# UNIVERSITI TEKNOLOGI MARA

# RELATION BETWEEN SEX, AGE AND RACES IN THE MEASUREMENT LEVEL OF $HBA_{1c}$ AMONG DIABETIC PATIENTS IN HOSPITAL PAKAR SULTANAH FATIMAH

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## ABSTRACT

### Relation between Sex, Age and Races in the Measurement Level of $Hba_{1c}$ Among Diabetic Patients In Hospital Pakar Sultanah Fatimah

The aim of the present study was to find the factors that cause different measurement in $HbA_{1C}$ level among diabetic patients in Hospital Pakar Sultanah Aminah. $HbA_{1c}$ is a test to measure the level of glycohaemoglobin in body. $HbA_{1C}$ has been a 'gold standard' in diagnosing diabetes patients and it also has been used in monitoring an effectiveness of treatment on diabetic patients. Besides that, $HbA_{1C}$ can measure level of blood glucose from previous 3 month.

Data from January 2014 until March 2014 were collected and analysed into ages, genders, races and medical condition or disease. Then, by using documentation audit from excel, comparisons between all the data were made by divide each of the factor into three level of $HbA_{1C}$ which normal (<6.0%), pre-diabetes (<7.0%) and diabetes (≥8.0%). There have significant differences between each factor.

From this study, a significant difference can be finding in $HbA_{1C}$ level between ages, races, gender and medical condition of the diabetic patients. Those factors may cause measurement of $HbA_{1C}$ level become unreliable. So, all this factors should be looking first before measurement of $HbA_{1C}$ level is done on patients.



Key words: Relationship, Factors, Difference, $HbA_{1C}$ level, Age, Genders, Races, Medical condition, Disease, Hospital Pakar Sultanah Fatimah, Glycohaemoglobin

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# CHAPTER 1

# INTRODUCTION

## 1.1 Background of the Study

Nowadays patient with diabetes have been increase from years to years. This have been approve by World Health Organization (WHO) as citied in Journal of Diabetes & Metabolic Disorders, the prevalence of diabetic patient in the world will increase from 4% in 1995 to 5.4% in 2025 and the population of diabetic in the world will increase 122%, from 132 million in 1995 to 300 million in 2025 (Ali Reza, 2013). According to World Health Organization (WHO), about 347 million people worldwide have diabetes. In 2004, an estimated 3.4 million people died from consequences of high fasting blood sugar (WHO, 2013). Based on data reported by International Diabetes Federation (IDF), in Malaysia, diabetic cases age range from 20-79 years old was 18,919.4 thousand people in 2013 (IDF Diabetes Atlas, 2013).

Therapy for person with diabetes requires a long-term maintenance of a blood glucose level as close as possible to a normal level. A single fasting blood glucose measurement is an indication of the patient's immediate past condition (hours), but may not represent the true status of blood glucose regulation. This is measured using a fasting plasma glucose test which can be carried out using blood taken from a finger or can be taken from a blood sample from the arm. However, fasting glucose tests provide an indication of your current glucose level only, whereas the $HbA_{1C}$ test serves as an overall marker of what your average levels are over a period of 3 months. The measurement of haemoglobin $A_{1C}$ ($HbA_{1C}$) every three months has been accepted as a measure of glycaemic control in the care and treatment of patients with diabetes mellitus.

HbA1c is a test for determination of plasma glucose concentration in our body. Average plasma glucose concentration over prolonged periods of time can be identified primarily by using HbA1c which is a form of haemoglobin (P. Heather, 2014). When our body process sugar, glucose in the bloodstream