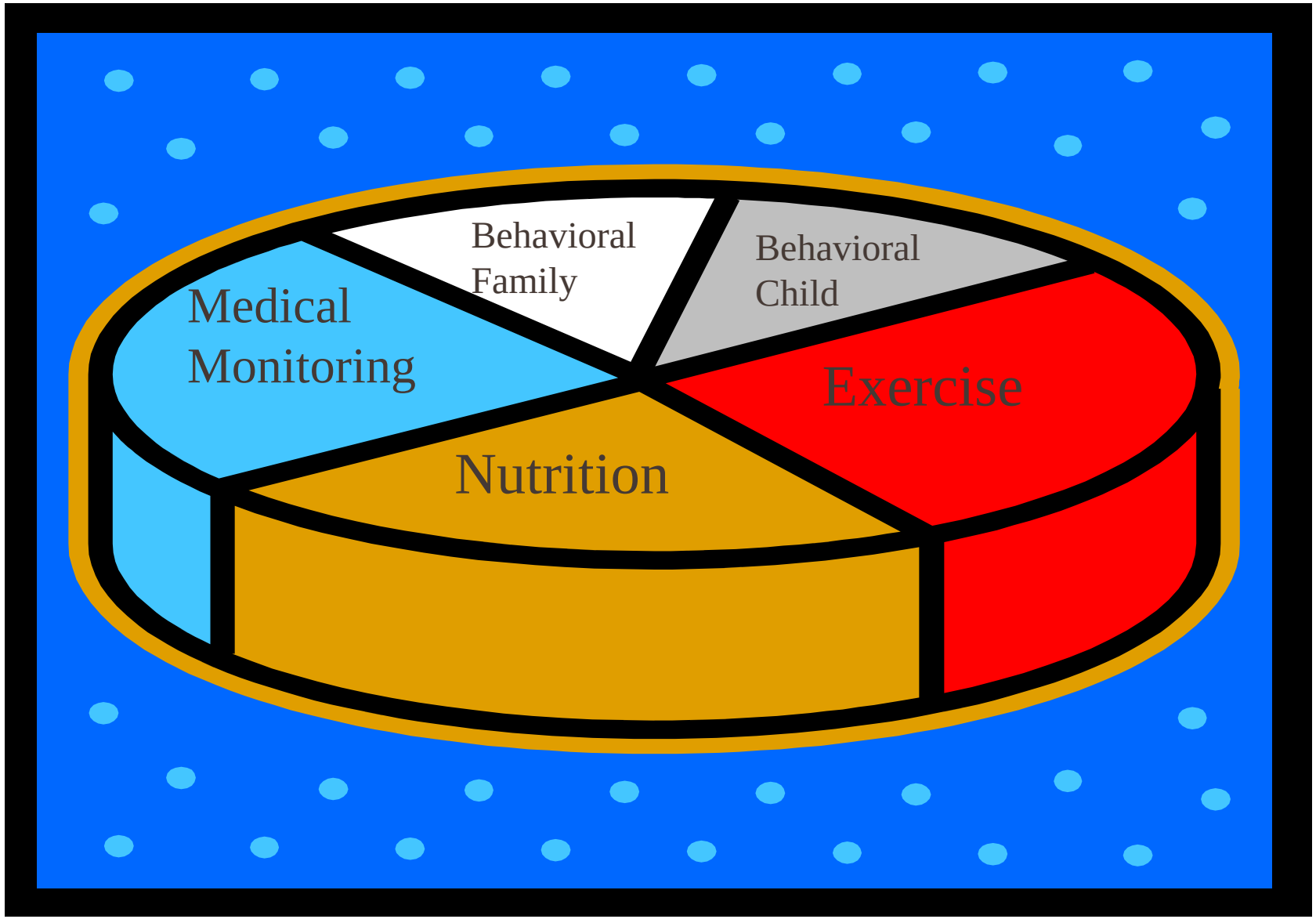
Fasting insulin, lipid profile, CBC, CMP, CPK, HbA1C, 25 Vit D OH, U. Acid, TSH, Free T4, Free T3, Urine dip, Other per family Hx or CPE findings

1. Barlow SE. *Pediatrics*. 2007.

Treatment



Elements of A Childhood Obesity Program



Nutrition

Top 25 Sources of Calories Among American Children (Ages 2-18)

National Health and Nutrition Examination Survey (NHANES) 2005–2006

Number	Type of Food	Mean kcal/day (total = 2,027)
1	Grain-based desserts (cake, cookies, doughnuts,)	138
2	Pizza	136
3	Soda/energy/sports drinks	118
4	Yeast breads (white, mixed-grain, rolls, bagels)	114
5	Chicken and chicken-mixed dishes (fried, baked)	113
6	Pasta and pasta dishes (mac and cheese, spaghetti)	91
7	Reduced-fat milk	86
8	Dairy desserts (ice cream, frozen yogurt, milk-shakes)	76
9	Potato/corn/other chips	70
10	Ready-to-eat cereals	65
11	Tortillas, burritos, tacos	63
12	Whole milk	60
13	Candy	56
14	Fruit drinks (fruit juice drinks, punch, flavored drinks)	55
15	Burgers	55
16	French fries	52
17	Sausage, hot dogs, bacon, ribs	47
18	Regular cheese	43
19	Beef and beef dishes (steak, meatloaf, stew)	43
20	100-percent fruit juice (not orange or grapefruit)	35
21	Eggs/egg dishes (scrambled, fried, breakfast sandwich)	30
22	Waffles, pancakes, French toast	29
23	Crackers	28
24	Nuts/nut mixes/seeds (peanut butter, peanuts,	27

Low Carb Plans:

- Rationale: reducing carbohydrate intake significantly can lead to state of ketosis, which causes decrease in appetite and subsequent decreased caloric intake.
- Trials vary in level of carb restriction, fat composition, calorie restriction, age of patients, duration of intervention, post-treatment follow up, and comparison groups.
- All studies included interdisciplinary team including RD who assessed adherence to diet.
- Compared to baseline, all studies reported a significant improvement in weight status at the completion of the intervention. [1-4]

1. Siegel RM et al. A 6-Month, office based, low carbohydrate diet intervention in obese teens. *Clin Pediatr* 2011;50(11):1010-1017.
2. Sondike SB et al. Effects of a low carbohydrate diet on weight loss and cardiovascular risk factor in overweight adolescents. *J. Pediatr* 2003;142(3) 253-8.
3. Demol S. et al. Low-carbohydrate(low & high fat) vs high carb/ low fat diets in the treatment of obesity in adolescents *Acta. Pediatr.* 2009;98(2)346-51.
4. Kirk S. et al. Role of carbohydrate modification in weight management among obese children: A randomized clinical trial. J pediatr. 2012;161(2) 320-327.

