

Welcome!

Before we get started, we'd love for you to complete a brief 3 minute survey to learn about your familiarity with, and approach to Diabetes Management in Ramadan!

Please kindly scan the QR code on this screen for a link to the survey - we will share the results with the department once analyzed!



SCAN ME



THE UNIVERSITY OF BRITISH COLUMBIA
Faculty of Medicine

bcdiabetes.ca
Bedside Care • Research • Clinical Trials

Diabetes Management during Ramadan

.... & avoiding hypoglycemia!

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*QR code with the link to this presentation, if
you would like to save it*



Tom Elliott: Disclosures

Relationships with commercial interests: Owner of Dr. TG Elliott Inc. (dba <u>BCDiabetes</u>) Advisor/shareholder <u>Endor Health</u> (diabetes-focussed telehealth pharmacy) CMO (Endo)/shareholder <u>LifestyleRx</u> (Lifestyle First, Improvement Inevitable, Remission Possible)	
Clinical Trials new drugs & devices Sanofi, Lilly, Novo Nordisk, GSK, Biomea, Astrazeneca, Alnylam, Roche	
Speaker's bureau/honoraria: Dexcom/Abbott	
Consulting/Advisory Board: Dexcom/Abbott/NovoNordisk/Lilly/Boehringer	
Samples: large volume distribution Dexcom/Abbott	

Agenda

1. Introduction to Ramadan
1. A brief on the Canadian Guidelines for Diabetes Management in Ramadan
1. Effectively mitigating hypoglycemia and dehydration
1. New Drugs and Devices in Diabetes
2. Q&A



Introduction To Ramadan





Ramadan: The Basics

Fasting (Sawm): One of the Five Pillars of Islam, a daily fast from sunrise to sunset, fostering self-control, gratitude, and empathy for the less fortunate.

***Exceptions exist for those unable or unsafe to fast (children, the elderly, the sick, or at risk of serious harm to health) – many choose to fast despite their medical condition.*

Quran & Prayer: A time for intense Quran study and special night prayers (Tarawih) in mosques.

Laylat al-Qadr (Night of Power): A particularly sacred night (believed to be the 27th night) when the Quran was first revealed.

Iftar & Suhoor: Meals eaten before dawn (Suhoor) and after sunset (Iftar), often starting with dates and water.

Charity (Zakat/Sadaqah): Increased generosity and giving to those in need.

Eid al-Fitr: A three-day celebration marking the end of Ramadan, featuring feasts, gifts, and communal gatherings.

The Muslim Population in Canada

- The proportion of Canada's Muslim population has more than doubled in 20 years, rising from 2.0% (579,640 people) in 2001 to 4.9% (1,775,715 people) in 2021.
- In 2021 - Ontario (6.7%), Quebec (5.1%) and Alberta (4.8%), BC (2.6%)

