DIABETES CARE IN LONG-TERM CARE

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KEYS

Older adults in long-term care are different from the general population. They have been little studied in clinical trials. The “frail” elderly need to be differentiated from and treated differently than the “well” elderly.

Balance

Individualize

Think shorter term

CDA's Position on Institutional Care

Position statement

People with diabetes should receive care that promotes the highest quality of life regardless of the setting.

People with diabetes have a right to timely, affordable and ongoing diabetes education and comprehensive treatment services provided with seamless coordination by a Diabetes Healthcare Team and other specialists as specified in the Canadian Diabetes Association’s 2008 [now 2013] Clinical Practice Guidelines for the Prevention and Management of Diabetes in Canada and Standards for Diabetes Education in Canada.

Definition

Institutional Settings: Where residents require care and services provided by various certified/licensed service and care providers. Institutional settings may include nursing homes/long term care facilities, group homes, hospitals and correctional facilities.

Recommendations – CDA 2013 CPG - 1

- Healthy elderly people with diabetes should be treated to achieve the same glycemic, blood pressure and lipid targets as younger people with diabetes [Grade D, Consensus].

- In the frail elderly, while avoiding symptomatic hyperglycemia, glycemic targets should be A1C ≤ 8.5% and fasting plasma glucose or pre-prandial PG 5.0–12.0 mmol/L, depending on the level of frailty. Prevention of hypoglycemia should take priority over attainment of glycemic targets because the risks of hypoglycemia are magnified in this patient population [Grade D, Consensus].

- In elderly people with cognitive impairment, strategies should be used to strictly prevent hypoglycemia, which include the choice of anti-hyperglycemic therapy and less stringent A1C target [Grade D, Consensus].

Recommendations – CDA 2013 CPG - 2

- Detemir and glargine may be used instead of NPH or human 30/70 insulin to lower the frequency of hypoglycemic events [Grade B, Level 2].

- In elderly people, if insulin mixture is required, premixed insulins and prefilled insulin pens should be used instead of mixing insulins to reduce dosing errors and to potentially improve glycemic control [Grade B, Level 2].

- The clock drawing test may be used to predict which elderly subjects will have difficulty learning to inject insulin [Grade D, Level 4].

- In elderly nursing home residents, regular diets may be used instead of “diabetic diets” or nutritional formulas [Grade D, Level 4].

Table 11.1

Framework for considering treatment goals for glycemia, blood pressure, and dyslipidemia in older adults with diabetes

Patient characteristics/health status	Rationale	Reasonable A1C goal‡	Fasting or preprandial glucose	Bedtime glucose	Blood pressure	Lipids
Healthy (few coexisting chronic illnesses, intact cognitive and functional status)	Longer remaining life expectancy	<7.5% (58 mmol/mol)	90–130 mg/dL (5.0–7.2 mmol/L)	90–150 mg/dL (5.0–8.3 mmol/L)	<140/90 mmHg	Statin unless contraindicated or not tolerated
Complex/intermediate (multiple coexisting chronic illnesses* or 2+ instrumental ADL impairments or mild-to-moderate cognitive impairment)	Intermediate remaining life expectancy, high treatment burden, hypoglycemia vulnerability, fall risk	<8.0% (64 mmol/mol)	90–150 mg/dL (5.0–8.3 mmol/L)	100–180 mg/dL (5.6–10.0 mmol/L)	<140/90 mmHg	Statin unless contraindicated or not tolerated
Very complex/poor health (LTC or end-stage chronic illnesses** or moderate-to-severe cognitive impairment or 2+ ADL dependencies)	Limited remaining life expectancy makes benefit uncertain	<8.5%† (69 mmol/mol)	100–180 mg/dL (5.6–10.0 mmol/L)	110–200 mg/dL (6.1–11.1 mmol/L)	<150/90 mmHg	Consider likelihood of benefit with statin (secondary prevention more so than primary)

This represents a consensus framework for considering treatment goals for glycemia, blood pressure, and dyslipidemia in older adults with diabetes. The patient characteristic categories are general concepts. Not every patient will clearly fall into a particular category. Consideration of patient and caregiver preferences is an important aspect of treatment individualization. Additionally, a patient's health status and preferences may change over time. ADL, activities of daily living.

