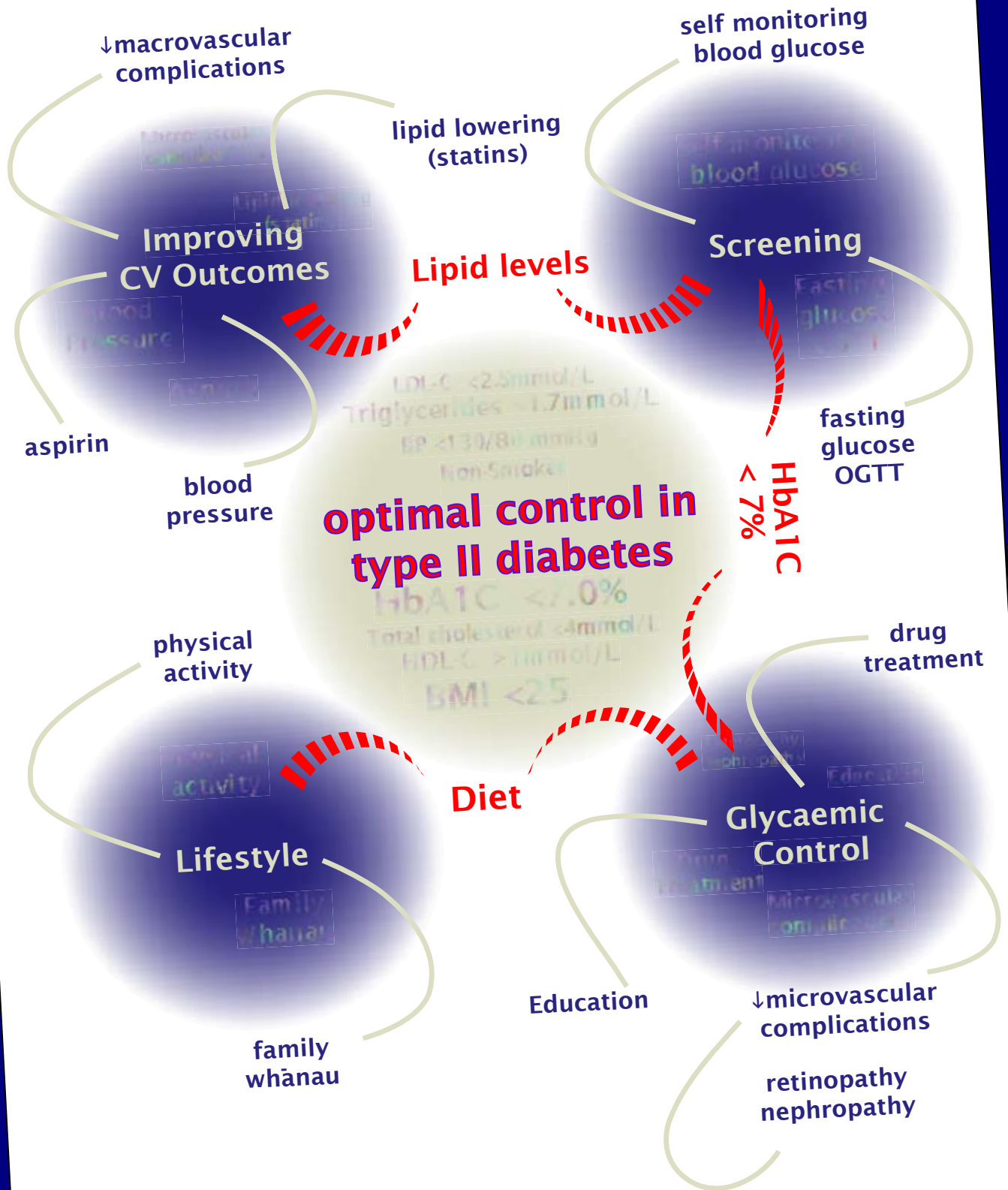


# Diabetes Reminder



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## Key messages from the diabetes campaign

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- Patients with type 2 diabetes require aggressive management of hyperglycaemia to delay the onset and progression of microvascular complications including retinopathy and nephropathy. Together with aggressive management of cardiovascular risk factors this will also reduce their high risk of macrovascular complications such as ischaemic heart disease, stroke and peripheral vascular disease.
- Targets should be set for individual patients. Optimal control for patients with type 2 diabetes can be defined by the following parameters but not everyone can expect to achieve these.