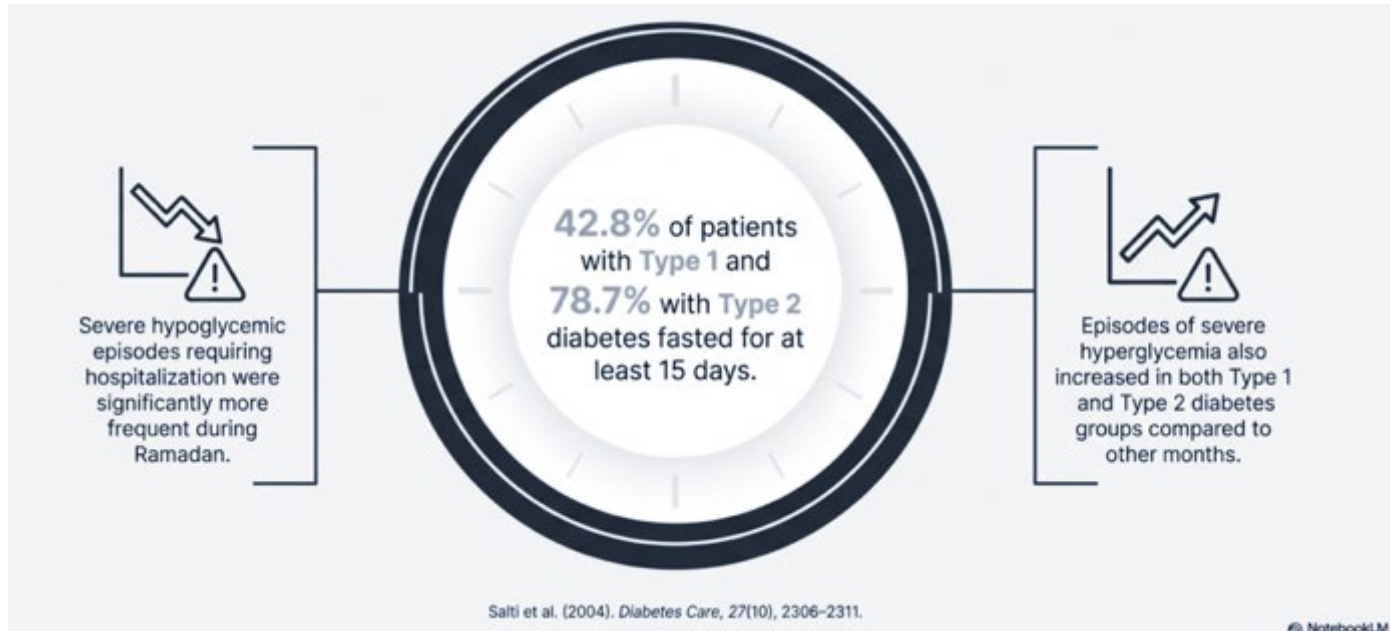


Islam is the second most commonly reported religion in Canada, projected to represent **6.6%** of the population by 2030.

(Statistics Canada, 2022)

The Clinical Challenge: Fasting with Diabetes

International data from the EPIDIAR study, involving over 12,000 individuals, confirms that Ramadan fasting without proper management significantly increases the risk of severe glycemic events.



The Canadian Guidelines

In 2018, an expert forum of seven Canadian and one international expert collaborated to develop the Diabetes Canada Position Statement for People With Types 1 and 2 Diabetes Who Fast During Ramadan, which was endorsed by Religious leaders. An informed patient participated in the position statement development. Each recommendation was approved with 100% consensus of the expert forum

“The intent of this Canadian position statement on diabetes and Ramadan fasting is to complement the exhaustive IDF-DAR guidelines, by formulating evidence-based recommendations concerning glucose monitoring and pharmacotherapy for adults with diabetes in Canada who intend to fast during Ramadan”

These guidelines outline various components relating to Diabetes management in Ramadan including patient risk stratification, oral antihyperglycemic and insulin adjustments, blood glucose monitoring and targets, and recommendations on when to break the fast.

Diabetes
and Ramadan



Of note, additional guidelines also exist - such as the IDF Practical Guidelines, last updated in 2021