↵‡ A lower A1C goal may be set for an individual if achievable without recurrent or severe hypoglycemia or undue treatment burden.

↵* Coexisting chronic illnesses are conditions serious enough to require medications or lifestyle management and may include arthritis, cancer, congestive heart failure, depression, emphysema, falls, hypertension, incontinence, stage 3 or worse chronic kidney disease, myocardial infarction, and stroke. By "multiple," we mean at least three, but many patients may have five or more (40).

↵** The presence of a single end-stage chronic illness, such as stage 3–4 congestive heart failure or oxygen-dependent lung disease, chronic kidney disease requiring dialysis, or

INTERNATIONAL DIABETES FEDERATION

MANAGING OLDER PEOPLE WITH TYPE 2 DIABETES

GLOBAL GUIDELINE

- **Recommendations:**
  Specific recommendations are made for each of the functional categories detailed in *Chapter 4: Functional categories of older people with diabetes.*

General
Category 1: Functionally Independent
Category 2: Functionally Dependent:
Sub-category A: Frail
Sub-category B: Dementia
Category 3: End of Life Care

Table 2. General glycaemic targets according to functional category*

Functional category	General glycated haemoglobin target
Functionally Independent	7.0-7.5% / 53-59 mmol/mol
Functionally dependent	7.0-8.0% / 53-64 mmol/mol
• Frail	• Up to 8.5% / 70 mmol/mol
• Dementia	• Up to 8.5% / 70 mmol/mol
End of life	Avoid symptomatic hyperglycaemia

* Glycaemic targets should be individualized taking into account functional status, comorbidities, especially the presence of established CVD, history and risk of hypoglycaemia, and presence of microvascular complications.

GOALS OF TREATMENT CDA 2013

The “well” elderly should have the same treatment goals as any adult per CDA.