Parameter	Optimal control
HbA <sub>1c</sub>	<7.0%
Total Cholesterol	< 4 mmol/L
TC:HDL Ratio	< 4.5
HDL-C	≥1 mmol/L
LDL-C	<2.5 mmol/L
Triglycerides	<1.7 mmol/L
Systolic BP	<130 mmHg
Diastolic BP	<80 mmHg
BMI	<25
Waist circumference	<88 cm for women <102 cm for men
Smoking status	Non-smoker

Based on NZ Guidelines. Management of Type 2 Diabetes. December 2003.

- Metformin is the first line oral anti-diabetic agent for most people with type 2 diabetes.
- Most patients with type 2 diabetes who cannot maintain an HbA<sub>1c</sub> of less than 7.0% with lifestyle modification and oral medication will benefit from the introduction of insulin. In elderly patients with no signs of microvascular disease less aggressive glycaemic control may be acceptable.

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## The progression to insulin

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1. Lifestyle modification
2. Add metformin
3. Increase to maximum tolerated dose
4. Add sulphonylurea
5. Increase to maximum tolerated dose
6. Stop sulphonylurea and add insulin

Most people with type-2 diabetes can expect to be taking insulin within about 15 years.

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## How to initiate insulin

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1. Stop the sulphonylurea and immediately start with twice daily isophane insulin with a rule-of-thumb dose of 12 units in the morning and 8 units in the evening, 20-30 minutes before breakfast or the evening meal.
2. If the person is on metformin, continue the metformin while insulin is initiated.
3. The arbitrary starting dose of insulin can be adjusted up or down based on the size and age of the patient. The dose can be rapidly increased (exceptionally rarely, if necessary, decreased) on the basis of blood glucose testing. The dosage can be adjusted every couple of days or even the next day and the patient switched to an insulin mixture (e.g. PenMix<sup>®</sup> 20 or PenMix<sup>®</sup> 30) if blood glucose levels appear to be particularly high before lunch or before going to bed.
4. This approach is not associated with significant problems of hypoglycaemia, nor is there a deterioration of overall glycaemic control as a result of stopping the sulphonylurea.

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## Contraindications to metformin therapy

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- Known hypersensitivity to metformin.
- Renal insufficiency\*- Dose reduction based on creatinine clearance:
  - 60-90 mL/min, maximum 2g per day
  - 30-60 mL/min, maximum 1g per day
  - < 30 mL/min, avoid metformin
  - Stop metformin if serum creatinine is  $\geq 0.15$  mmol/L (arbitrary cut off point)
- Significant liver disease e.g. significant fibrosis or cirrhosis as diagnosed by biopsy or other tests.
- Congestive heart failure (relative contraindication).
- Acute haemodynamic compromise or hypoxic states.
- Dehydration with the potential to cause significant renal dysfunction.
- Acute or chronic metabolic acidosis, including diabetic ketoacidosis.
- Use of iodinated contrast for radiological examinations (withdraw on the day of and for 48 hours after the procedure; restart once normal renal function is documented).

\*Calculation of creatinine clearance is recommended when using metformin, particularly in the elderly, since serum creatinine may be a poor indicator of actual renal function in this age group.

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## Self-monitoring of blood glucose in non-insulin type-2 diabetes

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- People with diabetes controlled by lifestyle alone or lifestyle modification plus metformin are not at increased risk of hypoglycaemia (BNF, 2004).
- HbA<sub>1c</sub> (3-6 monthly) is a better measure of glycaemic control than self-monitoring of blood glucose (SMBG).
- Higher frequency SMBG is not associated with better metabolic control of non-insulin treated type 2 diabetes and is related to higher degrees of distress, worry and depressive symptoms (Franciosi, 2001).
- The benefit of SMBG probably lies in its effect as an educational modality and the increased staff attention patients receive (Schweddes, 2002).

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## Recommendation for self-monitoring of blood glucose

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bpac<sup>nz</sup> recommends that people with type-2 diabetes who are taking no medication, or only metformin, do not require regular self-monitoring of blood glucose (SMBG). SMBG can be useful as part of an educational strategy to reinforce the value of interventions such as exercise, dietary modification or the introduction of medications. It is changes in target behaviour which are the endpoint not the SMBG in itself.

### References

Franciosi M et al. The impact of blood glucose self-monitoring on metabolic control and quality of life in type 2 diabetic patients. *Diabetes Care*, 2001. 24;11(1870-77)

Schweddes et al. Meal-related structured self-monitoring of blood glucose. *Diabetes Care*, 2002. 25;11(1928-32)

BNF (49). March 2005. Available on [www.bnf.org/bnf](http://www.bnf.org/bnf)

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