What and why

- **Multiple long-term conditions (MLTCs)** is a state defined as the presence of two or more long-term conditions, "where no one condition is considered as the index".[1] Combinations of physical, infectious or mental health conditions are all possible.
- Due to medical advances, people are now living into older age and this, coupled with a global increase in obesity levels, means that more people are presenting for review with more than one long-term condition.
- Potential implications of living with MLTCs include:
  - Reduced quality of life.
  - Negative health outcomes.
  - Fragmented care.
  - Polypharmacy.
  - Challenges with adherence to treatment.
  - Increased mortality.
- This article focuses on the delivery of holistic care to adults living with type 2 diabetes and one or more additional long-term condition, with a particular emphasis on renal, cardiovascular, hepatic and emotional/mental health.

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Advantages of MLTCs clinics

- Joined-up, holistic care.
  - Reducing the number of clinic visits for the person living with MLTCs.
  - Reduced duplication of care.
  - Less conflicting advice.
- Potential for greater engagement with the person with MLTCs.
- Person has an identified healthcare professional for ongoing support with care needs.
- Proactive opportunity for advice and intervention to reduce risk.
- Right person is seen, in the right place, by the right person.
- Appropriate use of NHS services.
- Enhanced satisfaction for both the person and their healthcare professional.
- Reduced carbon footprint.

Where to start?

- Prioritise based on practice/PCN population needs. For example, perhaps start with persons with specific MLTCs, such as:
  - Type 2 diabetes and established atherosclerotic cardiovascular disease (ASCVD).
  - Type 2 diabetes and chronic kidney disease (CKD).
  - Type 2 diabetes and heart failure.
  - Type 2 diabetes and high QRISK® score.
  - Type 2 diabetes and metabolic dysfunction-associated steatotic liver disease (MASLD).

  Simple practice IT searches or commercial searches (with IT governance consent) can facilitate this.
- Or start as routine practice when a person is due their next diabetes review.

Ahead of the MLTCs review

Ensure the person with MLTCs has had all their related healthcare processes prior to the review:

- ❑ Blood pressure measurement.
- ❑ Pulse measurement and assessment (to exclude/review any atrial fibrillation).
- ❑ Full lipid profile.
- ❑ HbA_{1c}.
- ❑ Urine albumin:creatinine ratio measurement.
- ❑ eGFR and U+Es measurement.
- ❑ Liver function tests.
- ❑ Weight, BMI and/or waist:hip ratio measurement.
- ❑ Review of emotional health and wellbeing needs.
- ❑ CVD risk assessment where appropriate (not required in established ASCVD or persons with CKD, as CKD is considered high-risk for CVD).
- ❑ Foot examination.
- ❑ Up-to-date retinal screening.
- ❑ Support with any sexual health concerns.
- ❑ Frailty assessment.
- ❑ Promotion of the need for regular periodontal review.
- ❑ Offered immunisations as per national schedule.

Other blood tests, such as vitamin B12 levels, FBC or TFTs, may be required depending on individual needs/long-term conditions.

Overweight and obesity

- ❑ **Ask** for permission to discuss.
- ❑ **Listen** to any concerns of the person living with overweight or obesity.
- ❑ Discuss implications of excess weight/obesity on long-term health conditions.
- ❑ Optimise lifestyle interventions for a healthy weight, to include support with psychological health.
- ❑ Consider suitability for any locally commissioned weight loss services.
- ❑ Consider suitability for any weight loss medications.
- ❑ Consider suitability for surgical weight loss interventions.

Lifestyle advice and signposting

- ❑ Is the person suitable for referral to the NHS Type 2 Diabetes Path to Remission Programme or local equivalent?
- ❑ Appropriate dietary advice for a healthy weight (review by dietitian if available).
- ❑ Advice on appropriate physical activity (refer to locally commissioned services where available).
- ❑ Smoking cessation advice if appropriate.
- ❑ Advice on optimising sleeping patterns.
- ❑ Ask about emotional wellbeing.
- ❑ Review of any recreational drug use/substance misuse.
- ❑ Look to engagement with diabetes education/self-management and peer support programmes (either locally or nationally commissioned) – for example, https://www.healthyliving.nhs.uk.
- ❑ Use of resources for people living with diabetes, to include the Diabetes UK Learning Zone.

HbA_{1c}

- ❑ Set an appropriate individualised target HbA_{1c} level based on duration of diabetes and any moderate or severe frailty.
- ❑ Review of glucose-lowering medication: Intensification/de-escalation based on glycaemic targets.
- ❑ If HbA_{1c} is high, see *How to manage high HbA_{1c} in people with type 2 diabetes*.

Blood pressure optimisation

Clinic targets[2]

- Without CKD:
  - <80 years: <140/90 mmHg.
  - ≥80 years: <150/90 mmHg.
- For persons with diabetes and CKD:
  - uACR <70 mg/mmol: 120–139/<90 mmHg.
  - uACR ≥70 mg/mmol: 120–129/<80 mmHg.