Reduced Glycemic Load:

- Rationale: High glycemic-index foods are associated with an increase in BS, followed by an insulin response leading to a rapid decrease and increased hunger leading to increase caloric increase.
- Four trials vary in study design, age of patients, duration of intervention, size of intervention group, treatment duration, program intensity and post-treatment follow up.
- All studies included interdisciplinary team including R.D.
- Compared to baseline, all studies reported a significant improvement in weight status at the completion of the intervention. [1-4]
- 2 studies with post treatment follow up reported that improvements in weight status were maintained. [2,4]

1. Diaz RG et al. Lifestyle intervention in primary care settings improves obesity parameters among Mexican youth. J Am Dietetic Assn 2010;110 (2) 285-90.
2. Kirk S. et al. Role of carbohydrate modification in weight management among obese children: A randomized clinical trial. J pediatr. 2012;161(2) 320-327.
3. Spieth LE et al. A low glycemic index diet in the treatment of pediatric obesity. *Arch Pediatr Adolesc Med* 2000 154(9);947-51.
4. Ebbeling CB et al. A reduced glycemic load diet in the treatment of adolescent obesity *Arch Pediatr Adolesc Med* 2003 157(8)773-9.

Modified Stop Light Diet:

- Rationale: less restrictive approach, increased emphasis on eating healthy foods (fruits, veggies, low-fat dairy), decreased intake of high-energy dense foods.)[1]

  - GREEN : low cal, high nutrient- eat often
  - YELLOW : moderate cal, mostly grains- eat in moderation
  - RED : High cal, low nutrient- eat sparingly

- Two randomized clinical trials vary on size of intervention group, duration of intervention, post-treatment follow up. Age of children 8-12 years.

- Compared to baseline, all studies reported a significant improvement in weight status which was sustained long term. [2,3]

1. Epstein LH et al. The stoplight diet for children: An Eight Week Program for Parents and Children. 1988
2. Kalarchian MA. Family based treatment of severe pediatric obesity: Randomized, controlled trial. *Pediatrics* 2009;124(4) 1060-1068.
3. Epstein LH et al. Increasing healthy eating vs reducing high energy dense foods to treat pediatric obesity. *Obesity* 2008; 16(2):318-26.

Very Low Calorie Diet (VLCD):

- Diets < or = 1,000 kcal/day.
  - **Protein Sparing Modified Fast (PSMF)**- 600-800Kcal diet high in lean protein (1.5-2gram/Kg IBW/ day) and low carb (20-25gm/day).
  - **Hypocaloric balanced diet** (800-1,000kcal/day).
- Both interventions used as part of a comprehensive weight management programs to induce rapid weight loss (10-20 wks) follow by nutritionally balanced diets (1,000-2,000 kcal/day).
- Clinical outcome studies showed significant weight loss short-term (6-12 mos). Did not examine long term effects.[1-4] Concerns of slower growth velocity for stature but findings inconsistent.
- Recommended short term use 10-12 weeks by pediatric weight loss experts.

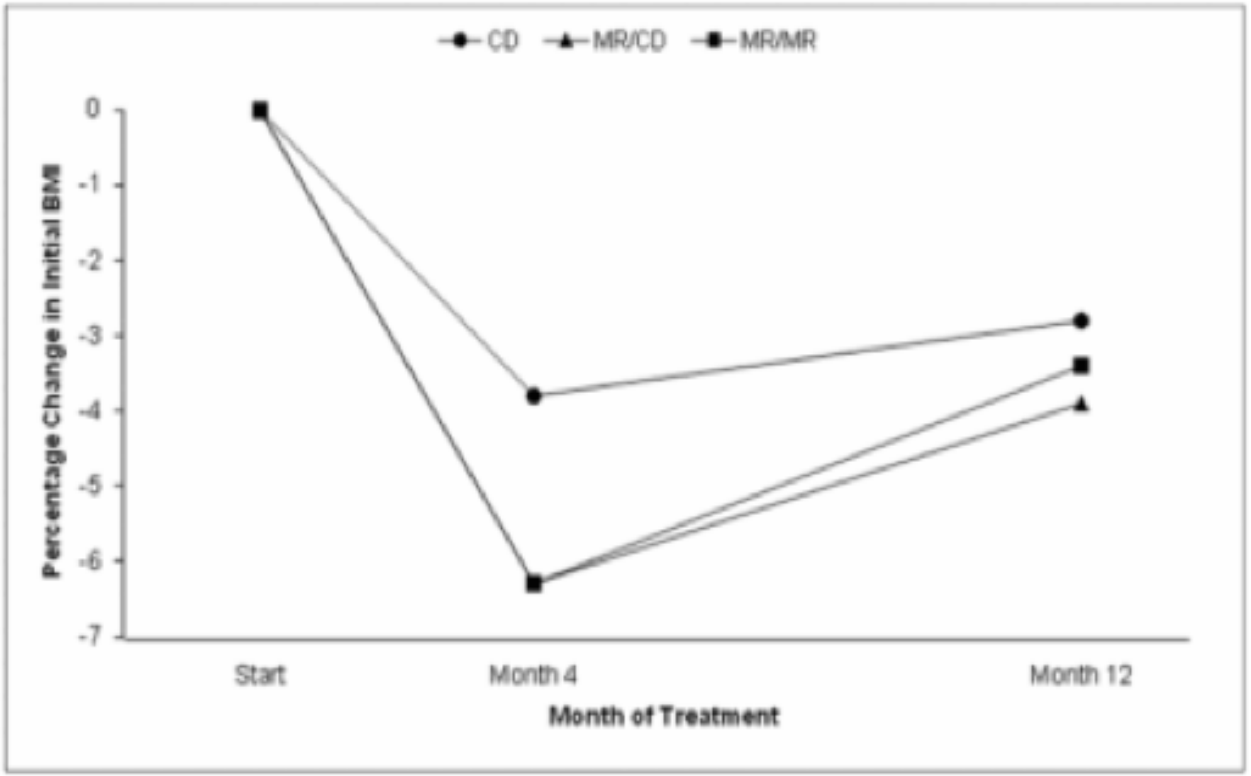
1. Southern MS et al. Committed to kids: An integrated, 4-level team approach to weight management in adolescents. *J Am Diet Assoc*. 2002;102 s81-85
2. Southern MS et al. Weight loss and growth velocity in obese children after VLCD, exercise, and behavior modification. *Acta Paediatr*. 2000;89(9):1036-43.
3. Suskind RM, Blecker U et al. Recent advances in the treatment of childhood obesity. *Pediatr Diabetes* 2000;1(1) 23-33.
4. Figuer0a-Colon R., et al. Feasibility of a clinic-based hypocaloric dietary intervention implemented in a school setting for obese children. Obes Res. 1996;4(5);419-429.

