CAHC Grand Rounds

Welcome!

Nursing Contact Hours Designation

A total of **1.08** Nursing contact hours have been awarded for this activity by the Michigan Public Health Institute – Continuing Education Solutions (MPHI_CES).

MPHI-CES (OH-320, 06/1/16) is an approved provider of continuing nursing education by the Ohio Nurses Association (OBN-001-91),an accredited approver by the American Nurses Credentialing Center's Commission on Accreditation.

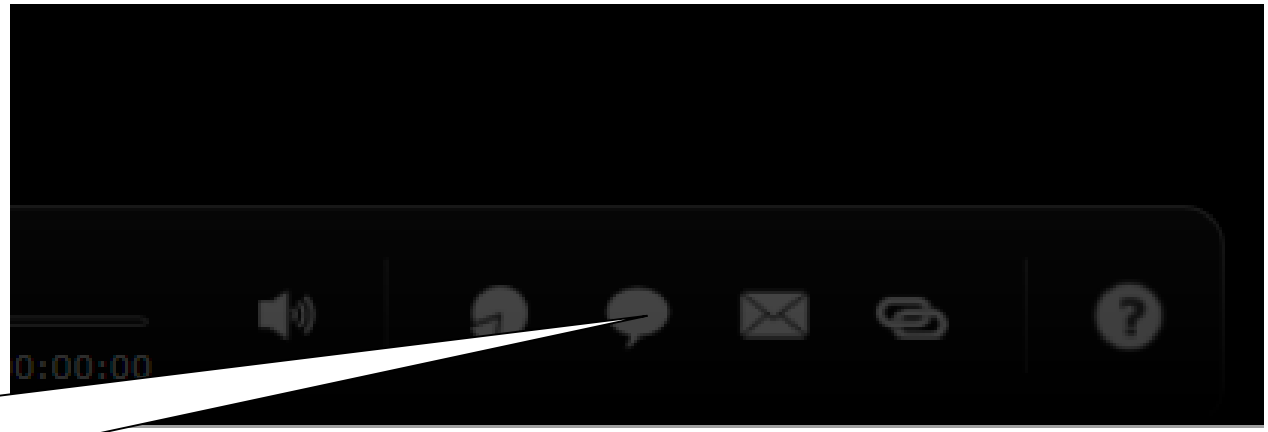
Physicians' Assistant (AAPA) CME Credit Hour Designation

This program has been reviewed and is approved for a maximum of **1.08** hours of AAPA Category 1 CME credit by the Physician Assistant Review Panel. Physician assistants should claim only those hours actually spent participating in the CME activity.

Technical Issues

Email: ETwebcast@mphi.org

Please submit questions using the ASK button  at any point during the presentation. It is located on the bottom right of your screen.



Use the "Ask Question" button to pose your questions

DISORDERED EATING IN THE ADOLESCENT POPULATION, WHAT TO DO?

MDCH – Child & Adolescent Health Center Program

Adolescent Eating Disorders

- Behavior related Eating Disorders can meet DSM-5 criteria or can be "subthreshold". (Similar to Obesity vs Overweight)
- Diagnosis and treatment **before** patients meet eating disorder diagnostic criteria or have medical complications is key to better outcomes.
- These sets of disorders must be considered when evaluating adolescents who are significantly overweight or underweight, or who have a history of abnormal eating habits

Adolescent Eating Disorders

- Overweight/Obesity
  - Binge Eating Disorder
  - Caloric imbalance: caloric intake exceeds caloric requirements (common overweight/obesity)
  - Medical causes: CNS tumors, Prader-Willi syndrome, others (rare)
  - Metabolic Syndrome in Adolescents (sequelae of obesity)
  - PCOS

Adolescent Eating Disorders

- Underweight/Malnutrition
  - Anorexia Nervosa
  - Bulimia Nervosa
  - Avoidant Restrictive Food Intake Disorder
  - Other Specified Feeding or Eating Disorders (DSM-5, atypical presentations of the above disorders)
  - Food insecurity malnutrition
  - Malabsorbtion, IBD, Celiac disease, hyperthyroidism, other medical causes

Prevalence of Eating Disorders in Adolescents: Overweight

- From 1980-2012, the percentage age of adolescents who were obese increased from 5% to 21% (CDC data)
- In 2012, more than 1/3 of adolescents were overweight or obese (CDC data)
- Binge Eating Disorder, most common behavior based eating disorder, present in 2.3% adolescent females and 0.8% in males, incidence of subthreshold type is 5% and 1.6% respectively

Prevalence of Eating Disorders in Adolescents: Underweight

- Anorexia Nervosa: present in 0.3-0.7% of adolescent females, rate in males is 1/10 of female rate. Less common in African Americans, subthreshold rate is 1.5% for females
- Bulimia Nervosa: present in 1-2% of adolescent females and 0.5% of adolescent males. Begins between ages14-22, sometimes occurs after an episode of Anorexia Nervosa
- Avoidant Restrictive Food Intake Disorder: no prevalence data

Prevalence of Eating Disorders in Adolescents

- Food Insecurity and Malnutrition
- Behavior based Eating Disorders resulting in underweight, including subthreshold cases, can be present in 5% of the adolescent female population

Anorexia Nervosa DSM-5 Criteria

- Restriction of energy intake leading to low body weight (BMI<10th percentile)
- Fear of gaining weight or behavior that interferes with weight gain
- Self evaluation unduly influenced by weight and body shape
- Denial of seriousness of malnutrition

Anorexia Nervosa (AN)

