What and why

- The focus is on how to efficiently and effectively support people with high HbA_{1c}. HbA_{1c} of ≥86 mmol/mol (10%) has been chosen as this level is associated with high risk of severe COVID-19 disease and mortality. However, there is a gradient of risk above and below this.
- There is no right or wrong way to approach these consultations. This resource aims to act as a checklist and route map to help us ensure we gather all the information needed, and cover all important discussion points in these highly complex consultations. The checklist is in two sections: **Before the consultation** (including electronic record review) and **During the consultation**.

HbA_{1c} ≥86 mmol/mol

Is HbA_{1c} reliable in this person? The pitfalls of HbA_{1c}

Gives false high ▲ Conditions that **prolong** RBC life, or associated with **decreased** RBC turnover.	▲ Anaemias associated with decreased RBC turnover ▲ Asplenia ▲ Uraemia ▲ Severe hypertriglyceridaemia	▲ Severe hyperbilirubinaemia ▲ Chronic ingestion of alcohol, salicylate, opioids ▲ Lead poisoning ▲ RBC transfusion*
Gives false low ▼ Conditions that **reduce** RBC life, or associated with **increased** RBC turnover.	▼ Anaemia from acute or chronic blood loss ▼ Splenomegaly ▼ Pregnancy**	▼ Vitamin E ingestion ▼ Ribavirin and interferon-alpha ▼ RBC transfusion*

*Typically falsely elevates, but may also falsely decrease.

**False low through 2nd trimester; may rise during 3rd trimester.

From: Radin (2014) Pitfalls of hemoglobin A1c measurement. When results may be misleading. *J Gen Intern Med* **29**: 388–94

Before the consultation – review electronic record

	Clinical characteristic
C	Control and HbA_{1c} trend previously? Is this a new diagnosis, previous optimal control or previously high HbA_{1c}? ● Is the type 2 diabetes diagnosis correct? Any possibility of type 1 diabetes, LADA?* (*See* **Box A** overleaf) ● Any possibility of DKA or HHS? (*See* **Box B** overleaf) ● Is there persisting high HbA_{1c}? (*See* **Box C** overleaf)
O	Other recent illnesses or infections that might be contributing (including COVID-19)?
N	New medications contributing (e.g. steroids, anti-psychotics)?
T	Therapies. Past and present glucose-lowering therapies and response/adherence.
R	Retinopathy screening date and result; previous referral to diabetic eye clinic/missed appointments. (*See* **Resources 1**)
O	Other conditions, complications and comorbidities (e.g. frailty, cardiovascular disease, CKD). (*See* **Resources 2**)
L	Look for current data and review care processes (lipids, renal function and ACR, blood pressure, foot exam).

*Urgent consultation needed, if suspected.

Decide WHEN and HOW to progress to consultation stage

- Refer to: How to prioritise diabetes services during and post COVID-19 pandemic.
- Refer to: How to undertake a remote diabetes review.

During the consultation

	Action
S	Share and discuss results, including self-monitoring blood glucose where relevant (is this compatible with HbA_{1c}?).
U	Uncover reasons for high HbA_{1c}: ● Medication – ask about adherence, administration, new medications, side effects. ● Illness, including infections. ● Lifestyle – diet, snacking, smoking, sleep, physical activity, relationships. ● Emotions and mental health problems – depression, anxiety, stress, loneliness, boredom, bereavement and break-ups. ● Socioeconomic impact of COVID-19 – furloughed, long hours, job loss or change, food banks, family support. (*See* **Resources 3**)
G	Gather missing data (weight, BMI, waist circumference, blood pressure, foot exam, injection technique, injection sites). Glucose and ketone point-of-care tests, if at risk DKA/HHS. Ask about osmotic symptoms. New underlying disease or complications, comorbidities? (*See* **Resources 4**)
A	Agree goals, management plan and further investigations needed. (*See* **Resources 5**)
R	Resistance – are there barriers to new intervention(s)? (*See* **Resources 6**) Referrals – are further investigations appropriate (e.g. to exclude malignancy [*see* **Box D** overleaf] or to other specialist services, such as foot-care team, retinal screening, health coaching). Review date for bloods and follow-up.

