Hospital Authority Diabetes Mellitus Care Report 2019/20

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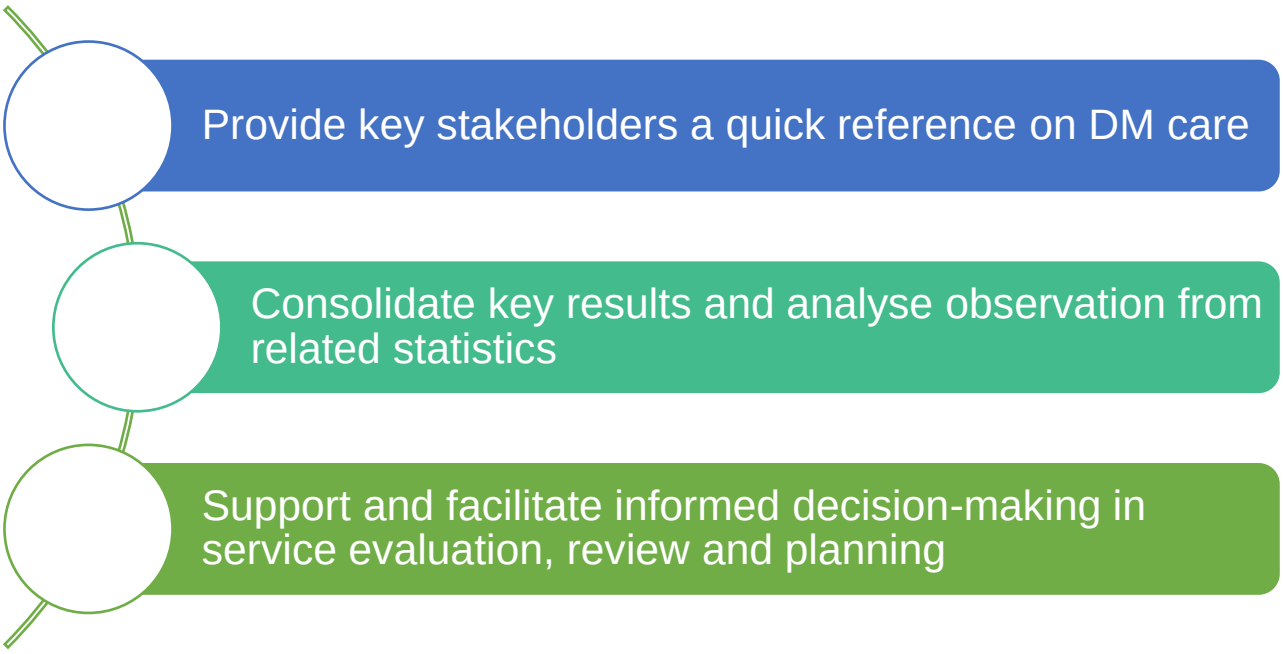
HOSPITAL AUTHORITY

Contents

Introduction

Diabetes Mellitus (DM) is a chronic metabolic disease characterized by elevated blood glucose levels, which is recognised by the World Health Organisation as one of four priority non-communicable diseases targeted for action by world leaders.[1] Hong Kong is of no exception. We have been facing a significant threat of diabetes, which currently affects around one in 10 people. Being the major public healthcare provider in Hong Kong, the Hospital Authority (HA) has been providing care to many of these patients in forms of in- and out-patient services and community care.

The DM Care Report (the report) is developed with an aim to present a comprehensive overview of statistical data related to DM care and outcomes in HA to:



Methods

The report provides a structured overview of the epidemiology, care processes and outcomes for HA patients with DM as of the reporting period of 2019/20 fiscal year (i.e. from 1 April 2019 to 31 March 2020), unless otherwise specified.

Information presented in the report is valid as of end of March 2020. The data were collated from HA information systems. Data from government departments were incorporated wherever appropriate.

Estimates of diabetes in this report did not differentiate between type 1 DM and type 2 DM despite type 2 DM remained to be the most frequent form of diabetes among Hong Kong adults.[2]

Age groups of below 18, 18-39, 40-64, and 65 years or older were used to represent paediatric patients, young adults, middle-aged adults, and the elderly group respectively. Breakdown by level of care of the clinic where a DM patient had his/her last attendance in the reporting period was used to reflect the management of DM according to the degree of disease complexity.

