London Conference | PCDO Society

# Challenges and Opportunities for Managing Type 2 Diabetes in Older Adults



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# Disclaimer/disclosure – Lisa Devine

| Name | Lisa Devine |
|---|---|
| **Pharmaceutical and other medical companies for which you have attended an Advisory Board in the past 3 years** | Roche Diagnostics |
| **Pharmaceutical and other medical companies for which you have delivered or received sponsored education in the past 3 years** | GP notebook – role as editor of Ireland ' in brief ' email and content creator for GP Notebook TV<br>MEDCAFE - 1 x non promotional talk given<br>AstraZeneca - attendance as a panel member in a non-promotional session discussing the challenges of chronic disease management |
| **Roles that you hold a professional contract with (i.e. for which you earn a salary/fee)** | Role of General Practitioner , Carlton Clinic , Bray Primary Care Centre , Killarney Road , Wicklow<br>GP notebook – role as editor of Ireland ' in brief ' email<br>Tutor with IHEED<br>ICGP/HSE National GP Lead for Diabetes |
| **Professional non-financial roles** | East Coast Area Diabetes Steering Committee , Ireland<br>ICGP Chronic disease management adviser group<br>Diabetes in Primary Care Journal - Member of editorial board |
| **Other relevant potential conflicts of interest, including current research grants or awards** | nil |



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# Disclaimer/disclosure – Hannah Beba

| | |
|---|---|
| Pharmaceutical and other medical companies for which you have attended an Advisory Board in the past 3 years | EASD attendance 2024 – sponsorship from Daiichi Sankyo<br>ADA virtual attendance 2023 – sponsorship from Lilly<br>EASD attendance 2023 – sponsorship from Daiichi Sankyo<br>ADA virtual attendance 2022 – sponsorship from Lilly<br>EASD in person attendance 2022- sponsorship from Novonordisk<br>EASD virtual attendance 2021 – sponsorship from Novonordisk<br><br>Since joining Leeds CCG and now Leeds Health and Care Partnership/West Yorkshire Health and Care partnership no personal payments have been made to myself from pharmaceutical companies for advisory boards.<br><br>I am part of an advisory board for Leeds/Manchester University for the Aster AKI Study. No payment received to me personally.<br><br>I am part of an advisory board for Astra Zeneca, looking at implementation of NG28. No payment received.<br><br>I have participated in the public policy projects webinars. No payment received. |
| Pharmaceutical and other medical companies for which you have delivered or received sponsored education in the past 3 years | Since joining Leeds CCG and now Leeds Health and Care Partnership/West Yorkshire Health and Care Partnership no personal payments have been made to myself from pharmaceutical companies for education.<br><br>I have done unpaid education linked to:<br><br>Kings fund, i2i, CPPE, DPC, SPS, Newcastle University, PM Management, PCDS, Amgen, Lilly, Daiichi Sankyo, Sunderland University, Astra Zeneca, Leeds University, DSN Forum, RPS, PCDE, DUK, Cardiology Professional Care, PCPA, Sanofi, PITSTOP, BHS, BCS, UKKW |
| Roles that you hold a professional contract with (i.e. for which you earn a salary/fee) | Consultant Pharmacist for West Yorkshire and Leeds Health and Care Partnership<br><br>Tutor for Warwick university MSC in Diabetes |
| Professional non-financial roles | Co-chair of Diabetes UK Council of Healthcare Professionals<br>Member of the UKCPA Diabetes and Endocrinology Committee<br>Trustee of the Primary Care Diabetes Society<br>Member of Royal Pharmaceutical Society<br>Chair of the Expert Reference Group for Cardio-Renal and Metabolic Medicine at Leeds Health and Care Partnership<br>Chair for the Diabetes Steering Group at Leeds Health and Care partnership |
| Other relevant potential conflicts of interest | I am working with Kidney Research UK and Ashridge Business School to understand opportunities around a leadership course for CaReMe in the UK. Currently exploratory. |



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# Meet 77 year old Nan

***Cardiorenal status and complications of diabetes:***

- Diabetes for 15 years
- Chronic kidney disease ( G3bA2)
- One previous TIA ( ASCVD)
- Background retinopathy
- Peripheral vascular disease
- Painful diabetic neuropathy
- Living with obesity (BMI 38kg/$m^2$)
- MASLD (fibrosis stage 2)
- No heart failure recent echo done for ‘ ankle swelling ‘ normal

***Other conditions:***

Osteoarthritis

Osteoporosis

# Prescribed medication

- Metformin 500mg tds po
- Liraglutide 1.2mg s/c daily
- Gliclazide 40mg od  at breakfast
- Aspirin 75mg od
- Atorvastatin 20mg od
- Ramipril 2.5mg od
- Amlodipine 5mg od
- Frusemide 20mg pd
- Solifenacin 5mg od
- Pregabalin 50mg tds
- Paracetamol 1gram tds prn
- Cyclizine 50mg tds po / prn

# Results

Hba1c 44 mmol/mol

**Full blood count**

Hb=144g/L

Platelets = 317 x 10 *g/L

MCV 92 fL

**U&Es**

eGFR: 42ml/min/1.73m$^2$

UACR = 8mg/mmol

**LFTs**

ALT – mildly elevated – 50 U/L

**Lipids**

LDL 2.1mmol/L

Non-HDL=2.6mmol/L

HDL=0.9mmol/L

**Biometrics**

BP 101/62 mmHg

BMI=38kg/m$^2$



# Additional long term condition considerations in the older adult

## Older Adult with Diabetes

- Cerebrovascular Disease i.e. stroke or TIA
- Cognitive decline (dementia (vascular and Alzheimer's)
- Depression or anxiety
- CKD (diabetic nephropathy, hypertensive nephropathy, ischaemic nephropathy, obstructive uropathy, nephrotoxic medications)
- Erectile dysfunction
- Musculoskeletal disorders (lower back pain, frozen shoulder, diabetic cheiroarthropathy)
- Peripheral arterial disease
- Peripheral neuropathy and lower limb amputation
- Multi-morbidity and polypharmacy
- Retinopathy
- Dry mouth poor dentition (difficulty with mastication)
- ASCVD
- Frailty ( sarcopenia, mobility difficulties)
- Falls ( incontinence, dizziness, sensory impairment, malnutrition, weight loss
- social isolation and loneliness
- Hyper and hypoglycaemia

