

# An Audit of Diabetes Control and Management (ADCM)

I Mastura\*, H Zanariah\*\*, I Fatanah\*\*\*, M Feisul Idzwan\*\*\*, M Y Wan Shaariah\*\*\*\*, H Jamaiah\*\*\*\*\*, A Geeta\*\*\*\*\*

\*Kuala Pilah Health Clinic, 72000 Kuala Pilah, Negeri Sembilan, \*\*Medical Department, Hospital Putrajaya, Precint 7, 62250 Putrajaya, \*\*\*Non Communicable Department, Ministry of Health Malaysia, Parcel E, 62590 Putrajaya, \*\*\*\*Clinical Research Centre, Hospital Seremban, Jalan Rasah, 70300 Seremban, \*\*\*\*\*Clinical Research Centre, Hospital Kuala Lumpur, Jalan Pahang, 50586 Kuala Lumpur, Malaysia

## SUMMARY

Diabetes is a chronic condition that is one of the major causes of illness, disability, and death in Malaysia. Cost in managing diabetes plus indirect cost of lost work, pain, and suffering have all increased. The optimal management of patients with diabetes require the tracking of patients over time to monitor the progression of the disease, compliance with treatment, and preventive care. Diabetes care can be improved by standardizing access to, and improving the use of, clinical information. Access to timely, accurate and well-organized electronic data will improve the quality of care for patients with diabetes. Clinical Research Center convened an expert workshop to forecast how physicians, hospitals and clinics will employ clinical information technology (IT) applications to diabetes care over the next year. Workshop participants included experts from research organizations, government, and the IT vendor. This is a summary of the workshop organised for the purpose of the Audit of Diabetes Control and Management (ADCM) project. We hope to identify the gaps, if any, that exists in delivering diabetes care and to improve the quality of care. In future, we hope to develop an expansion of this project for the Adult Diabetes Registry that will be implemented for the whole country.

## KEY WORDS:

*Diabetes, Audit, Registry*

## INTRODUCTION

Diabetes mellitus (DM) is a serious debilitating and deadly disease causing significant mortality and morbidity globally. Worldwide, the number of diabetic patients was estimated to be 135 million in 1995, 154 million in 2000, and it is expected to reach 300 million in year 2025. The projected increase in the developed countries is 42% but in the developing countries like Malaysia, the increase is estimated to be 170%<sup>1</sup>.

In Malaysia, the reported prevalence First National Health and Morbidity Survey, NHMS of DM was 6.3% in 1986<sup>1</sup>, 8.2% in 1996 (NHMS 2)<sup>2</sup>, and in 2006 14.9% (NHMS 3)<sup>3</sup>. WHO estimated that in 2030, Malaysia would have a total number of 2.48 million diabetes (prevalence of 10.8%), compared to 0.94 million in 2000 (An increase of 164%)<sup>1</sup>.

As for diabetes management, a study in major government hospitals in Malaysia in 1997 showed that the majority of

patients had not been given adequate care. Only 10% had Alc measured, 22% had blood lipids measured and 30% had urine albumin checked<sup>4</sup>. A study in 2001 amongst general practitioners in Peninsular Malaysia showed that the majority of patients were not well controlled and had a high prevalence of complications. Only 20% had Alc of < 7%, 12.3% had total cholesterol of < 4.8 mmol/L and 44.1% had systolic blood pressure of <140 mmHg. Neuropathy was the most common complication (30.1%), followed by background retinopathy (23.5%), albuminuria (22.9%) and microalbuminuria (20.4%)<sup>5</sup>.

In another study in 2003, the majority of patients were still not satisfactorily controlled (59% had Alc > 7.0% and 82% had FPG > 6.1 mmol/L) and the majority also had poorly controlled hypertension (85% had BP > 130/80 mmHg) and dyslipidemia (68% had total cholesterol > 4.8% mmol/L). There was also a high prevalence of complications such as neuropathy (19.0%), albuminuria (15.7%) and background retinopathy (11.1%). As for lifestyle, 66.5% of the patients were either overweight or obese, and only 54.8% admitted to adhering to diabetic diet regularly and 38.9% exercised regularly. These factors could explain the poor control of diabetes in this study<sup>6</sup>.

There is growing interest in a more systematic approach to managing patients with diabetes. This interest is due to a greater awareness of the large gap that exists in delivering care that can prevent or delay many of the complications of diabetes. McGlynn *et al.* recently assessed gaps in care in a random sample of 6712 adults in 12 different metropolitan areas. Patient with chronic disease received only 56 percent of recommended care, while those with diabetes received only 45 percent of care known to reduce costly and debilitating complications<sup>7</sup>.