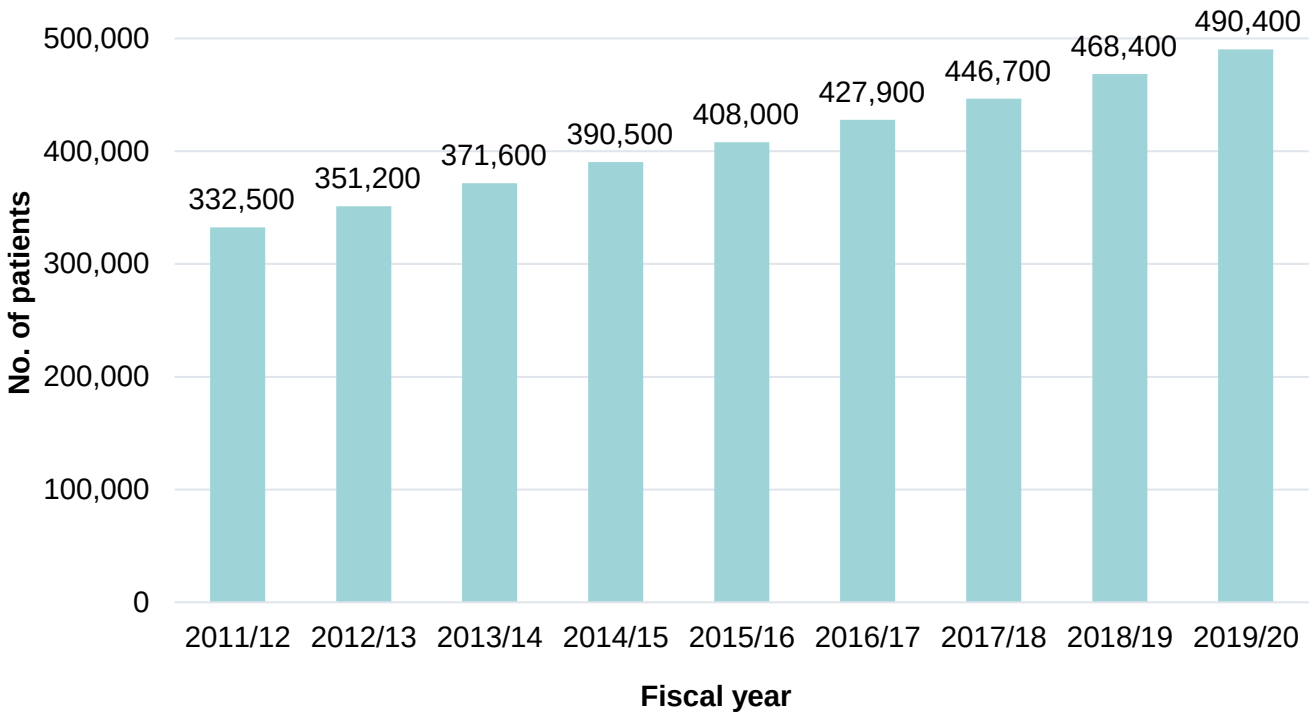
Unless otherwise specified, patient numbers were rounded to nearest hundred and percentages were rounded to one decimal place.

Epidemiology of Diabetes Mellitus in HA

1. Number of patients with DM in HA

- **490,400** DM patients of all ages were under care in Specialist outpatient clinic (SOPC), Family medicine specialist clinic (FMSC) and General outpatient clinic (GOPC) of HA in 2019/20. (Graph 1)
- **158,000** additional DM patients were under out-patient care in HA since 2011/12, equating to a **47.5%** increase in 8 years.
- **4.4%** or above annual growth in the patient number was recorded since 2011/12.
- **Over a half** of DM patients in HA were aged 65 years or above; **41.8%** were middle-aged (40-64 years old).
- **1.02 to 1** was the male to female ratio among all DM patients in HA.
- **63.3%** of the DM patients were under care in GOPC while the others in SOPC or FMSC in 2019/20.

