Type II Diabetes

Screening

Why?

Early detection and glycaemic control can prevent serious complications.

When?

Annually:

- All Aboriginal people over 15 years of age.
- Children over 10 years of age with any of the factors in Box 1 in consultation with Regional Paediatricians.
- Anyone with impaired glucose tolerance (IGT) (also referred to as prediabetes) or at high risk according to AUSDRISK tool.

Every 3 years:

- Non Aboriginal adults over 40 years of age should be screened with AUSDRISK tool, test as below if score 12 or more.

How?

- Venous* OR point of care (POC) HbA1c. (**one venous sample per year funded by MBS*)

Box 1 Risk factors for Aboriginal children ≥ 10 years
Overweight or obese (>85th Centile BMI)
Positive family history
Signs of hyperinsulinism (Acanthosis nigricans/PCOS)
Dyslipidaemia
Born to a mother with diabetes/gestational diabetes
Pyschotropic therapy
(*From Azzopardi et al, MJA 2012*)

Case Definition

HbA1c can be used for screening, diagnosis and ongoing monitoring of diabetes. (See FLOWCHART)

Interpretation of HbA1c:

	Normal	Prediabetes	Diabetes
Venous HbA1c	<5.7% (<39mmol/mol)	5.7-6.4% (39-47mmol/mol)	≥6.5% (≥48mmol/mol)
POC HbA1c	<5.7% (<39mmol/mol)	*IF* ≥5.7% send venous sample to lab *(see flowchart)*	

What about blood glucose?

If someone has had a diagnostic HbA1c, they do not need to have an OGTT to confirm their diagnosis.

If a patient has had a random capillary glucose reading of ≥5.5, then a HbA1c (if not done in last 12 months) is suggested to check for potential diabetes. A random capillary glucose reading of ≥12.2 is likely to indicate diabetes and must be confirmed with a venous HbA1c.

Principles of Management

See HEALTHY LIVING protocol for anyone with diabetes or prediabetes.

- Every visit encourage appropriate lifestyle changes.
- Offer individual education and dietary consultation with appropriately trained health professionals.
- Avoid or minimise the use of glycaemic drugs (thiazides, steroids, psychotropics).

Baseline:

Examinations	Investigations
BMI Waist circumference BP Cardiovascular examination Visual Acuity Foot examination	UEC, LFTs, TSH, Lipid profile*, HbA1c Urinalysis Urine ACR ECG Retinal Screening
*ideally fasted, but not essential – label fasting vs non fasting	

Targets:

- HbA1c ≤7% (53 mmol/mol)**
- Lipids: TC<4, TG<2, HDL>1, LDL<1.8 mmol/L (see DYSLIPIDAEMIA PROTOCOL)
- BP ≤130/80 (see HYPERTENSION PROTOCOL)
- BMI <25kg/m^2
- Waist Circumference (Female <88cm, Male <100cm)
- ACR <3.5 mg/mmol (see PROTEINURIA PROTOCOL)

(**note targets may need to be individualized)

Reduce overall CVD risk:

- Exercise ≥20min walking ≥4 days per week
- Encourage SMOKING CESSATION
- Alcohol 2 standard drinks/day maximum
- Dietary modification

Therapeutic Protocols

- **Review non pharmacological management at every opportunity.**
- **Before increasing medication carefully review adherence to existing therapy.**
- If on medications other than metformin ask about symptoms of hypoglycaemia.

Oral Hypoglycaemic Agents (OHAs)

1st line: Metformin commence 500mg daily (XR)/bd. Up titrate to maximum 2g total daily over four weeks.

eGFR	Maximum daily dose Metformin
>60	2g
30-60	1g
<30	Stop metformin
NB Metformin should be WITHELD in sepsis, MI, critical illness or prior to contrast administration.	