- Weight concerns and behavioral change directed toward weight loss begin 6-12 months before diagnosis
- Weight loss rate increases in the last few weeks before diagnosis, prompting parental concern and referral for evaluation
- Peak incidence 14-18yo, rare after 25yo

Anorexia Nervosa

- Categorized as mild to extreme in adolescents based on BMI percentiles ($<10^{th}$)
- Weight alone is not a marker for severity
- Amenorrhea is no longer required for diagnosis

Anorexia Nervosa

- Two Subtypes
  - Restricting type
  - Binge-eating/purging type
- Adolescents with AN are less likely than adults to have binge eating/purging

Anorexia Nervosa

- Caloric reduction increases over time
- Food choices become more limited
- Focus increases on weight and dieting
- Exclusion of friends and family
- Academic and athletic pursuits usually continue, sometimes more driven

Anorexia Nervosa

- Perfectionistic, obsessive, and avoidant personality features are common
- Genetics play a role, as seen in twin studies (30%-75% heritability)
- Western culture with societal pressures related to thinness and appearance can trigger extreme dieting

Anorexia Nervosa

- Participation in ballet, gymnastics, wrestling, and modeling may increase risk
- Affected adolescents may dress in baggy clothes or layers and complain of being cold
- May appear withdrawn, depressed and anxious

Anorexia Nervosa

- Adult long term studies show chronicity (>5years) 7%-15%
- Mortality 5%-7%
- Death: 50% medical complications of starvation and 50% suicide
- Prognosis in adolescents is better than in adults

Anorexia Nervosa

- Psychiatric comorbidity rate is 55%
- Includes depression, social anxiety, OCD, generalized anxiety, substance abuse, and personality disorders
- AN and OCD share obcessional preoccupations

Anorexia Nervosa

- Differential Diagnoses:
  - Chronic infection
  - Thyroid disease
  - IBD
  - Connective tissue disorders
  - Diabetes
  - Occult malignancy
  - Addison's disease and others

Anorexia Nervosa

- Medical causes can be ruled out with a thorough history and physical exam along with appropriate lab work
- Laboratory evaluation can begin with, CBC, Sed Rate/CRP, Biochemical Profile, thyroid studies, ANA, EKG
- Bradycardia and hypokalemia are warning signs

Bulimia Nervosa (BN)

- Recurrent binge eating (very large amount of food consumed within 2 hours)
- Sense of loss of control over eating during these episodes
- Compensatory behaviors such as vomiting, fasting, exercise, laxative use, diuretic use, diet pill use
- Self evaluation unduly influenced by weight and body shape

Bulimia Nervosa

- Binge eating and compensatory behaviors both occur, on average, at least once a week for 3 months
- Severity of BN, mild to extreme, is based on the frequency of compensatory behaviors
- Compensatory behaviors distinguish BN from Binge Eating Disorder
- Can present after an episode of AN

Bulimia Nervosa

- Typically begins between ages 14-22 years
- Patients are often within normal weight range for age, gender, and height.
- Secrecy and feelings of shame and guilt are common
- Males more likely to present with overexercise and steroid use
- More common with wrestling, gymnastics, diving, and distance running

Bulimia Nervosa

- Typically patients with BN have had symptoms for 5 years before seeking treatment
- Of those with BN who are treated, 50% are symptom free 5-10 years later, 50% continue with symptoms/behaviors
- BN is a cycle of food deprivation, binge eating, and purging

Bulimia Nervosa

- Twin studies show hereditability of 60% to 83%
- Occurs more often in first degree relatives
- Social pressures for thinness play a role
- Abuse, PTSD, impulsivity and perfectionism are risk factors
- Suicidal ideation (53%), plans (26%), and attempts (35%) seen in adolescents with BN

Bulimia Nervosa

- Differential diagnosis
  - AN (binge/purge type), BED
  - Certain CNS tumors
  - Gastric pathology
  - Kleine-Levin syndrome
  - Kluver-Bucy syndrome
  - major depressive disorder
- Majority of adolescent patients with BN have at least 1 psychiatric illness

Binge Eating Disorder (BED)

- Binge eating episodes (very large amount of food consumed within 2 hours)
- Sense of loss of control over eating during these episodes
- Associated with 3 of the following:
  - Eating more rapidly
  - Eating until uncomfortably full
  - Eating when not hungry
  - Eating alone due to embarrassment
  - Feelings of disgust, depression, or guilt

Binge Eating Disorder

- Binge eating episodes need to occur, on average, at least once a week for 3 months (DSM-5)
- Must be associated with marked distress (DSM-5)
- Not associated with compensatory behaviors
- For adolescents, rate of one binge episode per month may be indicative of BED (expert concensus)

Binge Eating Disorder

- Often occurs in overweight and obese individuals
- Occurs in the context of overall chaotic and unregulated eating patterns, not in response to restriction of food intake as is the case in BN
- Typically begins in late adolescence or early adulthood

Binge Eating Disorder

- Risk factors
  - Prior restrictive dieting
  - Pressure to be thin
  - Body dissatisfaction
  - Emotional eating
  - Low self-esteem
  - Poor social support
  - Depressed mood
  - Increased anxiety
  - Psychpathology

Binge Eating Disorder

- Differential Diagnosis
  - AN, BN
  - Night eating syndrome
  - Nocturnal sleep-related eating disorder
  - CNS tumors
  - Gastric pathology
  - Kleine-Levin syndrome
  - Kluver-Bucy syndrome
  - Prader-Willi syndrome

Avoidant Restrictive Food Intake Disorder (ARFID)