Box A. Is type 2 diabetes diagnosis secure?

- When was diagnosis made? With long duration, consider beta-cell exhaustion and loss of efficacy of therapies like sulfonylureas (SUs).
- Consider LADA.
- Discuss symptoms urgently by telephone:
  - Is person unwell and at risk of diabetic ketoacidosis (DKA)/HSS? Any osmotic symptoms?
    - Polyuria.
    - Polydipsia.
    - Excessive tiredness.
    - Weight loss.
    - Nausea and vomiting.
- When did symptoms start? Have they got worse, and over what period? **Is rescue therapy urgently required** (see NICE NG28)**?**

Free PCDS CPD module: Making the right diagnosis in diabetes

DKA is a medical emergency associated with significant mortality. A sudden rise in glucose levels would NOT be reflected in the HbA_{1c} (which measures the average glucose over a 2–3-month period), so type 1 diabetes is unlikely to present with a high HbA_{1c}. However, if DKA is suspected, refer to **Box B**.

Box B. Where DKA or HHS is suspected

- If you suspect DKA, perform a finger-prick glucose test and check urine (or finger-prick test) for ketones.
  - Blood glucose ≥11.1 mmol/L, with ketonuria ≥++ (or blood ketones >3 mmol/L), is highly suggestive. Arrange transfer to hospital immediately, by blue-light ambulance, if necessary, to avoid delay.
    Further information: Ketones and diabetes factsheet.
- HHS is more common in older people with type 2 diabetes who develop very high glucose levels, often related to intercurrent illness or infection. Glucose levels are high (>30 mmol/L), with thirst, polyuria, dry mouth, fever, drowsiness, confusion and eventually coma. Ketones are not present. Urgent admission is required for rehydration.

Box C. Previous high HbA_{1c}

Review previously identified contributing factors:

- Lifestyle.
- Low adherence.
- Low motivation for lifestyle changes.
- Occupational contributors (e.g. working long hours).
- Response to previous medications (side effects, efficacy, reasons for stopping).

Box D. Suspected malignancy

Could this be pancreatic malignancy?

- Check risk factors (family history, obesity, smoking, chronic pancreatitis).
- Malignancies of the pancreatic body or tail usually present with abdominal pain and weight loss, with the exception of obstructing head of pancreas masses, which generally present as painless jaundice (owing to bile-duct obstruction) accompanied by anorexia, weight loss.
- Symptoms are often vague or non-existent until tumours become large, which is why the diagnosis is often delayed. Sudden deterioration in glucose control is often an early sign. Whether CT scan is required is difficult to decide. Refer for CT scan (2-week wait) if:
  ≥60 years + new-onset diabetes or sudden deterioration + weight loss

Practical tips

Revisit the basics

- ❑ Understanding of type 2 diabetes and self-management principles.
- ❑ Understanding of impact of diet, physical activity, sleep, other lifestyle factors.
- ❑ Assess literacy and numeracy.
- ❑ Previous medications – side effects, reasons stopped.
- ❑ Consider how we can help motivate people to get involved in their own care and to make changes.
- ❑ Lifestyle intensification. Explore all aspects of lifestyle – diet, stress, alcohol and smoking, sleep, physical activity and relationships. Lifestyle discussions for people with type 2 diabetes provides questions and very brief advice for each area. Encourage lifestyle changes alongside medication intensification.

Language

- Take care with language used, as sensitive issues (e.g. weight, lifestyle, medication optimisation) will be discussed. Find ways to motivate self-management. Ensure the person with diabetes is involved in all decision-making, if possible. Review the recommendations in *Language Matters* and *Diabetes & Primary Care* summary.
- Where English is not the person's first language, consider Language Line use. People value the opportunity to express their concerns and discuss what is important to them in their own language. With a good interpreter there is a greater chance that a good two-way dialogue can be achieved, that the person fully understands their results and can choose management options.

