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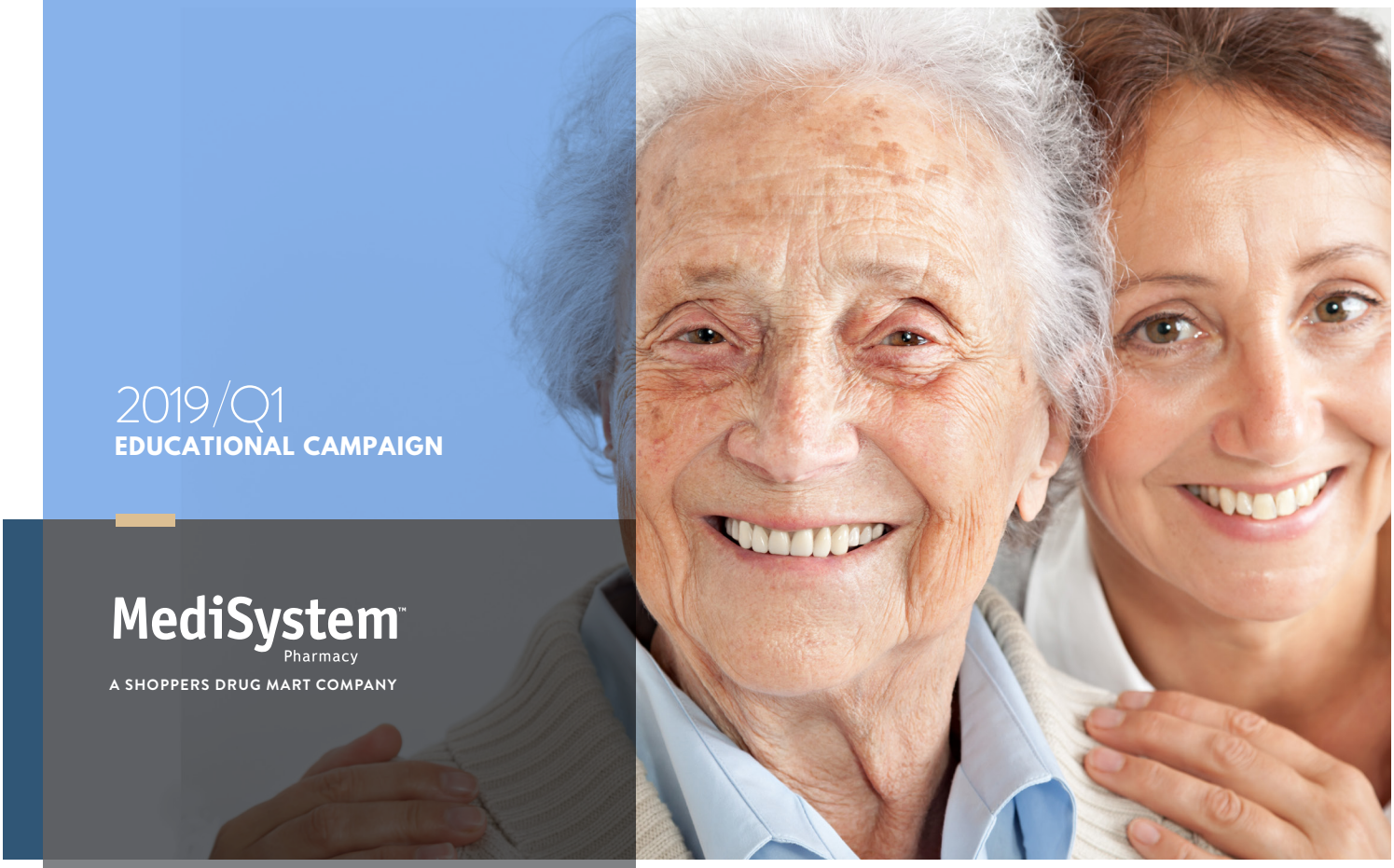
WHAT **YOU** NEED TO KNOW