# What information is it helpful to have ahead of a long term conditions review ?

| Category | Details to Collect |
|---|---|
| Patient Demographics | Name, date of birth, contact details, preferred language, carer/family involvement |
| Long-Term Conditions List | Up-to-date list of all diagnosed LTCs (e.g. diabetes, COPD, heart failure, CKD, arthritis, dementia) |
| Current Medications | Full medication list (including over-the-counter, herbal, adherence, side effects, recent changes) |
| Recent Test Results | Bloods (e.g. U&Es, eGFR, HbA1c, lipids), urine (ACR), relevant imaging or investigations |
| Clinical Observations | Blood pressure (sitting/standing), pulse, weight, BMI, respiratory rate, oxygen saturation |
| Symptoms & Function | Current symptoms (including new/worsening), impact on daily living, falls, pain, breathlessness, fatigue |
| Mental Health | Mood, anxiety, cognition (screening for depression, dementia, anxiety) |
| Lifestyle Factors | Smoking status, alcohol intake, diet, exercise, sleep, social support |
| Vaccinations | Flu, pneumococcal, COVID-19, shingles (if age-appropriate) |
| Self-Management & Education | Patient understanding of conditions, self-monitoring, action plans, education provided |
| Care & Support Needs | Carer involvement, social care, equipment, home environment, safeguarding concerns |
| Advance Care Planning | DNACPR, advance directives, end-of-life preferences (if appropriate) |
| Previous Care Plans | Existing care plans, recent hospital admissions, referrals, follow-up actions |
| Patient Priorities & Goals | What matters most to the patient, goals for care, concerns, preferences |



Multimorbidity Care | Checklist for Multiple Health Conditions | Carents
Personalised annual reviews for patients with multiple long-term conditions | Centre for Academic Primary Care | University of Bristol
GM-ELIRT-User-guide-SystmOne.pdf

# A place to start

Nan is a 77-year-old lady with established type 2 diabetes . She has microvascular and macrovascular complications .

- She has a history of chronic kidney disease .
- She has stage 2 MASLD
- She is living with obesity
- She has polypharmacy

CKD Checklist

- Her blood pressure is 101/62 on an ACE inhibitor, Amlodipine and furosemide
- She is on a statin – lipids not to target
- She is not on an SGLT2 Inhibitor
- Her hba1c  is 44

ASCVD

- As above

Living with obesity and MASLD

- On a GLP1 receptor agonist

# Is this enough ??

# How does Nan feel?

- Nan did not attend for her last diabetes
- review and has been brought in today by her daughter Susan
- She has been unwell recently, her appetite has been poor, she complains of nausea , pain and tingling in her legs on a daily basis.
- She had a recent blackout and was seen at home by the ambulance crew but declined to go to hospital . CBG recorded by ambulance team =3mmol/L.
- Her daughters pick up her meds but are confused as sometimes she has medication left over at the end of the month and sometimes, she has too few of certain tablets .
- Nan feels overwhelmed by her daily symptoms and obligations and really feels that her quality of life has become very poor.

