OHIO
TYPE 2 DIABETES REPORT
2008

Featuring Demographic, Utilization, Charges
and Pharmacotherapy Data

Business Health Coalitions of Ohio

Presented by
sanofi aventis
in conjunction with the
Business Health Coalitions of Ohio
Introduction

The Business Health Coalitions of Ohio (BHCO) are pleased to present the third edition of the Ohio Type 2 Diabetes Report for 2008, an overview of demographic, financial, utilization and pharmacotherapy measures for Type 2 diabetes patients in key local markets in the state of Ohio. The report also provides national benchmarks that can help providers and employers identify better opportunities to serve the needs of their patients. All data are drawn from the sanofi-aventis Managed Care Digest Series®.

This report features a number of examples of the kinds of patient-level, disease-specific data on Type 2 diabetes that can be provided by the Managed Care Digest Series®. BHCO chose Type 2 diabetes (high blood glucose levels caused by either a lack of insulin or the body’s inability to use insulin efficiently) as the focus of this resource, as the Centers for Disease Control estimate that 90% to 95% of all Americans with diabetes—translating to 5% to 7% of the U.S. population—have the Type 2 variety.

The data in this report (covering 2006 and 2007) were gathered by Verispan LLC, Yardley, Pa., a leading health care information company. The data provide health care providers with independent, third-party information they can use to benchmark their own data on patient demographics, professional (provider) and facility (hospital) charges, service utilization and pharmacotherapy.

Methodology

Verispan generated data for this Managed Care Digest Series® database using health care professional (837p) and institutional (837i) insurance claims, representing more than 5.5 million unique patients nationally in 2007 with a range of Type 2 diabetes diagnoses (250.00–250.92). Data from physicians of all specialties and from all hospital types are included.

Verispan also gathers data on prescription activity from the National Council for Prescription Drug Programs (NCPDP). These data account for some 8 billion prescription claims annually, or more than 50% of the prescription universe. These prescription data represent the sampling of prescription activity from a variety of sources, including retail chains, mass merchandisers and pharmacy benefit managers, and come from a near census of more than 59,000 pharmacies in the U.S.

Patient-level, disease-specific data arriving into Verispan are put through a rigorous process to ensure that data elements match to valid references, such as product codes, ICD-9 (diagnosis) and CPT-4 (procedure) codes, and provider and facility data.

Claims undergo a careful de-duplication process to ensure that when multiple, voided, or adjusted claims are assigned to a patient encounter, they are applied to the database, but only for a single, unique patient.

Through its patient encryption methods, Verispan creates a unique, random numerical identifier for every patient, and then strips away all patient-specific health information that is protected under the Health Insurance Portability and Accountability Act (HIPAA). The identifier allows Verispan to track disease-specific diagnosis and procedure activity across the various settings where patient care is provided (hospital inpatient, hospital outpatient, emergency rooms, clinics, doctors’ offices and pharmacies), while protecting the privacy of each patient.

Data are collected and copyrighted by Verispan LLC. The role of BHCO is to help make these data more widely available to interested parties.
SHARE OF WORKING AGE PATIENTS IS HIGH IN COLUMBUS MSA

The share of patients in the Columbus metropolitan statistical area (MSA) diagnosed with Type 2 diabetes who were between the ages of 18 and 64 was 63.2% in 2007, up fractionally from 63.0% in 2006, and the highest mark of the nine Ohio markets profiled. By comparison, just 53.7% of Type 2 diabetes patients in the Dayton MSA were in this age category, down modestly from 56.4% the year before, the lowest share among the local markets.

YOUNGSTOWN WOMEN ARE MOST LIKELY TO BE DIAGNOSED

In 2007, 61.1% of patients diagnosed with Type 2 diabetes in the Youngstown MSA were women (just 38.9% were men), down slightly from 62.7% in 2006, but still the highest share of the Ohio markets profiled. At 58.4%, the ratio of women to men patients across the state of Ohio was likewise high, by comparison with that of the nation: Just 55.1% of patients diagnosed with Type 2 diabetes nationally were women, up fractionally from 54.9% the previous year.