- Food restriction or avoidance **without** weight or shape concerns

OR

- Intentional efforts to lose weight that results in significant weight loss and nutritional deficiencies, associated with psychological development and functioning

Avoidant Restrictive Food Intake Disorder

- Highly selective eating
- Neophobia (fear of new things) related to food types
- Hypersensitivity to food texture, appearance, or taste
- Fear of swallowing or choking
- Lack of interest in eating, or low appatite

Avoidant Restrictive Food Intake Disorder

- Common in patients with Autism Spectrum Disorder
- Anxiety disorders and depression often predate the diagnosis
- Can be seen in abuse, neglect, and developmental delays
- Patients are aware that they are low weight and may want to eat more and gain weight, but fear and anxiety prevent them from eating enough

Avoidant Restrictive Food Intake Disorder

- Can be confused with AN, but differs in that:
  - Lack of fear of weight gain
  - No shape or weight concerns
  - No focus on weight loss
  - No avoidance of high calorie foods

Other Specified Feeding or Eating Disorders

- DSM-4 had Eating Disorder not Otherwise Specified (EDNOS)
- Included atypical and subthreshold presentations of AN, BN, BED
- DSM-5 revised criteria for AN, BN, BED, and ARFID includes many previously diagnosed with EDNOS
- Now includes “atypical” AN (weight is at or above normal), BN and BED (low frequency/short duration)

Female high school athletes at risk

- 18.3% met criteria for an eating disorder
- 12.5% met criteria for menstrual irregularity
- 21.8% met criteria for low bone mass

AACAP Recommendation 1 (CS)

- **Mental Health Clinicians should screen all child and adolescent patients for eating disorders**
  - Preteens and adolescents should be asked about eating patterns and body satisfaction
  - Height, weight, and BMI should be plotted on growth curves
  - Concerns should be evaluated with a validated screening survey

AACAP Recommendation 1

- Validated evaluation tools for eating disorders
  - Eating Disorder Examination-Questionnaire (EDE-Q)
  - Eating Disorder Inventory (EDI)
  - Eating Attitudes Test (EAT)
  - Kid's Eating Disorder Survey (KEDS)
  - ChEDE-Q
  - EDI-C
  - Child-Eating Attitudes Test (CHEAT)

AACAP Recommendation 2 (CS)

- **A positive screening should be followed by a comprehensive evaluation, including laboratory tests and imaging studies**
  - Evaluation of a child or adolescent who screens positive for an eating disorder should include a complete psychiatric exam and physical examination
  - The Eating Disorder Examination is a commonly used structured interview
  - History from parents is extremely important

AACAP Recommendation 2

- Laboratory evaluation in the presence of malnutrition or purging behaviors:
  - CBC, ESR
  - Biochem profile with electrolytes
  - BUN, creatinine
  - Glucose
  - LFT's including AST and ALT
  - TSH
  - Ca, Mg, phos, albumin, total protein, amylase, B12, Lipid profile

AACAP Recommendation 2

- EKG for bradycardia and to rule out risk of arrythmia
- DEXA scan (bone density) for amenorrhea greater than 6 months and significant weight loss (males)
- Laboratory evaluation in females to also include:
  - LH, FSH, estradiol
  - HCG if amenorrhea

AACAP Recommendation 3 (CS)

- **Severe acute physical signs and medical complications need to be treated**
  - Cardiac arrythmias, bradycardia
  - Hypotension
  - Hypothermia
  - Dehydration
  - Electrolyte abnormalities
  - CHF
  - Renal failure
  - Pancreatitis

AACAP Recommendation 3

- Severe acute physical signs and medical complications need to be treated (continued)
  - Amenorrhea
  - Low bone mineral density
  - Neurologic and cognitive impairments
  - Delay or impairment of growth
  - Puberty delay
  - Hormonal imbalances

AACAP Recommendation 3

- Clinical signs of malnutrition:
  - Hair loss
  - Lanugo hair
  - Dry skin
  - Dependent edema
  - Muscle weakness
  - Muscle cramps

AACAP Recommendation 3

- Frequent purging associated with BN may cause:
  - Parotid swelling
  - Calluses on the dorsum of the hand (Russell's sign) from teeth scraping the top of the hand when using figures to induce gagging/vomiting
  - Erosion of dental enamel
  - Hypokalemia and other electrolyte abnormalities
  - Esophageal tears

AACAP Recommendation 3

- Indications for medical hospitalization:
  - Severe bradycardia
  - Orthostatic hypotension
  - Hypothermia
  - Electrolyte abnormalities
  - Severe malnutrition
- Hospitalization for weight gain most efficiently accomplished by NG tube feeding versus other methods

AACAP Recommendation 4 (CG)

- **Psychiatric hospitalization, day programs, partial hospitalization programs, and residential programs for eating disorders in children and adolescents should be considered only when outpatient interventions have been unsuccessful or are unavailable.**
  - There is no evidence that psychiatric hospitalization is more effective than outpatient treatment

AACAP Recommendation 5 (CS)

- **Treatment of eating disorders in youth usually involves a multidisciplinary team that is developmentally aware, sensitive, and skilled in the care of children and adolescents with eating disorders**
  - The team usually consists of a psychotherapist, pediatrician, and dietician
  - A child psychiatrist should be involved for medication management

AACAP Recommendation 6 (CS)

- **Outpatient psychosocial interventions are the initial treatment of choice for children and adolescents with eating disorders**
  - Includes Family Based Treatment (FBT), appears to be superior to individual therapies
  - FBT is an outpatient form of family therapy that consists of 10-20 family meetings over a 6 to 12 month treatment course
  - Individual therapies are beneficial, especially Adolescent-focused Therapy (AFT)

