

## ARE YOU SMARTER THAN A NURSING STUDENT?

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PENS 2015 COLLABORATE > CULTIVATE > EDUCATE

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### Conflict of Interest Disclosure

- Conflicts of Interest
  - None
  - Cheryl Switzer
  - Meg Keil

A conflict of interest exists when an individual is in a position to profit directly or indirectly through application of authority, influence, or knowledge in relation to the affairs of PENS. A conflict of interest also exists if a relative benefits or when the organization is adversely affected in any way.



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### Objectives

- Review important components in the evaluation of a child presenting with a possible endocrine disorder.
- Discuss the challenges with the evaluation and management of a child with newly diagnosed type 1 diabetes mellitus.
- Discuss challenges in the evaluation and management of children with newly diagnosed diabetes or endocrine disorders

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### Are you smarter than a nursing student?

**Contestants:**

- Maryann Johnson
- Carol Van Ryzin

**Participants:**

- Nursing students from:
- University of Pennsylvania
  - Ohio University
  - University of Pittsburgh
  - Ursuline College

Audience participants via **Poll Everywhere**

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### Rules of the game

- Contestants pick a question from one of the categories
- Contestants may ask for help from the nursing students or audience:
  - 'COPY' an answer: must use the answer provided by the nursing students' response or audience response (majority)
  - 'PEEK' at an answer: allowed to decide whether to use the answer provided by the nursing students' response or audience response (majority)

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General Diabetes	Type I DM	Type II DM	Insulin & Insulin pumps	Case study
1	1	1	1	1
2	2	2	2	2
3	3	3	3	3
4	4	4	4	4
5	5	5	5	5

PLUS BONUS QUESTIONS FOR THE AUDIENCE: TIME PERMITTING

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**Example**

**Savannah has 39 pralines and she eats 27. Now what does Savannah have?**

- A. GI distress
- B. 12
- C. Diabetes
- D. All of the above

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**General Diabetes #1**

**Blood sugar is well controlled when Hemoglobin A1C is:**

- a. Below 7%
- b. Between 12%-15%
- c. Less than 180 mg/dL
- d. Between 90 and 130 mg/dL

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**General Diabetes #2**

**Current recommendations for screening for diabetes and pre-diabetes in asymptomatic young adults include:**

- a. Individuals with a high-density lipoprotein level of 52 mg/dL.
- b. Individuals with a history of Addison disease.
- c. Offspring of a parent with type 1 diabetes.
- d. Women with polycystic ovarian syndrome.

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### General Diabetes #3

**Untreated hyperglycemia may lead to all of the following complications except:**

- a. Hyperosmolar syndrome
- b. Vitiligo
- c. Diabetic ketoacidosis
- d. Coma

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### General Diabetes #4

**Which statement about diabetes is FALSE?**

- a. The U.S. prevalence of diabetes is decreasing
- b. Diabetes is the seventh leading cause of death in the United States
- c. Diabetes is the leading cause of blindness among persons age 20 to 74
- d. Diabetes is the leading cause of kidney failure

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### General Diabetes #5

**Diabetic neuropathies are diagnosed using all of the following EXCEPT:**

- a. Nerve conduction studies or electromyography
- b. Ultrasound
- c. Foot examinations
- d. Minnesota Multiphasic Personality inventory (MMPI)

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**Type 1 DM #1**

**Among female children and adolescents, the first sign of type 1 diabetes may be:**

- a. Rapid weight gain
- b. Constipation
- c. Genital candidiasis
- d. Insomnia

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**Type 1 DM #2**

**The risk factors for type 1 diabetes include all of the following EXCEPT:**

- a. Diet
- b. Genetic
- c. Autoimmune
- d. Environmental

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**Type 1 DM #3**

**When fasting blood glucose levels are elevated, which of the following would be the LEAST likely cause?**

- a. Somogyi effect
- b. excessive carbohydrate intake during the prior evening
- c. inadequate amount of basal insulin
- d. dawn phenomenon

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### Type 1 DM #4

**According to the AAP policy statement, the reduced incidence of type 1 diabetes mellitus in exclusively breastfed infants is a result of**

- a. Avoiding exposure to cow milk protein
- b. Delayed exposure to gluten in solids
- c. Improved feeding self-regulation
- d. The pattern of intestinal colonization

