

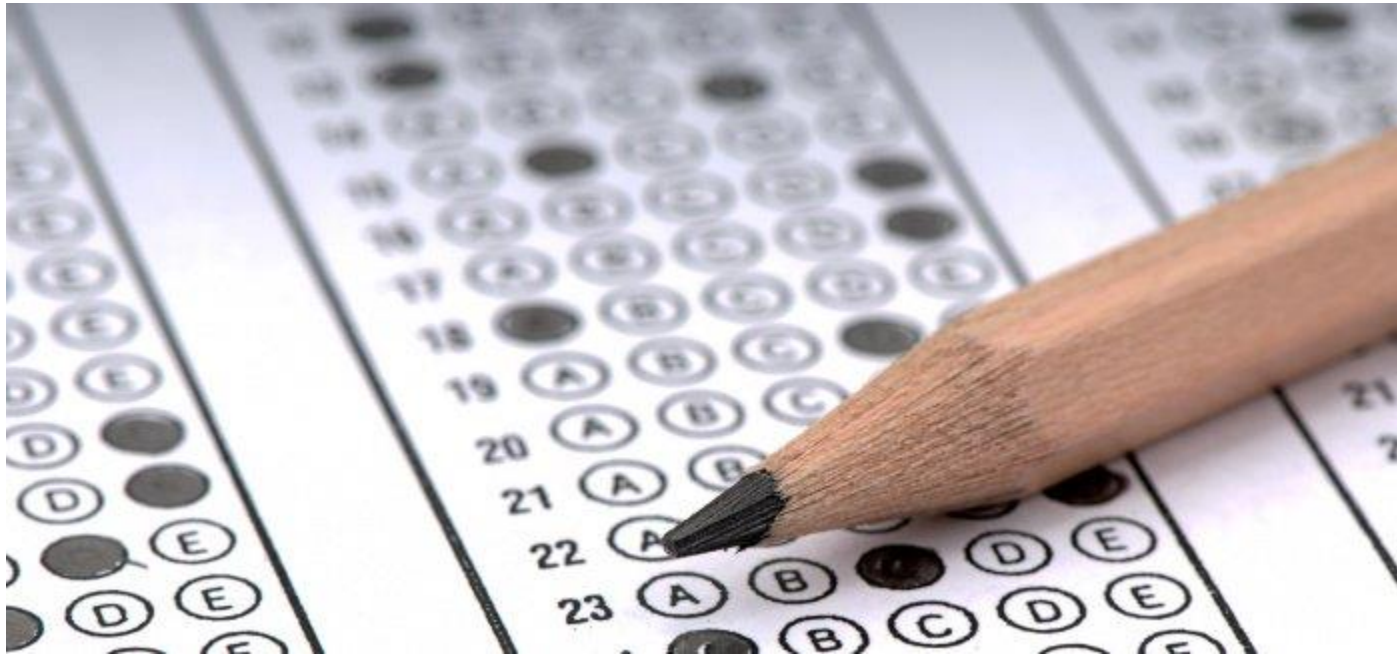
# *Disclaimer*

These are not validated questions.

They have been created to enhance your learning and provide practice in reading and answering multiple choice questions.

Some questions have been created to address specific topic areas.

# *Sample Exam Questions*



# Medications

Eric is on glimipride 4 mg, janumet 50/850 bid, and dapagliflozin 10 mg to control his blood glucose. He is experiencing hypoglycemia at work.

Which medication would need to be adjusted?

- ✓ a) Glimipride
- b) Janumet
- c) Dapagliflozin
- d) All his medications

# Medications

Eric's educator is concerned that he is not on which class of medication given he just turned 45.