Patient-centred discussion on management options

- Discuss options and delivery methods.
- Discuss short-term SU or insulin to regain control or if unable to start GLP-1 RA immediately.
- Counsel on benefits and risks of classes of therapy.
- Check need for retinopathy screening, if considering GLP-1 RA and not screened in last 12 months and if HbA_{1c} >91 mmol/mol (*see* GLP-1 receptor agonists and diabetic retinopathy factsheet).

Medication intensification

- Agree HbA_{1c} target, review medication adherence, discuss titration or new medication options. Follow NICE, ADA/EASD or local guidelines.
  - Short-term: consider SUs while being mindful of impact on weight and risk of hypoglycaemic episodes (ask about and consider occupation, driving, falls, living alone).
  - Long-term: consider SGLT2 inhibitor, GLP-1 RA if no contraindications, retinal screening up to date and no significant retinopathy, or insulin.
- We may have to accept temporary, higher than agreed target glycaemic control if unwilling to accept injectable or additional therapy, or unwilling to undertake blood glucose measurement for safe treatment with an SU. Consider discussion with specialist team. Ensure the person has capacity and is making an informed choice, and as many barriers as possible have been explored and removed. Repeat blood tests and discussion every 3 months; motivate to make changes, however small.

Practical considerations

- Share what you are doing with your wider practice or community team. Keep everyone in the loop.
- Medication review by clinical pharmacist useful.
- With the person's consent, consider inviting partner or carer to participate in consultations. Who does the shopping and cooking?
- Non-attendance at clinic visits, retinopathy screening or blood tests is common. Explore barriers (e.g. transport). Re-book retinopathy or other missed appointments.
- Regular searches for those with high HbA_{1c} ensures timely future reviews and helps identify care gaps.
- As you undertake searches and work through review lists, keep notes of coding issues, frequent defaulters and those who need urgent bloods or consultations.
- Telephone non-responders yourself, if possible. Clinician calls may be more motivating, and many cannot receive or view texts.
- Consider home visits if this is the only way to achieve face-to-face review. Involve relatives, spouse or children, with the person's consent.
- Persistence and continuity are important in establishing a trusting patient/clinician relationship, possibly facilitating future discussion and attendance.
- Multidisciplinary team involvement/signposting for support – involve dietitian, DESMOND or XPERT refresher or other online or face-to-face self-management education.
- We may need to be innovative to ensure delivery of all care processes. District nurses may be able to undertake blood testing, and pharmacies will often deliver blood forms and urine pots with scripts.

Effects of COVID-19 on people with type 2 diabetes

- Increased risk of severe disease and mortality (especially if poor glycaemic control, obesity, hypertension, older age).
- Delayed diagnosis, restricted access to blood tests and specialist services, disruption to routine reviews.
- Lifestyle changes, including easy access to unhealthy foods and snacks, decreased physical activity, stress, poor sleep, anxiety and depression.
- Socioeconomic impacts (working from home, job loss and furlough, financial difficulties, using food banks, boredom, lack of support, disrupted relationships).

Resources

1 Retinopathy:
- Diabetic retinopathy;
- GLP-1 RAs and diabetic retinopathy

2 Frailty:
- How to manage diabetes in later life

3 Help for consultations:
- Information and education to support remote consulting;
- How to find the ideal words in consultations;
- Lifestyle discussions for people with type 2 diabetes

4 Gathering information:
- Ketones and diabetes;
- Recognition and management of pancreatogenic diabetes

5 Goals and planning:
- Diabetes UK information prescriptions

6 Resistance to interventions:
- Diabetes UK: Psychological barriers to insulin use

Abbreviations

ACR=albumin:creatinine ratio; CKD=chronic kidney disease; DKA=diabetic ketoacidosis; HSS=hyperosmolar hyperglycaemic state; LADA=latent autoimmune diabetes in adults; RBC=red blood cell.

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