Note: Home blood pressure reading targets are 5 mmHg lower on both systolic and diastolic measurements.

First-line treatment

- ACE inhibitor or ARB (unless preparing for pregnancy)

For more information, see *How to diagnose and treat hypertension in adults with type 2 diabetes*.

Emotional/mental health

- ❑ **Ask** for any concerns.
- ❑ **Listen**.
- ❑ Signpost to any locally commissioned services as appropriate.
- ❑ Review any medication prescribed for mental health.
- ❑ Arrange further review as required.

For more information, see *At a glance factsheet: Mental health and diabetes*.

CVD risk reduction

- ❑ Calculate QRISK® score.
  - For persons under the age of 40 years, consider calculating lifetime risk. In addition, NICE advises that people under 40 should be considered to be at elevated risk in the presence of one or more cardiovascular risk factors, defined as: **hypertension**, **dyslipidaemia**, **smoking**, **obesity** or **family history** (first-degree relative) of premature CVD.[3]
- ❑ If QRISK® is >10%, offer lifestyle advice and lipid-lowering therapy (starting with atorvastatin 20 mg as per SmPC), and consider SGLT2 inhibitor therapy for cardiorenal protection.[3]

Lipids optimisation[4]

For primary prevention of CVD

- ❑ Start with atorvastatin 20 mg.
  - Aim for >40% reduction in non-HDL cholesterol.
  - If target not met, optimise with titration of statin dose and/or look to additional lipid-lowering therapies.

For secondary prevention of CVD

- ❑ Use atorvastatin 80 mg.
  - Aim for:
    - LDL cholesterol 2.0 mmol/L or lower, or
    - Non-HDL cholesterol 2.6 mmol/L or lower.
  - If target not met, optimise with addition of other lipid-lowering therapies. These include ezetimibe, bempedoic acid, icosapent ethyl, inclisiran and PCSK9 inhibitors (the latter three only for use in secondary prevention and, in the case of PCSK9 inhibitors, under secondary care).

For further information, see our lipids Q&A series.

Chronic kidney disease[5]

- Diagnosed if urinary albumin:creatinine ratio (uACR) is >3.0 mg/mmol and/or eGFR is <60 mL/min/1.73 m^2.
- A positive uACR is two measurements of >3.0 mg/mmol out of three samples at least 1 month apart (repeat sample not needed if the initial ACR is 70 mg/mmol or more).

Management

❑ Optimise blood pressure.

❑ CVD risk is high, so ensure person is taking a statin and lipids are optimised.

❑ Optimise glycaemic levels to achieve individualised HbA_{1c} target.

❑ Initiate ACE inhibitor or ARB, and titrate to maximum tolerated dose.

❑ Offer an SGLT2 inhibitor with cardiorenal benefit.

- If eGFR is <45 mL/min/1.73 m^2 and glucose lowering is also required, consider adding a GLP-1 RA or GIP/GLP-1 RA in addition to the SGLT2 inhibitor.

❑ For persons with eGFR 25–59 mL/min/1.73 m^2 and a positive uACR, offer finerenone based on NICE TA877.[6]

As eGFR lowers, look to adjust medications as per SmPC (e.g. if eGFR is <45 then use 1g total dose of metformin daily, and stop metformin if eGFR is <30).

Breathlessness

❑ Assess for breathlessness.

❑ Is it a new symptom or has it worsened?

❑ Has exercise tolerance deteriorated – ask simple questions such as "are you finding it more difficult to walk upstairs recently?"

❑ Smoking status.

❑ Determine whether breathlessness has a respiratory cause or is due to undiagnosed heart failure.

❑ Test BNP or NT-proBNP based on local availability.

❑ Refer for echo based on BNP levels as per NICE guidance.[7]

❑ Refer for spirometry if BNP is negative or there is suspicion of COPD/emphysema.

Established ASCVD

ASCVD refers to coronary heart disease (CHD), cerebrovascular disease, or peripheral arterial disease (PAD).

❑ Optimise blood pressure, lipids and HbA_{1c}.

❑ Guardian medications:

- Lipid-lowering therapy, starting with atorvastatin 80 mg.
- Antiplatelet therapy.
- ACE inhibitor or ARB titrated to maximum tolerated dose.
- Beta-blocker.

❑ Offer an SGLT2 inhibitor with evidence of benefit in ASCVD.

❑ Some GLP-1 RAs show evidence of cardioprotection in people with ASCVD (see individual SmPCs).

❑ For when to refer to secondary care, see NICE NG238.[4]

For further information on management of cerebrovascular disease in type 2 diabetes, see *At a glance factsheet: Stroke and the person with diabetes*.

Heart failure[7]

❑ Optimise blood pressure, lipids and HbA_{1c}.

❑ Manage any atrial fibrillation.

❑ Has the person participated in a personalised, exercise-based cardiac rehabilitation programme?