# The effect of Nans diabetes on her age

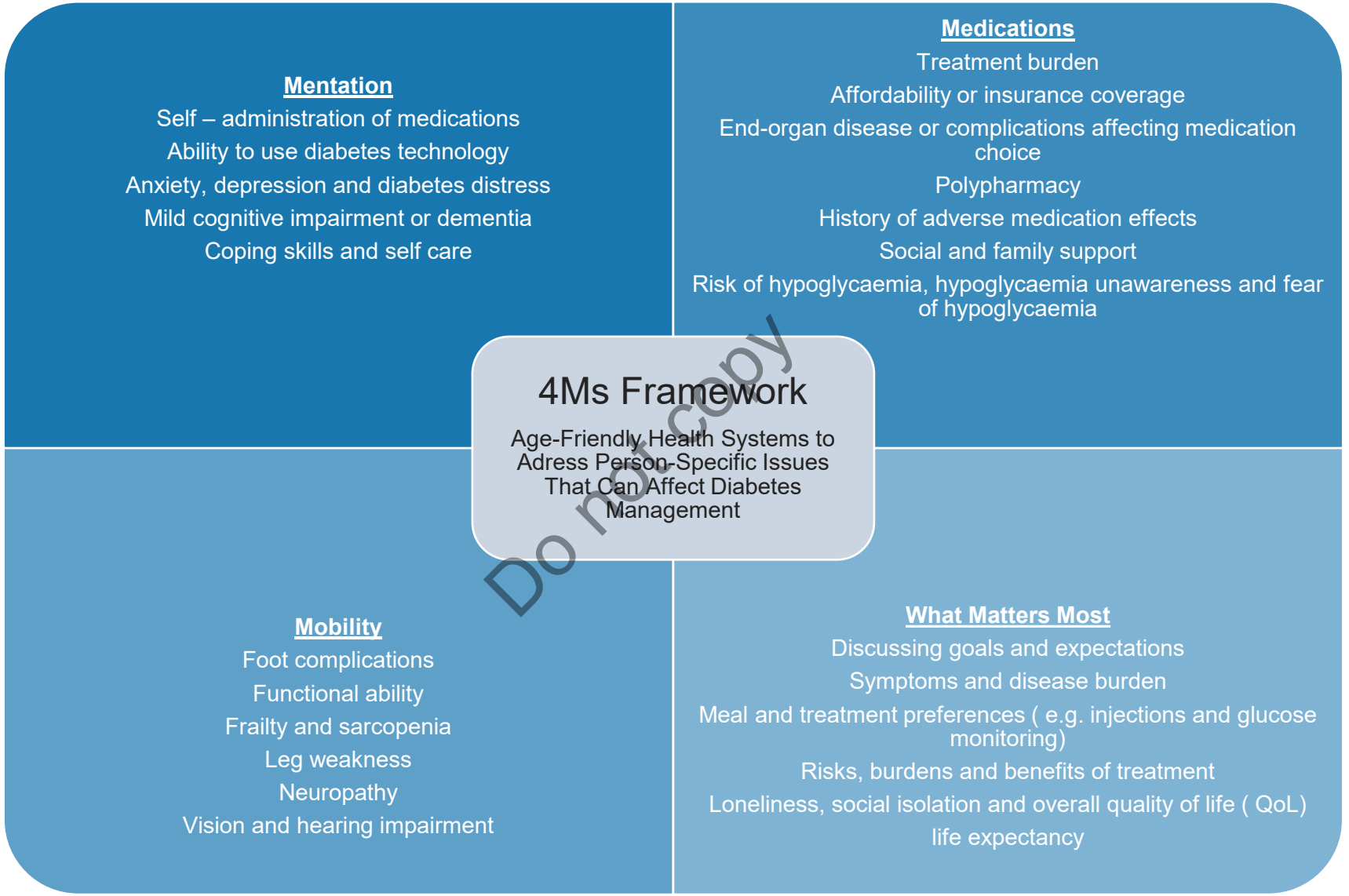
- Increased risk of Geriatric syndromes : cognitive impairment, depression, urinary incontinence, falls, persistent pain, and frailty
- Increased risk of hypoglycaemia
- Increased risk from polypharmacy
- A unique frailty phenotype often encompassing obesity alongside physical frailty at an earlier age

# The effect of Nans age on her diabetes

Older adults with diabetes have higher rates of

- Functional disability
- accelerated muscle loss, mobility impairment
- Frailty
- coexisting illnesses, such as hypertension, chronic kidney disease, coronary heart disease, stroke, and premature death

# A framework for next steps





American Diabetes Association Professional Practice Committee; 13. Older Adults: Standards of Care in Diabetes—2025. *Diabetes Care* 1 January 2025; 48 (Supplement_1): S266–S282. https://doi.org/10.2337/dc25-S013

# Cognitive function and diabetes

**Mentation**

Self – administration of medications

Ability to use diabetes technology

Anxiety, depression and diabetes distress

Mild cognitive impairment or dementia

Coping skills and self care

# Emotional and Mental Heath and Diabetes

Anxiety , depression and diabetes distress are also more prevalent in older adults living with diabetes

Rates of depression are increased by around  40% and rates of anxiety are increased by around 20%.

One in four people will experience diabetes distress

Depression increases the risk of death in type 2 diabetes by 50%.

Diabetes burnout often worsens self-management.



***Ask*** : Any concerns ?
***Listen***
***Signpost*** to services as appropriate
***Review*** medications prescribed for mental health and arrange any further reviews needed.

More info can be found :At a glance factsheet : mental health and diabetes

# Medications and diabetes

Older adults living with diabetes are at risk of polypharmacy.

