

Collaboration of Care in Type 2 Diabetes Current Recommendations of The American Academy of Pediatrics



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Disclosures

1. Consultant/Speaker for Lilly Pharmaceuticals
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Learning Objectives

1. To recognize the evolving T2DM epidemic
2. To contrast presentations of T1and T2DM
3. To apply AAP Treatment Recommendations for T2DM





What is the Relationship Between these 2 photographs?

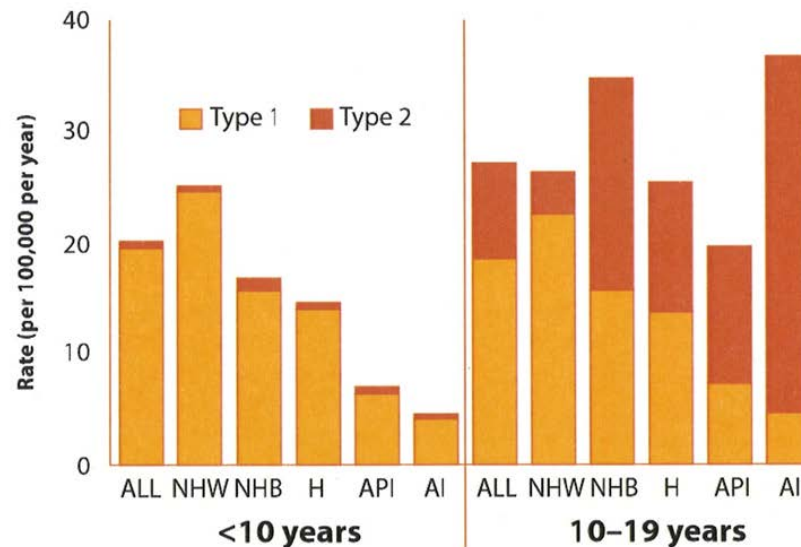
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New cases of diagnosed diabetes *(continued)*

Rate of new cases of type 1 and type 2 diabetes
among youth aged <20 years, by race/ethnicity, 2002–2005



Source: SEARCH for Diabetes in Youth Study

NHW=non-Hispanic whites; NHB=non-Hispanic blacks; H=Hispanics; API=Asians/Pacific Islanders; AI=American Indians

The Unfortunate Truth

Increase in New cases of T2DM 10-19 years



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Case Presentation

- CC: 15 year old female routine camp physical and complaining of vaginal itching and irregular menstrual periods
- History: no specific complaints. Mom concerned about progressive weight gain over the past few years. Diet: 3 meals/day with multiple snacks consisting of Twinkies, chips, cola products. No physical education in school, plays Wii after school as unable to play safely outside.
- Family History: notable for cardiovascular disease and T2DM in grandparents
- PE: BMI>95%, acanthosis nigricans, striae on abdomen, vaginal white discharge

Case Presentation

- Laboratory: routine urinalysis: 3+ glucose/ 1+ ketones, vaginal culture: yeast, Blood: CBC, Thyroid function tests WNL. Random Blood glucose: 327, fasting blood glucose 187, hb A1c=8.6 (3 month estimated blood sugar average 200 mg/dl)
- Diagnosis: Diabetes: Type???
- Treatment Recommendations *and* Opportunities for Collaboration??

Diagnosis of Diabetes (review)

1. Random plasma glucose ≥ 200 mg/dl with polyuria, polyphagia, polydipsia and symptoms of hyperglycemia
2. Fasting blood sugar ≥ 126 mg/dl on 2 separate occasions
3. 2 hour plasma glucose ≥ 200 mg/dl during an oral glucose tolerance test using 75 grams of anhydrous glucose dissolved in water.
4. Hb A1c $\geq 6.5\%$ - not always accurate in adolescents
(Lee, Wu, Tarini, Herman and Yoon, **The Journal of Pediatrics** Volume 158, Issue 6, Pages 947-952.e3, June 2011)

Comparison of T1 vs. T2 Presentations (review)

Type 1 Characteristics

- Sudden onset
- Thin phenotype
- Insulin dependent
- DKA presentation
- Pancreatic antibodies
- Associated autoimmune diseases

Type 2 Characteristics

- Insidious onset
- Family history
- Obese phenotype
- Acanthosis nigricans-
insulin resistance
- May present with DKA
- C-peptide +/- present
- Negative GAD-65
antibodies

AAP Key Action Statements

1. Initiation of Insulin therapy for youth with T2DM who present with DKA OR if distinction between T1DM and T2DM is unclear AND
 - Presence of random venous or plasma BG concentrations ≥ 250 mg/dl OR
 - Hb A1c is $> 9\%$

POLICY LEVEL: STRONG RECOMMENDATION

AAP Key Action Statements

2. In all other instances, clinicians should initiate *lifestyle modification*:

a. nutritional intervention

b. physical activity

c. Start Metformin (Glucophage®)

- initial low dose: 250 mg-500 mg b.i.d.