* Percentages do not include those patients with pregnancy-related or pre- or borderline diabetes.

** On all pages, the percentages are representative of the universe of Type 2 diabetes patients on whom claims data have been collected in a given year.
COMPLICATION-FREE PATIENT SHARES ARE LOW ACROSS OHIO
In 2007, the percentages of patients diagnosed with Type 2 diabetes and no complications from the disease were lower than the national average (62.5%) in every Ohio market listed. At 59.5%, the share of patients in the Canton MSA with Type 2 diabetes and no complications was the highest by Ohio market, yet still trailed the national mark by three percentage points.

SHARE OF PATIENTS IN OHIO WITH 2+ COMORBITITIES DIPS
The share of Type 2 diabetes patients in the state of Ohio with two or more diagnosed comorbidities dropped in 2007, to 40.8% from 42.4% in 2006. In spite of this decline, this share lagged 11 percentage points behind the national average for this measure (29.8%) in 2007.

1 A complication is defined as a patient condition caused by the Type 2 diabetes of the patient. These conditions are a direct result of having Type 2 diabetes. Complications of Type 2 diabetes include, but are not limited to, coronary artery disease, hypoglycemia, nephropathy, neuropathy and retinopathy.

2 A comorbidity is a condition a Type 2 diabetes patient may also have, which is not directly related to the diabetes. Comorbidities were narrowed down to a subset of conditions which are typically present in patients with Type 2 diabetes. Comorbidities of Type 2 diabetes include, but are not limited to, congestive heart failure, coronary artery disease, dysmetabolic syndrome, hyperlipidemia, hypertension and obesity.

3 Includes Blue Cross/Blue Shield, HMOs, PPOs, point-of-service plans and exclusive provider organizations.
Average annual hospital inpatient charges for Type 2 diabetes patients in the state of Ohio were $44,538 in 2007, moderately less than the $49,870 average for such patients nationally. Type 2 diabetes patients in the Dayton MSA, however, reported annual hospital inpatient charges of $54,215 in 2007, higher than both the state and national averages.

**HOSPITAL OUTPATIENT CHARGES INCREASE SHARPLY IN OHIO**

Between 2006 ($3,692) and 2007 ($4,574), average annual hospital outpatient charges rose notably for Type 2 diabetes patients in the state of Ohio. Yet such charges were still slightly lower than the national average (to $4,673 from $3,901 the year before). Type 2 diabetes patients in the Cleveland MSA reported average hospital outpatient charges of $3,293 in 2007, up from $3,194 in 2006, well below both the state and national marks.

*Figures reflect the charges generated for Type 2 diabetes patients by the facilities that delivered care. The data also reflect the average amounts charged in Type 2 diabetes patient claims, not the amount the claims paid.
PROFESSIONAL INPATIENT CHARGES DROP IN COLUMBUS
Average professional inpatient charges for Type 2 diabetes patients in the Columbus MSA declined in 2007, to $3,535 from $3,699 in 2006. Of the nine Ohio markets profiled, such charges were lower only for Type 2 diabetes patients in Youngstown, at $3,181, up fractionally from $3,145 the previous year. Statewide, average professional inpatient charges increased moderately, to $5,017 in 2007 from $4,627 in 2006.

HOSPITAL OUTPATIENT PROVIDER CHARGES ARE LOW IN OHIO
In 2007, average hospital outpatient professional charges per year for Type 2 diabetes patients were substantially lower in Ohio than for such patients across the nation ($1,919), regardless of the Ohio market profiled. In Dayton, for example, hospital outpatient professional charges rose slightly, to $1,726 from $1,623 the year before, the highest by Ohio market, but still moderately lower than the national average.

