

# A sneak peak of the 2015 report on the market of type 2 diabetes mellitus diagnosis and treatment in China

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**Abstract:** To understand the status quo of the diagnosis and treatment of type 2 diabetes mellitus (T2DM) in China. A total of 1,759 respondents from 31 provinces, municipalities, and autonomous regions participated this online questionnaire-based survey from November to December in 2014 via the DXY.cn survey & research platform. All the respondents had certain experiences in T2DM management. Up to 83% of the T2DM patients were re-visiting patients, in whom hyperlipidemia, hypertension, and neuropathy were the most common co-morbidities or complications. Fasting blood glucose, postprandial blood glucose, glycosylated hemoglobin were the most commonly used tests, while oral glucose tolerance test (OGTT) had also become one of the most common tests for new patients. Oral hypoglycemic agents remain the most widely used hypoglycemic treatment, with metformin, sulfonylureas, and glycosidase inhibitors being the top three oral antidiabetic drugs. Less than half (43%) of the T2DM patients were receiving insulin treatment, among which the premixed insulin was the most common type, followed by short-acting insulin, long-acting insulin, and medium-acting insulin. A certain percentage of patients were also using novel antidiabetic drugs including DPP-IV and GLP-1. Foreign pharmaceutical companies had the largest shares in most markets. However, domestic generic medicine had larger market shares in smaller cities (third- and lower-tier cities) than in major cities (first- and second-tier cities).

**Keywords:** Type 2 diabetes mellitus (T2DM); diagnosis; treatment; China

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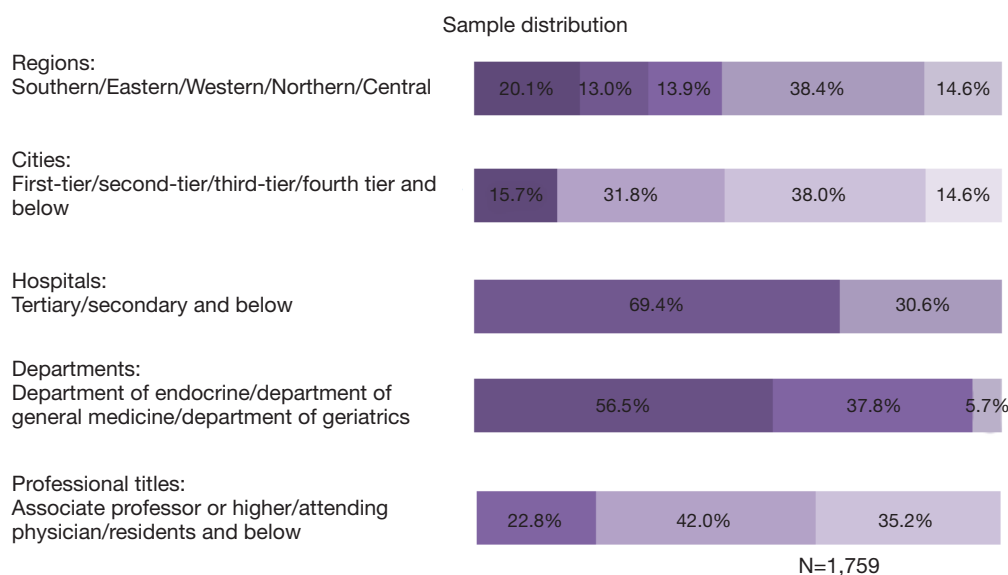
The survey team from DXY.com recently surveyed 1,759 physicians with experiences in the management of diabetes from 31 provinces, municipalities, and autonomous regions, with attempt to learn the status quo of the market of type 2 diabetes mellitus (T2DM) diagnosis and treatment in China.

According to the *Report on Chronic Disease Surveillance and Diabetes Survey in China*, which was published in *JAMA* in 2013, there were over 110 million diabetics in China, accounting for about 1/3 of the global diabetes. However, only around 1/4 of Chinese diabetic patients are undergoing medical treatment, less than 40% of whom have had their blood sugar well controlled. China has undoubtedly become one of the countries with the heaviest burden of diabetes, and the prevention and control of the occurrence and progression of diabetes have become tough tasks for the Chinese society.