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### Type 1 DM #5

**A 15 year old adolescent presents with Type 1 diabetes. The patient has been poorly controlled until a few months ago. Now you notice a drop in A1C from 8.5 to 7.2% without a change in meals, exercise or insulin dose. The patient also reports fatigue. Initial evaluation should include:**

- a. Adrenal insufficiency
- b. C-peptide
- c. Celiac panel
- d. A,b,c
- e. A & c

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### Type II DM #1

**Risk factors for type 2 diabetes include all of the following except:**

- a. Advanced age
- b. Obesity
- c. Smoking
- d. Physical inactivity

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**Type II DM #2**

**True or False: Metformin is recommended by the ADA as the initial pharmacological therapy for the treatment of type 2 diabetes.**

- True
- False

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**Type II DM #3**

**Which of the following diabetes drugs acts by decreasing the amount of glucose produced by the liver?**

- a. Sulfonylureas
- b. Meglitinides
- c. Biguanides
- d. Alpha-glucosidase inhibitors

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**Type II DM #4**

**At the time of diagnosis, patients with type 2 DM have typically lost at least \_\_\_ of insulin secretion**

- a. 39%
- b. 50%
- c. 64%
- d. 20%

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**Type II DM #5**

**In patients with type 2 DM, a modest amount of weight loss can facilitate significant improvement in glycemic control. How much weight loss is usually required for this result?**

- a. the amount required to decrease the patient's BMI to below 30
- b. the amount required to achieve the ideal body weight
- c. 7% to 10% of current body weight
- d. none of the above

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**Insulin & Insulin Pumps #1**

**Which of the following types of insulin may be mistaken for rapid or short-acting insulin because of its clear appearance?**

- a. Lantus
- b. Humulin N
- c. Novolin N
- d. NPH insulin

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**Insulin & Insulin Pumps #2**

**The ADA/EASD guidelines recommend a starting dose of \_\_\_ of basal insulin if HbA1c is  $\geq 8\%$**

- a. 0.1 to 0.2U/kg
- b. 0.2 to 0.3 U/kg
- c. 0.3 to 0.4 U/kg

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### Insulin & Insulin Pumps #3

An 8 year old male with type 1 diabetes is on 12 units of detemir (Levemir) at bedtime and 1 unit/15 gm of lispro (Humalog) at mealtime has the following blood glucose pattern:

AM	N	PM	HS	2 AM
240	140	160	150	66

This blood glucose pattern could be due to:

- a. Dawn phenomenon
- b. Somogyi effect
- c. Waning effects of detemir
- d. Residual effect of lispro
- e. Honeymoon phase of diabetes

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### Insulin & Insulin Pumps #4

An advanced diabetes manager plans to train a school nurse to manage a child's insulin pump therapy. To stop the insulin infusion during an emergency, the clinician recommends that the school nurse:

- a. Clamp the tubing.
- b. Disconnect the infusion set.
- c. Press the "stop" button.
- d. Program the basal rate to zero.

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### Insulin & Insulin Pumps #5

An 18-year-old patient, who has type 1 diabetes and is on an insulin pump, is scheduled for an outpatient wisdom tooth extraction in three days. Which is the most appropriate plan?

- a. Changing to insulin injections the day before the procedure
- b. Disconnecting the pump immediately prior to the procedure
- c. Infusing the pump at its normal basal rates during the procedure
- d. Requesting that the dental staff check the blood glucose levels every 10 minutes during the procedure

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### Case Report #1

A 15-year-old female patient with type 1 diabetes rarely consumes milk products. The patient's mother wants the patient to begin calcium supplementation. The advanced diabetes manager's recommendation is to:

- a. Ingest calcium 1000 mg daily without vitamin D.
- b. Ingest calcium-fortified food products.
- c. Decrease the patient's use of sunscreen.
- d. Take vitamin D 400 IU daily.

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### Case Report #2

A healthy adolescent with a two-year history of type 1 diabetes returns for a quarterly appointment. For the past month, the patient has experienced abdominal pain and diarrhea after some high carbohydrate meals. An advanced diabetes manager's first intervention is to order a:

- a. 72-hour fecal fat collection.
- b. Colonoscopy.
- c. Stool sample.
- d. Transglutaminase autoantibody test.