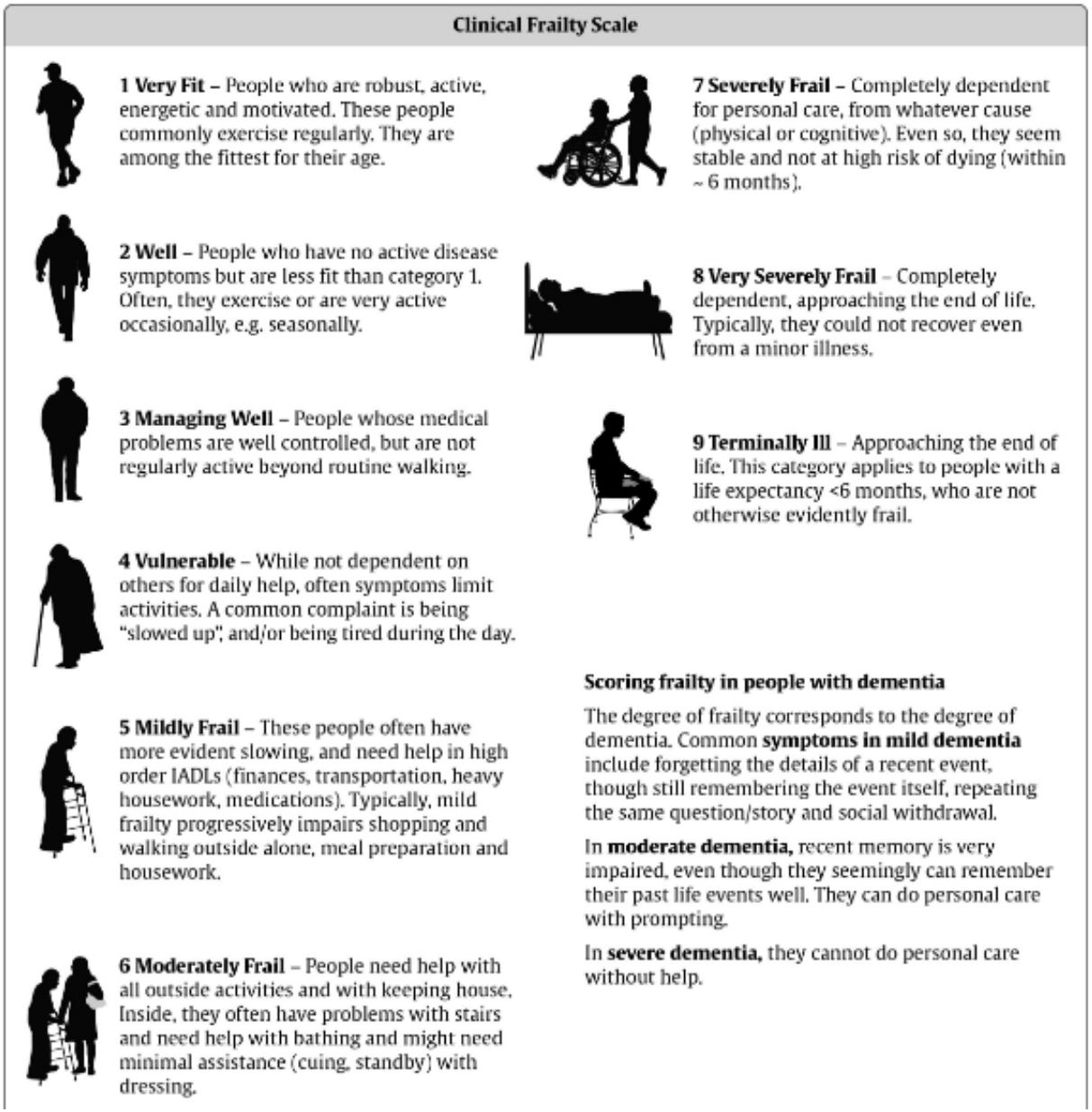
The “frail” elderly are unlikely to get long-term benefit from improved glycemia; but are often admitted to hospital with vascular and renal complications. They are at increased risk of complications from hypoglycemia. The priority should be on reduction of short-term symptoms of both hyperglycemia (polyuria, incontinence, increased infection risk) and hypoglycemia.

THE FUTURE?

Status	Functionally independent	Functionally dependent	Frail and/or dementia (on agents with some risk of hypoglycemia)	End of life
Frailty index **	1-3	4-5	6-8	9
Glycemic target (A1C)	≤ 7.0%	7.1 – 8.0 % (target lower end applies if on SU and / or insulin)	8.0 - 8.5% (target lower end applies if on SU and / or insulin)	Avoid symptomatic hyper- or hypoglycemia; A1C not recommended
CBGM preprandial: postprandial:	4-7 mmol/L 5-10 mmol/L	5-8 mmol/L <12 mmol/L	6-9 mmol/L <14 mmol/L	individualized

** Moorhouse P, Rockwood K. Frailty and its quantitative clinical evaluation. J R Coll Physicians Edinb. 2012;42:333-340

Figure 1
Clinical frailty scale.



from Moorhouse P, Rockwood K. Frailty and its quantitative clinical evaluation. *J R Coll Physicians Edinb.* 2012;42:333-340.

BG MONITORING

Per nurse, if patient on drugs known to cause hypoglycemia, and if symptoms are present.

If starting a medication known to cause hyperglycemia (i.e. steroids) = BID x 1 week; including folks not known to have DM.

With orals, A1C at / under target, no hypoglycemia = no monitoring or BID once a week.

With orals, A1C above target = BID twice weekly or QID once weekly → treatment change; decrease when A1C target met.

With insulin, at least as often as insulin is given (see CDA; aka Miller); prn hypoglycemia.

