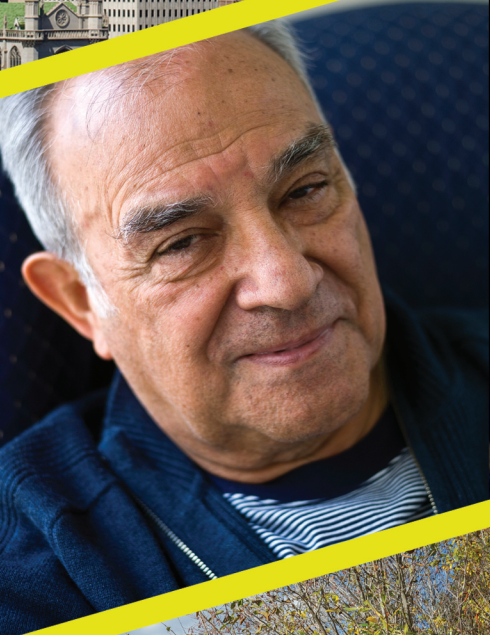




# COLORADO

## Type 2 Diabetes Report *2010*

Featuring Demographic, Utilization and Pharmacotherapy Data



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## Introduction

The Colorado Business Group on Health (CBGH) is pleased to present the **Colorado Type 2 Diabetes Report** for 2010, an overview of demographic, financial, utilization and pharmacotherapy measures for Type 2 diabetes patients in key local markets across the state of Colorado. The overview also provides state and national benchmarks that can help providers and employers identify better opportunities to serve the needs of their patients. All data are drawn from the **Managed Care Digest Series®**.

The **Colorado Type 2 Diabetes Report** helps CBGH to fulfill its mission to advance the purchaser role to accelerate cost-effective, high-quality healthcare.

This sixth edition features a number of examples of the kinds of patient-level,

disease-specific data on Type 2 diabetes that can be provided using the **Managed Care Digest Series®** as a resource. CBGH chose Type 2 diabetes (a chronic [lifelong] disease marked by high levels of sugar [glucose] in the blood) as the focus of this resource, as the Centers for Disease Control estimates 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 2008 and 2009) were gathered by SDI, Plymouth Meeting, Pa., a leading provider of innovative health care data products and analytic services. The data provide employers with independent, third-party information against which they can benchmark their own data on patient demographics, professional and facility charges, service utilization and pharmacotherapy.

## Data Methodology

SDI generated data for this **Managed Care Digest Series®** database using health care professional and institutional insurance claims, representing more than 8.3 million unique patients nationally in 2009 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.

SDI also gathers data on prescription activity from the National Council for Prescription Drug Programs (NCPDP). These data represent some 8 billion prescription claims annually, or more than 50% of the prescription universe. These 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. Cash, mail-order, Medicaid, and third-party transactions are tracked.

## Data Integrity

Data arriving into SDI 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, SDI creates a unique, random numerical identifier for each patient, then strips away all patient-specific health information that is protected under the Health Insurance Portability and Accountability Act (HIPAA). The identifier allows SDI 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.

The role of the CBGH is to help make these data more widely available to interested parties.

