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**NON-COMMUNICABLE DISEASE PROGRAM IN AMPANGAN HEALTH CLINIC**

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**ABSTRACT**

Non-communicable diseases (NCDs) represent among the most common and debilitating conditions seen in primary care. Patients' care will often involve multiple providers and follow-up requires persistence by patients and clinicians alike, therefore ideal outcomes are often difficult to achieve. The need for better disease management policies and practice is growing. This is due to the changing demographic profile of the population, the increasing cost of managing people in acute care hospitals and the availability of new technologies and services. All these changes enable a different care paradigm which is more cost effective and provides people with chronic conditions an improved quality of life. Management of the NCDs therefore offers an excellent opportunity to practice chronic disease management - a systems approach designed to ensure excellent care. The NCD team has developed a comprehensive approach to chronic disease care. We would like to describe the NCD Program in Ampangan Health Clinic which represents many typical government health clinics in Malaysia and the processes by which it was developed. Included are specific examples of the tools and how they can be used by individual clinicians in caring for patients. The integration of Chronic Disease Management Services into health care systems is the direction being undertaken to tackle the burden of chronic disease. Disease management supports the shift in healthcare from an emphasis on managing the acute episode to managing the entire disease course, highlighting both prevention and maintenance of wellbeing for patients with chronic diseases. Disease management promotes better integration and coordination of care across all aspects of the health sector.

**Keyword:** Non-communicable disease.

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**INTRODUCTION**

Non-communicable diseases (NCD) are usually thought of as chronic conditions that do not result from an acute infectious process. These conditions cause death, dysfunction, or impairment in the quality of life, and they usually develop over relatively long periods—at first without causing symptoms; but after disease manifestations develop, there may be a protracted period of impaired health. Generally, these conditions or diseases result from prolonged exposure to causative agents, many associated with personal behaviours and environmental factors.<sup>1</sup> NCDs are the leading cause of functional impairment and death worldwide. The World Health Organization (WHO) in its 2005 report *Preventing Chronic Diseases: a Vital Investment* showed that the impact of chronic diseases worldwide, especially in the low and middle income countries is rising rapidly. This epidemiological change where non-communicable diseases such as heart disease, strokes, cancers, chronic respiratory diseases, diabetes and mental disorders accounted for 47% of the global burden of disease and 60% of all deaths. From a projected total of 58 million deaths from all causes in 2005, it was estimated that chronic

diseases accounted for 35 million, which is double the number of deaths from all infectious diseases, maternal and perinatal conditions and nutritional deficiencies combined. It was also noted that about 80% of chronic disease deaths occurred in the low and middle income countries and 50% of these deaths occurred prematurely in people under 70 years of age. The WHO has proposed a global goal with a target of an additional 2% annual reduction in projected chronic disease death rates between 2005 and 2015.<sup>2,3</sup>

Similarly in Malaysia, the non-communicable diseases burden is increasing.<sup>4,5</sup> NCD is among the 10 top leading causes of morbidity and mortality. The results of the National Health Morbidity Survey III (NHMS III) in 2006 showed that prevalence of Hypertension and Diabetes has increased significantly i.e. prevalence of known diabetes and hypertension among adult above 30 years old was 14.9% and 42.6% respectively.<sup>5,6</sup>

**Chronic Disease Management**

Chronic disease management (CDM) is a systematic approach to coordinating health care interventions across levels (individual, organizational, local and national), and good

evidence indicates that such co-ordination across care settings and providers is more effective than single or uncoordinated interventions. Disease management programmes organize care in multi-disciplinary programmes with many components, using a proactive approach that focuses on the whole course of a chronic disease.<sup>7,8</sup>

The integration of Disease Management Services into health care systems is the direction being undertaken globally to tackle the burden of chronic disease. Disease management supports the shift in healthcare from an emphasis on managing the acute episode to managing the entire disease course, highlighting both prevention and maintenance of wellbeing for patients with chronic diseases. Disease management promotes better integration and coordination of care across all aspects of the health sector. Ministry of Health (MOH) and state governments have contributed to chronic disease management policy and funding of services.