To further understand the management of diabetes in China, the DXY.com survey team had collected questionnaire forms from 1,759 physicians with experiences in diabetes management from 31 provinces, municipalities, and autonomous regions in China; furthermore, in combination with data from the insight database of DXY.com, the survey team analyzed the demographic features of T2DM patients, diagnostic approaches, medical treatment, advances in R&D of diabetes drugs, doctors' academic needs, as well as the journals, meetings, and medical institutions recognized by the respondents.

## Sampling distribution

The 1,759 questionnaire forms were collected from physicians working in the department of endocrine,



**Figure 1** Sample distribution

Table 1 The five aspects of the complete version of the survey report	
Classification	Progress
Demographic data	Analysis of the disease type, disease course, and co-morbidities; Comparison of the differences in the demographic data among different cities and departments
Diagnosis of diabetes	Diagnosis of the diabetes and the recommended testing methods for the disease; The recommended blood sugar meters
Drug prescriptions	The proportions of the use of oral hypoglycemic agents, insulin, and novel insulin and the features of the users; Proportions of different brands, evaluation of each brand, bid price, daily treatment costs
R&D of new diabetes drugs	The new diabetes drugs under R&D, in terms of application categories, subcategories, and manufacturers; Possible directions of the diabetes market in the coming 5-10 years
Doctors' professional demands	Doctors' academic and professional demands and the known access to these resources; The top journals and best meetings

department of general medicine, and department of geriatrics. Physicians with an intermediate or senior professional title accounted for 64.8%. Up to 69.4% of the respondents were from tertiary hospitals and 30.6% from secondary or lower hospitals (*Figure 1*).

## Report profile

The complete version of the survey report is consisted of the following five aspects (*Table 1*).

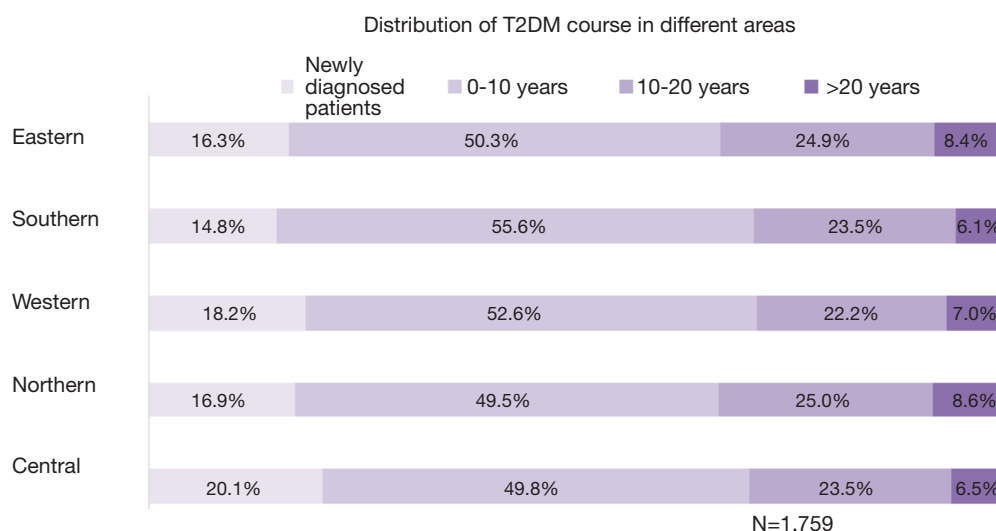
Now let us have a glimpse of parts of the data from the report.

