

**UNIVERSITI TEKNOLOGI MARA**

**UTILIZATION OF  
ANTIHYPERTENSIVE DRUGS IN  
PRIMARY HEALTHCARE SETTING**

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Dissertation submitted in partial fulfilment of the  
requirement for the degree of  
**Master in Pharmacy Practice**

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## CONFIRMATION BY PANEL OF EXAMINERS

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I declare that the work in this dissertation was carried out in accordance with the regulations of University Technology MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledge as referenced work. This dissertation has not been submitted to any other academic institution or non-academic institution for any degree of qualification.

I, hereby, acknowledge that I have been supplied with Academic Rules and Regulations for Post Graduate, University Technology MARA, regulating the conduct of my study and research.

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## ABSTRACT

**Background** : Drug utilization studies evaluate the appropriateness of drug prescribing, giving much input in strategic planning to improve the quality of drug use, improvement of treatment guidelines, and development of national drug. The ultimate goal of drug utilization research is to assess whether the drug therapy is rational or not. As Malaysia becomes more prosperous, new epidemics of diseases and emerging health risk conditions is often a concern. From the Fourth National Health and Morbidity Survey (NHMS IV) in 2011, Malaysia is seen facing increasing prevalence of lifestyle-related diseases. One of it is hypertension or high blood pressure policy. The overall (known or newly diagnosed hypertension and unknown hypertension) prevalence of hypertension, which carried out in 2011 was 32.7% among adults more than 18 years of age. It has slightly increased about 1.6% from 2006 which was 32.2%

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

**Method** : This was a retrospective medical records review study, which conducted in health clinics in Selangor. The utilised medications were reviewed and identified from electronic Clinic Management System (e-CMS) from 1 January 2013 until 31 December 2013. Each medication was 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 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 clinics with respect to the prescribers and the patient's characteristics.

**Result** : 608 patients were selected and 58.1% were females ( $p=0.681$ ). Those from age range 46 to 60 years old, was the highest contributed to the study (78.9%), with mean age of  $50.45 \pm 7.69$  ( $p=0.428$ ). The proportion of Malays and Indians were similar, were constitutes 81.0% of total patients. The mean difference between systolic and diastolic were statistically significant ( $p=0.000$ ),  $138.43 \pm 17.9$  and  $83.63 \pm 10.3$  respectively. This study found that marked increase of Perindopril 4mg, Atenolol 100mg, Amlodipine 10mg and Hydrochlorothiazide 50mg procurement in 2013 compared to 2011. From the data analysis, the total estimated cost of overstocking was RM430,991.17. Perindopril 4mg accounted for 27% of this amount. In term of DDD, it was found that the top five most utilized antihypertensive drugs were Amlodipine with 2.87 DDD, followed by Perindopril (1.83), Atenolol (0.55), Hydrochlorothiazide (0.54) and Enalapril (0.12). Further analysis on antihypertensive drugs' utilization pattern inrelation with DDD and CPG was found that five drugs were prescribed in accordance to Malaysian CPG (100%) but not on DDD. This study had shown that 48% of hypertensive

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