health **technology** assessment

EXECUTIVE SUMMARY

MANAGEMENT OF DIABETES MELLITUS FOR MICROALBUMINURIA IN DIABETES

INTRODUCTION

Diabetes mellitus is a group of metabolic diseases characterized by hyperglycemia resulting from defects in insulin secretion, insulin action, or both. The resulting build up of glucose in the blood cans a range of diabetic complications, including macrovaskular and macrovaskular complications. The symptoms of marked hyperglycemia include polyuria, polydypsia, weight loss, sometimes with polyphagia, and blurred vision. Impairment of growth and susceptibility to certain infections may also accompany chronic hyperglycemia. The acute, life-threatening consequences of diabetes are hyperglycemia with ketoacidosis or the nonketotic hyperosmolar syndrome. There are two types of diabetes which are Type 1 diabetes and Type 2 diabetes. There are also other specific types of diabetes, which is caused by genetic defects of the ß-cell. The chronic hyperglycemia of diabetes is associated with long-term damage, dysfunction, and failure of various organs, especially the eyes, kidneys, nerves, heart, and blood vessels. People with Diabetes mellitus (DM) have a continuing need for preventive care and hospital treatment and the health service costs for DM is substantial.

OBJECTIVES

This assessment determines the effectiveness, safety and cost implications of management of diabetes mellitus; and cost implications of screening for microalbuminuria in diabetics.

RESULTS

Oral drug

The results from the assessment showed that among the oral drugs, there is good evidence of safety and effectiveness of Glimepiride, Metformin, Acarbose, Repaglinide, Rosiglitazone in NIDDM patients. In adequately controlled NIDDM patients, there is sufficient evidence that combination therapy is safe and effective.

Insulin

There is sufficient evidence of safety and effectiveness of insulin aspart, insulin detemir, insulin glargine , and insulin lispro.Wilth respect to inhaled and oral insulin, there is inconclusive evidence of safety and effectiveness.

Diet and exercise

There is sufficient evidence that diet control and exercise are important in both the prevention and treatment of type 2 diabetes.

Monitoring

There is inconclusive evidence that self-monitoring of diabetes mellitus improves glucose control in type 1 and type 2 diabetes. There is sufficient evidence that Glycated serum haemoglobin (HbA1c) is effective for monitoring blood glucose control in diabetes, while there is some evidence that near patient HbA1c is effective in inpatient care. There is

inconclusive evidence on the benefits of fructosamine testing, and insufficient evidence on the benefits of fasting plasma glucose testing.

Cost
With respect to costs, there is evidence that intensive glucose control is cost effective.

Microalbuminuria
There is good evidence that all diabetics need to be screened for microalbuminuria. While a timed urinary albumin excretion rate overnight or over a 24 hour period is most sensitive, random sample testing using a dipstick (spot urinary albumin concentration) or albumin: creatinine ratio are found to be more convenient. There is some evidence that the newer screening test kits are effective.

RECOMMENDATIONM
The recommendation from the assessment is that for treatment of NIDDM patients oral drugs like Glimepiride, Metformin, Acarbose, Repaglinide, Rosoglitazone are recommended either singly or in combination. For IDDM, insulin aspart , insulin detemir, insulin glargine, and insulin lispro are recommended. Diet control and exercise of recommended for all diabetics. Self monitoring of diabetes using HbA1c is recommended for all patients despite the lack of evidence on improvement in glucose control due to other benefits of monitoring. Screening for microalbuminuria is recommended for all diabetics either by spot albumin concentration or by albumin: creatinine ratio testing.