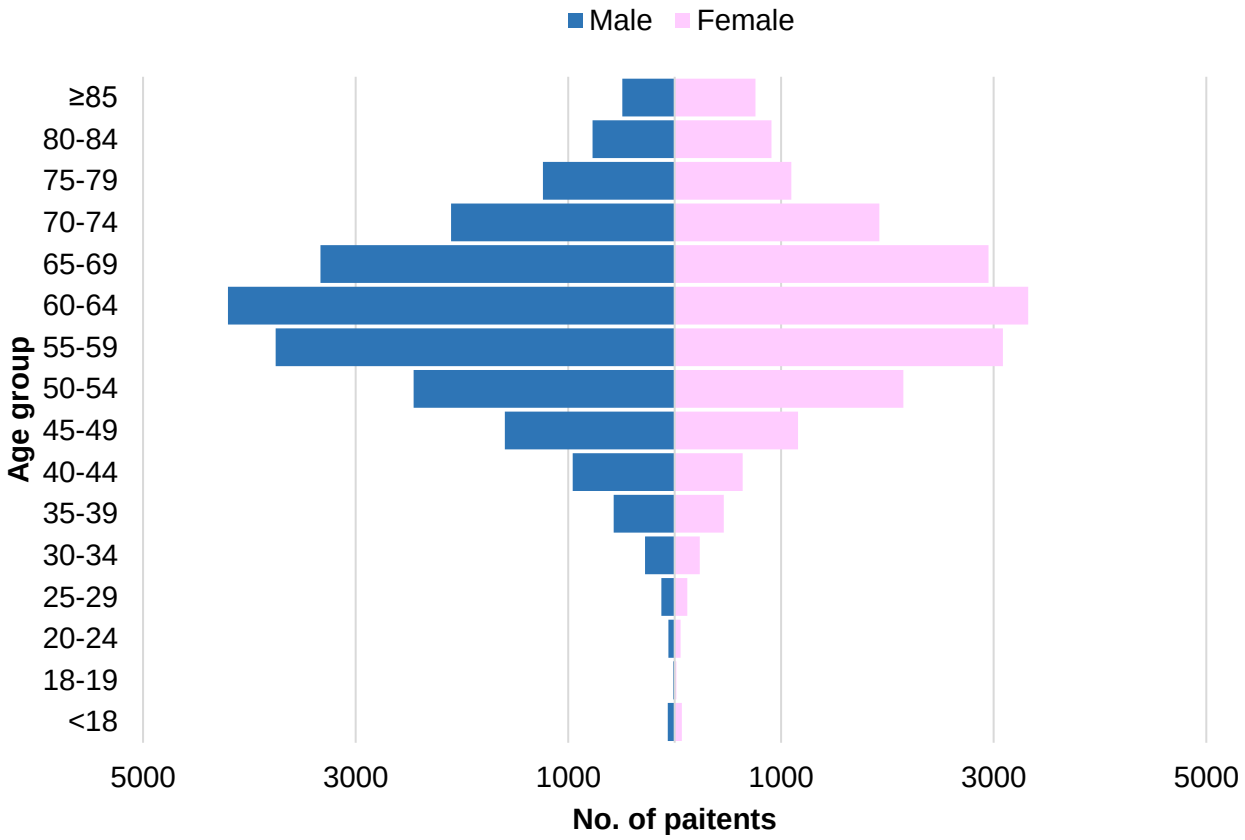
Graph 1 - No. of DM patients in SOPC, FMSC and GOPC of HA



2. Number of new patients with DM in HA

- **41,000** new DM patients in HA were recorded in 2019/20.
- **56.9%** of new DM patients were middle-aged (40-64 years old); Those aged 65 or above accounted for **38.0%** of the total. (Graph 2)
- **1.2 to 1** was the male to female ratio among new DM patients in HA.
- Around **one third** of the new patients was followed up in SOPC or FMSC while the others in GOPC.