## Distribution of T2DM course

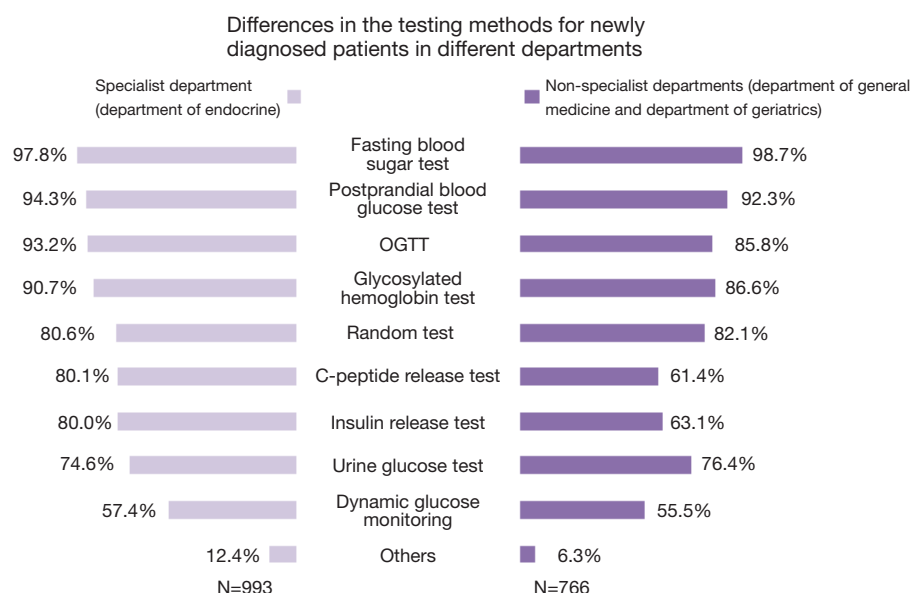
Among the diabetic patient who had visited the hospitals, newly diagnosed patients accounted for 17.1% and patients with a disease course within 10 years accounted for about 50%. For these patients, in addition to controlling the blood sugar, preventing or delaying the T2DM-associated complications will be a major challenge (*Figure 2*).

## Testing for diabetes and the recommended blood glucose meter

Compared with the specialist physicians from the



**Figure 2** Distribution of T2DM course in different areas. T2DM, type 2 diabetes mellitus.



**Figure 3** Differences in the testing methods for newly diagnosed patients in different departments.

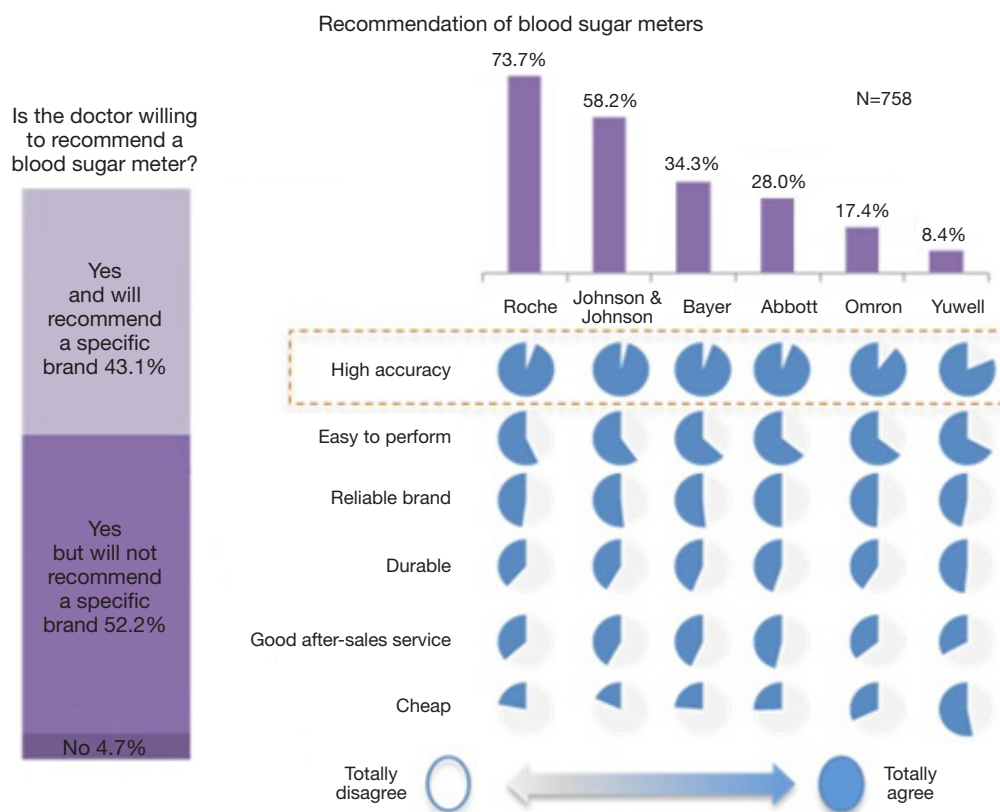
department of endocrine, respondents from the department of general medicine and department of department of geriatrics (i.e., the non-specialist physicians) had lower proportions in performing the postprandial blood glucose test, glycosylated hemoglobin test, and oral glucose tolerance test (OGTT), which may result in the missed diagnosis of patients with normal fasting blood sugar but elevated postprandial blood glucose. Insulin release test (IRT) and C-peptide release test (CPRT) are relatively new detection approaches and therefore were even less

