

**UNIVERSITI TEKNOLOGI MARA**

**SURVEILLANCE OF CONSUMPTION PATTERN  
OF ANTIHYPERGLYCAEMIC AGENTS IN  
OUTPATIENT PHARMACY DEPARTMENT,  
HOSPITAL TENGKU AMPUAN RAHIMAH, KLANG**

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**Dissertation submitted in partial fulfillment of the requirements for the  
Bachelor of Pharmacy (Hons)**

**Faculty of Pharmacy**

**November 2009**

## ACKNOWLEDGEMENT

First and foremost, I would like to express my deepest gratitude to Allah, the almighty who gives me health, strength, ability to live and gained precious knowledge and experience.

I am most grateful to my supervisor, Dr Nahlah Elkudssiah, Ismail for spending a lot of her time giving me advice, knowledge, support, and guiding numerous improvements in this research until completion. Also sincere thanks to Mr. Sulaiman Haji Ahmad, Head of Pharmacy, HTAR for his generous help. His opinion and guidance were very much appreciated. Thank you to Clinical Research Centre (CRC), Hospital Tengku Ampuan Rahimah (HTAR) for the approval of conducting this research.

Acknowledgements are also made to Ms. Thimarul Huda Mat Nuri (Pharmacist) and all the pharmacists and staff of Store Pharmacy Department and Outpatient Pharmacy Department, Hospital Tengku Ampuan Rahimah (HTAR), Klang, for their excellent guidance. Thanks to Azilea Ghazalli for helping me throughout this study.

Not to forget also gratefully acknowledge all contributions and guidance from my fellow colleagues who always support, guide and unfailing in assisting me throughout this project. To my family members whom I love very much, with unfailing loyal support, constant source of encouragement and understanding, without them I could not complete this assignment. All contribution is gratefully recognized. Thank you very much.

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## ABSTRACT

Nowadays, diabetes mellitus is one of the most common health problems affecting Malaysian populations. The prevalence of diabetes mellitus is increasing in time. Thus, this will lead to an increment of consumption of antidiabetic agents. The main aim of this study was to assess the consumption pattern of antidiabetic agents that were prescribed in Hospital Tengku Ampuan Rahimah (HTAR), Klang. Since HTAR is still using manual written prescription, this may correlate with high incidence of prescription errors which were also determined in this study. The study was conducted retrospectively at Outpatient Pharmacy Department (OPD), HTAR, Klang. The prescriptions from August 2008 to January 2009 were screened in order to select the prescriptions with at least one type of antidiabetic agent. The patients' demographic data include gender, race and age were recorded in order to determine the general prevalence of diabetes mellitus within the study population. The data regarding drugs include the dose, frequency, duration and dosage form were also being recorded. The data were separated into two groups that were oral antidiabetic agents (OADs) and insulin preparations. Besides, the price of every drug was calculated in order to estimate the expenditure spent by OPD, HTAR within the respective duration. For prescription errors, two broad categories were analyzed include incomplete prescriptions (dose, frequency, duration, signature, date, patients' profile) and inappropriate regimen (medication, frequency, dose duration). The total number of prescriptions contained antidiabetic agents within six months was 4070 prescriptions. Diabetes was highly diagnosed in Indians, followed by Malays, Chinese and other races. Diabetes was more common in men compared to women. According to the data collected, the trend of prescribing insulin preparations showed a higher percentage (58%) compared to OADs (42%). For insulin preparations, pre-mixed insulin was the most frequently prescribed, followed by rapid acting insulin, intermediate acting insulin and long acting insulin. For OADs, the physicians prefer to prescribe metformin, followed by sulfonylureas,  $\alpha$ -glucosidase inhibitors (AGI) and combination of metformin and gliclazide. The expenditure for OADs and insulin preparations were RM 56 758.99 and RM 126 043.18, respectively. The study also demonstrated that the DDD for antidiabetic agents at OPD HTAR showed parallel values as reported by Malaysian Statistics in Medicine in 3 consecutive reported years. Most of the prescription errors were due to incomplete information regarding to age of patients. Further study is suggested to be conducted in longer duration at diabetic clinics in different hospitals.



# CHAPTER 1

## INTRODUCTION

### 1.1 Background

Nowadays, diabetes mellitus is one of the chronic diseases that is growing in prevalence worldwide (Zimmet et al, 2001). The prevalence and morbidity associated with diabetes mellitus continued to increase in the United States and elsewhere (Engelgau et al, 2004). The World Health Organization (WHO) estimated that 120 to 140 million people are suffering from diabetes worldwide (Sherng, 2003).

WHO recognizes 2 major clinical forms, namely Insulin-Dependent Diabetes Mellitus (IDDM) (Type 1) and Non-Insulin-Dependent Diabetes Mellitus (NIDDM) (Type 2). About 90% of all cases of diabetes in developed and developing countries were NIDDM, primarily found in adults more than 30 years of age (Bakri, 2007).

Prevalence of diabetes mellitus in Malaysia, both of Type 1 and especially that of Type 2, has increased to epidemic proportions. In general, in 1960, prevalence was reported to be only 0.650% and in the early 1980s, 3% (range 2% to 4%). Then, surveys in the mid-1990s