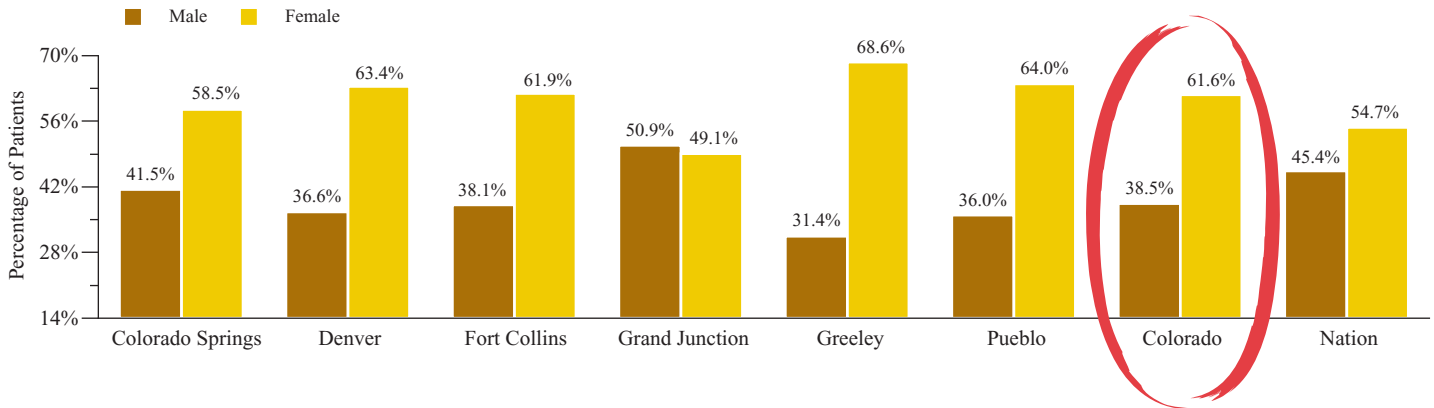
# PATIENT DEMOGRAPHICS

**A1: PERCENTAGE OF TYPE 2 DIABETES PATIENTS, BY AGE<sup>1</sup>**

| MARKET        | 0-17        |             | 18-35       |             | 36-64        |              | 65-79        |              | 80+          |              |
|---------------|-------------|-------------|-------------|-------------|--------------|--------------|--------------|--------------|--------------|--------------|
|               | 2008        | 2009        | 2008        | 2009        | 2008         | 2009         | 2008         | 2009         | 2008         | 2009         |
| Colo. Springs | 0.4%        | 0.4%        | 5.8%        | 4.5%        | 67.7%        | 57.3%        | 21.7%        | 30.2%        | 4.5%         | 7.6%         |
| Denver        | 0.6         | 0.5         | 4.3         | 3.7         | 56.8         | 56.7         | 29.0         | 29.8         | 9.3          | 9.3          |
| Fort Collins  | —           | —           | 3.6         | 3.9         | 56.4         | 54.9         | 30.4         | 32.3         | 9.5          | 8.8          |
| Gr. Junction  | —           | —           | 1.2         | 1.1         | 39.2         | 34.8         | 44.2         | 47.7         | 15.4         | 16.3         |
| Greeley       | —           | —           | 9.1         | 6.5         | 59.2         | 52.9         | 24.4         | 30.9         | 7.2          | 9.6          |
| Pueblo        | 0.4         | 0.3         | 4.2         | 4.1         | 50.8         | 50.7         | 33.8         | 33.1         | 10.9         | 11.8         |
| Colorado      | 0.5         | 0.5         | 4.4         | 3.8         | 57.1         | 55.9         | 28.9         | 30.4         | 9.2          | 9.4          |
| <b>NATION</b> | <b>0.4%</b> | <b>0.4%</b> | <b>3.2%</b> | <b>3.1%</b> | <b>48.4%</b> | <b>47.2%</b> | <b>34.7%</b> | <b>35.4%</b> | <b>13.4%</b> | <b>13.9%</b> |

**CO TYPE 2s ARE APT TO BE WORKING AGE**  
Across the state of Colorado, Type 2 diabetes patients were more likely to be of working age (18 to 64) in calendar year 2009 than such patients across the nation (see table A1). This correlated to higher-than-average percentages of commercially insured Type 2 diabetes patients across the state (see table A3).

**A2: PERCENTAGE OF TYPE 2 DIABETES PATIENTS, BY GENDER, 2009<sup>1</sup>**



**A3: PERCENTAGE OF TYPE 2 DIABETES PATIENTS, BY PAYER TYPE<sup>1</sup>**

| MARKET         | Commercial Insurance <sup>2</sup> |              | Medicaid    |             | Medicare     |              | Other <sup>3</sup> |             |
|----------------|-----------------------------------|--------------|-------------|-------------|--------------|--------------|--------------------|-------------|
|                | 2008                              | 2009         | 2008        | 2009        | 2008         | 2009         | 2008               | 2009        |
| Colo. Springs  | 72.8%                             | 60.7%        | 2.9%        | 3.3%        | 20.0%        | 30.7%        | 4.3%               | 5.3%        |
| Denver         | 66.3                              | 65.4         | 3.4         | 3.8         | 28.2         | 26.7         | 2.2                | 4.0         |
| Fort Collins   | 68.8                              | 69.4         | 1.1         | 1.9         | 27.6         | 26.4         | 2.5                | 2.3         |
| Grand Junction | 56.0                              | 52.2         | 1.3         | 2.2         | 41.2         | 44.4         | 1.4                | 1.2         |
| Greeley        | 64.6                              | 56.6         | 2.3         | 2.7         | 31.0         | 39.2         | 2.2                | 1.2         |
| Pueblo         | 46.7                              | 47.8         | 9.6         | 9.9         | 41.0         | 39.6         | 2.7                | 2.7         |
| Colorado       | 65.1                              | 63.4         | 3.6         | 4.6         | 28.9         | 28.0         | 2.4                | 4.0         |
| <b>NATION</b>  | <b>51.0%</b>                      | <b>49.6%</b> | <b>6.1%</b> | <b>7.2%</b> | <b>38.1%</b> | <b>36.8%</b> | <b>4.9%</b>        | <b>6.4%</b> |

<sup>1</sup> On all pages in this Report, the percentages are representative of the universe of Type 2 diabetes patients on whom claims data have been collected in a given year.

<sup>2</sup> Includes HMOs, PPOs, point-of-service plans and exclusive provider organizations.

<sup>3</sup> “Other” includes government, Department of Veterans Affairs and others.

NOTE: The Fort Collins MSA also includes Loveland.