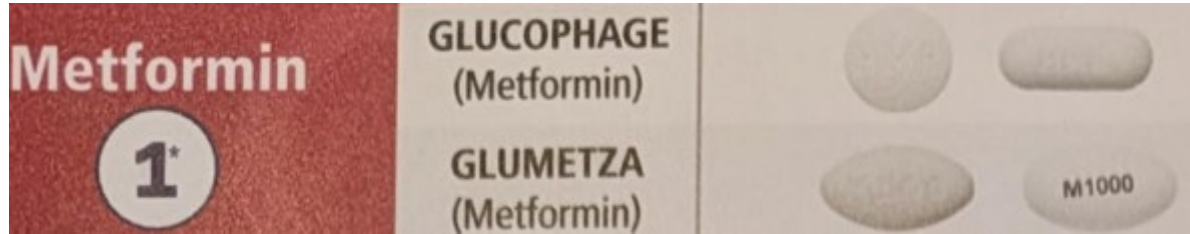
Type 2 Diabetes: Recommendations



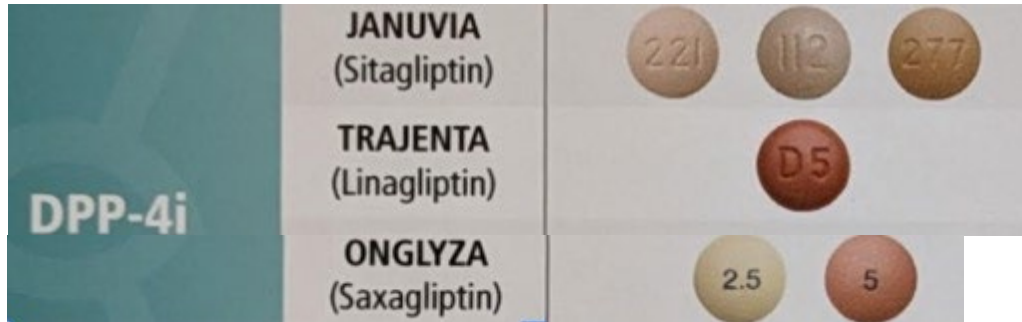
Patient Risk Stratification for Fasting

Classification of Risk	Risk Factors
Very High Risk	<ul style="list-style-type: none">• Poorly controlled type 1 diabetes (pre-Ramadan A1C >9%)• Severe hypoglycemia within 3 months, recurrent hypoglycemia, and/or unawareness of hypoglycemia• Diabetes Ketoacidosis within 3 months• Hyperosmolar hyperglycemic state within 3 months• Acute illness• Advanced cardiovascular complications, advanced kidney disease, cognitive dysfunction (dementia), or uncontrolled epilepsy• Pregnancy in diabetes or gestational diabetes - treated with insulin
High Risk	<ul style="list-style-type: none">• Type 2 diabetes with poor blood glucose control• Well-controlled type 2 diabetes on multiple daily injections of insulin• Pregnant women with type 2 diabetes or gestational diabetes controlled by diet only• Early stages of kidney or people with cardiovascular disease• Performing intense physical labour• Well-controlled type 1 diabetes
Moderate/Low Risk	<ul style="list-style-type: none">• Well-controlled diabetes• Treated with lifestyle alone, or with: metformin, acarbose, DPP-4 inhibitors, GLP-1 receptor agonists, second generation sulfonylureas, SGLT2 inhibitors, TZD's or basal insulin alone

Metformin



DPP-4 Inhibitors



Medications Considered Safe in Ramadan

Drug class	Dosage	Recommendation
Biguanides		
Metformin	500–850 to 1,000 mg BID	No change
Metformin XR	500 to 2,000 mg OD	No change
DPP-4 inhibitors		
Sitagliptin	25–50 to 100 mg OD	No change
Saxagliptin	2.5 to 5 mg OD	No change
Linagliptin	5 mg OD	No change
DPP-4 inhibitor/metformin combination		
Sitagliptin/metformin	50/500, 850 or 1,000 mg BID	No change
Sitagliptin/metformin XR	50/500, 50/1,000 or 100/1,000 mg OD	No change
Linagliptin/metformin	2.5/500, 850 or 1,000 mg BID	No change
Saxagliptin/metformin	2.5/500, 850 or 1,000 mg BID	No change