commonly used by the non-specialist physicians (*Figure 3*).

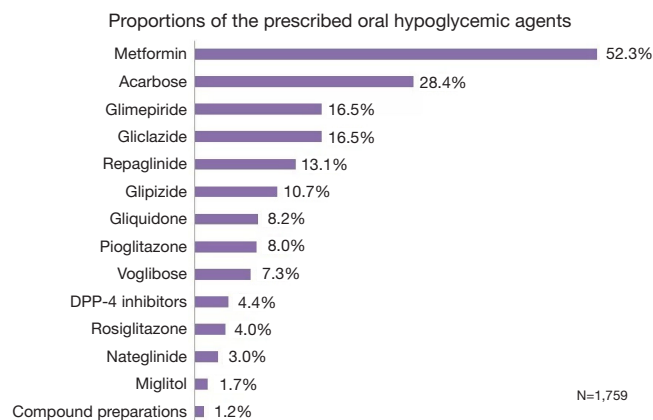
During the survey, 43.1% of the respondents would recommend a specific brand of blood glucose meter to their patients, with “Roche” being the top-recommended brand. Accuracy was the major consideration when making a recommendation (*Figure 4*).

### *Prescribing pattern of glucose-lowering drugs*

Metformin was the most widely used oral hypoglycemic



**Figure 4** Recommendation of blood sugar meters.



**Figure 5** Proportions of the prescribed oral hypoglycemic agents.

agent, followed by acarbose. DPP-4 inhibitor, a novel oral hypoglycemic agent, had also been prescribed by some physicians (*Figure 5*).

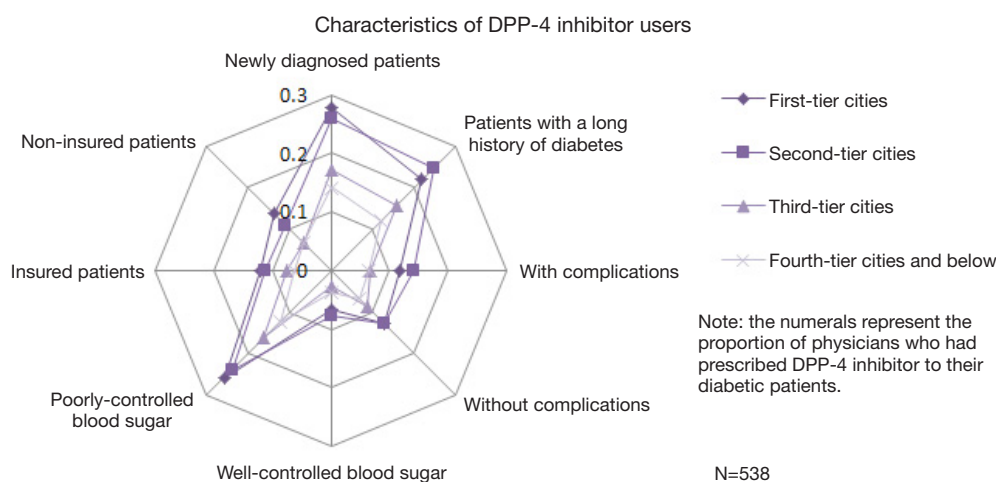
Comparisons showed that the general characteristics of patient populations using DPP-4 inhibitor were similar

among cities at different levels; along with the increase of city levels, however, the proportion of physicians using DPP-4 inhibitor also raise. The use of DPP-4 inhibitor was not significantly different between new and old patients or between patients with and without complications. Poorly controlled blood sugar is the main reason for employing DPP-4 inhibitor (*Figure 6*).