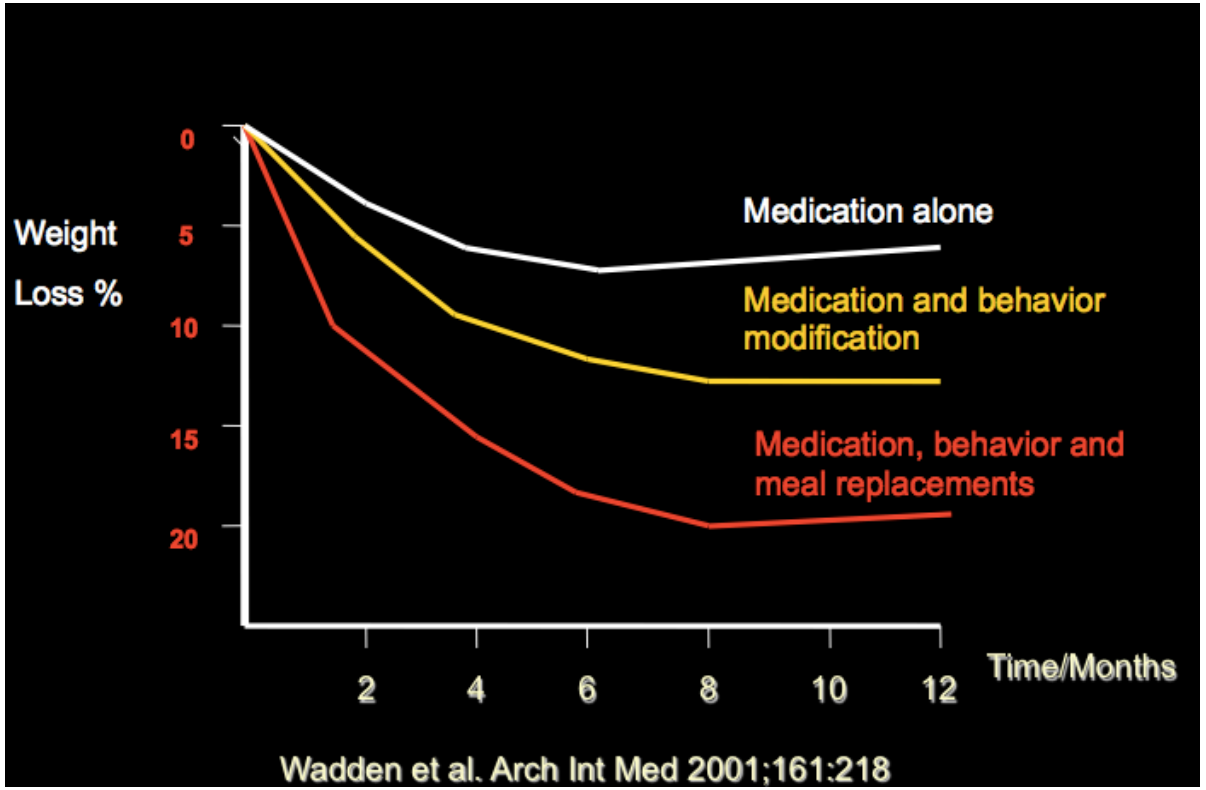
Meal Replacements:

- Rationale: high protein shakes and bars should produce satiety, cause stimuli narrowing, and greatly reduce caloric intake due to decreased personal decision making.
- There is consistent evidence with obese adults that meal replacements are an effective and safe strategy to produce significant, sustainable weight loss.
- The one RCT of MRs in children showed that meal replacements significantly increased weight loss during the first 4 months but did not facilitate the maintenance of lost weight at month 12.[1]

1. Berkowitz RI et al. **Meal Replacements in the Treatment of Adolescent Obesity: A Randomized Controlled Trial** *Obesity* (Silver Spring). 2011 June ; 19(6): 1193–1199. doi:10.1038/oby.2010.288.

Meal Replacements (con't)





Berkowitz 2011 study- randomized to conventional diet (CD-Circle), or meal replacements (MR-Square) for 4 months then either continuied on CD, MRs. or switched from MR to CD. At 12 wks, MR-MR group gained more weight back than MR-CD.

In a 2001 study, Wadden showed that combining MRs with medication and behavioral modification produced superior weight loss that was maintained at 12 mos.

Elimination Diet

Elimination diets have been used extensively to determine food allergies, but can also be useful for childhood obesity- especially for engaged families with younger children.

BOUNCE™ Elimination diet: (Each step is performed for a couple of weeks until the family has comfortably incorporated the change.)