## METHODOLOGY

### Disease management

Ampangan Health Clinic (HC) is one of the main outpatient clinics in Seremban District, Negeri Sembilan. This clinic also provides Maternal and Child Health Clinic and Dental Health Services. Support services include Pharmacy, Laboratory and Diagnostic Imaging and emergency services. The total number of out-patients seen at this clinic in the year 2009 is approximately 125,000.

The non-communicable disease (NCD) Program in Ampangan HC was established with the main objective to provide multidisciplinary care for patients with chronic diseases - namely hypertension, diabetes, dyslipidaemia and cardiovascular diseases. The disease management program is based on the principal of Chronic Care Model. The centre is manned by a multidisciplinary team consisted of Family Medicine Specialist, Medical Officers, Nurse Educators, Pharmacists and a visiting Dietitian. Up-grading of infrastructures and provision of equipments needed for chronic disease management was also done. We provide disease management services to promote programs, which improve outcomes and quality of life and reduce acute health care utilizations and costs in patients with chronic conditions.

## ACTIVITIES

### 1. Health Screening

Cardiovascular/Diabetes screening program:

- Opportunistic screening: Every individual who is attending the outpatient department has opportunity to assess himself/herself for screening purposes.

- Selective screening: Screening done selectively by Doctor and Assistant Medical Officers according to high risk categories.
- Health camp: Screening program in the community e.g. in the community hall, schools and any public events.

### 2. Non-Communicable Disease Clinic

The NCD clinic runs every day and the patients' attendances are through an appointment system. Diabetes record and home based cards have been introduced. The Nurse Educator assesses requirement for the patients before patient see the doctor. The fundus examination scheduled everyday using digital fundus camera. The team emphasize on treatment to target and monitoring of patients following the Malaysian Clinical Practice Guidelines.<sup>9-12</sup>

### 3. Disease Registry

It was started manually by recording into a registry book then an on-line diabetes registry was introduced.<sup>13</sup> Registry is important for service planning, monitor performances and disease trending etc.

### 4. Resource Centre

A Resource Centre was established with objective to empower patients to be more active in controlling their disease and quality of life. Activities in the Resource Centre:

- Foot assessment and foot care.
- Distributing health education pamphlets according to patient's need.
- Individual counselling and Group Education.
- Procurement for Home Blood Glucose Monitoring apparatus.
- Diabetes Camp.

### 5. Monitoring

Regular audit and Quality Assurance Program of Diabetes Management conducted annually. This is importance to identify areas of weaknesses and ensure program monitoring and remedial measures conducted continuously.

## OUTCOME

The NCD program has proved to be a successful venture in its effort to improve its service to the patients. The programs need to be strengthened to further improve the quality of services.

The number of patients' undergone cardiovascular screening has increased every year. The screening program enables

early diagnosis and intervention for people with NCD risk factors.<sup>14</sup> (Table 1)

**Table 1: Cardiovascular screening program in Ampangan Health Clinic**

	2004	2005	2006	2007	2008	2009
HPT	103	156	187	182	186	398
DM	43	63	51	39	63	301
Dyslipidemia	247	455	540	352	560	733
Smoking	112	100	150	106	87	76
Obesity	138	187	196	532	556	741
<b>Total</b>	<b>611</b>	<b>743</b>	<b>873</b>	<b>837</b>	<b>1120</b>	<b>1425</b>

**Status of glycaemic control among patients in Ampangan Health Clinic**

Following were the results of glycaemic control among the patients (Table 2). The number of HbA<sub>1c</sub> test has increased every year and percentages of patients with HbA<sub>1c</sub> <6.5% also improving.<sup>14</sup> About 21.7% of diabetes patients achieved HbA<sub>1c</sub> <6.5%. In a survey conducted by the Institute of Health Management Malaysia, it was found that glycaemic control among diabetes patients achieving HbA<sub>1c</sub> <6.5% was about 16.6%.<sup>15</sup>

**Table 2: Distribution of HbA<sub>1c</sub> among diabetes patients in Ampangan Health Clinic**

Year	Number HbA <sub>1c</sub> Done	Normal < 6.5% (%)	Abnormal 6.6-7.5% (%)	Abnormal >7.5% (%)
2006	2074	235 (11.3)	497 (24.0)	1342 (64.7)
2007	2766	402 (14.5)	673 (24.3)	1691 (61.1)
2008	3931	767 (19.5)	938 (23.9)	2226 (56.6)
2009	4891	1058 (21.7)	1339 (27.4)	2494 (50.9)