Graph 2 – Sex and age of new DM patients in 2019/20

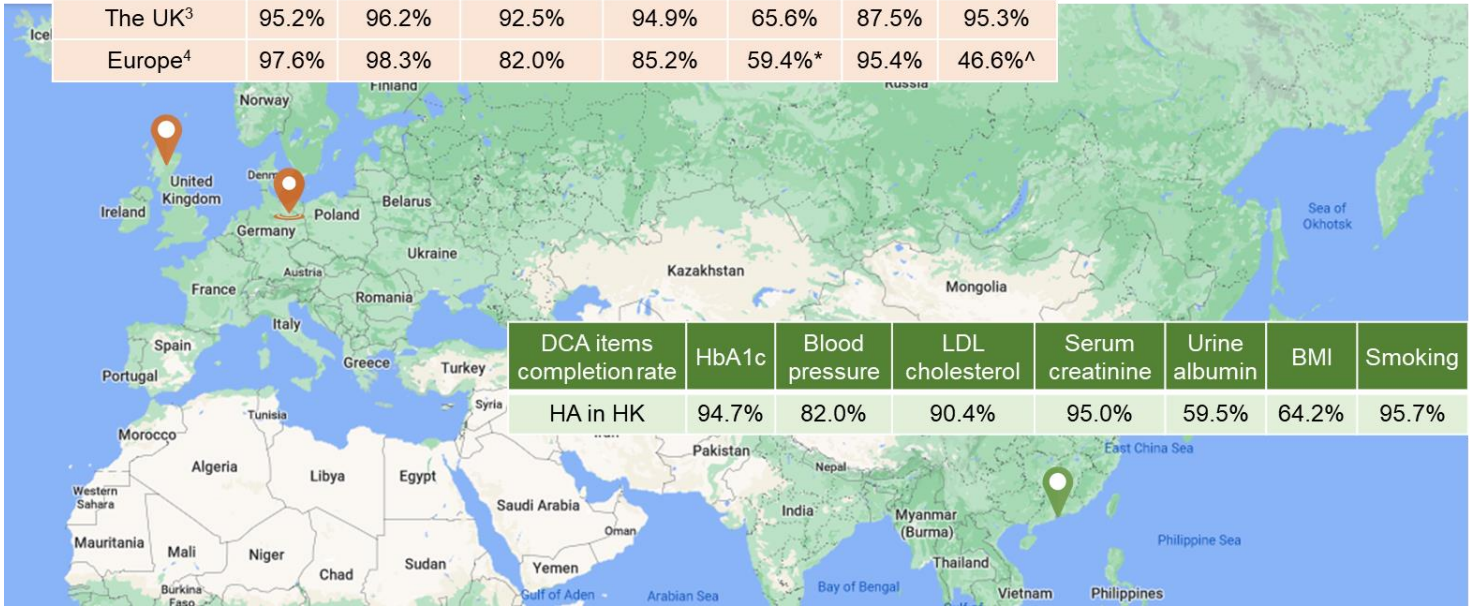


DM Care Processes

3. Diabetes comprehensive assessment (DCA)

- DCA is crucial to DM care, referring to the set of assessments that helps stratify patients' metabolic risk and identify silent complications so that early intervention is possible.
- The assessment completion rates of DCA items including glycated haemoglobin (HbA1c), low-density lipoprotein (LDL) cholesterol, serum creatinine, urine albumin and smoking status in HA in 2019/20 were comparable to the international benchmarks.[3,4] (Figure 1)

DCA items completion rate	HbA1c	Blood pressure	LDL cholesterol	Serum creatinine	Urine albumin	BMI	Smoking
The UK[3]	95.2%	96.2%	92.5%	94.9%	65.6%	87.5%	95.3%
Europe[4]	97.6%	98.3%	82.0%	85.2%	59.4%*	95.4%	46.6%^



DCA items completion rate	HbA1c	Blood pressure	LDL cholesterol	Serum creatinine	Urine albumin	BMI	Smoking
HA in HK	94.7%	82.0%	90.4%	95.0%	59.5%	64.2%	95.7%

Figure 1. Diabetes comprehensive assessment completion rate for DM patients in HA, the National Health Service (NHS) in the UK and eight European countries

Notes: The data in the UK refer to patients with type 2 or other types of diabetes in the National Diabetes Audit in the UK for 2017/18[3]**;** the European results refer to the study with data collected between 2009 and 2010 in eight European countries[4] of which * refers to checked microalbuminuria and ^ refers to smoking cessation advice being provided to smokers; HA data refer to results in the reporting period of 2019/20.