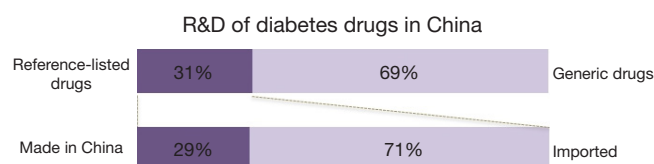
### *R&D of new diabetes drugs*

Currently nearly 200 new diabetes drugs are under R&D, among which over two-thirds are generic drugs. The reference-listed drugs are mainly manufactured by multinational pharmaceutical companies. However, up to 29% of RLDs are from domestic companies, reflecting the rapid growth of R&D capabilities of Chinese manufacturers (*Figure 7*).

The DPP-4 inhibitors and compound preparations are hot topics in the R&D of diabetes drugs, accounting for 50% of the RLDs that had been applied for licensing. In addition, an increasing number of new mechanism-based



**Figure 6** Characteristics of DPP-4 inhibitor users.



**Figure 7** R&D of diabetes drugs in China.

diabetes drugs (e.g., SGLT2 inhibitors and PPAR agonists) have entered clinical trials or are under application for licensing, which may shift the market profiles in future (Figure 8).

### Physicians' academic demands

In the past year, the average daily learning time was 2 h. Most respondents chose to carry out professional learning during the resting time. The conventional downloading of professional literature and reading of academic books remained the major approaches for physicians to get their professional knowledge updated. Also, they might attend academic meetings and browse professional websites. With the popularity of WeChat, "Access via the WeChat public accounts" had become a key approach for 30.4% of the respondents to obtain the academic knowledge (Figure 9).

The most-rated international academic meetings were the International Diabetes Federation (IDF) conference, American Diabetes Association (ADA) annual meeting, and European Association for the Study of Diabetes (EASD) annual meeting. For the domestic academic meetings, the most satisfactory meetings included the annual meeting

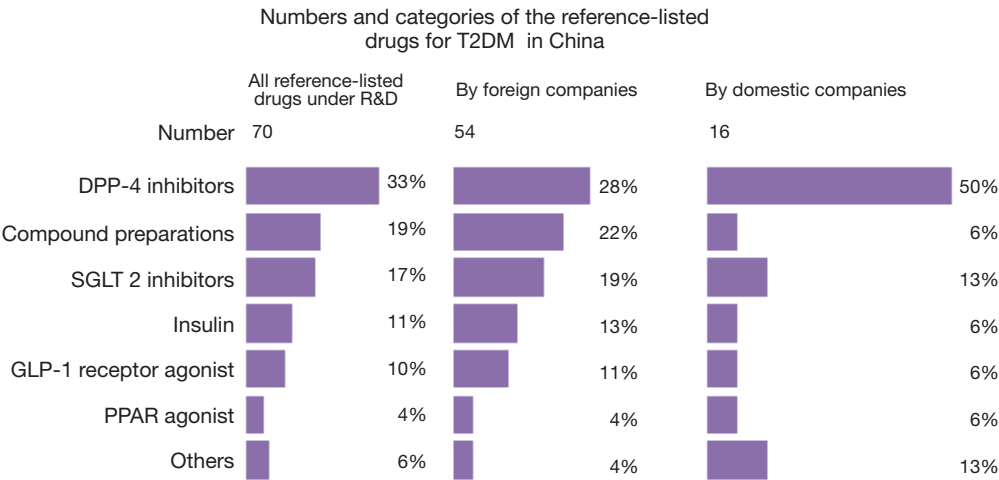
of the Chinese Society of Endocrinology, the annual meeting of the Chinese Society of Diabetes, and the Peking University Diabetes Forum. The top three factors that attract the physicians were high-level lectures, interesting contents, and reasonable timing/venue. Also, such meetings should allow the physicians to communicate with their colleagues and truly answer the problems they meet in clinical practices (Figure 10).