- ✓ a) Statin
- b) ACE
- c) ARB
- d) ASA

# Assessing for Cardiovascular Risk

## Does this patient require vascular protective medications?

### STEP 1: Does the patient have end organ damage?

- Macrovascular disease
  - Cardiac ischemia (silent or overt)
  - Peripheral arterial disease
  - Cerebrovascular/Carotid disease

YES

OR

- Microvascular disease
  - Retinopathy
  - Nephropathy (ACR  $\geq 2.0$ )
  - Neuropathy

YES

NO

### STEP 2: What is the patient's age?

- $\geq 55$  years

YES

OR

- 40-54 years

YES

NO

### STEP 3: Does the patient...

- Have diabetes  $>15$  years AND age  $>30$  years
- Warrant statin therapy based on the 2012 Canadian Cardiovascular Society Lipid Guidelines

YES

**STATIN\***  
+  
**ACEi or ARB#**  
+  
**ASA**  
Clopidogrel  
if ASA-intolerant

**STATIN\***  
+  
**ACEi or ARB#**

**STATIN\***

See next panels for recommendations on vascular protection, women of childbearing age, and the frail elderly.

\* Dose adjustments or additional lipid therapy warranted if lipid target (LDL-C  $\leq 2.0$  mmol/L) not being met.

# ACE-inhibitor or ARB (angiotensin receptor blocker) should be given at doses that have demonstrated vascular protection [eg. perindopril 8 mg once daily (EUROPA trial), ramipril 10 mg once daily (HOPE trial), telmisartan 80 mg once daily (ONTARGET trial)].

ASA should not be used for the primary prevention of cardiovascular disease in people with diabetes. ASA may be used for secondary prevention.

# Travel


Mrs. Garcia is travelling from Toronto to Rome to visit family. She will be there one month. He takes NPH 36 units at bedtime and Jentaduetto 2.5/1000 (linagliptin/metformin) in the morning. Her flight leaves at 8 pm and he arrives in Rome at 9:30 am. How would you advise her to adjust her insulin?

- a) No change
- b) Decrease NPH by 1/3
- c) Increase NPH by 1/3
- d) Skip her bedtime insulin as she is on the plane.

(She will lose 8 hours or 1/3 of the day)

# Travel

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# Travelling through Time Zones



A difference of 3 hours does not require an adjustment of insulin time.



# Sweeteners

The acceptable daily intake of sucralose is:

a) 40 mg/kg body weight

b) 10% of carbohydrate

c) 60 gram/day

✓ d) 9 mg/kg body weight

# Carbohydrate

How much carbohydrate would be in this meal: 2 slices of bread, 2 slices of chicken, 250 ml strawberries, 175 ml plain yogurt?

- ✓ a) 52 grams
- b) 60 grams
- c) 45 grams
- d) 30 grams

# *Pregnancy*

What is the dose of folic acid recommended for women with Type 1 & 2 diabetes in the first trimester of pregnancy?

a) 1 mg

b) 3 mg

✓ c) 5 mg

d) the usual amount in a prenatal vitamin

What is the upper limit of fibre recommended for a person with diabetes?

- a) There is no limit
- b) 30 grams
- ✓ c) 50 grams
- d) 25 grams

# *Insulin Pumps*

In what case would a temporary rate **not** be used?

- a) Illness
- b) Exercise
- c) Menstrual cycle
- ✓ d) Hypoglycemia

# *Insulin Pumps*

What insulin would be used in an insulin pump?

- ✓ a) Rapid
- b) Regular
- c) Basal

# *Insulin Pump*

A 35 year old woman has had an insulin pump for the last 3 years. Recently her A1c has been elevated.

What is the most likely cause?

- a) She is counting carbohydrate more accurately since purchasing a scale
- ✓ b) She changes her site every 5 days
- c) She is exercising daily
- d) She has less hypoglycemia

# Hypoglycemia

Seema is presently on glimipride and metformin. Acarbose has been added as the A1c is still elevated.

What would be the most important information to tell her about this change in medication?

- a) Acarbose does not cause hypoglycemia
- b) Fruit juice is the best way to treat hypoglycemia
- ✓ c) Hypoglycemia must be treated with glucose tablets or milk
- d) Hypoglycemia is best treated with food e.g. crackers
- e) If hypoglycemia occurs the metformin should be reduced.