Step 1 : Eliminate SSBs and switch to water and low fat milk only

Step 2: Replace high fat junk food with healthy alternatives

Step 3: Increase protein, fruits and vegetables

Step 4: Substitute Healthier carbohydrates

Step 5: Minimize saturated fat. Eliminate trans fat.

Behavioral Modification

Eliminate or at least minimize eating out

- In 1999–2000, 41% of US adults reported eating away-from-home foods at least weekly [3] and 25% of adults and 30% of children 4–19 years old reported eating fast food at least daily. [1]

- Frequent consumption of fast food, in particular, is associated with poorer diet quality and risk for obesity for both children[1] and adults [2].

1.Bowman SA et. al. Effects of fast-food consumption on energy intake and diet quality among children in a national household survey. *Pediatrics* 2004;113:112–118.
2. Bowman SA, Vinyard BT. Fast food consumption of U.S. adults: impact on energy and nutrient intakes and overweight status. *J Am Coll Nutr* 2004;23:63–68.
3. Kant AK, Graubard BI. Eating out in America, 1987-2000: trends and nutritional correlates. *Prev Med* 2004;38:243–249.

Cook Together

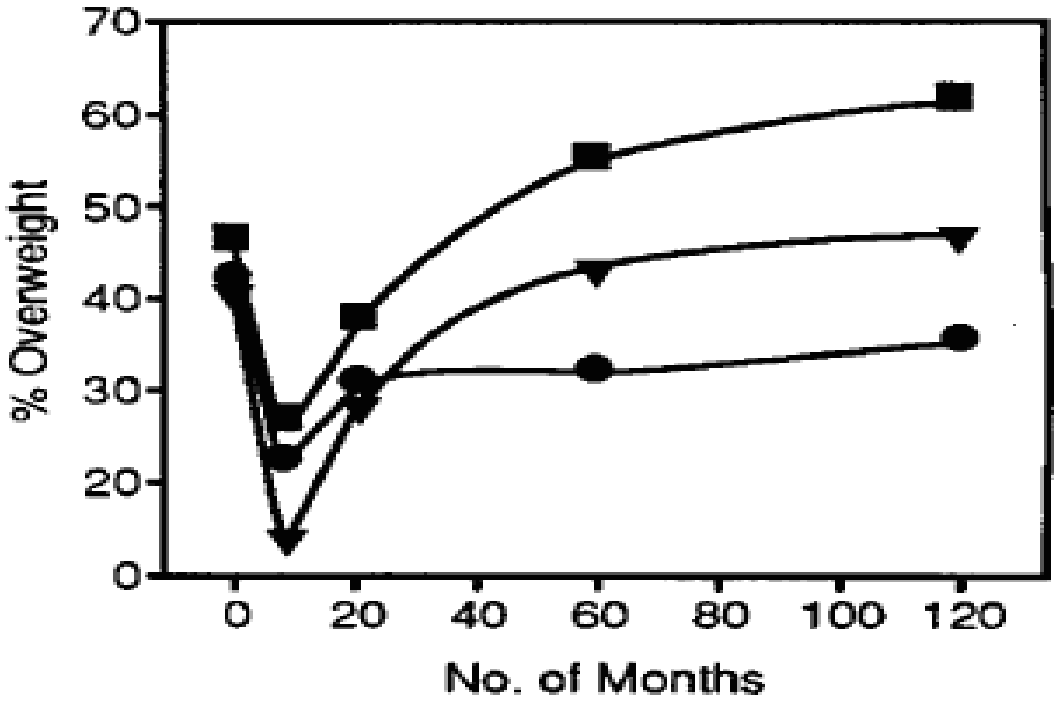
Eat Together

The benefits of sharing 3 or more family mealtimes per week included a reduction in the odds for overweight (12%), eating unhealthy foods (20%), and disordered eating (35%) and an increase in the odds for eating healthy foods (24%).

Pediatrics 2011;127:e1565–e1574

What is the best way to deliver behavioral intervention ?

1. CONTRACTING
2. SELF-MONITORING
3. CONTINGENCY MANAGEMENT
4. SOCIAL REINFORCEMENT AND MODELLING



- child and parent groups
- child alone groups
- nonspecific groups

* FAMILY BASED THERAPY DELIVERED BETWEEN 6 AND 12 YEARS OF AGE CAN LAST INTO ADULTHOOD.

Leonard H. Epstein et al. Ten-Year Follow-up of Behavioral, Family-Based Treatment for Obese Children *JAMA* Nov 21, 1990 vol 264, no 19.

Exercise

Exercise- younger children (<12 yrs)

- Depending on degree of obesity, expert panel recommends at least an hour of physical activity per day.[1] **GET THEM MOVING!**
- For younger children, it should be about play. (Between 1981 and 1997, children's play time dropped by 25%. Play time was replaced by structured sports, and unstructured time by screen time).[2]
- Walking is always a good idea. Consider using pedometers, *Fit Bit* etc. to make it competitive. [3]
- *Wii* Fit or *X-box Kinect* are good indoor choices.
- Bike riding, hiking, obstacle courses, dancing -playing as a family
- Swimming or aquatherapy for heavier kids.

1. Barlow SE et al. Expert committee recommendations regarding the prevention, assessment and of child and adolescent overweight and obesity: summary report. *Pediatrics* 2007;120:S164-192.
2. Rideout V. et al. Zero to Six: Electronic Media in the lives of infants, toddlers and preschoolers. Mento Park, California Henry J. Kaiser Family Foundation, 2003.
3. Lubans DR et al. A systematic review of studies using pedometers to promote physical activity among youth. Preventative Medicine 2009;48: 307-15.

Exercise- adolescents (>12 yrs)

- Depending on degree of obesity, expert panel recommends at least an hour of physical activity per day.[1] **GET THEM MOVING**.
- Consider a strength/cardio program at a local YMCA
- If children are not part of an organized team sport, consider club/intermural team or gaining access to school gym/weights.
- *Wii* Fit or *X-box Kinect* are good indoor choices for this population
- Bike riding, hiking, obstacle courses, dancing, swimming -playing as a family.
- If you have home equipment (such as a treadmill)- start with 20 minute walk and increase from there.