- Blood pressure and body mass index (BMI) had lower assessment completion rate in HA. These measurements might have done but were likely put in free text in systems, which were not able to be captured currently.

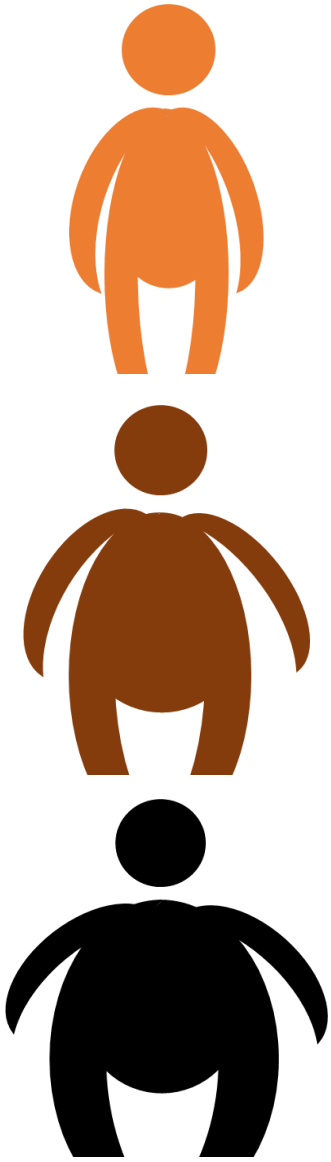
- Modifications in clinical forms would be necessary to facilitate a structural recording of the measurements. In addition, automation in data collection should be explored as a long-term solution.

- Urine albumin was the item with the lowest completion rate locally and internationally.

- In HA, it was partially explained by the facts that some patients:
    - Might be too fragile to save urine; already on medications for albuminuria; having poor renal function and the degree of albuminuria was of less clinical relevance.
    - Might forget or have difficulties to bring back the collected urine sample, or be unable to urinate when the test was needed.

- Enhancing patient education and setting up reminders, such as a pop-up message through mobile app, could improve the completion rate of urine albumin.

4. BMI



- **64,500**

  of DM patients in 2019/20 were **overweight** (BMI between 23.0 and 24.9 kg/m^2)

- **124,500**

  were **obese** with BMI between 25.0-29.9 kg/m^2

- **48,600**

  were **obese** with **BMI ≥ 30.0kg/m^2**

5. Smoking status

- About **1 in 10** DM patients were smoker in 2019/20, similar to the prevalence among general population in Hong Kong.[5]

6. Insulin Use

- About **1 in 8** DM patients were **prescribed with insulin** in 2019/20, equating to **62,300** patients.

- **40.9%** of DM patients on insulin were aged between 40 and 64 years.

- **5 out of 6** DM patients on insulin were cared under SOPC or FMSC.

DM Care Outcomes

7. HbA1c, blood pressure and LDL cholesterol control

1c < 7%

- **52.4%** of DM patients met the HbA1c level of <7% in 2019/20, improved from **41.3%** in 2011/12.
- The overall control was comparable to the results in the UK, the US and European countries.[3,4,6]
- **16.2%** of **young** (aged 18-39 years) and **7.7%** of **middle-aged** (aged 40-64 years) adults **had HbA1c>9%**, the control of which was far from satisfaction.