# A1c

What vitamin supplements could decrease A1c?

a) Vitamin D

✓ b) Vitamin C & E

c) Vitamin A & E

d) Vitamin B12 & folic acid

## Position Statement

Use of Glycated Hemoglobin (A1C) in the Diagnosis of Type 2 Diabetes Mellitus in Adults

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**Table 1. Factors that can affect A1C (adapted from 11)**

| <i>Factor</i>           | <i>Increased A1C</i>  | <i>Decreased A1C</i>   | <i>Variable change in A1C</i>   |
|-------------------------|---|--|---|
| Erythropoiesis          | Iron deficiency<br>B12 deficiency<br>Decreased erythropoiesis   | Use of erythropoietin, iron or B12<br>Reticulocytosis<br>Chronic liver disease   |   |
| Altered hemoglobin      |   |  | Fetal hemoglobin<br>Hemoglobinopathies<br>Methemoglobin<br>Genetic determinants |
| Glycation               | Alcoholism<br>Chronic renal failure<br>Decreased erythrocyte pH   | Ingestion of aspirin, vitamin C or vitamin E<br>Hemoglobinopathies<br>Increased erythrocyte pH   |   |
| Erythrocyte destruction | <b>Increased erythrocyte lifespan:</b><br>Splenectomy   | <b>Decreased erythrocyte lifespan:</b><br>Chronic renal failure<br>Hemoglobinopathies<br>Splenomegaly<br>Rheumatoid arthritis<br>Antiretrovirals<br>Ribavirin<br>Dapsone |   |
| Assays                  | Hyperbilirubinemia<br>Carbamylated hemoglobin<br>Alcoholism<br>Large doses of aspirin<br>Chronic opiate use | Hypertriglyceridemia   | Hemoglobinopathies  |

## *Type 2 in Children*

Ravneet is 10 and is newly diagnosed with type 2 diabetes. What is the recommended amount of activity for a child this age?

- ✓ a) 60 minutes of moderate activity and limit screen time to 2 hours
- b) 30 minutes of light activity and limit screen time to 3 hours
- c) 60 minutes of light activity and limit screen time to 3 hours
- d) 30 minutes of vigorous activity and limit screen time to 2 hours

# *Eating Disorders*

Diabulmia can be described as:

- a) People with diabetes using bingeing and purging to control weight
- ✓ b) People with diabetes underdosing or omitting insulin to control weight
- c) People with diabetes with depression purposely omitting carbohydrate foods
- d) A person with both diabetes, depression and bulimia

# Fasting

Aziz is newly diagnosed with diabetes. He informs you that Ramadan starts in several weeks and according to his religion he needs to fast from sunrise to sunset. Your most appropriate response would be:

- a) You cannot fast because you have diabetes
- b) Go ahead and fast
- ✓ c) Discuss with Aziz what is involved in his fasting routine and ways to do this safely.
- d) Tell him to discuss his new diagnosis with his religious leader.

# Fasting

Aziz is taking 20 units of glargine at bedtime, 500 mg metformin twice daily, gliclazide 30 mg bid, Candesartan 16 mg and rosuvastatin 40 mg. What would you recommend to do with his medications during Ramadan?

- a) No changes are require
- b) Discontinue the glargine
- c) Discontinue the metformin
- ✓ d) Discontinue the am dose of gliclazide


# Surgery

Which statement is **not** correct?

- a) Blood glucose targets for a critically ill patient would be 8.0-10.0 mmol/L
- ✓ b) Blood glucose target for a critically ill patient would be 5.0-8.0 mmol/L
- c) Basal bolus insulin is the best choice to control blood glucose post-operatively
- d) Hyperglycemia is associated with increased morbidity and mortality post-operatively

# Driving Guidelines

According to the *Diabetes and Driving:2015 Canadian Diabetes Association Updated Recommendations for Private and Commercial Drivers Driving* Which answer is correct?

- a) A commercial drivers should test their blood glucose before driving and every 4 hours
- b) A commercial driver should have a medical review of their diabetes every 2 years
- c) A driver should wait 45minutes after an episode of hypoglycemia before resuming driving
-  ) All of the above



# *Motivational Interviewing*

Which would best describe motivational interviewing?

- ✓ a) Open ended questions, affirmation, reflective listening, summary of the interaction
- b) Objectives, assessment, realistic expectations, SMART goals
- c) Observation, appropriate eye contact, review of diagnosis, stages of change evaluation
- d) Asses what the person knows, determine most pressing concern, determine preferred learning style

# Insulin Adjustment



# *Insulin Adjustment*

**Adjust to**

- 1. Get rid of hypoglycemia**
- 2. Fix fasting first**
- 3. Address high sugars**

# *Paul*

Paul is 45 and has Type 1 diabetes. He works in a physical job doing landscaping.