AACAP Recommendation 7 (CG)

- **The use of medications, including complementary and alternative medications, should be reserved for comorbid conditions and refractory cases**
  - Results of medication trials have not been encouraging
  - In adults, antidepressants are effective for BN, specifically fluoxetine in high doses (60mg/day)
  - CBT appears to be superior to antidepressants in BN
  - Psychiatric comorbidities may require appropriate medication

“Proanorexia” Communities on Social Media

- Recent article by A Oksanen et al, *Pediatrics;* December 16, 2015
- Proanorexia (pro-ana) and pro-bulimia online communities are interactive and promote “thinspiration”
- Present on Facebook, YouTube, Twitter, Instagram, Pinterest, Snapchat, others
- Mutual support and solidarity is a strong theme
- Can be a significant source of influence
- Anti pro-ana sites are also active, have more positive comments, and are a counteractive force for the pro-ana community

Evaluation of Obesity/Overweight

BMI Classification

- **85-94th Percentile: Overweight**
- **$\geq$ 95th Percentile :Obese**
- **$\geq$120$^{\%}$ of the 95th Percentile: Extreme Obesity (99th %ile)**
- **BMI 30-34.9 Grade I Obesity**
- **BMI 35-39.9 Grade II Obesity**
- **BMI 40 Grade III Obesity**

What is "Metabolic Syndrome"?

- Not a disease or type of abnormal physiology
- It is a tool that allows us to identify patients who are at higher risk for cardiovascular disease and other diseases
- Unclear how these "risks" really apply to pediatrics

What is "Metabolic Syndrome"?

Different organizations have used different criteria for definition

- World Health Organization
- European Group for the Study of Insulin Resistance
- National Cholesterol Education Program (NCEP)
- American College of Endocrinology

What is “Metabolic Syndrome”?

It has been called many things:

- Syndrome X
- Cardiovascular metabolic syndrome
- Deadly quartet
- Beer-belly syndrome
- Insulin Resistance syndrome
- Reaven’s syndrome
- Dysmetabolic syndrome

What is "Metabolic Syndrome"?

- ADA and EASD (European Association for the Study of Diabetes) Joint Statement, Diabetes Care 28:2289-2304, 2005.
- "…the metabolic syndrome has been imprecisely defined, there is a lack of certainty regarding its pathogenesis, and there is considerable doubt regarding its value as a CVD risk marker. Our analysis indicates that too much critically important information is missing to warrant its designation as a "syndrome."

Should Metabolic Syndrome be defined in children/adolescents?

- Early identification would allow tracking into adulthood
- Early identification would allow earlier initiation of interventions
- Early identification would encourage more commitment to therapy?

So what is Metabolic Syndrome in Kids?

- None of the criteria (NCEP, AACE, WHO) fit kids and adolescents
- Recommendations include use of:
  - >90th %tile for blood pressure
  - >95th %tile for BMI
  - >90th %tile for waist circumference
  - IFG and/or IGT
  - Hyperinsulinemia / insulin resistance / acanthosis nigricans
  - Hyperlipidemia for age
  - Family and personal Hx risks

Who and How to Screen

- Family history of CVD, DM, hyperlipidemia
- Child's H/P: Hyperlipidemia, glucose intolerance, acanthosis nigricans, diabetes mellitus, hepatic steatosis, cholelithiasis, precocious puberty, sleep apnea, hypertension, pseudotumor cerebrii, hypothyroid, Cushings
- Diet, Exercise, TV and computer/video game use; smoking/alcohol use

What to do in clinic

- Look At the child, adolescent
- Ask about family history
- Measure height and weight
- Plot on the correct chart
- Calculate the BMI
- Plot BMI on correct chart
- Look at the graphs
- Think about all the information

Who and How to Screen

- Tests for all obese children (>95th %ile)
  - Fasting plasma glucose (100-125 is prediabetes, > 126 diabetes)
  - Fasting lipid panel (>200 chol, >130 LDL)
  - ALT, AST (> two times normal)
  - Biochem profile, specifically electrolytes and bicarbonate

Who and How to Screen

- Tests for overweight children (>85th %ile)
  - Cholesterol screen (fasting lipoprotein profile if >200)
  - If Family History of T2DM, presence of acanthosis nigricans, or PCOS, get FPG and OGTT (or Hgb A1C)
  - Comorbidities such as T2DM, prediabetes, OSA, dyslipidemia can occur in overweight and normal weight patients

Who and How to Screen

- Specific concerns
  - FH + thyroid? → Thyroid antibodies
  - Goiter or hyperlipidemia? → free T4 + TSH
  - Severe linear growth failure? → salivary cortisol
  - Syndromic features? → Karyotype, CGH
  - Precocious puberty? → Bone age