Medications

The ideal medication for children is one that is safe, effective, daily dosed, and does not affect growth or development.

Orlistat

- Inhibits gastrointestinal lipases, reducing approximately 30% of ingested dietary fat.
- Orlistat 120mg tid approved by FDA in 2003 for management of obesity in adolescents (12-16 years old).
- Largest trial of 539 adolescents for 52 weeks showed modest weight loss, with BMI decrease of 0.55kg/m^2 vs +.31 kg/m^2 with placebo. [1]
- 35% drop out (tid dosing, oily stools, need to take fat soluble vitamins.)

[1] Chanoine JP et al *JAMA* 2005; 293 (23) : 2873-83.

Off label Use

- Definition: A drug that is prescribed for uses, periods of time, or a dosages that are not FDA-approved.
- In March 2009, researchers reported in *Academic Pediatrics* that 62% of outpatient pediatric visits resulted in an off-label prescription.
- According to the FDA, if a physician use a product off-label, he or she has the responsibility to be well informed about the product, to base its use on firm scientific rationale, and to maintain records of the product's use and effects.
- Off label use of medications has the potential to significantly affect the childhood obesity epidemic and prevent unnecessary surgical intervention.

Metformin

- Metformin is a Biguanide that inhibits intestinal glucose absorption, reduces hepatic glucose production, and increases insulin sensitivity in peripheral insulin-targeted tissues.
- FDA approved for the treatment of diabetes in children 10 and older
- More than 20 studies: Metformin therapy has been shown to improve body composition, fasting insulin, Body Mass Index, cardiovascular control and fatty liver disease in obese children /adolescents.
- Start at 500 mg po bid with food and titrate to 1000 mg po bid. Extend release forms (qd dosing) tend to be better tolerated, better compliance. Aim for 2 grams/day.

Topiramate

- GABA-ergic anticonvulsant drug approved for seizure disorders in children over age 2.
- Use in children with epilepsy[1] and migraines[2,] shows a 1-2kg decrease in body weight vs placebo.
- Improvement in body weight in children with antipsychotic weight gain. [3-5]
- Effective in adults with Binge Eating Disorder in doses of 50 mg q pm to 100mg bid [6,7]
- Consider 25mg to 50mg q pm for carb sensitive patients or those with BED.
- Teratogenic risks should be explained to sexually active patients

Phentermine

- Long acting sympathomimetic used to decrease food intake, and increase energy expenditures.

- Two short term trials on children in 1965[1] and 1966 [2] showed significant weight loss (5.2 kg of weight loss in 3 months) [2] with excellent side effect profile.

- Medications FDA approved for adults are assumed to be safe for children 16 years and older.

- Long term data now exists for Phentermine for adults.

- Comparable sympathetic load to drugs used for ADD

Diethylproprion

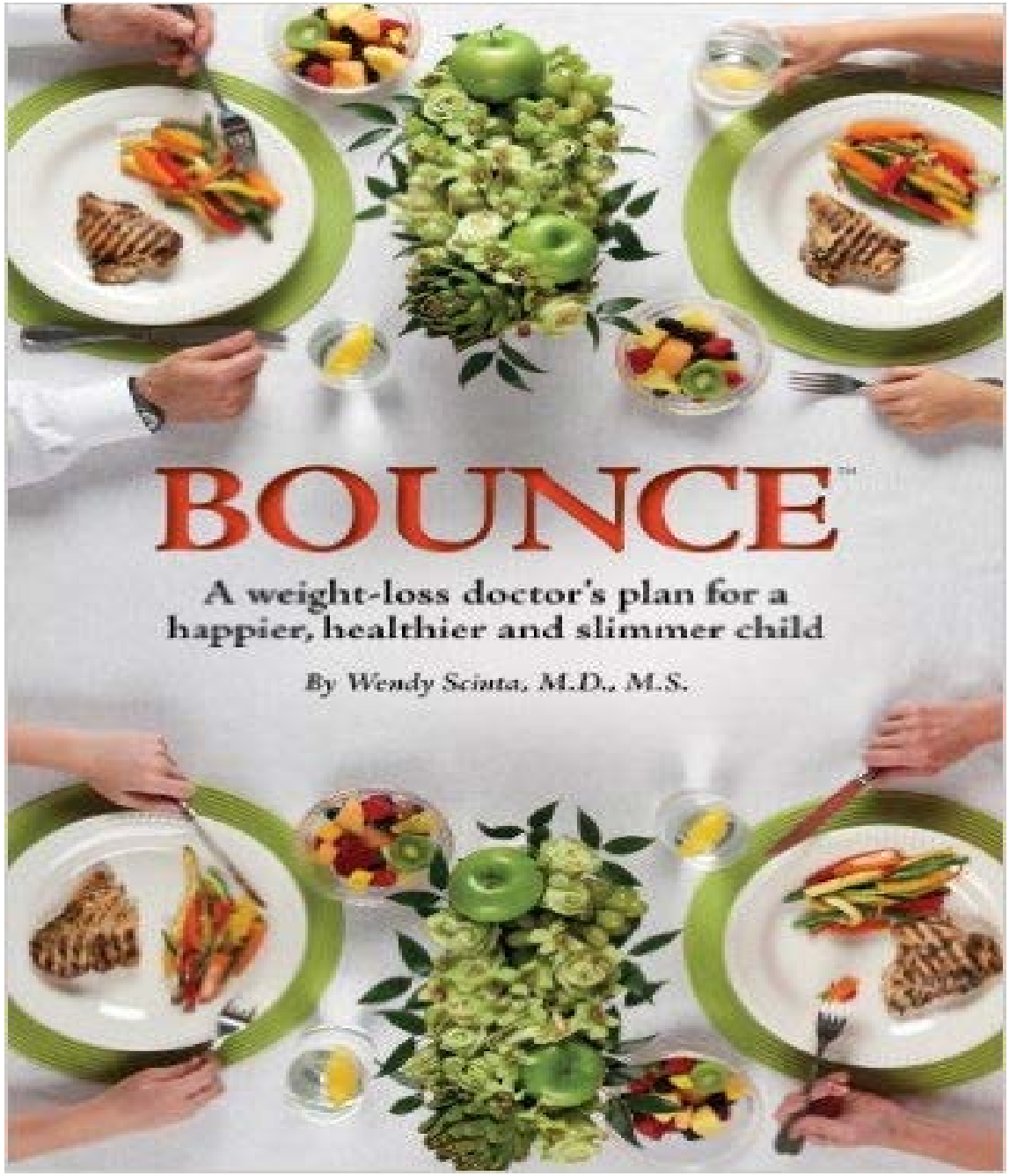
•Short acting sympathomimetic used to decrease food intake, and increase energy expenditures.

