

**UNIVERSITI TEKNOLOGI MARA**

**DRUG UTILIZATION EVALUATION OF  
ANTIHYPERTENSIVE DRUG ANGIOTENSIN-  
CONVERTING ENZYME (ACE) INHIBITORS IN PRIMARY  
HEALTHCARE SETTING**

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## ABSTRACT

**Background:** Drug utilizations evaluations are conducted to evaluate the appropriateness of drugs being prescribed with importance in population perspective so as to improve individual's quality of drug use, treatment guidelines development, and national drug policies development. The rationality use of the drug is the primary goal of the evaluation thus contributes to prescription of a well-documented optimal drug dose with correct information and at an affordable price. From the Fourth National Health and Morbidity Survey (NHMS IV) in 2011, Malaysia is seen facing increasing prevalence of lifestyle-related diseases and hypertension is one the most common disease in Malaysian population.

**Objective:** To describe the utilization of ACE inhibitor drugs in a primary health care setting of PKD Klang, Selangor.

**Method:** A retrospective medical records review study was conducted in health clinics in Selangor. Each ACE inhibitor drugs were classified based on the anatomical therapeutic classification (ATC) code. Define daily dose (DDD) per 1,000 inhabitants per day calculated to provide rough estimation of adult and geriatric population receiving standard treatment on a daily basis. Malaysian CPG on the Management of hypertension 2013, Ministry of Health was referred to evaluate the quality of prescribing. The DDD was compared between drugs and between ACE inhibitor drugs with respect to the patient's characteristics.

**Result** The study sample with total of 589 patients are subdivided into two disease groups which are hypertension alone and hypertension with diabetes. Total of 287 patients were classified under Hypertension alone and the remainder of 302 patients are in hypertension with diabetes group. Majority of hypertensive patients and hypertensive with diabetes patients are prescribed with Perindopril (93.03%). In hypertension alone, female (46.7%) Malay (41.46%) patients have higher number of patients taking perindopril. Hypertensive patients with diabetes consist of female patients (55.3%), Malay (41.4%) and taking oral hypoglycemic drug (65.89%) are the majority for Perindopril prescription. Further analysis on antihypertensive drugs' utilization pattern in relation with DDD and CPG was found both Perindopril and Enalapril were prescribed in accordance to Malaysian Hypertension CPG but not accordance to DDD recommended by WHO.

**Conclusion:** In the management of hypertension, the ideality of ACE inhibitor drugs must be efficacious, have lowest possible side effects, affordable and preventable to any complications. The main target in management of hypertension is the reduction of blood pressure as to develop benefits in hypertensive population regardless of which class of hypertensive drugs being used.

**Keywords:** Drug utilization review, Angiotensin-converting Enzyme Inhibitors, Hypertension, Define daily dose

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## TABLE OF CONTENT

<b>APPROVAL SHEET .....</b>	<b>i</b>
<b>ABSTRACT .....</b>	<b>ii</b>
<b>ACKNOWLEDGEMENT .....</b>	<b>iii</b>
<b>TABLE OF CONTENT .....</b>	<b>iv</b>
<b>LIST OF TABLES .....</b>	<b>vii</b>
<b>LIST OF FIGURES .....</b>	<b>ix</b>
<b>LIST OF ABBREVIATIONS.....</b>	<b>x</b>
<b>CHAPTER 1 .....</b>	<b>1</b>
<b>1.0 INTRODUCTION .....</b>	<b>1</b>
1.1 Background .....	1
1.2 Problem statement .....	7
1.3 Objectives .....	7
1.4 Research Question .....	8
1.5 Significant of Study .....	8
1.6 Rational / Aims of the study .....	8
<b>CHAPTER 2 .....</b>	<b>9</b>
<b>2.0 LITERATURE REVIEW .....</b>	<b>9</b>
2.1 Drug Utilization Review .....	9

## **CHAPTER 1**

### **1.0 INTRODUCTION**

#### **1.1 Background**

##### **Drug Utilization Research**

The definition of drug utilization research is the marketing, distribution, prescription, and use of drugs in a society, with importance consequences on the resulting medical, social and economic (WHO, 2003). Pharmacoepidemiology is the study of the uses and effects of drugs in a community of people (Brian L. Strom, 2006). Pharmacoepidemiology has evolved in post-marketing and new drugs use and effectiveness studies such as prescribing patterns and variations in particular health care facility and strategies of drug use improvement. These extended applications that apply the population perspective to improve rational drug therapy have enhanced the impact of the field, and include studies of drug utilization, evaluating and improving physician prescribing, the development of treatment guidelines, drug utilization review, risk management, and the development of national drug policies (Kongpatanakul, Brian L. Strom, 2008). The health outcomes of drug use in everyday practice are not as promising as the health outcomes of the drug use in the rigorous setting of randomized clinical trials cause a concern as the clinical trials since it only involves limited numbers of carefully selected patients, who are treated and followed-up for a relatively short time in strictly controlled conditions as a requirement to obtain marketing authorization for new drugs. Thus, in drug utilization research, it applies epidemiological methods to studies of