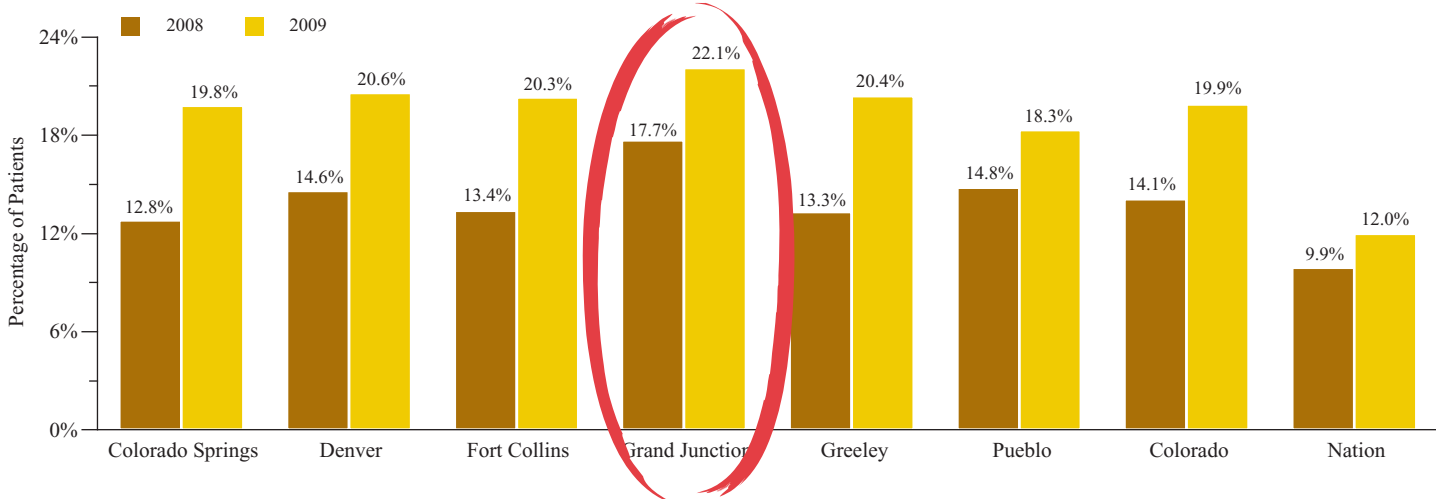
Data source: SDI © 2010

\* 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, cardiovascular disease, hypoglycemia, nephropathy, neuropathy and retinopathy.

**B1: PERCENTAGE OF TYPE 2 DIABETES PATIENTS, BY NUMBER OF COMPLICATIONS\***

| MARKET         | 0            |              | 1            |              | 2           |             | >2          |             |
|----------------|--------------|--------------|--------------|--------------|-------------|-------------|-------------|-------------|
|                | 2008         | 2009         | 2008         | 2009         | 2008        | 2009        | 2008        | 2009        |
| Colo. Springs  | 58.9%        | 47.0%        | 28.3%        | 33.3%        | 9.6%        | 13.7%       | 3.2%        | 6.1%        |
| Denver         | 55.1         | 47.9         | 30.3         | 31.4         | 10.8        | 14.5        | 3.8         | 6.1         |
| Fort Collins   | 55.4         | 43.8         | 31.2         | 35.8         | 9.8         | 14.8        | 3.6         | 5.5         |
| Grand Junction | 37.0         | 34.3         | 45.3         | 43.6         | 13.7        | 17.2        | 4.0         | 4.9         |
| Greeley        | 54.6         | 46.0         | 32.2         | 33.6         | 10.1        | 14.7        | 3.2         | 5.7         |
| Pueblo         | 58.0         | 54.3         | 27.3         | 27.3         | 12.1        | 14.3        | 2.7         | 4.0         |
| Colorado       | 56.2         | 48.8         | 29.8         | 31.4         | 10.6        | 14.2        | 3.5         | 5.7         |
| <b>NATION</b>  | <b>61.6%</b> | <b>58.5%</b> | <b>28.6%</b> | <b>29.4%</b> | <b>7.8%</b> | <b>9.1%</b> | <b>2.1%</b> | <b>2.9%</b> |

**B2: PERCENTAGE OF TYPE 2 DIABETES PATIENTS WITH TWO OR MORE COMPLICATIONS\***



**2+ COMPLICATION SHARES IN COLORADO MARKETS EXCEED U.S.**

Not only were the shares of Type 2 diabetes patients diagnosed with multiple complications greater in all seven Colorado markets sampled than across the U.S., but such shares also grew for all seven Colorado markets between 2008 and 2009. Grand Junction, where more than one in every five (22.1%) Type 2 diabetes patients was diagnosed with multiple complications in 2009, had the highest such rate of all eight markets profiled (see graph B2).

**B3: PERCENTAGE OF TYPE 2 DIABETES PATIENTS, BY TYPE OF COMPLICATION, 2009\***

| MARKET         | Cardiovascular Disease | Neuropathy   | Nephropathy  | Retinopathy  | Hypoglycemia |
|----------------|------------------------|--------------|--------------|--------------|--------------|
| Colo. Springs  | 46.9%                  | 23.0%        | 17.9%        | 9.1%         | 3.1%         |
| Denver         | 43.2                   | 22.0         | 17.8         | 13.0         | 4.0          |
| Fort Collins   | 51.4                   | 20.8         | 15.5         | 9.2          | 3.2          |
| Grand Junction | 60.4                   | 15.8         | 15.2         | 6.5          | 2.2          |
| Greeley        | 31.2                   | 44.1         | 12.2         | 9.5          | 3.0          |
| Pueblo         | 50.5                   | 26.1         | 14.2         | 6.8          | 2.5          |
| Colorado       | 44.8                   | 22.8         | 17.2         | 11.5         | 3.7          |
| <b>NATION</b>  | <b>45.4%</b>           | <b>20.6%</b> | <b>18.2%</b> | <b>11.9%</b> | <b>3.9%</b>  |