NON-INSULIN DRUGS for DM

Insulin secretagogues – only use one, do not use with prandial insulin

- sulfonylureas
  - gliclizide
  - glimepiride
  - glyburide
- non-sulfonylureas
  - nateglinide
  - repaglinide

Insulin sensitizers – may use more than one

- biguanide
  - metformin
- TZD
  - pioglitazone
  - rosiglitazone

Combinations

Combination products also exist, usually metformin + another oral medication

Other

- α glucosidase inhibitor
  - acarbose
- SGLT-2 inhibitors
  - canagliflozin
  - dapagliflozin
  - empagliflozin
- DPP-IV inhibitors
  - sitagliptin
  - saxagliptin
  - linagliptin
- GLP-1 analogues (injections)
  - liraglutide
  - exenatide
  - dulaglutide
  - albiglutide

TREATMENT CHOICES

Oral medications with low(er) side effects, including hypoglycemia, preferred.

Therefore, maximum tolerated dose metformin (if not contraindicated), DPP IV inhibitors, gliclizide, acarbose, are good choices.

Stepped insulin approach: basal with orals; BID premix +/- metformin; QID (exceptional cases, including type 1). Analogues can be used but are second line, especially with modest glycemic targets, where hypoglycemia should be rare. Always a fixed dose, rarely a correction dose based on SMBG, **never** a stand-alone sliding scale.

A NICE SUMMARY FROM ADA

For patients with advanced diabetes complications, life-limiting co-morbid illness, or substantial cognitive or functional impairment, it is reasonable to set less intensive glycemic target goals. These patients are less likely to benefit from reducing the risk of microvascular complications and more likely to suffer serious adverse effect from hypoglycemia. However, patients with poorly controlled diabetes may be subject to acute complications of diabetes, including dehydration, poor would healing, and hyperglycemic hyper-osmolar coma. Glycemic goals at a minimum should avoid these consequences.

ADA CPR 2012
Diabetes Care. Jan 2012

Frail elderly residents of LTC remain at high risk of hypoglycemia due to their advanced age, multiple comorbidities, polypharmacy, hypoglycemia unawareness and impaired renal function. To reduce risk of hypoglycemia, all diabetes medications have to be adjusted based on renal function at frequent intervals and higher glycemic targets are recommended for this high risk population. Deprescribing antihyperglycemic and other agents in high risk patients is recommended to achieve appropriate targets and reduce side effects of medication. Appropriate discontinuation withdrawal of diabetes medication in elderly who have tight glycemic control can potentially reduce risk of hypoglycemia and medication burden. Management of diabetes in LTC can be challenging as it requires inter-professional team approach, collaboration with facility management, development of care protocols and acceptance of set treatment goals by the entire team.

Case #1

86 year old with moderate dementia in on 3g of Metformin and 100 mg of Gliclazide MR a day.
She has been on this dose for 4 years. She is not eating much and complaining of nausea for the last couple weeks.
Investigations, med review and bowel record don't show much for cause of nausea.
HgA1C is 6.8 a month ago. Repeat shows 7.0.

Can we adjust the diabetes meds?
What order? How fast?
What is the measurements/labs you would take along the way?
What are we risking by doing this?

Case #2

82 year old mixed dementia patient (alcohol/drugs/vascular,) moderate/severe range with diabetes on metformin 1000 mg BID (first dose with his first meal) and Lantus 8 units per day because of sugars constantly over 20. Is symptomatic when they get over 25. He has had problems with hypoglycemia because of inconsistent food intake after his daily insulin. He often refuses to eat before noon, refuses glucometer so the best we can do is once per day, refuses insulin at least 2-3 times per week. No pattern at all. We check his blood sugar daily as able and prn at different times of the day. Mornings/ when first awake can be 2.5-6 range. dinner/HS often 15-30 but occasionally 3-6 as well. We give him prn insulin for sugar over 15 (6 units). No noted nocturnal hypoglycemia. He is given Lantus in the morning if it looks like he's going to eat.

Is there anything else we can do given his inconsistent oral intake, refusal of insulin and testing?