* Professional charges are those generated by the providers delivering care to Type 2 diabetes patients in various settings.
** Ambulatory surgery center.
In 2007, average professional hospital inpatient charges for Type 2 diabetes patients with commercial insurance were less than those of the nation ($4,916) in eight of nine Ohio markets profiled (Dayton, at $5,384, being the exception). Such provider charges were lowest, by Ohio market, for commercially insured patients with Type 2 diabetes in the Youngstown MSA, to $2,727 from $1,826 the previous year.

**Professional Inpatient Charges Are Low**

Professional outpatient charges for care delivered to Type 2 diabetes patients in Akron with Medicare coverage increased notably in 2007, to $2,229 from $1,879 in 2006, highest of the nine Ohio markets listed by a wide margin. By comparison, Type 2 diabetes patients in the Columbus MSA with Medicare coverage saw such charges decline over this period, to $866 from $903 the year before, lowest of the nine Ohio markets.

### Professional Inpatient Charges Per Year for Type 2 Diabetes Patients, by Payer Type*

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### Professional Outpatient Charges Per Year for Type 2 Diabetes Patients, by Payer Type*

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### Professional Office/Clinic Charges Per Year for Type 2 Diabetes Patients, by Payer Type, 2007*

- **Commercial Insurance**
- **Medicaid**
- **Medicare**

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Data source: Verispan LLC © 2008

*Professional charges are those generated by the providers delivering care to Type 2 diabetes patients in various settings.*

**Includes Blue Cross/Blue Shield, HMOs, PPOs, point-of-service plans and exclusive provider organizations.*

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**Ohio Commercial Inpatient Provider Charges Are Low**

In 2007, average professional hospital inpatient charges for Type 2 diabetes patients with commercial insurance were less than those of the nation ($4,916) in eight of nine Ohio markets profiled (Dayton, at $5,384, being the exception). Such provider charges were lowest, by Ohio market, for commercially insured patients with Type 2 diabetes in the Youngstown MSA, to $2,727 from $1,826 the previous year.

**Op Charge Average Rises for Medicare Patients in Akron**

Professional outpatient charges for care delivered to Type 2 diabetes patients in Akron with Medicare coverage increased notably in 2007, to $2,229 from $1,879 in 2006, highest of the nine Ohio markets listed by a wide margin. By comparison, Type 2 diabetes patients in the Columbus MSA with Medicare coverage saw such charges decline over this period, to $866 from $903 the year before, lowest of the nine Ohio markets.
HIGH PERCENTAGE OF COLUMBUS PATIENTS RECEIVES A1C TESTS
The percentage of Type 2 diabetes patients in the Columbus MSA receiving an A1c test grew slightly in 2007, to 79.4% from 78.0% in 2006, the highest share of the 10 markets profiled by a considerable margin. By comparison, Type 2 diabetes patients in the Dayton MSA were least likely to receive an A1c test, at 69.0%. Meanwhile, the share of Type 2 diabetes patients nationally who received an A1c test was 73.8%, down fractionally from 73.9% the year before.

SHARE OF TOLEDO PATIENTS WITH LOW A1C LEVELS RISES
Of patients who were diagnosed with Type 2 diabetes in the Toledo MSA in 2007, 68.5% had A1c test results in the 7.0% or less range, up notably from 64.2% in 2006. The percentage of Type 2 diabetes patients across the state of Ohio with A1c test results in this lowest range was a more modest 65.3% in 2007, up from 62.3% in 2006.

* The A1c test measures the amount of glucose present in the blood during the past 3–4 months. Figures reflect the percentage of Type 2 diabetes patients who have had at least one A1c test in a given year.

** Includes Blue Cross/Blue Shield, HMOs, PPOs, point-of-service plans and exclusive provider organizations.
In 2007, 29.8% of Type 2 diabetes patients in the Canton MSA used any insulin product, down notably from 33.7% in 2006, and the lowest such mark among the Ohio markets listed. Conversely, the share of Type 2 diabetes patients in the Dayton MSA using any insulin product rose during this period, to 37.4% from 35.1% the year before, highest of the profiled Ohio markets. Nationally, 35.6% of Type 2 diabetes patients used any insulin product, up slightly from 34.8% in 2006.