- maximum dose: 1000 mg b.i.d.

- *Advantages*

 - less chance of weight gain

 - improved insulin sensitivity

- *Disadvantages*

 - GI adverse effects

 - Rare potential for lactic acidosis

AAP Key Action Statements

3. Clinicians should monitor Hb A1c concentrations every 3 months and intensify treatment if goals for Blood Glucose and Hb A1c are not met.

- Goals should be individualized

- Advantages:*

- prevention of micro-vascular complications

- decrease risk of disease progression

- Disadvantages:*

- increased potential for hypoglycemia

- cost of frequent blood glucose monitoring



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POLICY LEVEL: OPTION

AAP Key Action Statements

4. Clinicians advise patients to perform SBGM in youth:

- a. taking insulin or other medications with a risk for hypoglycemia OR
- b. initiating or changing T2DM treatment regimen OR
- c. who have not met treatment goals OR
- d. have inter-current illnesses

-Advantages:

- potential for improved control
- lower hypoglycemia risk

-Disadvantages:

- cost and patient discomfort

POLICY LEVEL: OPTION

AAP Key Action Statements

5. Clinicians incorporate the American Academy of Nutrition and Dietetics' *Pediatric Weight Management Evidence-Based Nutrition Practice Guidelines* in counseling T2DM youth at time of diagnosis and ongoing management.

-Advantages:

- promote weight loss
- improvement of insulin sensitivity

-Disadvantages

- costs, inadequate reimbursement
- time

AAP Key Action Statements

6. Clinicians encourage T2DM youth to engage in moderate to vigorous exercise for at least 60 minutes daily and to limit non-academic screen time to less than 2 hours/day.

-Advantages:

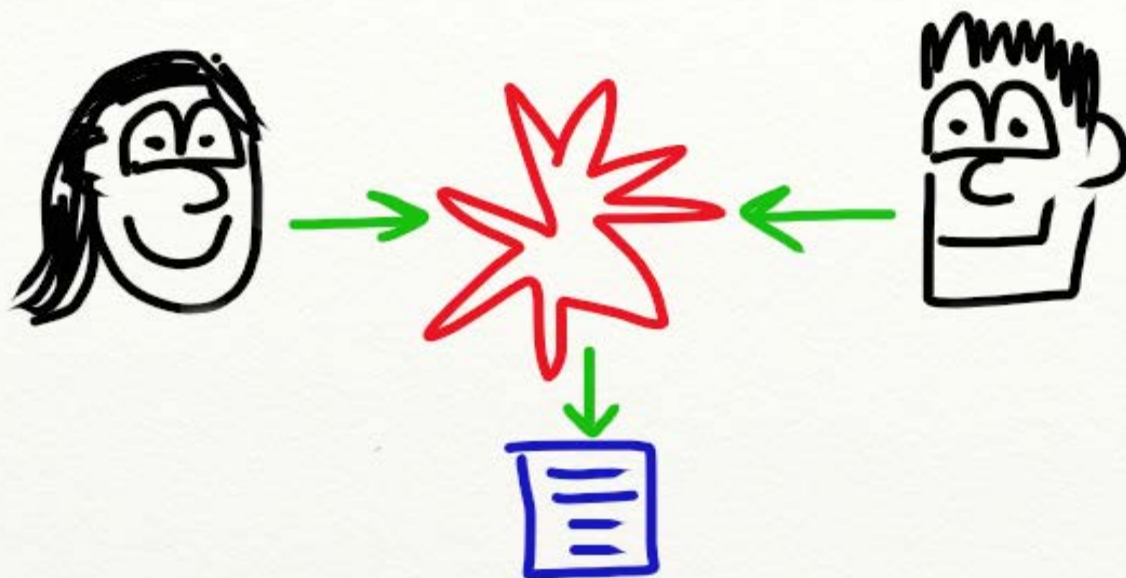
- weight loss
- glycemic control

-Disadvantages:

- cost, food, time
- inadequate reimbursement



COLLABORATION



We Had a Dream



**WASHINGTON NATIONALS
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