In terms of "new product promotion", the vast majority of the respondents preferred the promotion via medical websites. The proportions of respondents who would like to learn new products via "Special presentations in a medical website" and "General promotion via medical websites" accounted for 69.2% and 54.0%, respectively. "Product promotion via phone" and "Learning through the manufacturer's website" was two least welcomed promotion patterns (Figure 11).

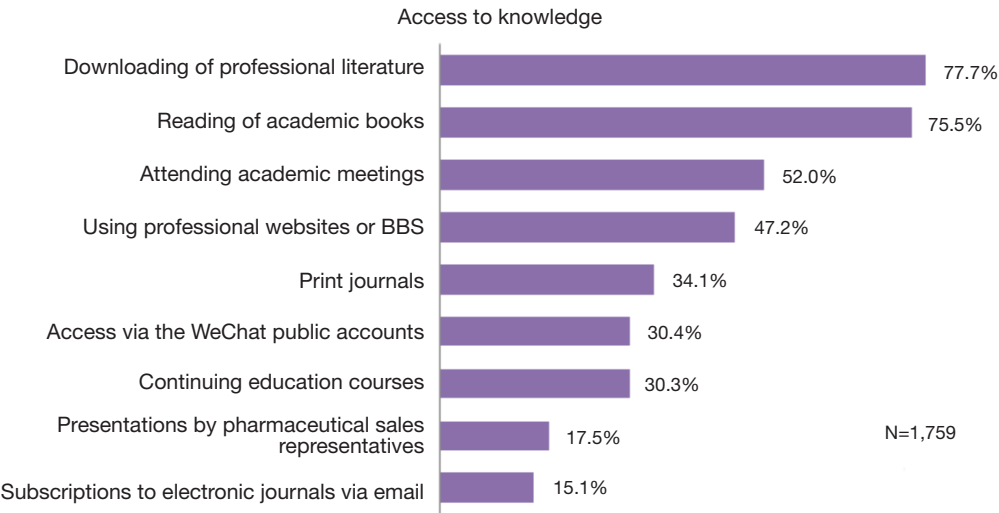
*Diabetes* was the top one journal in the field of diabetes among the respondents, followed by the *Chinese Journal of Endocrinology and Metabolism* (Figure 12).

This is an excerpt of the 2015 *Report on the Market of Type 2 Diabetes Mellitus Diagnosis and Treatment in China*. Please feel free to contact us if you are interested in the full text or a customized edition.

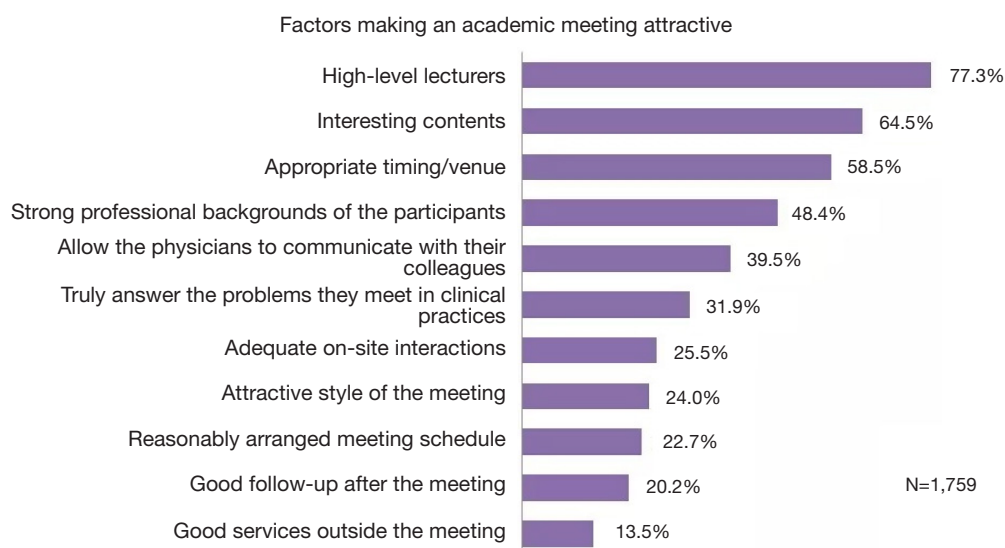
This survey report was designed and completed by the DXY.com survey team. The survey team is committed to carrying out survey businesses and services under the leadership of DXY.com, focusing topics including disease diagnosis and treatment, advances in medical research, medical reform policies, and daily activities of doctors, with doctors, pharmacists, and nurses being the main