**NON-INSULIN USE IN OHIO TRAILS THE NATIONAL AVERAGE**

The shares of Type 2 diabetes patients who used any non-insulin antidiabetic product in 2007 were lower in eight of nine (Canton, at 84.9%, the exception) Ohio markets profiled than they were nationally (84.8%). In Dayton (81.9%), for example, the share trailed the national average by nearly three percentage points. Meanwhile, 83.1% of Type 2 diabetes across the state of Ohio used any non-insulin antidiabetic product in 2007, up from 82.0% the previous year.

**Biguanides**: Improve insulin sensitivity; reduce the production of glucose by the liver, decrease intestinal absorption of glucose and increase the peripheral uptake and use of circulating glucose.

**Insulin Sensitizing Agents**: Improve response to insulin in liver, adipose tissue, and skeletal muscle, resulting in decreased production of glucose by the liver and increased peripheral uptake and use of circulating glucose.

**Sulfonylureas**: Stimulate the release of insulin in the pancreas.
PER-PATIENT INSULIN COSTS ARE MODEST IN OHIO MARKETS

In 2007, any insulin product payments per patient diagnosed with Type 2 diabetes per year were lower in all nine Ohio markets than they were nationally ($1,004) by a significant margin. In Youngstown ($817), for example, such payments were 18.6% less than the national average. Similarly, the average payment per year for any non-insulin antidiabetic product per Type 2 diabetes patient was also notably less in every Ohio market profiled than the national average ($567).

BIGUANIDE COSTS DECLINE SHARPLY FOR OHIO PATIENTS

Average costs per Type 2 diabetes patient per year for biguanides fell notably in the state of Ohio in 2007, to $79 from $104 in 2006. During the same period, average payments also dropped for Ohio Type 2 diabetes patients using sulfonylureas, to $88 from $104 the year before. In contrast, average costs per Type 2 diabetes patient per year for insulin sensitizing agents increased in Ohio, to $884 from $826 in 2006.

BIGUANIDES: Improve insulin sensitivity; reduce the production of glucose by the liver, decrease intestinal absorption of glucose and increase the peripheral uptake and use of circulating glucose.

SULFONYLUREAS: Stimulate the release of insulin in the pancreas.
MORE THAN 50% OF OHIO PATIENTS ARE PERSISTENT AT MO. 12

In the twelfth month of treatment, 52.4% of Type 2 diabetes patients in Ohio who were prescribed long-acting insulin remained persistent. Similarly, 51.7% of Type 2 diabetes patients nationally who were receiving long-acting insulin continued and/or restarted by their twelfth month of treatment.

CINCINNATI INSULIN SENSITIZING AGENT PERSISTENCY IS HIGH

From the sixth month through the twelfth month of treatment, Type 2 diabetes patients in Cincinnati were most likely to be persistent using insulin sensitizing agents. For example, 63.5% of these patients continued and/or restarted their insulin sensitizing agents by the seventh month of treatment, the greatest share, by market, by more than four percentage points.

NON-INSULIN PERSISTENCY IS LOW IN YOUNGSTOWN

Just 65.9% of Type 2 diabetes patients who were prescribed non-insulin antidiabetic combinations in Youngstown remained persistent by the second month of treatment. By the eleventh month, less than one-third (31.7%) of these patients continued and/or restarted their non-insulin antidiabetic treatments.
The Business Health Coalitions of Ohio, in conjunction with sanofi-aventis U.S. LLC, are pleased to bring you this third edition of the Ohio Type 2 Diabetes Report.

The report features key national, state and local Type 2 diabetes data from the sanofi-aventis Managed Care Digest Series®.

- Demographics
- Hospital and Professional Charges
- Use of Services
- Pharmacotherapy
- Persistency

We look forward to providing you with another Ohio Type 2 Diabetes Report in 2009.