Data source: SDI © 2010

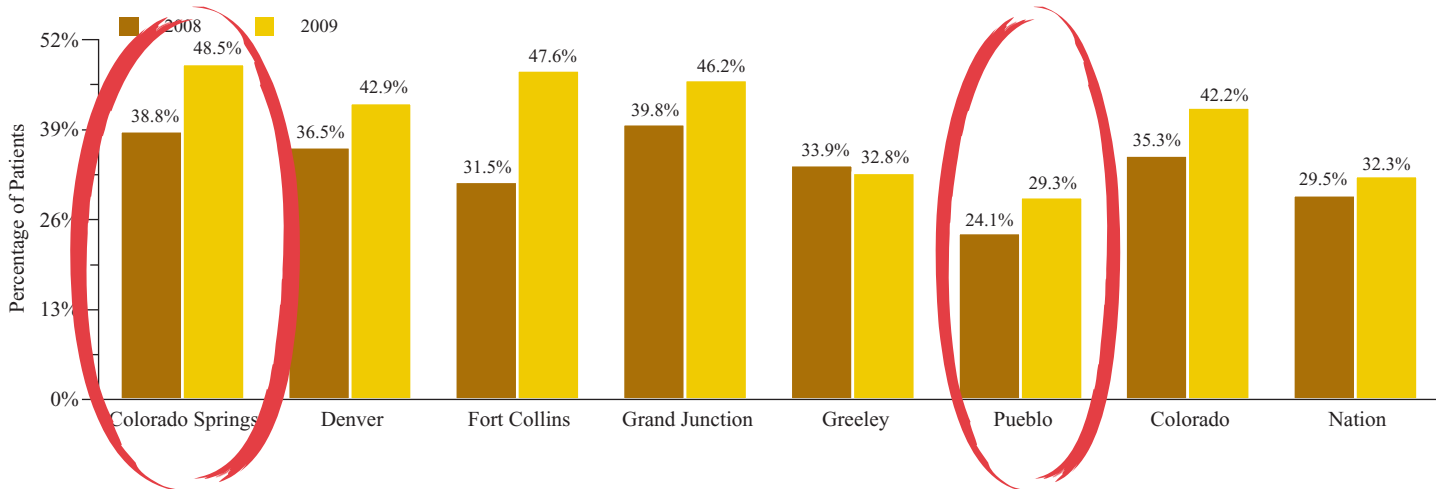
# PATIENT DEMOGRAPHICS

**C1: PERCENTAGE OF TYPE 2 DIABETES PATIENTS, BY NUMBER OF COMORBIDITIES\***

| MARKET         | 0            |              | 1            |              | 2            |              | >2          |             |
|----------------|--------------|--------------|--------------|--------------|--------------|--------------|-------------|-------------|
|                | 2008         | 2009         | 2008         | 2009         | 2008         | 2009         | 2008        | 2009        |
| Colo. Springs  | 34.7%        | 28.4%        | 26.5%        | 23.1%        | 30.2%        | 34.7%        | 8.6%        | 13.8%       |
| Denver         | 42.1         | 36.3         | 21.4         | 20.8         | 28.3         | 30.5         | 8.2         | 12.4        |
| Fort Collins   | 47.7         | 32.5         | 20.9         | 20.0         | 24.5         | 33.6         | 7.0         | 14.0        |
| Grand Junction | 38.9         | 31.0         | 21.2         | 22.8         | 29.3         | 31.2         | 10.5        | 15.0        |
| Greeley        | 44.2         | 50.3         | 22.0         | 16.9         | 26.5         | 23.0         | 7.4         | 9.8         |
| Pueblo         | 61.5         | 55.6         | 14.4         | 15.0         | 19.0         | 21.5         | 5.1         | 7.8         |
| Colorado       | 43.1         | 37.4         | 21.6         | 20.5         | 27.5         | 30.0         | 7.8         | 12.2        |
| <b>NATION</b>  | <b>47.6%</b> | <b>46.0%</b> | <b>22.9%</b> | <b>21.8%</b> | <b>24.8%</b> | <b>26.2%</b> | <b>4.7%</b> | <b>6.1%</b> |

\* 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 may include, but are not limited to, congestive heart failure, dysmetabolic syndrome, hyperlipidemia, hypertension and obesity.

**C2: PERCENTAGE OF TYPE 2 DIABETES PATIENTS WITH TWO OR MORE COMORBIDITIES\***



**C3: PERCENTAGE OF TYPE 2 DIABETES PATIENTS, BY TYPE OF COMORBIDITY, 2009\***

| MARKET         | Hypertension | Hyperlipidemia | Congestive Heart Failure | Obesity     | Dysmetabolic Syndrome |
|----------------|--------------|----------------|--------------------------|-------------|-----------------------|
| Colo. Springs  | 44.0%        | 39.5%          | 8.1%                     | 7.7%        | 0.8%                  |
| Denver         | 43.8         | 38.3           | 9.0                      | 8.0         | 0.9                   |
| Fort Collins   | 43.0         | 39.7           | 8.9                      | 7.3         | 1.1                   |
| Grand Junction | 44.2         | 35.4           | 14.9                     | 4.5         | 1.1                   |
| Greeley        | 44.2         | 37.1           | 8.7                      | 9.5         | —                     |
| Pueblo         | 44.1         | 38.3           | 9.3                      | 7.6         | 0.8                   |
| Colorado       | 43.8         | 38.3           | 9.2                      | 7.8         | 0.9                   |
| <b>NATION</b>  | <b>47.3%</b> | <b>38.5%</b>   | <b>8.2%</b>              | <b>5.4%</b> | <b>0.6%</b>           |