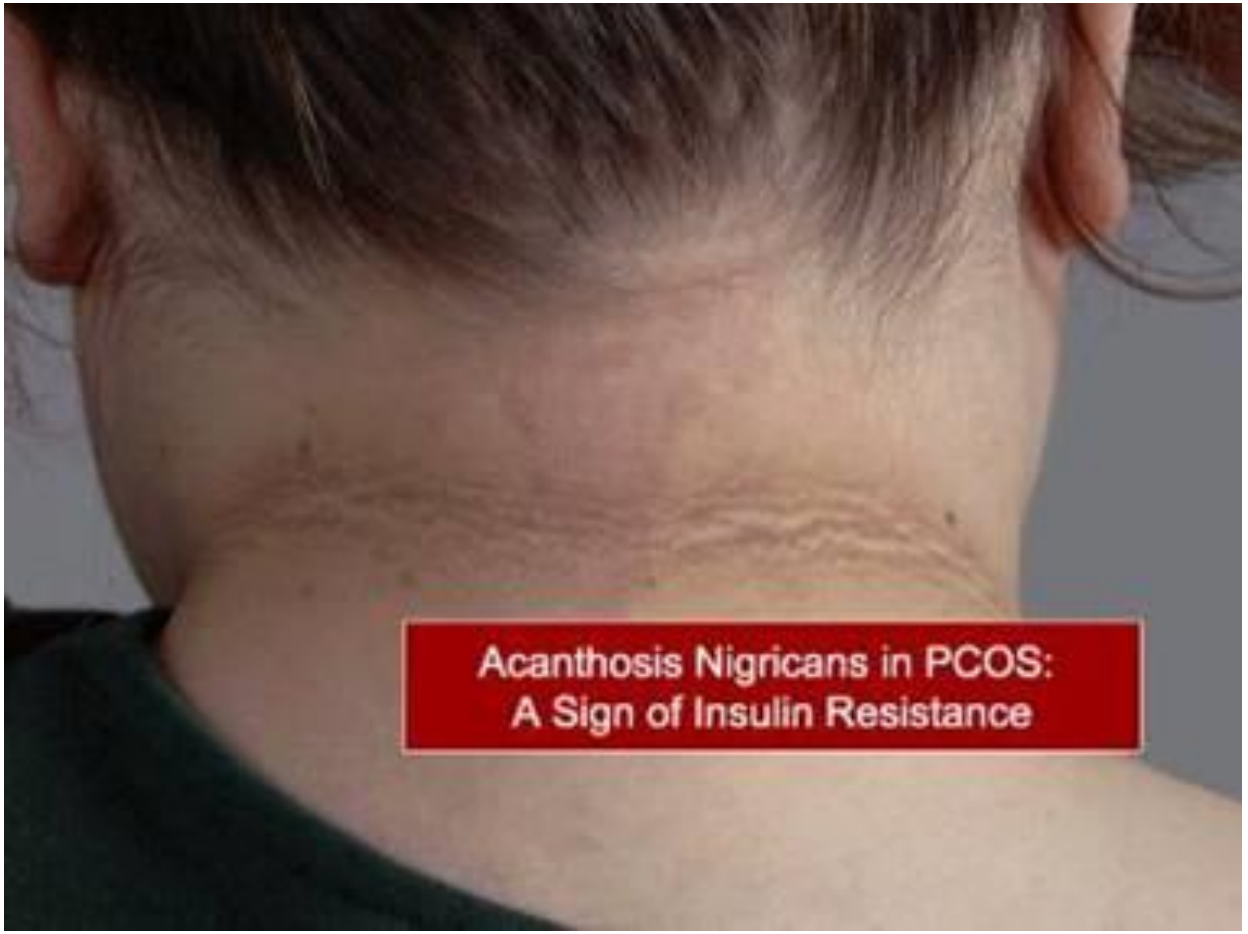
Who and How to Screen

- **All children** should be screened for hyperlipidemia between the ages of 9 and 11 years (new AAP recommendation)
- If not done at that age, it should be completed during ages 12-21 years
- An abnormal cholesterol screen should be followed up with a fasting lipoprotein profile
- NHLBI recommends lipid screening for >85th%ile BMI

Who and How to Screen

- An abnormal fasting glucose should be followed up with a OGTT and Hgb A1C
- Hgb A1C can be used in screening, especially when the patient is not fasting and compliance for follow up testing (fasting glucose or OGTT) is unlikely. Levels of 5.7-6.4 indicate prediabetes
- Fasting insulin levels should not be used as a clinical screening tool, unreliable. Acanthosis Nigricans is evidence.
- Vitamin D levels should be considered for overweight patients with a suggestive dietary history (< 20 abnormal)

Acanthosis Nigricans



When to refer?

Just overweight ± acanthosis/↑ insulin without blood sugar elevation→

Nutritional and Exercise counseling!

(Not Endocrinology!)

When to refer to endocrinology?

- IFG, IGT
- TSH > 10
- TSH 5-10 and antibody positive
- TSH >5 and low free T4
- Elevated salivary cortisol
- Precocious puberty
- Irregular menses?
- Primary or secondary amenorrhea?

Comorbidities of Obesity in Adolescents

- **Prediabetes and T2DM:** 20% of those with BMI>95th %ile have an abnormal OGTT and 4% have asymptomatic T2DM
- **"Metabolic Syndrome"**
- **Hyperandrogenism:** PCOS, hirsutism, irregular menses, acanthosis nigricans, acne (females)

Comorbidities of Obesity in Adolescents

- **Growth and Puberty:** accelerated height gain, earlier onset of puberty in girls, gynecomastia
- **Cardiovascular:** Hypertension (triple the risk), dyslipidemia (elevated LDL and decreased HDL), increased left ventricular mass, premature atherosclerosis
- **Renal:** Proteinuria and microalbuminuria, chronic kidney disease (CKD) as determined by GFR

Comorbidities of Obesity in Adolescents

- **GI:** Nonalcoholic fatty liver disease (NAFLD), steatosis, gall stones and cholelithiasis (obesity is the most common cause of gall stones with no predisposing condition in girls), pancreatitis, constipation
- **Pulmonary:** Obstructive Sleep Apnea
- **Orthopedic:** SCFE, tibia vara (Blount's disease or bow legs), genu valgum (knock knees), fractures