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2nd line: ADD one of:

- Gliclazide MR: 30mg MR daily, double dose every 4 weeks to maximum 120mg daily, monitor for hypos.
- Sitagliptin 100mg daily. (NB also available as 50mg and 100mg strength combined with 1000mg XR metformin)

NB: These agents will need to be reduced with declining renal function:

Gliclazide:

eGFR 45-60 => reduce dose as GFR declines below 60, monitor for hypos

eGFR<45=> cease

Sitagliptin:

eGFR 30-50ml/min => 50mg once daily

eGFR <30ml/min => 25mg once daily

IF patient remains above target on either of these, then the alternate 2nd line OHA may be added as a third agent.

INSULIN

If HbA1c is extremely high (eg ≥ 12% (108 mmol/mol)), insulin is the only agent proven to reduce glycaemia to target. Therefore, it can be considered as part of first line therapy in that context.

Alternatively, insulin should be added if not at target on maximal oral therapy.

Before Starting:

Education required about: Insulin storage, administration and monitoring (especially for hypoglycaemia).

How to start:

Glargine insulin (Lantus)

- Continue OHAs at same dose.
- Commence at 10 units subcutaneously at the same time every day.
- Review at least weekly and monitor for hypoglycaemia.
- Increase dose by 2-4 units as often as every three days until glycaemic targets met.
- Targets: morning fasting glucose of <6 mmol/L or non-fasting glucose levesl <8 mmol/L.
- Isophane insulin (Protaphane Innolet) may be considered as an alternative, discuss with Regional Physicians.

EXENATIDE

Exenatide can be considered as an alternative second line agent in patients with BMI >25 and normal renal function who are willing to consider bd subcutaneous injections.

This agent can be used in combination with insulin, but doses of both agents need to be adjusted cautiously. Seek input from the Regional Physicians.

Before Starting:

Cease sitagliptin if commencing exenatide.

How to start:

- Commence at 5mcg daily, increase to 5mcg bd after 2-4 weeks if tolerated. Uptitrate in 5mcg intervals to total 10mcg bd. Review GI side effects before each uptitration.
- Monitor renal function.
- Advise patient before commencement to report abdominal pain. Check lipase and consider pancreatitis in this scenario.
- Consider alternative agents if ineffective at six months.

Follow up

3 monthly

Ask about medicines, symptoms of coronary artery disease (see CORONARY ARTERY DISEASE protocol), diet, smoking and exercise.

- Check weight, BP, waist circumference, feet (See foot care box).
- Pathology: HbA1c, UEC, LFTs, Urine ACR.

Annually

- Retinal screening, full foot check, ECG, lipids profile.
- Ensure influenza and pneumococcal vaccines are up to date.

Women of child bearing age

See DIABETES IN PREGNANCY PROTOCOL

If pregnancy is being contemplated:

- Aim for HbA1c <6% before conception.
- Commence folic acid 5mg daily (note higher dose).
- Pregnancy accelerates diabetic retinopathy. Conduct retinal screening if a normal screen has not been documented in last 12 months.

If pregnancy is not being contemplated:

- Ensure reliable form of contraception is being used.

Refer/ Discuss

Regional Physician Team

Ensure 3 monthly follow up investigations up to date at time of appointment.

- Inadequate control of diabetes despite maximum medication.
- Total dose of insulin 100 units/day without improved glycaemic control.
- Unexplained hypoglycaemic episodes, multiple complications and/or comorbidities.
- Any questions about exenatide.

Renal Physician

- eGFR <30 mmol/min (see CHRONIC KIDNEY DISEASE PROTOCOL)
- ACR >100mg/mmol (see PROTEINURIA and eGFR > 60 PROTOCOL)