• Two short term trials on children in 1967[1] and 1970[2] showed moderate weight loss.

•Medications FDA approved for adults are assumed to be safe for children 16 years and older.

•Comparable sympathetic load to drugs used for ADD

Pulling it
all together…..



B Behavior / Biguanide

O Optimizing Metabolism (3 meals/2 snacks)

U United as a family

N Notation of food (food journal)

C Count your steps (Pedometer)

E Elimination Diet

B Behavior/Biguanide

1. Treat underlying pathology if present

2. Offer 1 on 1 or group counseling (peers, family)

1. Limit electronics time- make them “work out” for it.

2. No food in front of the t.v. except water

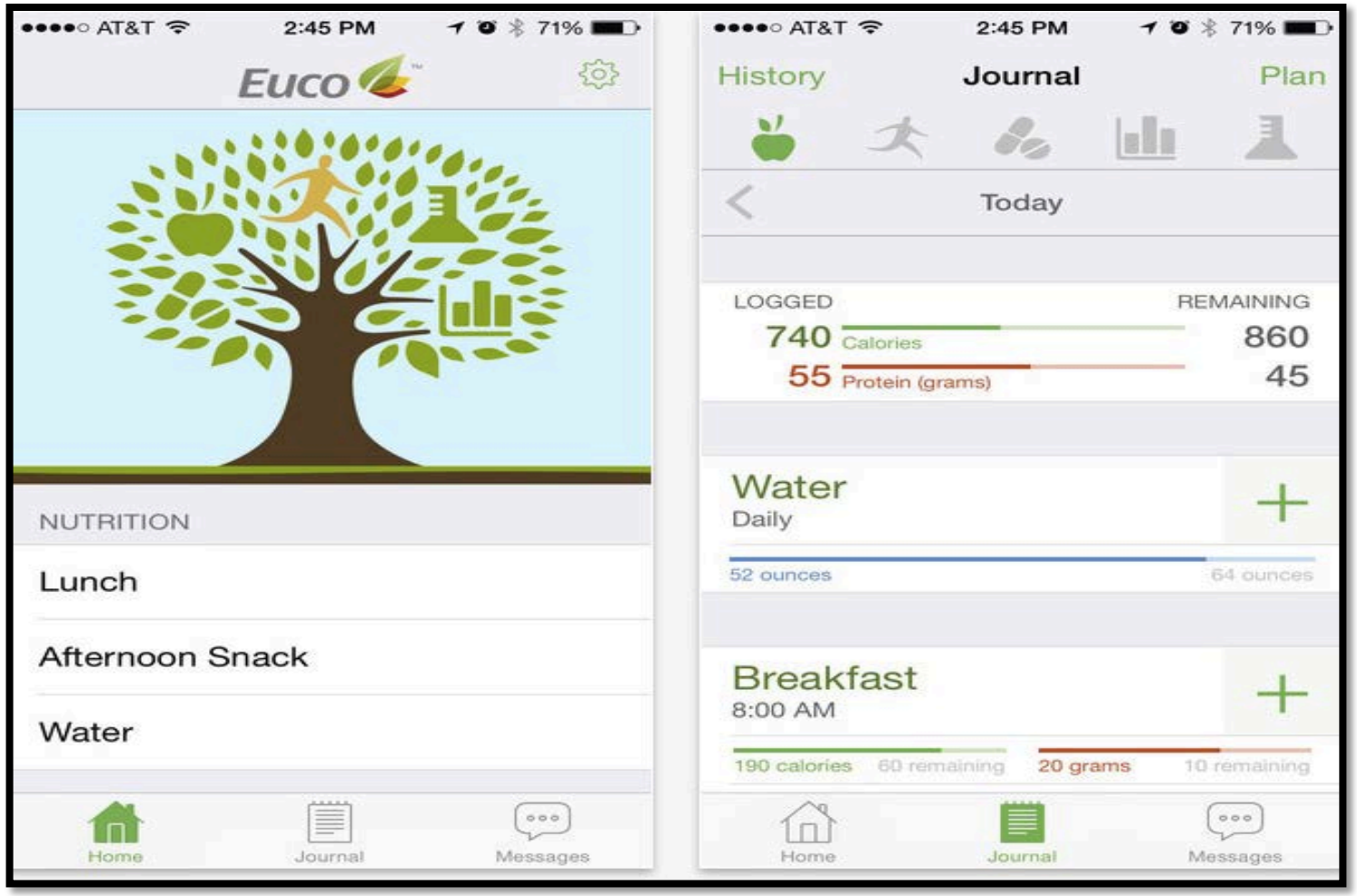
O Optimize Metabolism

3 meals, 2 snacks (3-4 hours apart) all with protein

U United As A Family

Everyone participates. Everyone makes changes.

N Notation of food (Food Diary)



R.D. teaches children how to read food labels and take note of ingredients. Calories and protein are recorded but not tightly monitored.

C Count Your Steps

Moves

Pedometer:

- Every child receives a pedometer before leaving our office
- Goal = 10,000 steps/day

Moves App.