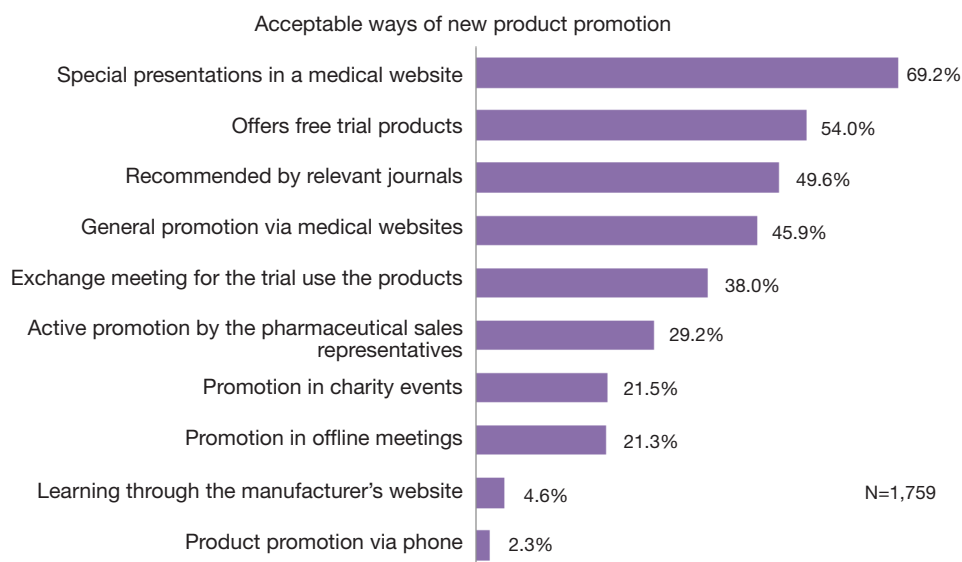
**Figure 8** Numbers and categories of the reference-listed drugs for T2DM in China. T2DM, type 2 diabetes mellitus.



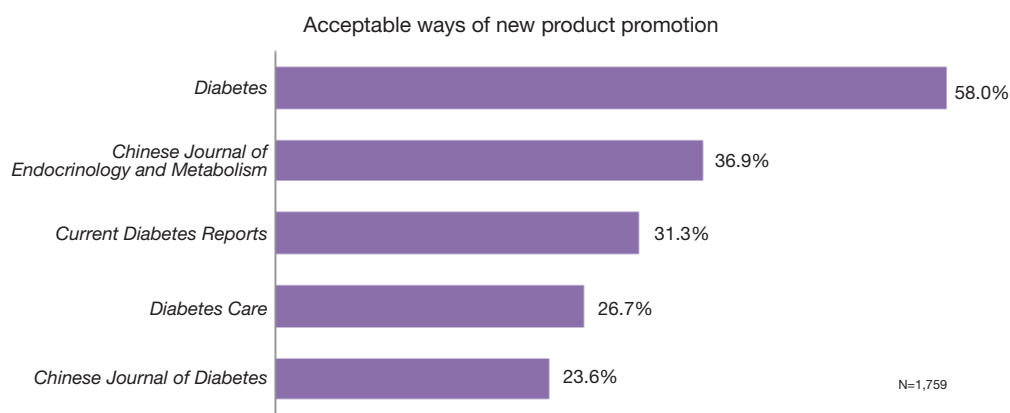
**Figure 9** Access to knowledge.



**Figure 10** Factors making an academic meeting attractive.



**Figure 11** Acceptable ways of new product promotion.



**Figure 12** Five journals in the field of diabetes.

respondents. All the data and evidences collected from these surveys will help and facilitate the companies to improve their products and services, the society to understand the medical staff, the doctors to communicate with their colleagues, and the health authorities to optimize their

decision-making.

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