Comorbidities of Obesity in Adolescents

- **Neurologic:** Idiopathic intracranial hypertension (pseudotumor cerebri)
- **Dermatologic:** Intertrigo, furunculosis, hidradenitis suppurativa, acanthosis nigricans
- **Psychosocial:** Alienation, poor peer relations, poor self esteem, ADHD, anxiety, distorted body image, depression, eating disorder (BED)
- **Misc:** Iron Deficiency, vitamin D deficiency (poor diet)

Treatment

- Diet, exercise: primary treatment
- Orlistat and other statins
  - There is no strong evidence that supports prescribing statins to children and adolescents
  - AAP says to consider for pediatric patients with genetic forms of hyperlipidemia
- Metformin for T2DM, older adolescents, endocrinology referral
- Bariatric Surgery: recent study

Treatment: Bariatric Surgery

- Recent study outcome for bariatric surgery for adolescents (**"Weight Loss and Health Status 3 Years after Bariatric Surgery in Adolescents", Inge, T et al, NEJM January 14, 2016)**
  - Volume of adolescent bariatric surgical cases in the United States has doubled from nearly 800 to 1600 cases during the past decade.
  - The American Society for Metabolic and Bariatric Surgery recommends a minimum BMI threshold of ≥ 35 kg/m^2 with a severe comorbidity or a BMI ≥ 40 kg/m^2 with minor comorbidities.
  - This trial enrolled a cohort of 242 adolescents ages 13 to 19. 161 (66%) received gastric bypass and 67 (28%) underwent sleeve gastrectomy.

Treatment: Bariatric Surgery

- 75% of the patients in the analysis were teenage girls.
  - Mean BMI was 53 kg/m^2 (ranges 34-88)
  - 98% of the patients had a BMI > 40 kg/m^2
  - About 13% had type 2 diabetes and 10%, pre-diabetes.
  - 76 % had dyslipidemia
  - over 40%, elevated blood pressure
  - 17%, abnormal kidney function.
- The outcomes were changes in body weight, comorbidities, quality of life, micronutrient data, and other abdominal procedures 3 years post-operatively.

Treatment: Bariatric Surgery

- At 3-years post-op
  - participants on average lost 27% of the baseline weight.
  - Weight reduction from either gastric bypass or vertical gastrectomy was similar (28% versus 26%).
  - A significant portion of the cohort had remissions of their medical comorbidities (type 2 diabetes, 95%; pre-diabetes, 76%; dyslipidemia, 66%; elevated blood pressure, 74%; and abnormal kidney function, 86%).

Treatment: Bariatric Surgery

- Patients also experienced increased rates of metabolic abnormalities and additional abdominal procedures.
  - Low ferritin and B12 levels increased significantly at 3 years.
  - 22% of patients had undergone additional intra-abdominal operations after their initial procedure at 3 years.
  - 23% of the patients also went under endoscopic procedures during the 3-years follow-up.
  - Both rates occurred more frequently in those that had gastric bypass versus those who had sleeve gastrectomy.

Treatment: Bariatric Surgery

- This recent study of Bariatric surgery in adolescents provides longer-term evidence that bariatric surgery can provide relief from the tremendous physical, social, and psychological burden that severe obesity causes in a growing number of American youth
- Longer-term (>10 year) follow-up is necessary to determine the persistence of anticipated and unanticipated complications

Food Insecurity

- Food security exists when "people at all times have physical, social, and economic access to sufficient, safe, and nutritious food which meets their dietary needs and food preferences for an active and healthy life" (FAO, 1996).

Food Insecurity

- Sentinel populations:
  - Young children in low-income households (children of color are over-represented)
  - New immigrants
  - Native Americans
  - Rural populations

Food Insecurity Prevalence

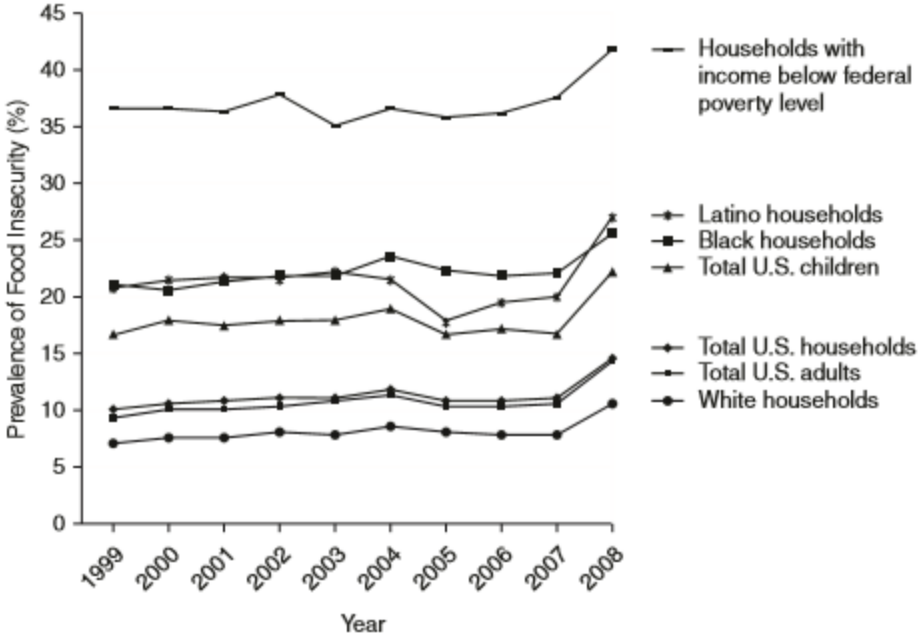


FIGURE 2-1 Prevalence of food insecurity in the United States, 1999-2008.
NOTE: Data are from the USDA food security reports, which are based on an annual survey conducted by the U.S. Census Bureau as a supplement to the monthly Current Population Survey.
SOURCE: Seligman and Schillinger, 2010. Hunger and socioeconomic disparities in chronic disease. *New England Journal of Medicine* 363(1):6-9. Copyright © 2010