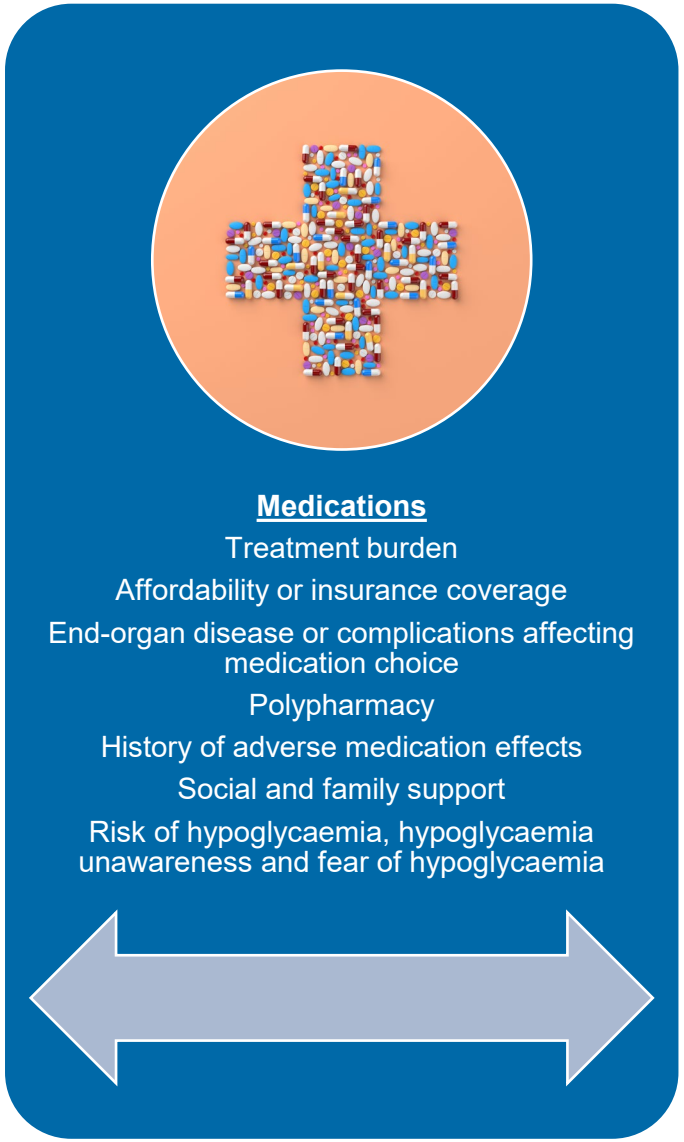
Key principles we can keep in mind

1. Select medications with low risk of hypoglycemia in older adults with type 2 diabetes

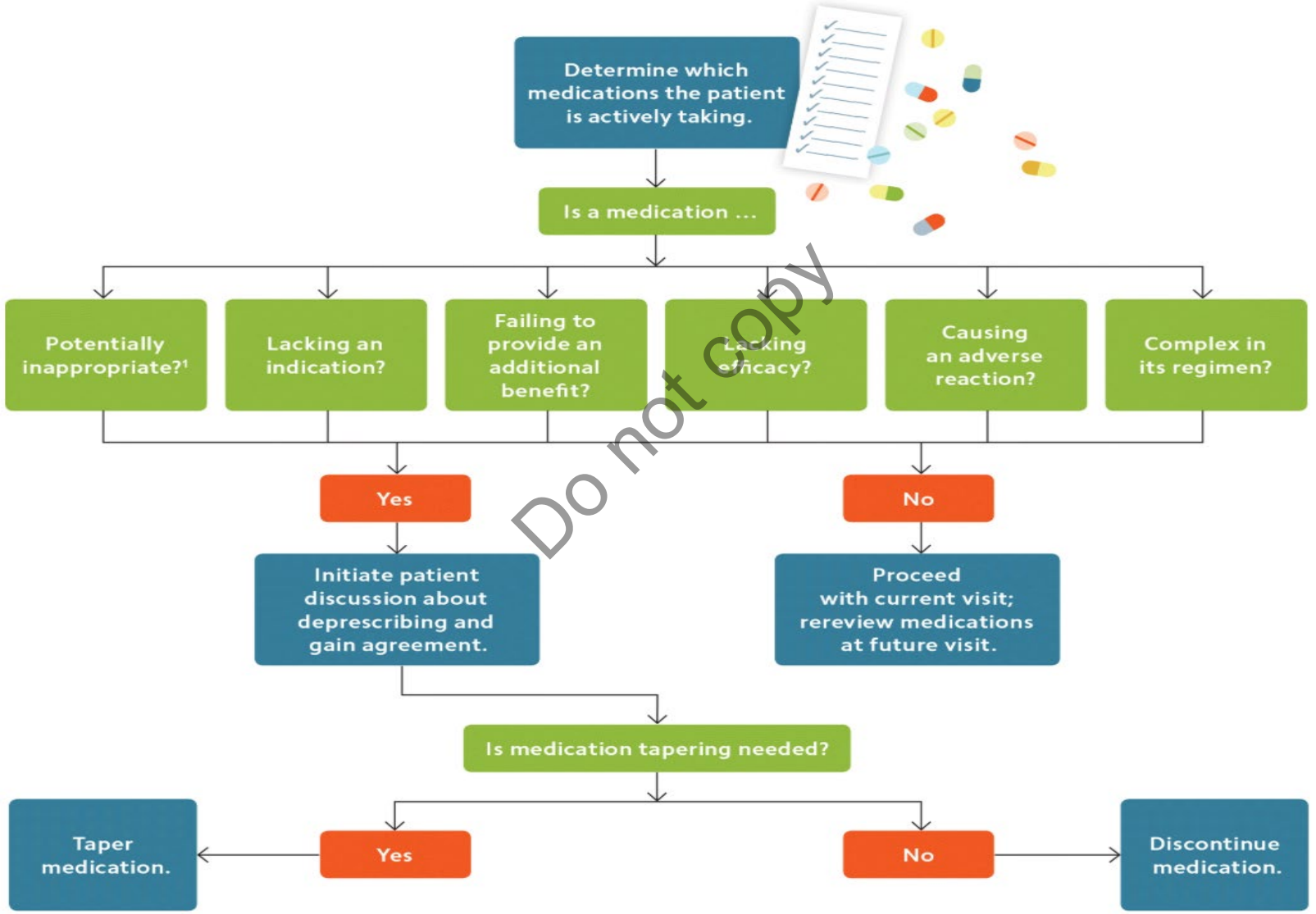
2. Avoid overtreatment and simplify or De-intensify medication regimens where the harms and burdens of treatment are higher than the benefits

3. Treat to an appropriate target





# Reduce treatment burden by deprescribing



# Medications choice and diabetes.. Is what Nan is taking Appropriate ?

**Metformin**

**Gliclazide**

**Liraglutide**

# Medications choice and diabetes.. Is what Nan is taking Appropriate ?

**Metformin** at a suitable dose is the preferred first line therapy. Dose reduction due to renal impairment needed. Durable therapy. M/R formulations may mitigate any GI symptoms.

**Gliclazide** has been used just once a day in the morning. HbA1c is low and has had recent ambulance call out where hypoglycaemia was detected. This might be due to a mismatch of meals and gliclazide dosing. Gliclazide is not durable, and this person has been living 15 years with diabetes. Stopping gliclazide would be a good plan.



**Liraglutide** has some benefits in terms of weight loss in this obese person. However, with this level of frailty sarcopenia is a concern. There may be some renal protection (more evident in newer GLP-1 agents e.g. FLOW trial Semaglutide, and in more overtly albuminuric patients). Likely to be some benefit in terms of ASCVD protection. More efficacious agents may be more problematic in terms of side effects ( particularly GI side effects which this person already experiences). Newer weekly agents may be easier from a polypharmacy point of view.