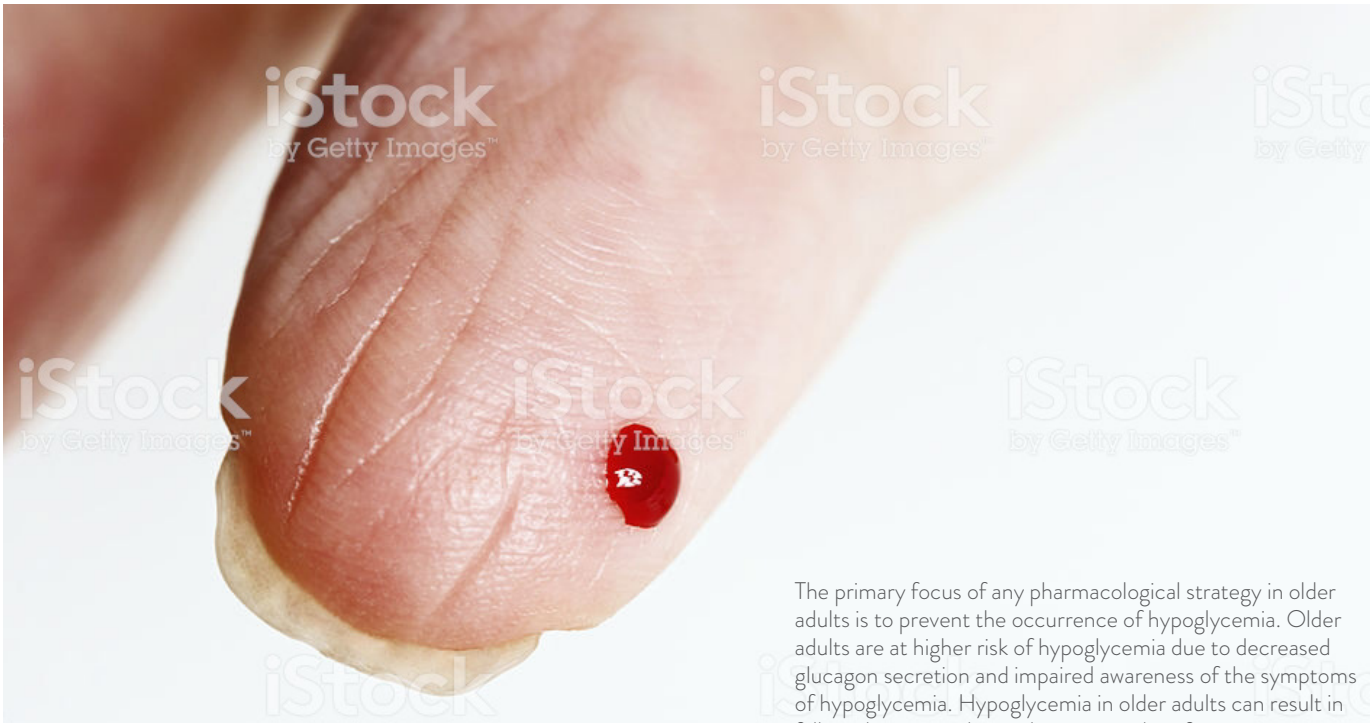
CONTROLLING DIABETES IN SENIORS



2019/Q1
EDUCATIONAL CAMPAIGN

MediSystem™ Pharmacy
A SHOPPERS DRUG MART COMPANY

DIABETES IS A
DISEASE IN WHICH THE
BODY'S ABILITY TO PRODUCE
OR RESPOND TO INSULIN IS
COMPROMISED



WHAT **YOU** NEED TO KNOW

CONTROLLING DIABETES IN SENIORS

Diabetes mellitus (DM) is achronic condition characterized by impaired insulin secretion and varying degrees of insulin resistance which, in turn, leads to hyperglycemia.

THERE ARE TWO MAIN TYPES OF DIABETES:

Type 1 diabetes usually develops in childhood or adolescence and occurs when the immune system attacks insulin-producing cells in the pancreas.

Type 2 diabetes is typically diagnosed in adulthood and occurs due to insulin insensitivity or decreased insulin production. Type 2 makes up 90% of the cases of diabetes.

Complications of diabetes include blindness, end stage renal disease, and amputation. Cardiovascular disease is the leading cause of death in individuals with diabetes.

MANAGEMENT OF DIABETES IN OLDER ADULTS

Data shows that 25% of Canadian residents living in a long-term care facility have type 2 diabetes. In older adults, the goals of care in diabetes shift from long-term prevention of complications to personalized strategies meant to ensure quality of life and safety. This includes preventing severe hypo- or hyperglycemia as well as managing any adverse effects from treatment regimens.

Dementia and cognitive impairment further complicate the care of residents with diabetes. In these residents, dietary intake can be variable and awareness or ability to communicate symptoms of hypoglycemia is decreased.

The primary focus of any pharmacological strategy in older adults is to prevent the occurrence of hypoglycemia. Older adults are at higher risk of hypoglycemia due to decreased glucagon secretion and impaired awareness of the symptoms of hypoglycemia. Hypoglycemia in older adults can result in falls and associated complications such as fractures or hospitalization.

For long-term care residents, Diabetes Canada recommends regular diets instead of diabetic diets or nutritional formulas.

MEDICATION CONSIDERATIONS FOR OLDER ADULTS

Sulfonylureas (especially glyburide) increase the risk of hypoglycemia and therefore should be used with caution.

DPP-4 inhibitors (sitagliptin, linagliptin) are recommended as second-line therapy after starting metformin since these medications are less likely to cause hypoglycemia.

Sliding scale insulin should be avoided in elderly residents. Administration of sliding scale insulin is reactive in nature and carries a high risk of hypoglycemia. It also can cause blood glucose to follow a "roller-coaster" pattern of highs and lows. Sliding scale should never be administered at bedtime since this can result in overnight hypoglycemia.

NOTABLE MEDICATION CLASSES

SGLT-2 Inhibitors (canagliflozin, dapagliflozin, empagliflozin)

This new class of medications is unlikely to cause hypoglycemia. In addition to decreasing A1C, these medications may lower blood pressure, however can increase the risk of genital or urinary infections.