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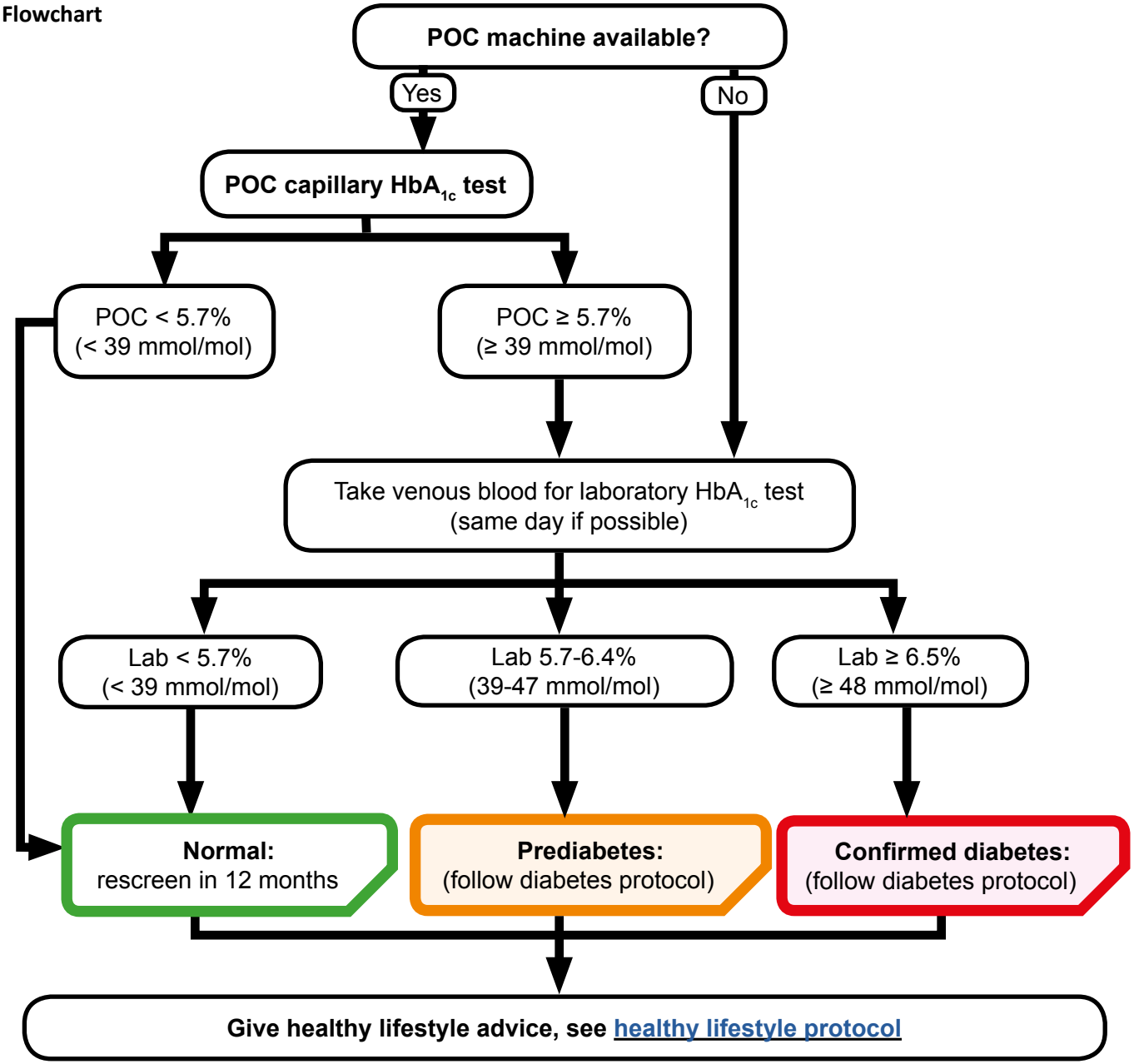
Flowchart



FOOT CARE

Perform foot examination at baseline and annually, and stratify according to risk as below. If LOW risk – examine annually (does NOT need to see podiatrist). If HIGH risk – examine 3 monthly AND refer to see podiatrist annually.

	LOW RISK (ALL OF)	HIGH RISK (ANY OF)
Pedal Pulses	Present	Absent
Sensation (with monofilament)	Present	Absent
Callus	Absent	Present
Ulcer(s)	Absent	Present (or Hx of)
Foot deformity / Amputation	Absent	Present