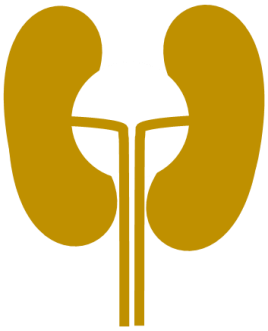
lood pressure under 140/90 mmHg

- **63.0%** of DM patients had their blood pressure under 140/90 mm/Hg in 2019/20.
- The overall control appeared to be outperforming the figure in the US.[6]
- **18.0%** had no blood pressure reading being captured, many of whom were under care in SOPC or FMSC.

holesterol (LDL) under 2.6 mmol/L

- **73.5%** of DM patients had their LDL cholesterol under 2.6 mmol/L in 2019/20
- The overall control seemed to be better than DM patients in Europe.[3]

8. Diabetic nephropathy

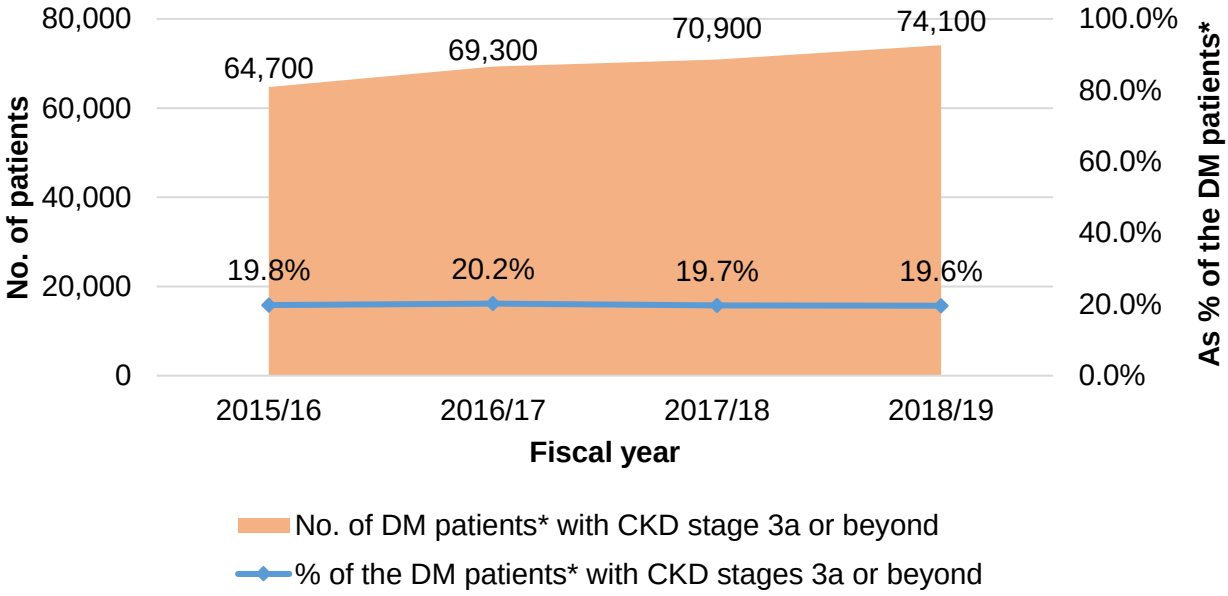


- **37.7%** of DM patients had diabetic nephropathy in 2018/19, equating to **176,400** patients.

- **14.6%** had undetermined diabetic nephropathy status, many of whom were under care in SOPC or FMSC. The availability of data for diabetic nephropathy was directly related to the assessment rate of urine albumin, which partially explained the observation.

- At least **14.9%** and **30.9%** in GOPC and SOPC or FMSC, whose glomerular filtration rate could be calculated, had chronic kidney disease (CKD) stage of 3a or beyond respectively, which represented moderately decreased renal function or worse, during the period between 2015/16 and 2018/19. The proportion was static in recent years amid the high and rising number of DM patients. (Graph 3)