Medications Safe to Continue but Not to Start

Drug class	Dosage	Recommendation
SGLT2 inhibitors		
Canagliflozin	100–300 mg OD	<ol style="list-style-type: none"> 1. Reduce dose or hold temporarily prior to fasting for those with high risk for dehydration (>75 years of age, eGFR <60 mL/min/1.73 m², loop diuretic) 2. Do not hold dose for those with clinical cardiovascular disease 3. Do not initiate within 4 weeks prior to or during Ramadan 4. Hold for vomiting, diarrhea or orthostasis
Dapagliflozin	5–10 mg OD	
Empagliflozin	10–25 mg OD	
SGLT2 inhibitor/metformin combination		
Canagliflozin/metformin	50 or 150/500, 850 or 1,000 mg BID	<ol style="list-style-type: none"> 1. Reduce dose or hold temporarily prior to fasting for those with high risk for dehydration (>75 years of age, eGFR <60 mL/min/1.73 m², loop diuretic) 2. Do not hold dose for those with clinical cardiovascular disease 3. Do not initiate within 4 weeks prior to or during Ramadan 4. Hold for vomiting, diarrhea or orthostasis
Dapagliflozin/metformin	5/850 or 1,000 mg BID	
Empagliflozin/metformin	5 or 12.5/500, 850 or 1,000 mg BID	
GLP-1 receptor agonists		
Liraglutide	0.6–1.2 to 1.8 mg OD	<ol style="list-style-type: none"> 1. No change if tolerating prior to Ramadan 2. Do not initiate within 4 weeks prior to or during Ramadan 3. Reduce dose or hold for nausea, vomiting, diarrhea or orthostasis 4. Exenatide should be taken before 2 meals 5. Lixisenatide should be taken before sunset meal 6. Longer-acting agents can be taken any time
Exenatide	0.6–1.2 to 1.8 mg OD	
Exenatide extended release	2 mg qweekly	
Dulaglutide	0.75–1.5 mg qweekly	
Lixisenatide	10–20 mg OD	
Semaglutide	0.25–0.5 to 1 mg qweekly	

SGLT2 Inhibitors

Potential for volume depletion & Euglycemic DKA



GLP-1 Receptor Agonists

pills = Rybelsus & Wegovy
(USA)

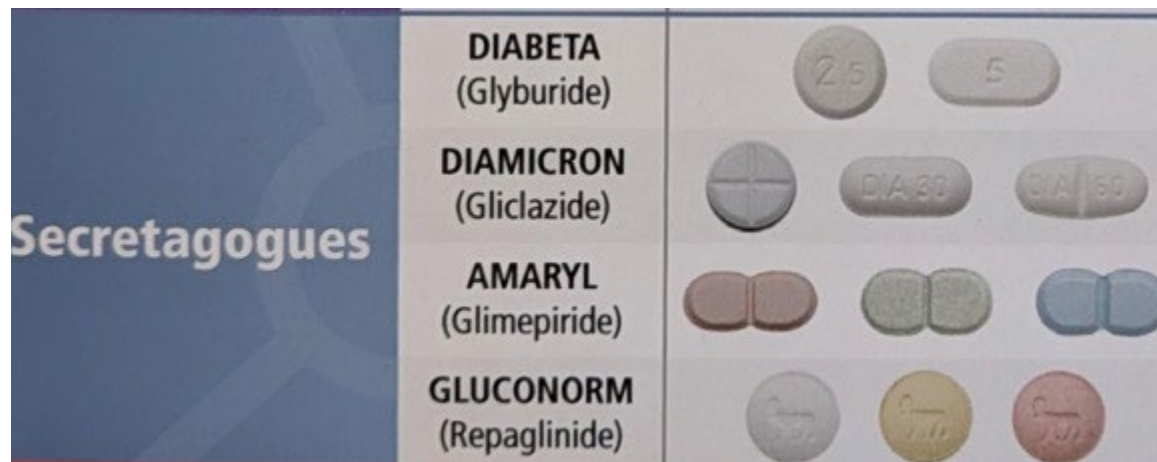


Medications that may need to be adjusted/changed due to risk of hypoglycemia

Secretagogue	Dosage	Recommendation
Glimepiride	1–2–3 to 4 mg OD	<ol style="list-style-type: none">1. Consider switching to an alternative drug class with lower risk for hypoglycemia2. If continuing, consider switching to a safer agent within a class with lower risk for hypoglycemia and reducing dose by 25% to 50%3. Repaglinide may be safest in class; adjust according to alteration of meal times and sizes during Ramadan
Glyburide	2.5–5 to 10 mg BID	
Gliclazide MR	30–60 to 120 mg OD	
Repaglinide	0.5–1–2 to 4 mg AC meals	

Sulfonylureas

These are dangerous drugs...



