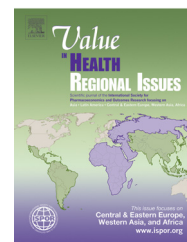




ELSEVIER

Available online at [www.sciencedirect.com](http://www.sciencedirect.com)

ScienceDirect

journal homepage: [www.elsevier.com/locate/vhri](http://www.elsevier.com/locate/vhri)

## Patterns of Care and Treatment Target Success among Persons with Type 2 Diabetes Mellitus in Dubai: A Retrospective Cohort Study

Katherine M. Osenenko, BSc<sup>1</sup>, Shelagh M. Szabo, MSc<sup>1</sup>, Lara Qatami, MBA<sup>2</sup>,  
Bonnie M. Korenblat Donato, PhD<sup>3</sup>, Abdulrazzak Ali Al Madani, MBChB<sup>4</sup>,  
Fatheya Fardallah Al Awadi, MBBS<sup>4</sup>, Jaber Al-Ansari, MD<sup>4</sup>, Ross Maclean, MD<sup>5</sup>, Adrian R. Levy, PhD<sup>6,\*</sup>

<sup>1</sup>ICON Epidemiology, Vancouver, BC, Canada; <sup>2</sup>Bristol-Myers Squibb, Dubai, UAE; <sup>3</sup>Bristol-Myers Squibb, Wallingford, CT, USA;

<sup>4</sup>Dubai Hospital, Dubai, UAE; <sup>5</sup>Precision Health Economics, Los Angeles, CA, USA; <sup>6</sup>Dalhousie University, Halifax, NS, Canada

### ABSTRACT

**Objectives:** Despite the high prevalence of type 2 diabetes mellitus (T2DM), few data exist describing its management in Dubai. This study characterized the treatment and estimated levels of glycemic, lipid, and blood pressure control among a sample with T2DM at a large Dubai Hospital. **Methods:** This retrospective cohort study systematically sampled charts from adults seeking care for T2DM from October 2009 to March 2010 until the target (N = 250) was reached. Data on patient characteristics, pharmacotherapy, complications, and laboratory testing were abstracted until September 2011. The frequency of treatments and modifications over the period was calculated, and measures of glycosylated hemoglobin A<sub>1c</sub>, low-density lipoprotein, and blood pressure control were compared with guideline targets. Frequencies of complications were compared according to treatment type. **Results:** One-third of the cohort comprised men, and the mean age was 58 years. At enrolment, the mean time from T2DM diagnosis was nearly 15 years and 74% had received

insulin. During the study period, the most common regimens were insulin + oral combinations (55%) and oral combination therapy (39%). Overall, 67% received any insulin therapy during the study; and by study end, 78% had received insulin at any time. At the most recent assessment, guideline targets for glycosylated hemoglobin A<sub>1c</sub>, blood pressure, and low-density lipoprotein were met by 23%, 29%, and 71%, respectively. Complications were more frequent among those treated with combination or insulin therapies. **Conclusions:** This study provides baseline data from Dubai for future comparisons of the effectiveness of new treatments, and to better understand the humanistic and economic burden of T2DM and its complications.

**Keywords:** diabetes, glycemic control, treatment, United Arab Emirates.

Copyright © 2015, International Society for Pharmacoeconomics and Outcomes Research (ISPOR). Published by Elsevier Inc.

### Introduction

Type 2 diabetes mellitus (T2DM) is a growing health problem worldwide, with incidence rates increasing in both developed and developing countries [1]. In the United Arab Emirates (UAE), the occurrence of T2DM has risen dramatically in recent years and its population now has among the highest prevalence of T2DM globally, with 19% to 25% of the population affected [2,3]. In addition to the enormous epidemiologic burden, the economic burden associated with the treatment and management of T2DM is substantial; it is estimated that 7% to 13% of global health care budgets will be spent on

managing diabetes and its complications by the year 2025 [1]. In countries with high prevalences, this figure may be as high as 40% [1].

A major contributor to the clinical and economic burden of T2DM is the management of its associated complications, both macrovascular (i.e., cardiovascular disease) and microvascular (i.e., retinopathy, nephropathy, neuropathy, and diabetic foot) [4]. The risk of developing macrovascular and microvascular complications is increased among persons with T2DM who have poor lipid, blood pressure, and in particular glycemic control [5]. Accordingly, meeting target levels on these measures, defined in both the American Diabetes Association (ADA) [5] and the UAE

Conflict of interest: K. M. Osenenko and S. M. Szabo are employees of ICON plc, a company contracted by Bristol-Myers Squibb (BMS) for this work. L. Qatami and B. M. Korenblat Donato are employees of BMS. A. A. Al Madani, F. F. Al Awadi, and J. AL-Ansari were consultants to BMS. R. Maclean was an employee of BMS at the time this work was undertaken. A. R. Levy acts as a consultant to ICON plc.

\* Address correspondence to: Adrian R. Levy, Department of Community Health and Epidemiology, Dalhousie University, 425-5790 University Avenue, Halifax, NS, Canada B3H 1V7.

E-mail: [adrian.levy@dal.ca](mailto:adrian.levy@dal.ca).

2212-1099\$36.00 – see front matter Copyright © 2015, International Society for Pharmacoeconomics and Outcomes Research (ISPOR).

Published by Elsevier Inc.

<http://dx.doi.org/10.1016/j.vhri.2015.08.006>

National Diabetes Guidelines [6], are key goals for the management of persons with T2DM.