**Dysmetabolic Syndrome**  
A syndrome marked by the presence of usually three or more of a group of factors (such as high blood pressure, abdominal obesity, high triglyceride levels, low HDL levels, and high fasting levels of blood sugar) that are linked to an increased risk of cardiovascular disease and Type 2 diabetes.

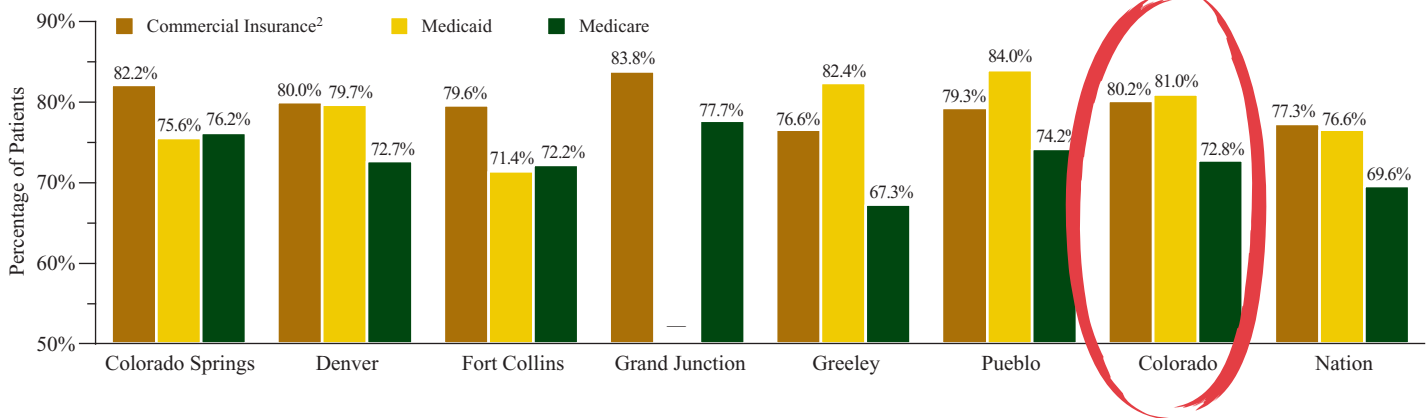
Data source: SDI © 2010

<sup>1</sup> The A1c test measures how much glucose has been in the blood during the past 2–3 months. Figures reflect the percentage of Type 2 diabetes patients who have had at least one A1c test in a given year.

**D1: PERCENTAGE OF TYPE 2 DIABETES PATIENTS, BY SERVICE**

| MARKET        | A1c Test <sup>1</sup> |       | Serum Cholesterol Test |       | Ophthalmologic Exam |       | Urine Microalbumin Test |       |
|---------------|-----------------------|-------|------------------------|-------|---------------------|-------|-------------------------|-------|
|               | 2008                  | 2009  | 2008                   | 2009  | 2008                | 2009  | 2008                    | 2009  |
| Colo. Springs | 80.3%                 | 79.8% | 83.1%                  | 83.8% | 66.5%               | 66.9% | 69.8%                   | 73.8% |
| Denver        | 76.9                  | 77.2  | 84.3                   | 84.2  | 70.5                | 69.8  | 72.7                    | 73.4  |
| Fort Collins  | 72.4                  | 76.2  | 82.7                   | 81.0  | 78.2                | 74.5  | 72.4                    | 74.5  |
| Gr. Junction  | 79.3                  | 80.9  | 88.2                   | 87.7  | 63.9                | 67.9  | 70.4                    | 77.8  |
| Greeley       | 76.6                  | 72.2  | 81.6                   | 81.2  | 65.7                | 68.8  | 68.5                    | 72.6  |
| Pueblo        | 75.2                  | 77.1  | 82.2                   | 83.3  | 66.3                | 66.5  | 72.2                    | 73.6  |
| Colorado      | 77.2                  | 77.2  | 84.1                   | 84.0  | 69.2                | 69.4  | 72.4                    | 73.5  |
| NATION        | 73.8%                 | 73.6% | 83.9%                  | 83.9% | 69.4%               | 69.4% | 71.1%                   | 71.3% |

**D2: PERCENTAGE OF TYPE 2 DIABETES PATIENTS RECEIVING A1c TESTS<sup>1</sup>, BY PAYER TYPE, 2009**



<sup>2</sup> Includes HMOs, PPOs, point-of-service plans and exclusive provider organizations.

<sup>3</sup> An A1c level greater than 9.0% reflects poor control of the patient’s blood sugar and is associated with greater risk of complications.