Diabetes is a major problem in this country and is predicted to become an even bigger problem. It is a matter for concern that diabetes care is far from satisfactory with the majority of patients not achieving the clinical goals and the rate of complications being still high. Serious and urgent efforts are required to address these issues; otherwise the nation will be burdened by patients suffering from diabetes and its complications.

New comprehensive approaches for chronic disease care-incorporating a variety of interventions such as case-management, physician feedback, clinical information

systems such as disease registries, adoption of clinical practice guidelines, and a focus on patient self-management skills were first developed many years ago. These comprehensive approaches to chronic care can be very effective in managing chronic disease including diabetes<sup>8,9</sup>.

#### OBJECTIVE

- (i) Determine the demographics of diabetic patients attending the MOH health clinics and hospital.
- (ii) Determine the diabetes sub-types and date of diagnosis.
- (iii) Determine diabetes control and clinical variables in the past one year.
- (iv) Determine diabetes management in term of pharmacological, non-pharmacological, concomitant and self monitoring.
- (v) Determine the diabetic complications workload in health clinics/hospitals.
- (vi) Determine the co-morbidities among diabetic patients.
- (vii) Stimulate and facilitate diabetic research activities using this database.

#### MATERIALS AND METHODS

##### *Study Design*

A multi-center observational cohort study.

##### *Patient Selection*

All patients 18 years and above with a confirmed diagnosis of diabetes mellitus at participating sites will be enrolled into the registry.

##### *Duration of Study*

The study is expected to start in middle 2008. Patients will be followed up according to the standard of care of each participating site.

##### *Location of Study*

Participating sites are from all government hospitals and all health clinics in the state of Negeri Sembilan and will later on be extended to other states in Malaysia. In future more centers are expected to participate.

##### *Data Collection*

All new diabetes mellitus patients will be registered on attendance at participating sites as well as existing patients on follow up may also be included in the registry. Datasets which are essential for data analysis are mandatory to be collected. All data on demographics, clinical information, complications, concomitant co-morbidity and management

details will be abstracted from patients' medical records by research assistants under supervision by site investigators. A copy of the case report form is attached.

The data will be stored on a web-based electronic case report form readily accessible to source data providers from the sites. Stringent information security policies will be implemented to maintain confidentiality.

##### *Data Analysis*

The characteristics of the study sample will be described using numbers and percentages for categorical variables or means with their standard deviations for continuous variables. The descriptive statistical pertaining to clinical practice, other clinical feature, treatment and outcome would be analyzed.

#### CONCLUSION

There is a consensus that a database on Diabetes Mellitus in the country will be compiled and assessed with a view towards understanding the results of treatment as well as to benchmark quality of care to be on par with that of international standards. This database ought to fill the gaps in information that has long been perceived no matter challenging the actual establishment taken. Thus, we urge all parties concerned to lend their full cooperation and sincere support behind this worthwhile and undertaking.

#### REFERENCES

1. International Diabetes Federation. Facts & figures: did you know? Available at <http://www.idf.org/home/index.cfm>.
2. Rugayah B. Diabetes mellitus among adults aged 30 years and above. Report of the Second National Health and Morbidity Survey (Vol. (9). Ministry of Health, Malaysia. 1990.
3. Chandran LR, Mohamad WB, Nazaimoon WM, Letchumanan GR, Zanariah H, Jamayah H, et al. Diabetes mellitus: Report of the 3rd Malaysia National Health Morbidity Survey 2006, NHMS III Conference. 8 - 10th Aug 2007, J.W. Marriot Hotel, Putrajaya.
4. Mustafa B, Mohammad WW. for the Diabetes Data Collection Project (Diabcare-Malaysia) Study Group. The current status of diabetes management in Malaysia. J ASEAN Fed Endo Soc 1998; 16(2 Suppl):1-13. J ASEAN Fed Endo Soc 1998; 16(Suppl 2): 1-13.
5. Mafauzy M. Diabetes control and complications in private primary healthcare in Malaysia. Med J Malaysia 2005; 60(2): 212-7.
6. Mafauzy M. Diabetes control and complication in public hospitals in Malaysia Med J Malaysia 2006; 61: 477-83.
7. McGlynn E. The Quality of Health Care Delivered to Adults in the United States. N Eng J Med Jun 26, 2003; 348: 2635-45.
8. Wagner E. Improving Chronic Disease Care: Translating Evidence into Action. Health Affairs (Millwood) 2001; 20: 64-78.
9. Bodenheimer T. Improving Primary Care for Patients with Chronic Illness: The Chronic Care Model, Part 2. JAMA October 16, 2002; 288(15): 1909-14.