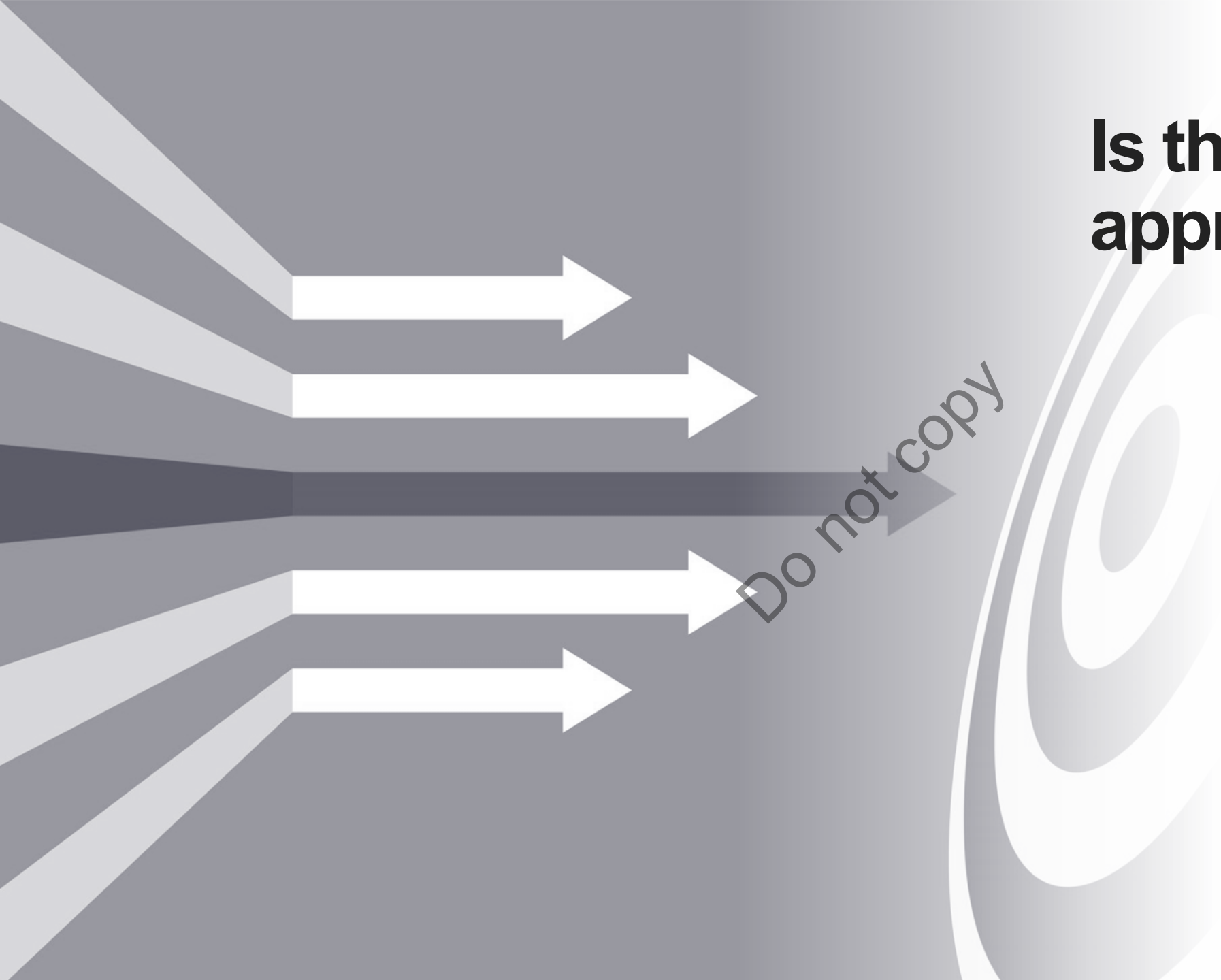
# Medications choice and diabetes….what could we use alternatively ?

- **SGLT2**is are second line therapy.
  - They have benefit in CKD
  - Will provide some weight loss
  - Unlikely to help much at this eGFR in terms of HbA1c lowering
  - May help with BP control ( need to stop Amlodipine)
  - Help with ASCVD
  - Concern around urine incontinence and this medication – increased risk of UTIs and vaginal candidiasis



- **Dipeptidyl-peptidase-4 inhibitors (DPP4i**) could be considered (not to be used in GLP-1 continuing). Moderate reduction in HbA1c. Mild side effect profile. Suitable in renal impairment ( may need dose reductions). Weight neutral. No hypoglcaemia risk. Often once daily medications. Caution in HF however patient has recent ECHO to rule this out. Cheap.