- Free at Apps store
- Non-gadget activity tracker

E Elimination Diet

- Minimize fast foods and eating out to no more than 1/week.
- Try to sit down to a meal at home together at least 1/wk.

Elimination diet with child:

- Start replacing soda and juice with water
- Wean off processed foods
- Replace starchy carbs with whole grains.
- Increase protein, fruits and vegetables.

BOUNCE - Initial analysis [1]

Drop-outs

vs.

Completers & Continuing Patients

Compared change in BMI by regression analysis
completers and ongoing participants {1} vs. drop-outs {0}
each program component that subjects completed (1,0)
time-in-program, participant age, and gender covariates

Cohort: N=25, Mean age 13.55 years, 63% female

Program participants saw a *significant* reduction in BMI, by over 3 points (β = -3.351, p=.006, 95% CI 5.630 - 1.071).

1. Scinta W., Morley CP A Retrospective Chart Study of a Comprehensive Medical Weight Loss Approach to Pediatric Obesity: Initial Results from the BOUNCE Program. *Endocrinol Metab Syndr* 4: 173. 2015.

Case Studies

Aiden:

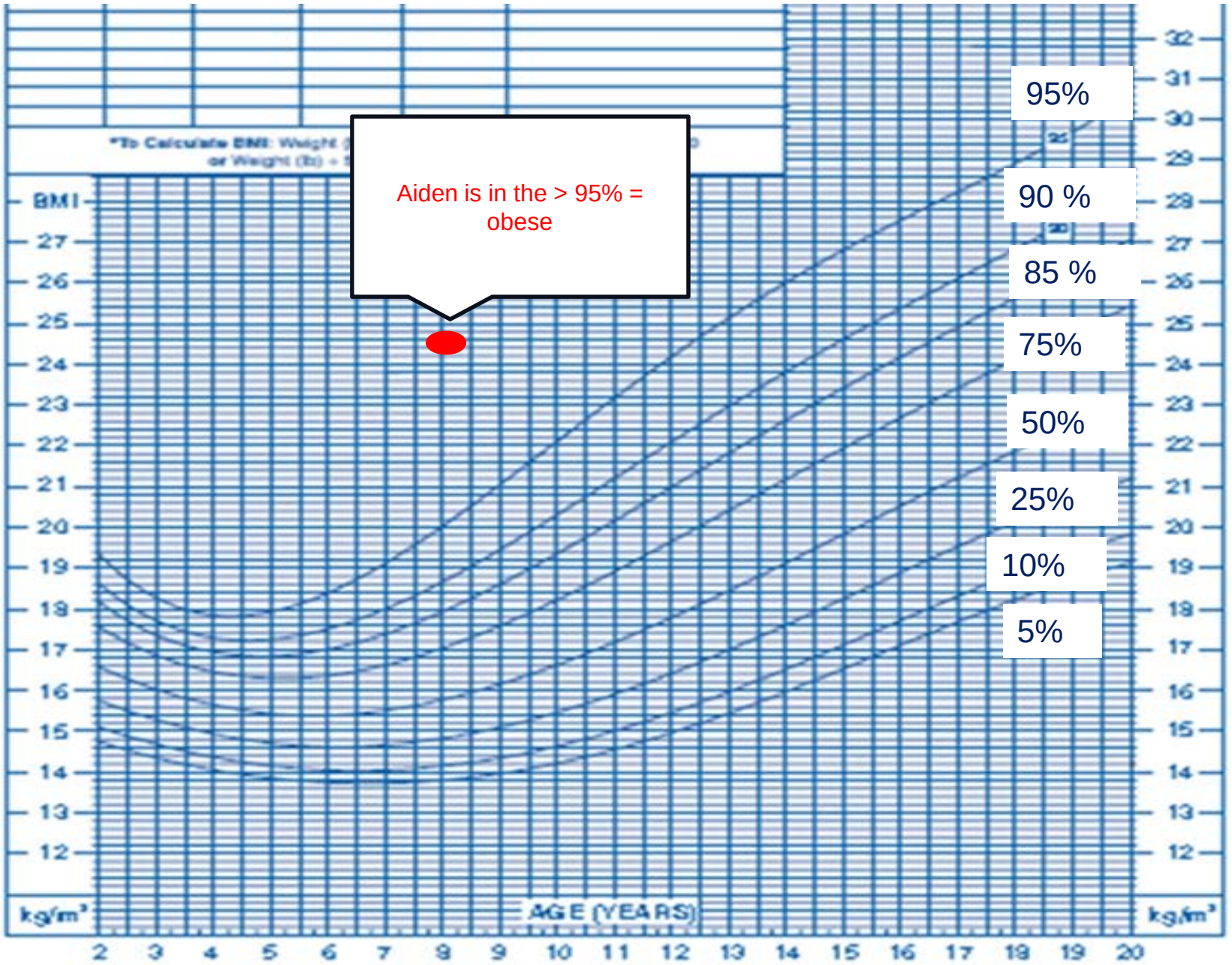
Age: 8

Height: 4’ 2”

Weight : 88 #

BMI = 24.75

1. What is percent BMI? What class of obesity is he?
2. What questions should we focus on?
3. What should our initial treatment be?
4. If he doesn’t succeed, what are next steps?