**D3: PERCENTAGE OF TYPE 2 DIABETES PATIENTS, BY A1c LEVEL RANGE<sup>3</sup>**

| MARKET        | ≤7.0% |       | 7.1–7.9% |       | 8.0–9.0% |       | >9.0% |       |
|---------------|-------|-------|----------|-------|----------|-------|-------|-------|
|               | 2008  | 2009  | 2008     | 2009  | 2008     | 2009  | 2008  | 2009  |
| Colo. Springs | 66.9% | 62.7% | 14.3%    | 16.3% | 7.7%     | 9.0%  | 11.1% | 12.1% |
| Denver        | 63.3  | 60.9  | 16.0     | 17.5  | 9.5      | 10.3  | 11.3  | 11.4  |
| Fort Collins  | 63.6  | 66.1  | 13.2     | 16.6  | 10.0     | 8.1   | 13.2  | 9.3   |
| Gr. Junction  | 67.6  | 64.0  | 13.4     | 16.1  | 10.4     | 8.6   | 8.7   | 11.4  |
| Greeley       | 65.4  | 62.6  | 15.6     | 16.9  | 7.3      | 9.1   | 11.8  | 11.4  |
| Pueblo        | 61.7  | 59.4  | 16.5     | 17.4  | 10.3     | 11.4  | 11.5  | 11.8  |
| Colorado      | 63.5  | 61.1  | 15.8     | 17.2  | 9.4      | 10.3  | 11.3  | 11.4  |
| NATION        | 61.4% | 58.1% | 17.2%    | 18.7% | 9.9%     | 10.8% | 11.5% | 12.5% |

**A1c TEST RATE IS HIGH FOR CO TYPE 2s**  
Type 2 diabetes patients in Colorado (77.2%) were more apt than their national peers (73.6%) to receive an A1c test in 2009 (see table D1). The share of such patients who reported A1c scores at or below 7.0% in their most recent A1c test likewise exceeded the nation (see table D3).

Data source: SDI © 2010

# USE OF SERVICES: MSA COMPARISON

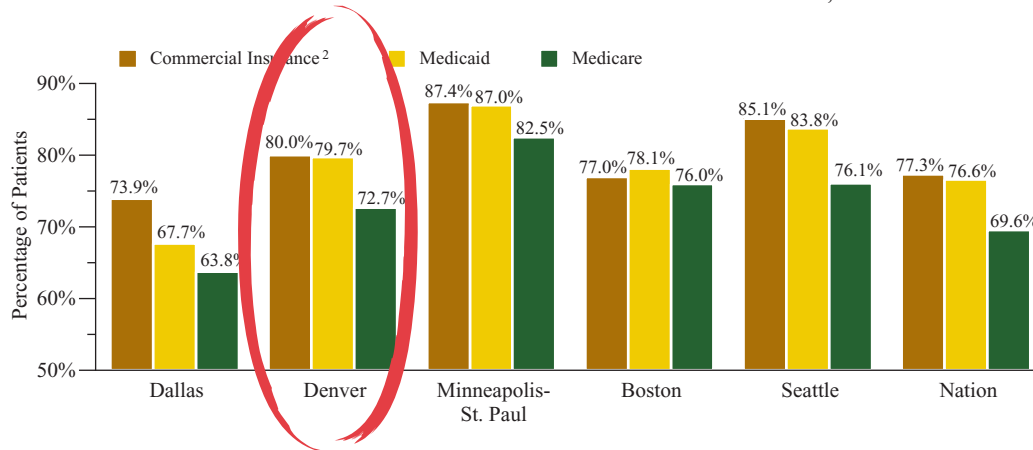
**E1: PERCENTAGE OF TYPE 2 DIABETES PATIENTS, BY SERVICE**

| MARKET                   | A1c Test <sup>1</sup> |              | Serum Cholesterol Test |              | Ophthalmologic Exam |              | Urine Microalbumin Test |              |
|--------------------------|-----------------------|--------------|------------------------|--------------|---------------------|--------------|-------------------------|--------------|
|                          | 2008                  | 2009         | 2008                   | 2009         | 2008                | 2009         | 2008                    | 2009         |
| Dallas                   | 67.3%                 | 69.0%        | 79.1%                  | 80.1%        | 63.3%               | 63.4%        | 62.8%                   | 64.2%        |
| Denver                   | 76.9                  | 77.2         | 84.3                   | 84.2         | 70.5                | 69.8         | 72.7                    | 73.4         |
| Minneapolis/<br>St. Paul | 86.0                  | 85.5         | 87.5                   | 88.2         | 77.6                | 77.9         | 82.3                    | 82.4         |
| Boston                   | 74.9                  | 76.5         | 89.8                   | 90.5         | 75.6                | 75.8         | 82.6                    | 83.0         |
| Seattle                  | 81.7                  | 81.5         | 84.4                   | 84.6         | 70.3                | 70.7         | 76.2                    | 75.9         |
| <b>NATION</b>            | <b>73.8%</b>          | <b>73.6%</b> | <b>83.9%</b>           | <b>83.9%</b> | <b>69.4%</b>        | <b>69.4%</b> | <b>71.1%</b>            | <b>71.3%</b> |

## SERVICE UTILIZATION RATES ARE LOW FOR DENVER PATIENTS

Although marginally higher than national averages, service utilization rates for Denver Type 2 diabetes patients in 2009 were lower than in both Minneapolis/St. Paul and Seattle for all types of services shown (Dallas had the lowest service utilization rates, by market, regardless of type; see table E1). For example, Denver Type 2 diabetes patients were much less likely to receive an A1c test (77.2%) than such patients in Seattle (81.5%) or Minneapolis/St. Paul (85.5%). Type 2 diabetes patients in Denver were also least likely of the five local markets profiled to have well controlled A1c levels ( $\leq 7.0\%$ ) in their most recent test (see table E3).