# Is the target appropriate ?



| Group | Targets for glycaemic control | Number of co existing chronic illness | Presence of cognitive impairment | Impairments in daily living | Rationale |
|---|---|---|---|---|---|
| Healthy, robust older adults | 53-58mmol/mol<br>7-7.5% | Less than three co-existent chronic illnesses which require pharmacological management or lifestyle treatment | No cognitive impairment | 0-2 impairments in activities of daily living | Long-life expectancy and that they are likely to see the benefit of tighter control in terms of reducing their future risk of complications |
| Older adults of intermediate frailty/ complexity | < 64mmol/mol<br>< 8% | More than three coexisting chronic illness | Mild to moderate cognitive impairment | Impairment in > 2 activities of daily living | Need to carefully balance the benefits of tighter glycemic control with reducing the burdens of polypharmacy and the risks of hypoglycemia. |
| Very frail / extremely complex older adults | <69mmol/mol<br><8.5%<br><br>Fasting or pre-prandial glucose 5.6–10.0 mmol/L<br>Bedtime glucose: 6.1-11.1 mmols/mol | More than 3 coexisting chronic illnesses | Moderate to severe cognitive impairment | Significant impairment in activities of daily living. May be a resident in a residential home. | The priority is to avoid hypoglycemia and symptomatic hyperglycemia which would cause osmotic symptoms , impair wound healing and cause acute hyperglycemic complications |

# Prescribing Cascade

| Initial Drug/Class | Adverse Drug Reaction (ADR) | Second Drug/Class Prescribed | Clinical Notes/Examples |
|---|---|---|---|
| Calcium channel blockers (e.g., amlodipine) | Peripheral edema | Diuretics | Edema from CCBs is often treated with diuretics instead of reducing or switching the CCB. |
| Antipsychotics | Extrapyramidal symptoms (parkinsonism) | Anti-parkinson drugs (e.g., levodopa, anticholinergics) | Antipsychotic-induced movement disorders treated as new Parkinson's disease. |
| NSAIDs | Hypertension, fluid retention | Antihypertensives, diuretics | NSAID-induced hypertension treated with antihypertensives. |
| Acetylcholinesterase inhibitors | Urinary incontinence | Antimuscarinics (e.g., oxybutynin) | Cholinesterase inhibitor for dementia causes incontinence, treated with antimuscarinics, risking cognitive decline. |
| Metoclopramide | Extrapyramidal symptoms | Antiparkinson drugs or switch to ondansetron/granisetron | Movement disorders from metoclopramide misdiagnosed as new neurological disease. |
| Opioids | Constipation | Laxatives | Opioid-induced constipation routinely managed with laxatives. |
| Platelet aggregation inhibitors | Gastrointestinal bleeding risk | Proton pump inhibitors (PPIs) | PPIs prescribed prophylactically with antiplatelet agents. |
| Statins | Myasthenia gravis-like symptoms | Pyridostigmine | Statin-induced muscle weakness misinterpreted as myasthenia gravis. |
| Antidepressants (e.g., SSRIs, venlafaxine) | Sexual dysfunction | Phosphodiesterase inhibitors (e.g., sildenafil) | Sexual dysfunction from antidepressants treated with ED drugs. |
| Antihypertensives (e.g., ACE inhibitors) | Cough | Antitussives or switch to ARB | ACE inhibitor-induced cough treated as new cough. |
| Antipsychotics | Hyperprolactinemia | Dopamine agonists | Treated with dopamine agonists instead of adjusting antipsychotic. |
| Diuretics | Gout | Allopurinol/colchicine | Diuretic-induced hyperuricemia treated as new gout. |
| Anticholinergics | Cognitive impairment, confusion | Cholinesterase inhibitors | Anticholinergic-induced cognitive decline treated as dementia. |
| Beta-blockers | Bradycardia | Pacemaker | Beta-blocker-induced bradycardia leading to unnecessary pacemaker implantation. |



Dreischulte T, Shahid F, Muth C, Schmiedl S, Haefeli WE. Prescribing Cascades: How to Detect Them, Prevent Them, and Use Them Appropriately. Dtsch Arztebl Int. 2022 Nov 4;119(44):745-752. doi: 10.3238/arztebl.m2022.0306. PMID: 36045504; PMCID: PMC9853235.

# Lets talk to Nan about her medication

She is taking metformin 500mg tds po – this was her original diabetes medication, and she feels it is important

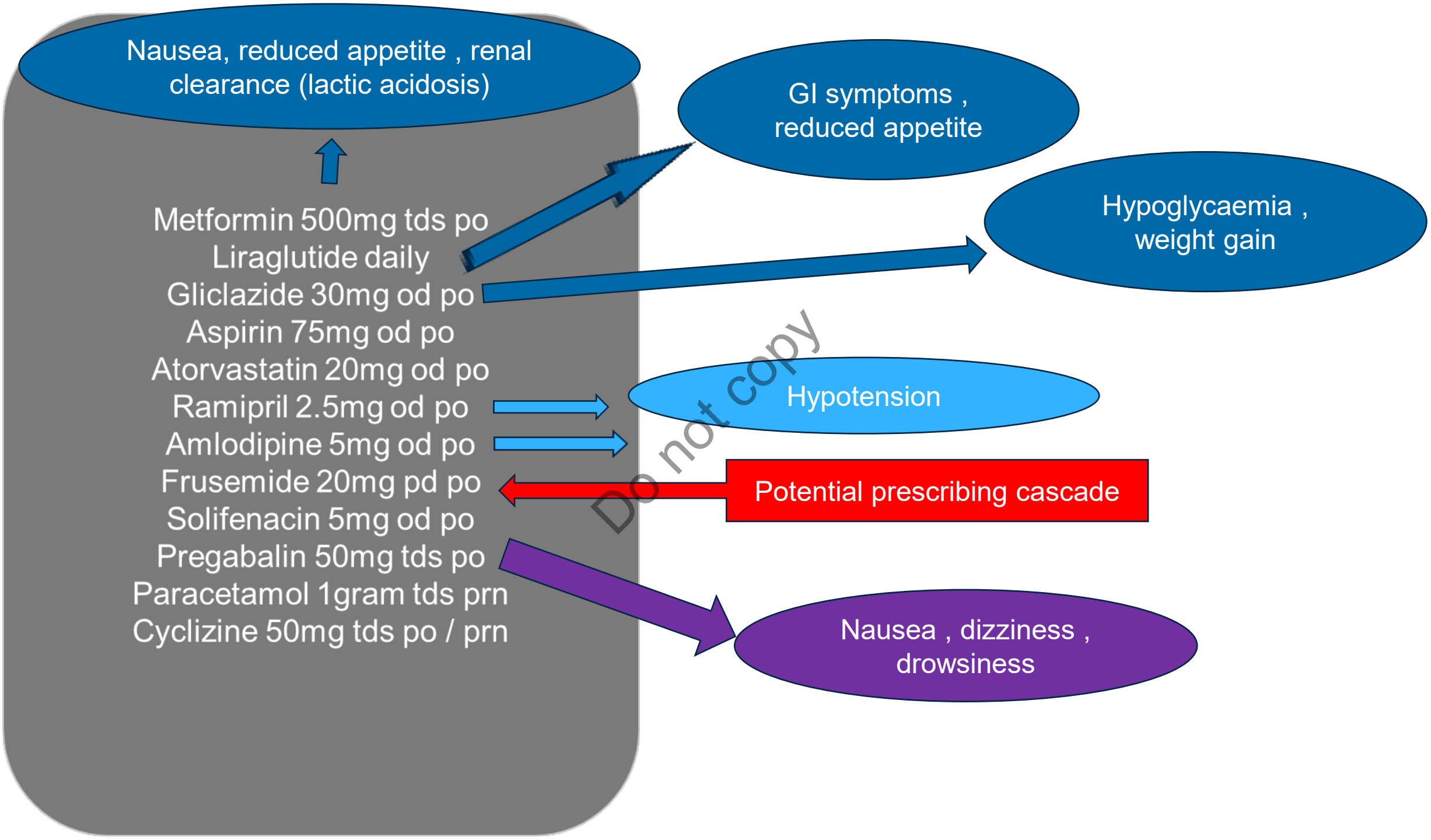
Liraglutide - takes intermittently – she finds this hard to use due to the OA in her hands , it often makes her feel sick