He takes Toronto 16, NPH 30 in the am; Toronto 10 at dinner; NPH 30 at HS

He doesn't have benefits.

He has started drinking juice at work to make it to lunch.

*Paul*

|      | FBS | pc  | ac L | Pc L | ac D | Pc D | HS |
|------|-----|-----|------|------|------|------|----|
| Sun  | 7.1 |     | 4.2  | 10.9 | 7.9  | 7.6  |    |
| Mon  | 6.4 | 4.0 | 4.6  | 11.6 | 9.5  | 8.1  |    |
| Tues | 6.3 | 5.1 | 6.1  | 11.8 | 9.3  | 10.6 |    |
| Wed  | 5.6 | 5.2 | 3.8  | 3.9  | 8.2  | 7.7  |    |
| Thur | 5.3 | 5.5 | 4.0  | 8.2  | 9.2  | 7.5  |    |
| Fri  | 6.2 | 3.4 | 5.2  | 7.3  | 8.6  | 8.6  |    |
| Sat  | 7.4 | 4.3 | 4.7  | 7.9  | 6.9  |      |    |

**What would you change?**

- a) Decrease NPH in the morning**
- b) Decrease Toronto in the morning**
- c) Increase NPH in the Morning**
- d) Increase Toronto at dinner**
- e) Decrease NPH at bedtime**

Toronto 16, NPH 30 in the am; Toronto 10 at dinner; NPH 30at HS

**What would you change?**

- a) Decrease NPH in the morning
- ✓ b) Decrease Toronto in the morning
- c) Increase NPH in the Morning
- d) Increase Toronto at dinner
- e) Decrease NPH at bedtime

# Paul

Paul visits a diabetes educator. His BMI is 22 and A1c is 7.9%.

What recommendation might they give to the prescribing physician?

- a) Paul should also be on metformin
- b) No change is required
- ✓ c) Paul could benefit from being on a long acting analogue insulin instead of NPH
- d) He should be taking an ACE or ARB

*Jeff*

Age 61 and has limited finances

He lives in a boarding house and has cooking facilities

A1c 9.9 %

Metformin 1 gm bid, Glyburide 10 mg bid

His Dr. recommends he start NPH 20 units at bedtime,  
which he did reluctantly.



Based on Jeff's medications, how many times per day should he test his blood glucose according to the CPG ?

- ✓ a) Once per day
- b) Before each meal
- c) Fasting only
- d) Fasting and altering 2 hr after various meals

Jeff gets a new job as a truck driver.


According to the driving guidelines for commercial drivers what would be the most important information to share with Jeff ?

- a) He should test within 30 minutes of starting to drive
- b) He should have simple sugar/snacks within reach while driving
- c) He should test every 4 hours while on the road
- ✓ ) All of the above

20 units of NPH  
at bedtime

|      | FBS  | pc | Ac L | Pc   | Ac D | pc   | HS   |
|------|------|----|------|------|------|------|------|
| Sun  | 10.9 |    | 12.3 |      |      |      |      |
| Mon  | 9.2  |    |      |      |      |      | 13.6 |
| Tues | 8.7  |    |      |      | 17.4 |      | 11.8 |
| Wed  |      |    |      |      | 17.6 | 22.0 |      |
| Thur | 13.9 |    |      | 15.2 |      |      |      |
| Fri  | 10.1 |    |      |      | 15.6 |      |      |

Based on the previous blood glucose readings what would the next step would be:

- a) Increase the NPH at bedtime
- b) Switch the NPH to morning as his evening sugars are higher
- c) Add an additional dose of NPH in the morning
-  d) Switch to a long acting analogue

## *Conversion of units*

Kelly is travelling in the Caribbean and loses her blood glucose meter. The new meter she purchases give her very different numbers in mg/dl. What would 180 be in mmol/L.

- ✓ a) 10 mmol/L
- b) 8 mmol/L
- c) 5 mmol/L
- d) 18 mmol/L