Physical: As per protocol

<u>Bloodwork</u>:

- **Fasting Lipids Profile**
- **Glucose**
- **ALT/AST**
- **Other (eg. TFTs)**

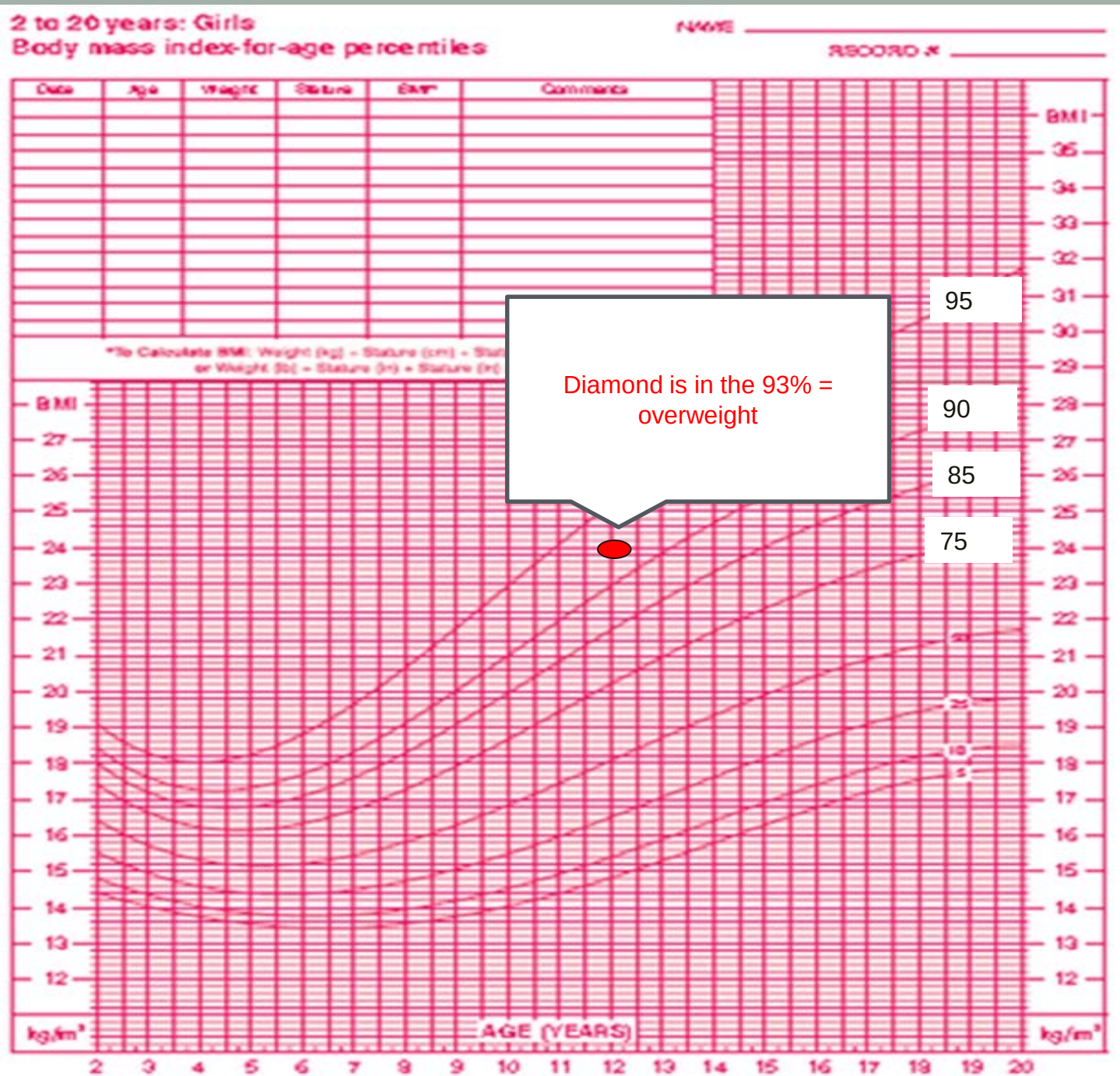
Diamond:

Age: 12
Height: 5’1”
Weight : 130 #

BMI = 24.5

BP = 106/70

1. What is Percent BMI? What class of obesity?
2. What blood work should you order?
3. What should our initial treatment be?



Physical: As per protocol

Blood work: Fasting lipids only

(which are normal)

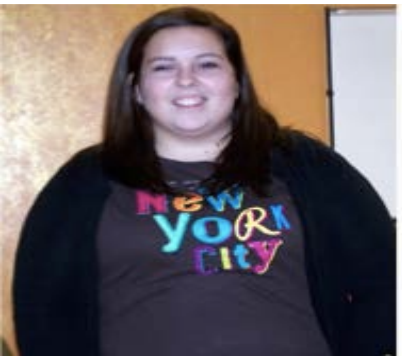
In Summary:

- The childhood obesity epidemic remains a serious threat to the long term health of our children, and the fiscal health of our country.
- Many forces are at play negatively impacting efforts to reverse this trend. They are powerful and well funded. (i.e. food industry)
- Childhood obesity can not only be contained but reversed medically if treatment is multidisciplinary and gives the family a central role in the process.
- Medications (such as metformin) are often needed to control appetite in insulin resistant children.
- Behavioral modification (with parents/caregivers with or without the child) is the most effective way to help a child maintain weight loss. Technology, if utilized appropriately, can maximize patient and family engagement.
- The successful reversal of childhood obesity must involve a wide array of public and private partners working together in concert. Grassroots efforts are included, and we can all play a role by using our talents within our own communities.





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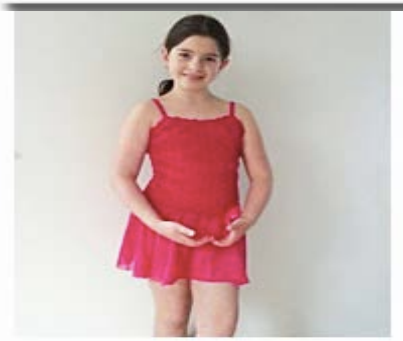
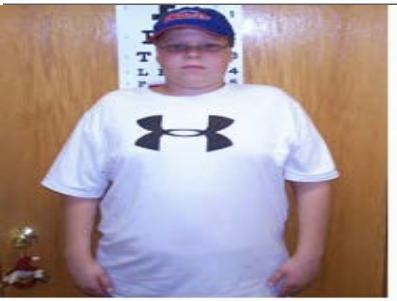

EAGL



SWIMMING


THANK YOU!

Weight Loss and Weight Management Webinar Series

<u>Next Webinar, Tuesday, January 12, 2016:</u>

Adult Bariatric Case Study

Dr. Myra Muramoto

Family and Community Medicine, University of Arizona College of Medicine

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http://www.telemedicine.arizona.edu/app/distant-education/upcoming-workshops

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