Case #3

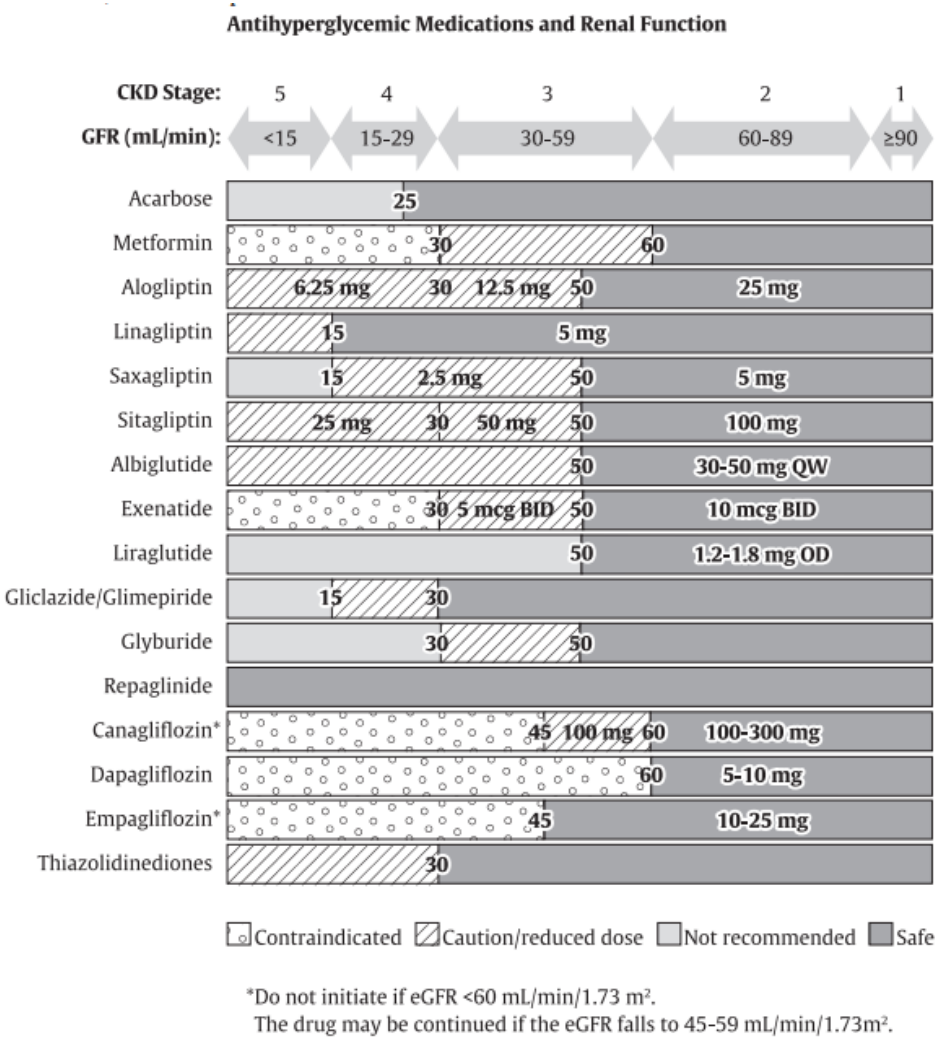
82 yo female residing at LTC facility; MOST M3
Type 2 DM; mild-mod neurocognitive disorder/vascular dementia-->overall higher level of cognition; mild CRF- GFR 50-60; HTN- stable; GERD

Meds on admission:

Metformin 500 mg BID	Glyburide 5 mg OD
Ramipril 2.5 mg OD	HCTZ 25 mg OD
Pantoprazole 20 mg OD	Tylenol 650 mg qhs

-on admission HBA1C around 10
-Glyburide D/C'ed and started on NPH 10 units qhs-->titrated to 16 units
-BS noted to be high ac lunch and supper (fluctuates 10-18)
-NPH 10 units started at breakfast---> increased to 16 units
-HBA1C improved to 8 (diet control was more strictly monitored)
-now HBA1C closer to 9.5 -->all bs are high except at breakfast (esp at supper)
-nursing not checking BS regularly now (only with insulin changes/illness/or if symptomatic)
-patient noted to eat a lot of sweets (cookies and chocolates) which is difficult to regulate by nursing
-patient is otherwise stable **Now what?**

QUESTIONS
AND
DISCUSSION



The Importance of kidney disease !!

You must reconsider choice of medication any time eGFR is < 60 mL/min/1.73m^2