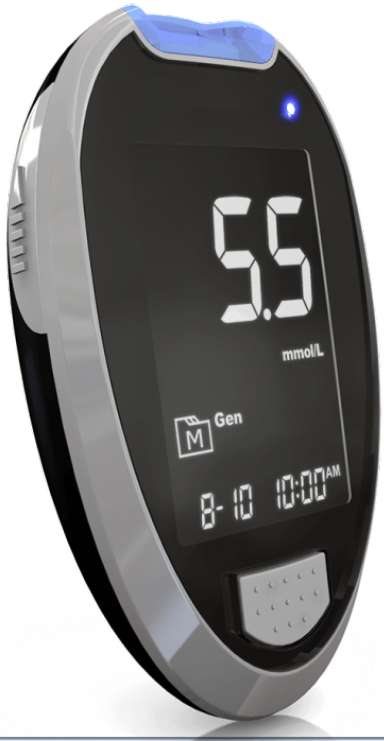
DPP-4 Inhibitors (linagliptin, saxagliptin, sitagliptin)

This class has been studied in adults over 75 years old and in those with multiple comorbidities. These medications are associated with improvement in glycemic control with minimal risk of hypoglycemia and no weight gain.

Long-Acting Insulin

Look out for new insulin glargine U-300 (300 units/mL) (Toujeo®). This concentrated insulin results in a decreased volume administered to the resident and may have effect for >30 hours.

Insulin degludec (Tresiba®) is a basal insulin with a 42-hour duration of action.



MONITORING GLYCEMIC CONTROL

Capillary Blood Glucose Monitoring (CBGM)

Capillary blood glucose monitoring gives insight into the day-to-day management of diabetes. The pattern of results helps to assess the effect of meals, medications, and activities on blood glucose. It should also be used to confirm and treat hypoglycemia.

The frequency of testing should be based on a person's current medications, acute illness, current glycemic control, and the likelihood of the resident to experience hypoglycemia. Recommendations for the frequency of blood glucose testing for residents using only oral agents varies depending on achievement of their goal A1C.

For residents using insulin:

Using insulin more than once a day	CBGM at least 3 times per day Schedule should include both pre- and post-prandial measurements
Once daily insulin plus other agents	At least once a day at variable times

The ideal CBG before meals and at bedtime for a frail adult is 6-9 mmol/L. After meals, CBG should be <14 mmol/L.

Meter results should be compared with laboratory measurement of fasting blood glucose at least annually.

Glycated Hemoglobin A1C

Glycated hemoglobin (A1C) is an estimate of average plasma glucose over the past 8-12 weeks. Medications and non-pharmacological interventions are implemented or modified based on achieving a recommended A1C.

For most individuals, A1C should be measured every three months to ensure glycemic goals are being met or maintained.

Glucose levels in the 30 days before the blood sample contributes 50% to the A1C result.
Factors such as iron and B12 deficiency and chronic renal or hepatic failure can affect the accuracy of the A1C result.

	Functionally independent with life expectancy greater than 10 years	Functionally independent	Frail elderly and/or with dementia
A1C Target	<7.0%	<8.0%	7.1-8.5%

KEY REMINDERS ABOUT INJECTING INSULIN

Insulin is absorbed fastest from the abdomen. The upper arms and lateral side of the thigh have slower absorption rates. Be sure to avoid injecting into damaged skin such as surgical scars or areas of lipohypertrophy. Lipohypertrophies are thickened "rubbery" lesions that appear in the subcutaneous tissue of injection sites.

Insulin pen devices should be primed with the needle pointing upwards. A flow of insulin should be observed at the needle tip before each injection.

To inject, push the thumb button down completely, count to 10 slowly before withdrawing the needle.

Needles should be disposed immediately after one use. This reduces the risk of complications such as lipohypertrophy and inaccurate dosing. Needle tips should not remain attached to the pen. Injection site rotation is essential to avoid lipohypertrophy and to ensure consistent medication absorption. Rotation is recommended within the same anatomical area. Injections should be administered at least 1 cm to 2 cm apart (width of 1 finger) across the entire area. Be sure to document where insulin was administered.

RISK OF DEHYDRATION (VOMITING/DIARRHEA)

Some medications can increase the risk of dehydration during episodes of vomiting or diarrhea. Older adults have decreased thirst sensation which increases risk of dehydration. Use the SADMANS acronym below to identify medications that should be held during illness and restarted once the resident is able to eat/drink normally.

***S**: sulfonylureas*
***A**: ACE-inhibitors*
***D**: diuretics, direct renin inhibitors*
***M**: metformin*
***A**: angiotensin receptor inhibitors*
***N**: non-steroidal anti-inflammatory drugs*
***S**: SGLT2 inhibitors*

WHERE TO GET MORE INFORMATION

Diabetes Canada recently updated their guidelines. The updated 2018 version can be accessed online at:
http://guidelines.diabetes.ca/cpg
Also, the FIT Forum for Injection Technique Canada publishes a document on best practices in injection technique.

REFERENCES:

www.merckmanuals.com www.guidelines.diabetes.ca www.fit4diabetes.com