Gliclazide prescribed 1 daily but sometimes takes 2 as she feels guilty about not taking her liraglutide , she has a stockpile at home as she was provided with gliclazide during a hospitalisation after having just filled a new prescription .

She takes the rest of her medication , as prescribed , although occasionally take a ‘ day off ‘ all her medicines and feels much clearer in her mind , less dizzy , less nauseous and does not have to go to the toilet as often.



Metformin 500mg tds po
Liraglutide daily
Gliclazide 30mg od po
Aspirin 75mg od po
Atorvastatin 20mg od po
Ramipril 2.5mg od po
Amlodipine 5mg od po
Frusemide 20mg pd po
Solifenacin 5mg od po
Pregabalin 50mg tds po
Paracetamol 1gram tds prn
Cyclizine 50mg tds po / prn


Nausea, reduced appetite , renal clearance (lactic acidosis)
GI symptoms , reduced appetite
Hypoglycaemia , weight gain
Metformin 500mg tds po
Liraglutide daily
Gliclazide 30mg od po
Aspirin 75mg od po
Atorvastatin 20mg od po
Ramipril 2.5mg od po
Amlodipine 5mg od po
Frusemide 20mg pd po
Solifenacin 5mg od po
Pregabalin 50mg tds po
Paracetamol 1gram tds prn
Cyclizine 50mg tds po / prn
Hypotension
Potential prescribing cascade
Nausea , dizziness , drowsiness
Do not copy

# Mobility

Older adults living with diabetes are at higher risk of frailty and sarcopenia , leg weakness , neuropathy , foot ulceration and reduced functional ability compared to those without diabetes

Musculoskeletal manifestations of diabetes are common e.g. carpal tunnel syndrome, adhesive capsulitis, tenosynovitis and limited joint mobility, gout and osteoporosis

Different phenotypes of frailty have been observed, from the ‘anorexic malnourished’ phenotype to the sarcopenic obese phenotype

Appropriate acknowledgement, nutrition , exercise and MDT input can improve day to day health and quality of life



**Mobility**

Foot complications

Functional ability

Frailty and sarcopenia

Leg weakness

Neuropathy

Vision and hearing impairment

# Mobility , frailty and MSK Issues for Nan

Nan has osteoporosis ( untreated ) , osteoarthritis and frailty ( rockwood clinical frailty score 4 ) ( sarcopenic obese phenotype)

Her pain and immobility greatly impact her quality of life.

She is not linked into the MDT or has never done diabetes self management education

# What matters most to Nan ?

Less medication
Less pain
More mobility
Feel motivated to get back to active retirement
Stop feeling like a burden to her children