Health Implications of Food Insecurity

- "Seligman et al. (2010) found a modest association between food insecurity, hypertension, and hyperlipidemia and less of an association with diabetes. When the authors restricted their data to households with very low food security, they found more than a twofold increase in the risk of diabetes compared to those in food-secure households."

Food Insecurity and Obesity

- It is generally felt that a low-income sets the stage for food insecurity and obesity vs. being causally linked.
  - Challenges:
    - Lack of access to nutritious foods
    - Stresses of poverty
- Americans, in general, are culturally influenced to have larger portion sizes and be more sedentary.

Unique Challenges of Low-Income Population

- Limited Resources for Access to Healthy and Affordable Foods
- Cycles of Deprivation and Overeating
- High Levels of Stress, Anxiety and Depression
- Fewer Opportunities for Physical Activity
- Greater Exposure to Marketing of Obesity-Promoting Foods
- Limited Access to Healthcare

Limited Resources for Access to Healthy and Affordable Foods

- Low-income neighborhoods frequently lack full-service grocery stores and farmer's markets.
- Limited transportation limits ability to gain access to full-service grocery stores and farmer's markets.
  - Limit purchase of perishable items
  - Further limits budget for purchase of healthy foods
  - Limited to items they can carry from the store

Limited Resources for Access to Healthy and Affordable Foods

- Reliance on local convenience stores that only offer poor quality and nutrient poor foods.
- Greater access to fast food resources in poorer neighborhoods.
- More nutritious foods are more expensive, less nutritious, filling foods are cheaper.
- Healthy Food, when available, is of poorer quality making it a less desirable option.

Cycles of Deprivation and Overeating

- May skip meals or limit intake to stretch budget, but overeat when food is available.
  - Chronic ups and downs of intake contribute to fat storage and slowing metabolism.
  - Overconsumption of cheap, nutrient poor foods
  - Contributes to disordered eating through preoccupation with food.
- Maternal obesity may occur from skipping meals to save food for dependents (i.e. mother).
  - Maternal Obesity linked to childhood obesity

High Levels of Stress, Anxiety and Depression

- Financial and emotional pressures
  - Food insecurity
  - Low wage work
  - Lack of access to healthcare
  - Inadequate transportation
  - Poor housing
  - Neighborhood violence
- Maternal stress and depression
  - Parenting practices
  - Feeding practices
- Trauma and obesity links
  - Hormonal and Metabolic changes in physiology associated with trauma and CTS

Fewer Opportunities for Physical Activity

- Fewer resources for physical activity
  - Less green spaces
  - Less recreational facilities
- More perceived barriers
  - Feeling of physically "too tired" for physical activity
- Crime, traffic and unsafe play areas
  - More likely to engage in safer indoor sedentary activities
- Less opportunities for organized sports activities
- Less "active" time in physical education and less likely to have recess

Greater Exposure to Marketing of Obesity-Promoting Foods

- Sedentary activity encourages exposure to marketing directed at low nutrition foods and beverages
  - TV watching and commercials for soda and fast food

Limited Access to Healthcare

- Leads to:
  - Lack of screening for food insecurity
  - Lack of referrals for food assistance
  - Lack of diagnosis and treatment of emerging chronic health problems, like obesity and obesity-related diseases (HTN, diabetes, lipid disorders)

What Can Primary Care Providers Do?

- Screening for Food Insecurity:
  - RAAPS-PH
  - Core Food Security Model (CFSM) *University of Illinois @ Urbana-Champagne*
    - An 18 item Inventory: 10 questions for all households, 8 additional for households with children.

What Can Primary Care Providers Do?

- Core Food Security Model (CFSM) Sample Questions:
  - Did you worry whether your food would run out before you got money to buy more?
  - Did you or the other adults in your household ever cut the size of your meals or skip meals because there wasn't enough money for food?
  - Were you ever hungry but did not eat because you couldn't afford enough food?
  - Did a child in the household ever not eat for a full day because you couldn't afford enough food?
    - Classification:
      - Food Insecure: 3+ positive responses
      - Very Low Food Security: 6+ positive responses in households without children; 10+ positive responses in households with children.

What Can Primary Care Providers Do?

- Refer for Food Assistance
- Refer for qualifying Medicaid program
- Obesity prevention education during health visits
- Screening for obesity-related diseases
  - Monitor BP, Lipids, BMI, weight gain and loss, HgbA1C, as appropriate

Questions?

Thank You For Attending Today's Grand Rounds Live Webcast!

MDCH – Child & Adolescent Health Center Program

GRAND ROUNDS 2016
STATE WIDE CLINICAL REPORT CARD

Report Card History – A Reminder

- Fiscal Year 2011-2012 was our first year collecting data on the quality measures and using the Year End Report format.
- Governor Synder had mandated "metrics" from all state departments.
- We used this mandate as an opportunity to showcase the CAHC Program data, using the governor's metric categories.
  - ✓ Services to Families and Children
  - ✓ Prevention and Disease Control
  - ✓ Administration and Regulation

Report Card Data – Where does it come from and how do we use it?