**Collaboration of patient care with private general practitioners**

With the increasing number of patients with chronic diseases, it is becoming increasingly difficult for the public primary care clinic (Klinik Kesihatan) to provide optimal care. As of the year 2009, there were more than 5000 diabetes and 3500 hypertensive patients registered in Ampangan HC. The standard of care has slightly increased over the years however our audit data showed that glycaemic control among the diabetes patients were still poor i.e percentage of diabetes patients with HbA<sub>1c</sub> less than 6.5% was only 21.7%(data 2009).<sup>14</sup> Many of these patients prefer follow-up in the public clinics because of the long-term cost of medications and the need for regular monitoring for complications. However, for acute illnesses, they continue to see their own family physicians. Perhaps there is a case to promote shared care

between the GPs and the public clinics. For example, a diabetic patient may need only 1-2 visits a year in the public clinic for medical nutrition therapy, urine microalbumin, renal profile, HbA<sub>1c</sub>, fasting lipids and fundus photography and for the collection of chronic disease medications. In between, the family physicians can provide acute care and other monitoring (e.g. foot care) and dosage adjustment. For this to work, appropriate information sharing between these clinics is necessary, such as the use of a patient-held common chronic disease health record.

In group practices where the number of chronic disease patients is large enough, there is a need to invest in chronic disease management programme similar to what is being done in Ampangan HC. In view of the high initial financial investment, the authority should consider using fiscal measures (tax breaks) to promote the setting of CDM programme in the private setting.

**CONCLUSION**

The NCDs Programs in Ampangan HC has improved to cater the needs of the clients. The program hopefully ensured better quality of care and services. The challenges in implementing the program need to be handled continuously. The Quality Assurance Program will be continuously used as a measuring tool of service effectiveness.

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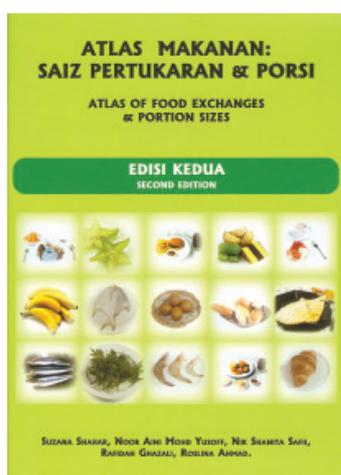
### *Addition of fenofibrate on top of statin in type 2 diabetes does not reduce risk of cardiovascular events*

#### **The ACCORD Study Group. Effects of combination lipid therapy in type 2 diabetes mellitus. *N Engl J Med.* 2010;362(17):1563-74.**

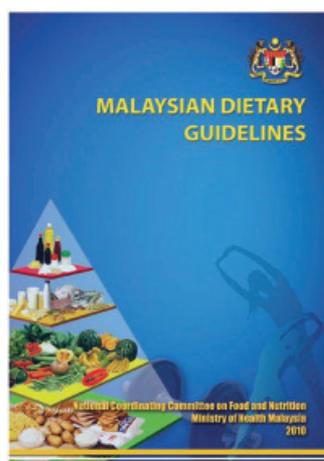
5518 patients with type 2 diabetes who were being treated with open-label simvastatin were randomized to receive either masked fenofibrate or placebo. The primary outcome was the first occurrence of non-fatal myocardial infarction, non-fatal stroke, or death from cardiovascular causes. The mean follow-up was 4.7 years. The annual rate of the primary outcome was 2.2% in the fenofibrate group and 2.4% in the placebo group (hazard ratio in the fenofibrate group, 0.92; 95%CI, 0.79 to 1.08; P=0.32). There were also no significant differences between the 2 study groups with respect to any secondary outcome.

#### *Useful dietary resources*

[1]



[2]



[1] Suzana S, Noor Aini MY, Nik Shanita S, *et al.* Atlas of Food Exchanges & Portion Sizes. Kuala Lumpur: MDC Publishers Sdn Bhd, 2010. [ISBN 967-70-1192-8, RM80 per copy]

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