**What Matters Most**

Discussing goals and expectations

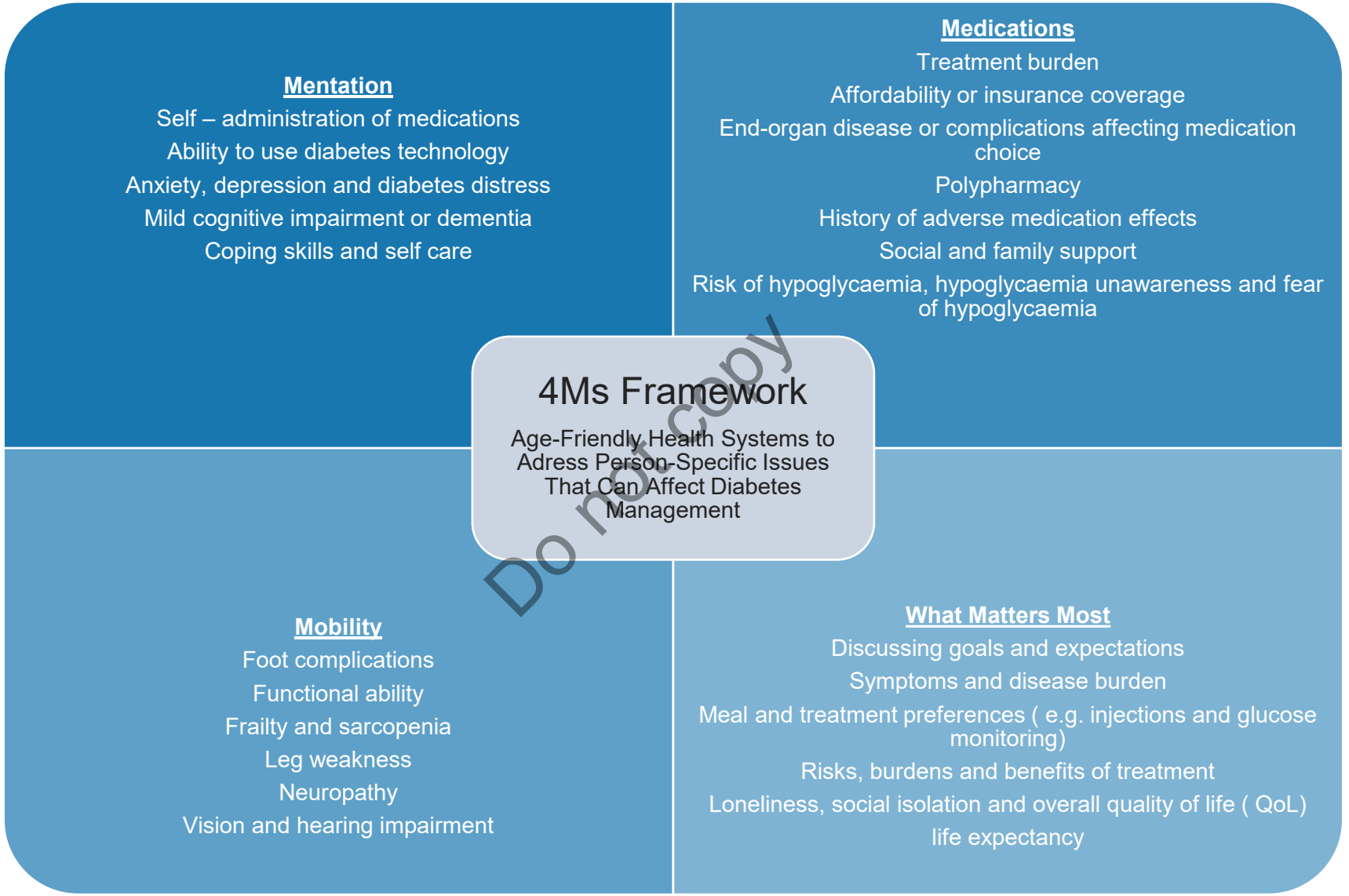
Symptoms and disease burden

Meal and treatment preferences ( e.g. injections and glucose monitoring)

Risks, burdens and benefits of treatment

Loneliness, social isolation and overall quality of life ( QoL)

life expectancy





American Diabetes Association Professional Practice Committee; 13. Older Adults: Standards of Care in Diabetes—2025. *Diabetes Care* 1 January 2025; 48 (Supplement_1): S266–S282. https://doi.org/10.2337/dc25-S013

# Nans management plan Medication (takes place over a few visits )

Metformin 500mg tds po
Liraglutide daily
Gliclazide 30mg od po
Aspirin 75mg od po
Atorvastatin 20mg od po
Ramipril 2.5mg od po
Amlodipine 5mg od po
Frusemide 20mg pd po
Solifenacin 5mg od po
Pregabalin 50mg tds po
Paracetamol 1gram tds prn
Cyclizine 50mg tds po / prn

Reduce metformin (due to renal impairment) and adjust timings to bd ( reduce polypharmacy), adjust formulation to M/R (reduce any GI symptoms)

Stop liraglutide and gliclazide
Add SGLT 2 Inhibitor

Continue aspirin, atorvastatin and ramipril

Stop Amlodipine

Stop prescribing cascade medications i.e. cyclizine and furosemide (now amlodipine stopped)

Swap pregabalin to duloxetine to help peripheral neuropathy and mood

Prescribe regular simple analgesia to reduce pain

Start once daily calcium supplement and in line with Nan's wishes , Denosumab 6 monthly



Metformin M/R 500mg bd
Dapaglifozin 10mg od
Aspirin 75mg once daily
Atorvastatin 20mg once daily
Ramipril 2.5mg once daily
Duloxetine 60mg once daily
Calcium / vit d
Denosumab every 6/12

Paracetamol 1g qds

# Nan's other 'M'S

**Mentation**

Once solifenacin is stopped Nan's cognition improves to 27/30

Duloxetine added for mood and Nan is referred for counselling and social prescribing .
She rejoins her active retirement group

**Mobility**

In addition to the addition of duloxetine , Nan attends a group physiotherapy class for osteoarthritis .

You refer her for DMSES for a refresher on diabetes management including diet .

She does chair based exercise at home and prioritises getting to chair yoga and Tai Chi , run by her active retirement group .



# What matters most ?? NAN !!

- Six months later Nan see's you again . She is still a 77 yo lady living with diabetes , microvascular and macrovascular complications , obesity , MASLD , osteoporosis .

- However , she now feels confident that her medications are working for her and she rarely has side effects relating to them

- She has had no further blackouts , which in retrospect , were likely due to hypotension and/or hypoglycaemia.

- Her mood and mobility are not perfect , but they are improved, and she has a much-improved feeling of control over her conditions.

- She is at active retirement twice a week, enjoys family time more and overall has a much better quality of life !

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# Thank you.



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