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### Case Report #3

A 12-year-old AA female is referred to your endocrine practice for poor growth and fatigue. On physical examination you notice some white patches (vitiligo) on her skin (near her elbows and on her face).

**Vitiligo is the loss of skin pigment usually around joints or orifices of the face, such as the eyes and mouth. Which one of the following disorders is NOT associated with Vitiligo?**

- a. Addison's disease
- b. lipohypertrophy
- c. autoimmune type 1 diabetes
- d. Hashimoto's thyroiditis

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### Case Report #4

A 16 year old male is referred for a fasting blood glucose of 130 mg/dl and a Hgb A1C of 6.3. He is overweight but not obese with no history of weight loss. He has not had excessive nocturia. Both his mother and maternal grandfather have had non progressive DM since their youth and are well controlled on diet. Which gene mutation does the patient most likely have:

- a. *GNAS1*
- b. *HNF-1b*
- c. *HNF-4a*
- d. *GCK*

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### Case Report - #5

A 16 year old female has Type 1 diabetes that is well controlled on a pump. She is on the swim team and has noticed that her blood sugars are always over 300 after her swim meets, even though she is between 160-200 before she swims. She does disconnect from the pump while swimming but is never off longer than 30 minutes at a time. What is the most likely cause of her elevated blood sugars.

- a. 30 minutes is way too long to be off the pump
- b. Glucagon excretion by the alpha cells
- c. She must be making up the pre swim blood sugars
- d. Cortisol surge
- e. Adrenalin rush

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### General DM- Bonus

Which syndrome is NOT commonly associated with an increased risk of development of Diabetes Mellitus:

- a. **Turners**
- b. **Prader Willi**
- c. **Marfan**
- d. **Downs**

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### General DM- Bonus

**Commonly reported barriers to healthy lifestyle behaviors in adolescents include (select 2)**

- a. Decreased availability of healthy foods
- b. Infrequent family meals
- c. Lack of knowledge about healthy food choices
- d. Lack of social group for physical activities
- e. Lack of time for physical activity

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### General DM- Bonus

**Excessive thirst and volume of very dilute urine may be symptoms of:**

- a. Urinary tract infection
- b. Diabetes insipidus
- c. Viral gastroenteritis
- d. Hypoglycemia

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### General DM - Bonus

**When fasting blood glucose levels are elevated, which of the following would be the least likely cause?**

- a. Somogyi effect
- b. excessive carbohydrate intake during the prior evening
- c. inadequate amount of basal insulin
- d. dawn phenomenon

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**General DM- Bonus**

**A recent meta-analysis found that participation in a lifestyle intervention program for six months or more results in significant improvement in levels of**

- a. HDL cholesterol
- b. Fasting glucose
- c. Fasting insulin
- d. Diastolic blood pressure

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**General DM- Bonus**

**Untreated diabetes may result in all of the following EXCEPT:**

- a. Blindness
- b. Cardiovascular disease
- c. Kidney disease
- d. Tinnitus

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**Type 1 DM - Bonus**

**You are seeing a 6-year-old girl with new onset of Type 1 DM. The mother asks you whether her child has any beta cells left. You counsel her that she may have some residual beta cell function up to:**

- a. 5%
- b. 20%
- c. 40%
- d. 50%

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### Type 1 DM- Bonus

**Which of the following regimens offers the best blood glucose control for persons with Type 1 diabetes?**

- a. A single anti-diabetes drugs
- b. Once daily insulin injections
- c. A combination of oral anti-diabetic medications
- d. Three or four injections per day of different types of insulin.

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### Type II DM- Bonus

**Which of the following would be least likely to cause hypoglycemia with Metformin monotherapy?**

- a. deficient calorie intake
- b. missing one meal
- c. alcohol consumption
- d. strenuous exercise

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### Case study- Bonus

**A 12 year old female with Type 1 diabetes is on a pump and a sensor. Her blood sugars from the pump down load are:**

- AM 100 to 105
- Noon 102 to 125
- PM 99 to 125
- HS 76 to 123

**Her A1C at the visit is >14.**

**The most likely explanation is:**

- a. Her meter is malfunctioning
- b. The sensor is not functioning appropriately
- c. The patient is manipulating the readings and sensor
- d. The lab made a mistake on the A1C

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