❑ Aim for less than 6 g of salt per day.

❑ Review any symptoms, such as breathlessness, cough, tiredness, exercise intolerance and fluid retention.

❑ Guardian medications include:

- Beta-blocker.
- ACE inhibitor/ARB or an angiotensin receptor/neprilysin inhibitor (sacubitril/valsartan).
- Mineralocorticoid receptor antagonist (e.g. spironolactone).
- Diuretics may may be offered for fluid retention and congestive symptoms.

❑ Offer SGLT2 inhibitor with evidence of benefit in heart failure.

❑ Is the person under the review of the heart failure team?

Other therapies for the management of heart failure under specialist care include ivabradine, hydralazine and digoxin.

Metabolic dysfunction-associated steatotic liver disease (MASLD)

Previously termed non-alcoholic fatty liver disease (NAFLD), MASLD is defined as steatotic liver disease in the presence of one or more cardiometabolic risk factor(s) and the absence of harmful alcohol intake.

❑ Check for diagnosis of fatty liver on ultrasound scan.

❑ Check if the person has had a fibroscan, as this can help with categorising MASLD, ranging from fatty liver, through MASH/NASH to cirrhosis.

❑ Mainstay of treatment is diet, lifestyle, weight loss and managing the associated long-term conditions such as type 2 diabetes.

❑ Seek specialist advice based on local guidelines.

Specific considerations in people with frailty

- ❑ Individualise blood pressure and HbA_{1c} targets to avoid adverse effects such as postural drop and hypoglycaemia.
- ❑ Consider prognosis and individualise care based on shared decision making.
- ❑ Consider dietary intake, social circumstances and ability to take medication.
- ❑ Look to reduce any polypharmacy.

For more information, see *How to manage diabetes in later life*.

Specific considerations in people with early-onset type 2 diabetes

- ❑ Ensure correct classification of diabetes.
- ❑ Look to individualise target HbA_{1c} to <48 mmol/mol.[9]
- ❑ Consider **lifetime** CVD risk.
- ❑ Preconception advice for women of childbearing potential:
  - ➤ Aim for HbA_{1c} <48 mmol/mol.
  - ➤ Metformin and/or insulin are the only glucose-lowering medications suitable for use in preconception/pregnancy. Stop all other glucose-lowering medications.
  - ➤ Statins, other lipid-lowering therapies and ACE inhibitors/ARBs should be stopped. Alternative therapies for hypertension include nifedipine and methyldopa.
  - ➤ Folic acid 5 mg for at least 3 months prior to conception and up to the 12th week of pregnancy.

For more information, see *How to conduct an extended review for people with early-onset type 2 diabetes*.

Specific considerations in type 1 diabetes[8]

- ❑ Is the person under specialist care, thus allowing for timely and appropriate access to technology for type 1 diabetes?
- ❑ Has the person had the opportunity to undertake a course in type 1 diabetes education/self-empowerment?
- ❑ Has the person been supported in the effective use of continuous glucose monitoring?
- ❑ Ensure access to ketone monitoring and discuss sick day guidance.
- ❑ Look to optimise blood pressure and HbA_{1c}.
- ❑ Lipid management:[4]
  - ➤ Consider statin treatment for the primary prevention of CVD in all adults with type 1 diabetes.
  - ➤ Offer statin treatment for the primary prevention of CVD to adults with type 1 diabetes who:
    - – are older than 40 years, or
    - – have had diabetes for more than 10 years, or
    - – have established nephropathy, or
    - – have other CVD risk factors.

References

1. Khunti K, Chudasama YV, Gregg EW et al (2023) Diabetes and multiple long-term conditions: A review of our current global health challenge. *Diabetes Care* **46**: 2092–101
2. NICE (2023) *Hypertension in adults: diagnosis and management* [NG136]. Available at: https://www.nice.org.uk/guidance/ng136
3. NICE (2022) *Type 2 diabetes in adults: management* [NG28]. Available at: https://www.nice.org.uk/guidance/ng28
4. NICE (2023) *Cardiovascular disease: risk assessment and reduction, including lipid modification* [NG238]. Available at: https://www.nice.org.uk/guidance/ng238
5. NICE (2021) *Chronic kidney disease: assessment and management* [NG203]. Available at: https://www.nice.org.uk/guidance/ng203
6. NICE (2023) *Finerenone for treating chronic kidney disease in type 2 diabetes* [TA877]. Available at: https://www.nice.org.uk/guidance/ta877
7. NICE (2018) *Chronic heart failure in adults: diagnosis and management* [NG106]. Available at: https://www.nice.org.uk/guidance/ng106
8. NICE (2022) *Type 1 diabetes in adults: diagnosis and management* [NG17]. Available at: https://www.nice.org.uk/guidance/ng17
9. Bakhai C (2024) How to conduct an extended review for people with early-onset type 2 diabetes. *Diabetes & Primary Care* **26**: 15–16