low sugar from gliclazide



Insulin adjustment for type 2 diabetes

Insulin type	Recommendation
Basal	
Degludec, detemir, glargine U100, glargine U300	<ul style="list-style-type: none">• Preferred options; consider reducing dose by 15% to 30%
Neutral protamine Hagedorn (NPH)	<ul style="list-style-type: none">• Consider switching to longer acting basal analogs or reduce dose by 25% to 50%
Short-acting	
Aspart/faster aspart, glulisine, lispro	<ul style="list-style-type: none">• Preferred options. Take usual evening meal dose at sunset meal, reduce predawn meal dose by 25% to 50%, omit lunchtime dose
Human regular insulin	<ul style="list-style-type: none">• Consider switching from human regular insulin to rapid-acting insulin analogs
Premixed	
Biphasic insulin aspart, human insulin mix 30, lispro mix 25, lispro mix 50	<ul style="list-style-type: none">• Consider switching to an alternative regimen (basal insulin/oral agents, basal insulin GLP-1 receptor agonist, basal insulin plus 1 mealtime bolus insulin, or basal-bolus insulin taken with each meal), depending on patient- and agent-level characteristics, when feasible• If continuing, reduce predawn meal dose by 25% to 50% and take usual evening meal dose at sunset meal

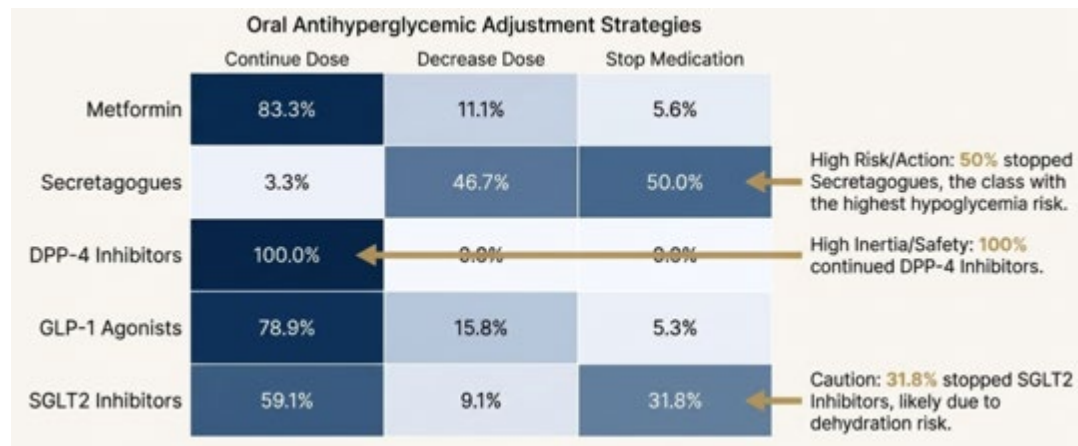
****Type 2 Diabetes Glycemic Targets****

Aim for for slighter higher fasting and pre-meal blood glucose levels of 5.5 to 7.5 mmol/L, slightly higher than the usual 4-7 mmol/L

Insulin



..... Surveying 42 Canadian Endocrinologists



Type 1 Diabetes: Recommendations



Type 1 Diabetes: Insulin Recommendations

AGENTS:

- Once daily ultra-long acting basal insulin (Tresiba, Toujeo) preferred to reduce the risk of hypoglycemia
- Rapid-acting insulin is preferred (NovoRapid, Trurapi, Kirsty, Apidra, Humalog, Admelog, Fiasp)

DOSING:

- All basal insulin doses (or daytime basal doses on insulin pump therapy) should be reduced by a minimum of 20%
- Insulin-to-carbohydrate ratio and insulin sensitivity factor should remain unchanged during fasting if stable and well controlled

Blood glucose monitoring

- At least 5 times per day for type 1 diabetes
- 2-5 times per day for type 2 diabetes on insulin
- Type 2 diabetes not requiring insulin:
individualize testing frequency depending on
the type of diabetes medication

*****Note: Religious authorities agree that glucose monitoring does not invalidate the fast***

“CGM has made this tricky situation enormously more manageable”