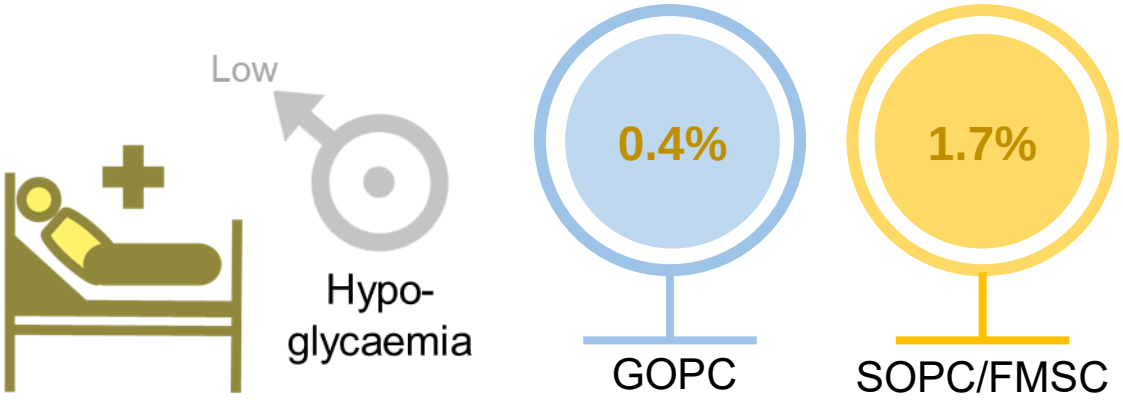
Graph 3. CKD staging of DM patients* between 2015/16 and 2018/19



**Refers to DM patients aged 18 to 85 with valid renal function results and not on any form of renal replacement therapy.*

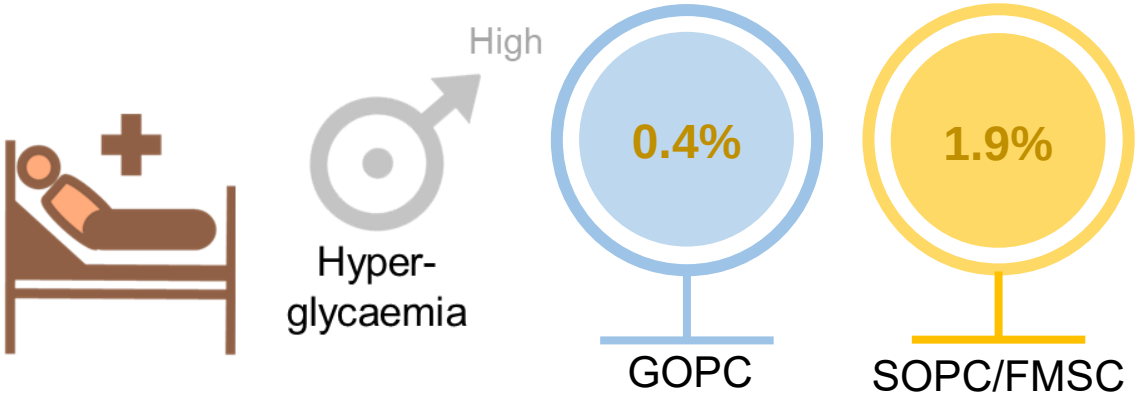
9. Acute hospitalisation of diabetic patients due to hypoglycaemia

- **0.4%** and **1.7%** of DM patients in GOPC and SOPC or FMSC respectively had episode of hypoglycaemia requiring hospitalization in 2019/20.



10. Acute hospitalisation of diabetic patients due to hyperglycaemia

- **0.4%** and **1.9%** of DM patients in GOPC and SOPC or FMSC respectively had episode of hyperglycaemia requiring hospitalization in 2019/20.



The Way Forward

The overall performance of DM care processes and outcomes in HA was comparable with international standards. Nevertheless, the following key issues related to DM services shall be addressed in the coming years to best manage and meet the needs of DM patients:

- Identification of individuals with high risk of diabetes development, followed by preventive measures at all levels including the community is of paramount importance in order to halt the rapid growth of DM in Hong Kong

- More intensive and focused care should be given to the relatively young or middle-aged DM patients in order to improve glycaemic control and other cardiovascular risk factors and hence to reduce the long term complications

- More comprehensive data recording on the pre-existing diabetes comprehensive assessment items such as urine albumin, BMI and capturing of macrovascular-related complications are important for future service planning and to enable the development of tools such as predictive risk modelling. These should be done by enhancing IT and Clinical Management System (CMS) support.

Acknowledgement

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