Much information has been published on treatment practices and achievement of treatment targets among persons with T2DM in the United States and other developed countries where T2DM has been a long-standing public health concern. Despite the growing epidemiologic and economic burden of T2DM in the UAE, little is known about how persons with T2DM are managed in clinical practice and the frequency of attainment of guideline targets for glycemic, lipid, and blood pressure control [7–9].

Documenting existing treatment patterns and treatment target success is important to provide baseline information by which to evaluate new treatments and disease management practices and to track changes in measures of disease control and the economic burden over time.

We undertook a retrospective observational study to quantitatively characterize contemporary treatment patterns and measures of treatment success among persons with T2DM in Dubai, UAE. The primary objective here was to characterize treatment patterns according to treatment modality and to estimate the proportion of subjects successfully controlling blood glucose, lipid, and blood pressure levels between 2009 and 2011 among persons being managed for T2DM in Dubai, UAE. Secondary objectives were to 1) estimate the impact of age, sex, duration of T2DM, and therapy type on the proportion of subjects meeting guideline targets; 2) describe treatment modifications according to the duration of T2DM and previous therapy use; and 3) measure the frequency of microvascular and macrovascular complications.

## Methods

This retrospective cohort study was conducted among a sample of persons with T2DM who were being managed at a single diabetes outpatient clinic operating in the Dubai Hospital in Dubai, UAE; this secondary and tertiary care hospital is the largest general medical and surgical hospital in the emirate of Dubai.

### Subjects

The target population was persons being treated for T2DM in Dubai, UAE. To be eligible for inclusion, subjects were required to have a diagnosis of T2DM according to ADA criteria [5], be 18 years of age or older, and of UAE nationality. Subjects enrolled in clinical trials and women who were pregnant during the study period were not eligible.

Electronic medical records of persons with T2DM were identified by *International Classification of Diseases, Ninth Revision codes* (250.x0, 250.x2), and a random sample was systematically included by selecting every *n*th chart from the Dubai Hospital database, which contained records for the more than 5000 persons managed at the hospital's diabetes clinic. Medical charts identified from the database were then screened for eligibility on the basis of subjects attending physician visits at the study site during the 6-month study enrolment period (October 1, 2009, to March 3, 2010). Systematic sampling and eligibility screening continued until the target number of 250 eligible charts was reached.

Because the Dubai Hospital is a secondary and tertiary care center, subjects may have been initially diagnosed at the study site or referred from another clinical site; the study sample would therefore represent a mix of subjects more recently diagnosed with T2DM and those with long-standing disease.

The study protocol was approved by the Research Ethical Approval Committee at the Dubai Hospital.

### Study Period

Data were collected on treatments and outcomes from all eligible subjects during the follow-up period, which ended September 30, 2011. Eligible subjects had to visit the study site during the enrolment period, from October 1, 2009, to March 31, 2010. This allowed a minimum of 18-month follow-up for subjects enrolled at the end of the enrolment period. The study enrolment date was defined as a subject's most recent visit to the study site during the accrual period.

### Data Collected

The following data were abstracted from the paper copies of charts of eligible subjects: 1) demographic and clinical characteristics from the time of T2DM diagnosis and at study enrolment; for those not diagnosed at the study site, time of diagnosis was based on reports from the referring physician; 2) types of pharmacotherapy (i.e., treatments) administered before study enrolment and the type, dosage, and timing of treatments administered between study enrolment and censoring (September 30, 2011); 3) the presence of microvascular (retinopathy, peripheral neuropathy, nephropathy, chronic kidney disease, and diabetic foot) or macrovascular (angina, previous stroke/transient ischemic attack, coronary artery disease, peripheral vascular disease, myocardial infarction, and congestive heart failure) complications at study enrolment and during the study period; and 4) results of glycosylated hemoglobin (Hb A<sub>1c</sub>), low-density lipoprotein (LDL), blood pressure, high-density lipoprotein, triglyceride, and total cholesterol tests from the time of study enrolment to censoring.

Treatment types were classified as oral monotherapy, oral combination therapy, insulin monotherapy, insulin combination therapy, or insulin plus oral combination therapy. Treatment regimens were defined as the unique combination of specific drugs (including metformin, glibenclamide, gliclazide, glimepiride, rosiglitazone, pioglitazone, acarbose, miglitol, repaglinide, nateglinide, exenatide, sitagliptin, vildagliptin, or insulin); changes in treatment were defined as either regimen changes (change in treatment regimen through the replacement, removal, or addition of drugs) or regimen modification (defined as a change in the dose of an existing treatment regimen).

Data collection was performed by two trained data abstractors. No subject identifiers were abstracted from the charts, and a unique identifier was assigned for each subject. All case report forms were checked for completeness, and those with missing data were checked against the source data. At least 50% of the case report forms completed by each abstractor per day were checked against the source data; if discordance between the abstractors was more than 20%, all case report forms completed that day were validated against the source data.

### Sample Size

Sample size calculations were based on the ability of the study to detect treatments and events of prespecified frequencies. The target sample size of 250 had a 92% chance of detecting treatments or events occurring with a 1% frequency and a 100% chance of detecting treatments or events occurring with more than 5% frequency [10].

### Analysis

Descriptive statistics were generated for baseline characteristics at study enrolment including age, sex, T2DM duration (time from diagnosis date to study enrolment date), site of T2DM diagnosis, immediate relatives with T2DM, Hb A<sub>1c</sub> level of less than 7%, previous T2DM treatments (prescriptions documented in the

Download English Version:

<https://daneshyari.com/en/article/990096>

Download Persian Version:

<https://daneshyari.com/article/990096>

[Daneshyari.com](https://daneshyari.com)