**E2: PERCENTAGE OF TYPE 2 DIABETES PATIENTS RECEIVING A1c TESTS, BY PAYER TYPE<sup>1</sup>**



**E3: PERCENTAGE OF TYPE 2 DIABETES PATIENTS, BY A1c LEVEL RANGE<sup>3</sup>**

| MARKET                   | $\leq 7.0\%$ |              | 7.1–7.9%     |              | 8.0–9.0%    |              | $>9.0\%$     |              |
|--------------------------|--------------|--------------|--------------|--------------|-------------|--------------|--------------|--------------|
|                          | 2008         | 2009         | 2008         | 2009         | 2008        | 2009         | 2008         | 2009         |
| Dallas                   | 64.8%        | 62.3%        | 15.3%        | 16.2%        | 8.9%        | 9.5%         | 11.0%        | 12.0%        |
| Denver                   | 63.3         | 60.9         | 16.0         | 17.5         | 9.5         | 10.3         | 11.3         | 11.4         |
| Minneapolis/<br>St. Paul | 67.1         | 65.0         | 13.8         | 14.8         | 8.3         | 8.7          | 10.8         | 11.6         |
| Boston                   | 66.7         | 63.2         | 14.6         | 15.9         | 8.6         | 9.5          | 10.2         | 11.4         |
| Seattle                  | 66.1         | 63.5         | 14.3         | 15.5         | 8.6         | 8.9          | 11.0         | 12.1         |
| <b>NATION</b>            | <b>61.4%</b> | <b>58.1%</b> | <b>17.2%</b> | <b>18.7%</b> | <b>9.9%</b> | <b>10.8%</b> | <b>11.5%</b> | <b>12.5%</b> |

<sup>1</sup> The A1c test measures how much glucose has been in the blood during the past 2–3 months. Figures reflect the percentage of Type 2 diabetes patients who have had at least one A1c test in a given year.

<sup>2</sup> Includes HMOs, PPOs, point-of-service plans and exclusive provider organizations.

<sup>3</sup> An A1c level greater than 9.0% reflects poor control of the patient's blood sugar and is associated with greater risk of complications.

NOTE: The Seattle MSA also includes Bellevue and Everett, WA.

Data source: SDI © 2010

\* Figures reflect the per-patient yearly payments for Type 2 diabetes patients receiving a particular type of therapy.

\*\* Refers to any combination of three non-insulin products.

## USE OF ANY INSULIN PRODUCT LAGS NATION IN COLORADO

Type 2 diabetes patients in Colorado reported a lower prescription fill rate for any insulin product (33.2%) than the national average (35.5%) in 2009. Only in Fort Collins (35.9%) and Pueblo (37.2%) did the percentages of such patients using any insulin product exceed the national average (see table F1).