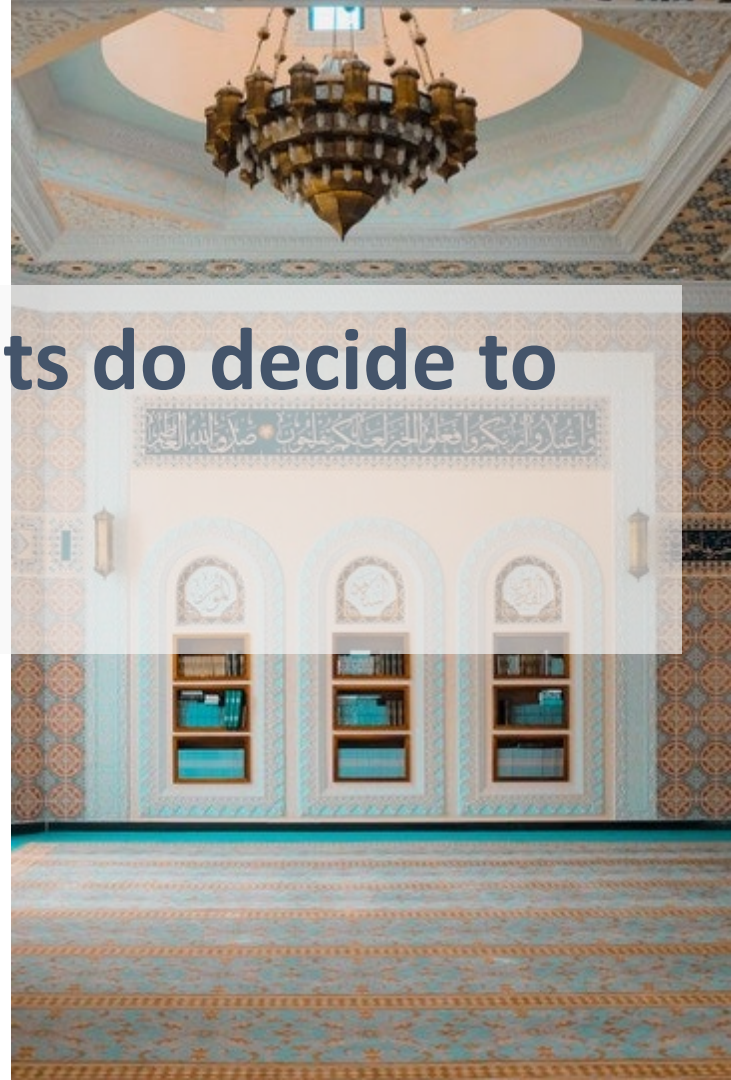
DKA prevention during Ramadan

People with type 1 diabetes should monitor blood ketones when glucose meter are elevated >14.0 mmol/L to screen for DKA. Those with blood ketones > 0.6 mmol/L should:

- break their fast,
- take a supplemental dose of rapid-acting insulin
- re-evaluate their ability to safely fast during Ramadan in the future



A few considerations if patients do decide to fast during Ramadan



Don't Skip Suhoor

- Eat as close to sunrise as possible (as late as possible)
- Eat balanced diet (whole grain, low GI index), protein, unsaturated fat (to prolong satiety)
- Water or other unsweetened beverage
 - Limit caffeine (coffee or strong teas) as it may increase dehydration



Break the fast and rehydrate

- **Tradition is to break the fast with dates**
 - Limit to 1-2 dates due to sugar content
- **Drink water to rehydrate immediately, as well as throughout non-fasting hours**
 - Limit juices or sweetened beverages

Each date: 66 calories,
18 grams of carbohydrates





GLP-1 Receptor Agonists

pills = Rybelsus & Wegovy
(USA)



What's New in Diabetes

GLP-1s: Counting the Clicks



<https://bit.ly/BCDtirzepatide>



<https://bit.ly/BCDsemaglutide>



Questions?

*Please use the chat box
or kindly raise your hand
to ask questions over zoom.*

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We'd love for you to answer a brief 3 minute survey on Diabetes Management in Ramadan!

Join BC Diabetes and the University of British Columbia (UBC) in a project to improve care for individuals with diabetes throughout Ramadan.

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Reliable Care • Research • Clinical Trials

Thank you for joining us!