- The Clinical Reporting Tool (CRT) – quarterly and year end
- Your GAS
- Site visit grade (if you had one)

- Each site receives their own report card
- The State Wide Report card is an aggregate of all program data.

- Metrics under the Prevention and Disease Control heading do have a threshold (think goal or benchmark) developed for the program.

Clinical Data FY 15

Michigan Child and Adolescent Health Center FY 15 Report Card

Metrics	FY14	FY15
Services to Families and Children		
Unduplicated number of youth age 21 and under served	30,369	30,434
Number of physical exams provided	12,838	13,489
Number of immunizations provided	26,987	26,337
Percent positive pregnancy tests (***median percent positive)*** (n=57)	6%	7%
Percent positive chlamydia tests (***median percent positive)*** (n=58)	12%	11%
Number of uninsured CAHC clients enrolled in Medicaid (FY14 number may have included siblings and parents of clients)	1374	858

Clinical Data FY 15

Michigan Child and Adolescent Health Center FY 15 Report Card

Prevention and Disease Control : ***values represent the median percentage across CAHCs***			***Threshold***
Percent of clients with a documented comprehensive physical exam, regardless of where exam provided	53%	66%	*Reasonable Percentage*
Percent of clients with an up-to-date risk assessment	**76%**	**87%**	*90%*
Percent of clients with complete immunizations for age *using ACIP recommendations except for HPV, Hepatitis A and Flu*	81%	79%	*70%*
Percent of clients with diagnosis of asthma that have an individualized care plan *(action plan) which includes annual medication monitoring*	70%	79%	*100% if possible; Lower w/ high caseload*
Percent of clients with a BMI at or above 85th percentile who have evidence of counseling for nutrition ***and*** physical activity	83%	90%	*100% if possible; Lower w/ high caseload*
Percent of clients who smoke/use tobacco that were assisted with cessation (n=51)	85%	85%	*75%*
Percent of clients with an up-to-date depression screen	**79%**	**86%**	*90%*
Percent of positive chlamydia treated onsite at CAHC (n=52)	100%	100%	*90%*

Clinical Data FY 15

Michigan Child and Adolescent Health Center FY 15 Report Card

Prevention and Disease Control : ***values represent the median percentage across CAHCs*** **14**	**FY**	FY 15	*FY12 (change)*
Percent of clients with a documented comprehensive physical exam, regardless of where exam provided	53%	66%	*39% (+27%)*
Percent of clients with an up-to-date risk assessment	**76%**	**87%**	*53% (+34%)*
Percent of clients with complete immunizations for age *using ACIP recommendations except for HPV, Hepatitis A and Flu*	81%	79%	*65% (14%)*
Percent of clients with diagnosis of asthma that have an individualized care plan *(action plan) which includes annual medication monitoring*	70%	79%	*70% (+9%)*
Percent of clients with a BMI at or above 85th percentile who have evidence of counseling for nutrition ***and*** physical activity	83%	90%	*55% (+35%)*
Percent of clients who smoke/use tobacco that were assisted with cessation (n=51)	85%	85%	*84% (+1%)*
Percent of clients with an up-to-date depression screen	**79%**	**86%**	*54% (+32%)*
Percent of positive chlamydia treated onsite at CAHC (n=52)	100%	100%	*100% ☺*

Who Does This Best?

Henry Ford Fitzgerald Health Center!!

How Did **Fitzgerald Health Center** Do It?

- **Teamwork:** We work as a team with specific expectations for achievement of our goals from each team member.
- **Communication:** This is ongoing but also includes a specific effort at monthly staff meetings where we can discuss concerns and review our progress toward meeting our MPR and GAS goals.
- **Consistent work flow process** for each visit to ensure that: coding is consistent, vaccines are updated, risk assessment is current, chronic concerns are reviewed, and tracking is logged and follow-ups completed.

More on how they did it . . . .

- **Medicaid outreach** is completed at each visit and insurances are verified.
- **Set realistic goals** for the GAS – attainable by the HC staff with full school support and reflecting the needs of the community we serve.
- **Quality measures** are aligned with the CRT reporting tool and health center GAS.

And Finally . . . . From Dr. Barone

- Medical Director for the HFHS School-Based and Community Health Program as well as a regularly scheduled provider at Fitzgerald Health Center . . . .
- ***"A great team dedicated to their mission and work can accomplish great things…. Each team member has their own role, but no one works in a silo. Effective team members help and respect each other and keep things running smoothly and efficiently. Daily informal huddles keep the team on track and prepared for the activities of the day which vary greatly. Finally, attention to expectation, detail and deadlines result in high performance."***

Consider Joining a Quality Improvement Project?

- Looking to improve your comprehensive physical exam percent?
  - CAHC Program Quest and the MDHHS Maternal Child Block Grant are looking for you.
  - This is a "pay for performance" opportunity.

- How about improving your complete immunization percent ?
  - Join our initiative to increase HPV immunization
  - We have worked successfully with centers to increase HPV completion in males.

A Word About **Year End Reports**

A little help is on the way for next year's reporting!

- A revised and updated voice over power point presentation explanation of all the reporting requirements.
- Templates and drop in formats for the narrative data.
- Changing the "due date" for some reporting elements to ease the fiscal year end crunch.

Time for Questions

Questions?

Questions about data reporting, year end report elements, or report cards can be directed to your health center consultant.

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