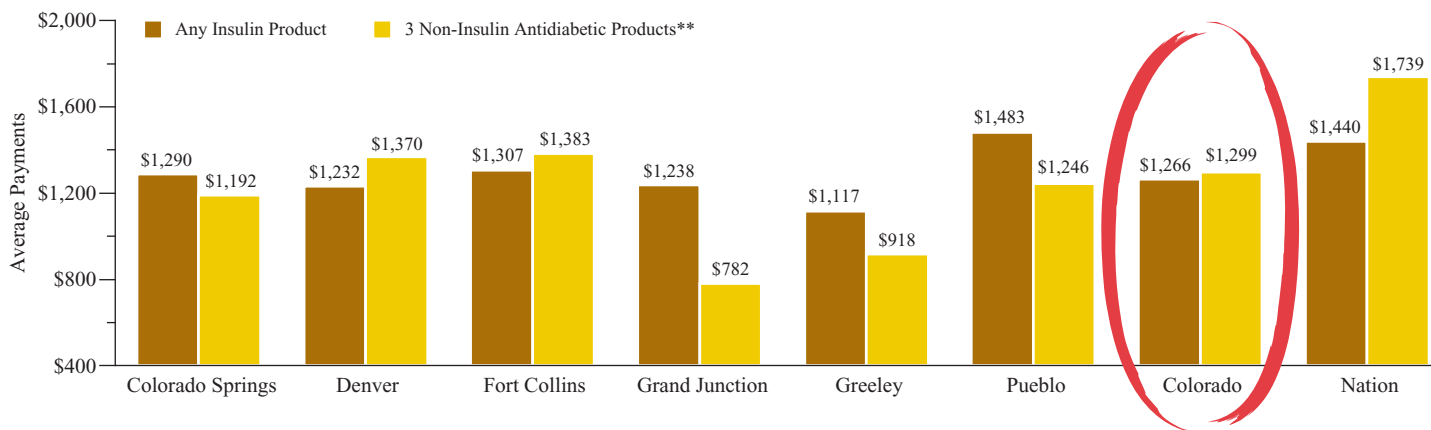
**F1: PERCENTAGE OF TYPE 2 DIABETES PATIENTS USING INSULIN THERAPIES, 2009**

| MARKET        | Any Insulin Product | Short-Acting Insulin |       | Intermediate-Acting Insulin |       | Long-Acting Insulin |       | Mixed Insulin |       |
|---------------|---------------------|----------------------|-------|-----------------------------|-------|---------------------|-------|---------------|-------|
|               |                     | Pens                 | Vials | Pens                        | Vials | Pens                | Vials | Pens          | Vials |
| Colo. Springs | 31.1%               | 4.3%                 | 10.9% | —                           | 3.1%  | 7.9%                | 13.6% | 1.1%          | 1.8%  |
| Denver        | 32.6                | 4.7                  | 11.4  | 0.3%                        | 3.7   | 7.1                 | 14.0  | 0.7           | 2.8   |
| Fort Collins  | 35.9                | 4.9                  | 14.2  | —                           | 4.4   | 5.2                 | 18.3  | 1.0           | 3.0   |
| Gr. Junction  | 31.8                | 4.0                  | 13.5  | —                           | 3.7   | 5.5                 | 18.3  | —             | 1.7   |
| Greeley       | 34.4                | 3.0                  | 10.1  | —                           | 4.6   | 6.8                 | 12.4  | 1.6           | 8.6   |
| Pueblo        | 37.2                | 5.9                  | 11.4  | —                           | 3.1   | 8.6                 | 19.7  | 1.5           | 6.6   |
| Colorado      | 33.2                | 4.6                  | 11.7  | 0.2                         | 3.6   | 7.1                 | 15.0  | 0.9           | 3.4   |
| NATION        | 35.5%               | 6.2%                 | 11.0% | 0.4%                        | 3.0%  | 9.0%                | 14.2% | 2.5%          | 5.5%  |

**F2: PERCENTAGE OF TYPE 2 DIABETES PATIENTS USING NON-INSULIN ANTIDIABETIC THERAPIES, 2009**

| MARKET        | Any Non-Insulin Antidiabetic Product | Biguanides | Sulfonylureas | Insulin Sensitizing Agents | DPP-4 Inhibitors |
|---------------|--------------------------------------|------------|---------------|----------------------------|------------------|
| Colo. Springs | 84.0%                                | 61.0%      | 27.3%         | 13.8%                      | 5.9%             |
| Denver        | 83.9                                 | 59.8       | 31.8          | 17.3                       | 7.7              |
| Fort Collins  | 79.7                                 | 56.3       | 34.7          | 13.3                       | 6.4              |
| Gr. Junction  | 84.3                                 | 67.0       | 33.7          | 10.1                       | 3.6              |
| Greeley       | 83.6                                 | 60.1       | 29.4          | 14.9                       | 4.4              |
| Pueblo        | 83.1                                 | 57.6       | 36.3          | 18.1                       | 6.4              |
| Colorado      | 83.7                                 | 60.1       | 31.8          | 16.3                       | 6.9              |
| NATION        | 84.6%                                | 55.9%      | 38.0%         | 17.0%                      | 8.5%             |

**F3: AVERAGE PAYMENTS PER TYPE 2 DIABETES PATIENT, BY TYPE OF THERAPY, 2009\***



Data source: SDI © 2010

### Biguanides (e.g., metformin)

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.

### Dipeptidyl Peptidase 4 (DPP-4) Inhibitors (e.g., sitagliptin)

Inhibit DPP-4 enzymes and slow inactivation of incretin hormones, helping to regulate glucose homeostasis through increased insulin release and decreased glucagon levels.

### Insulin Sensitizing Agents (e.g., pioglitazone)

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.

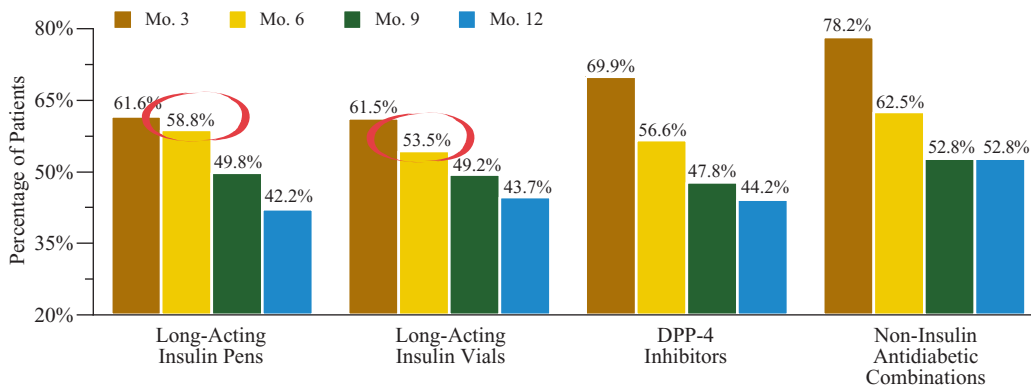
### Sulfonylureas (e.g., glimepiride)

Stimulate the release of insulin in the pancreas.

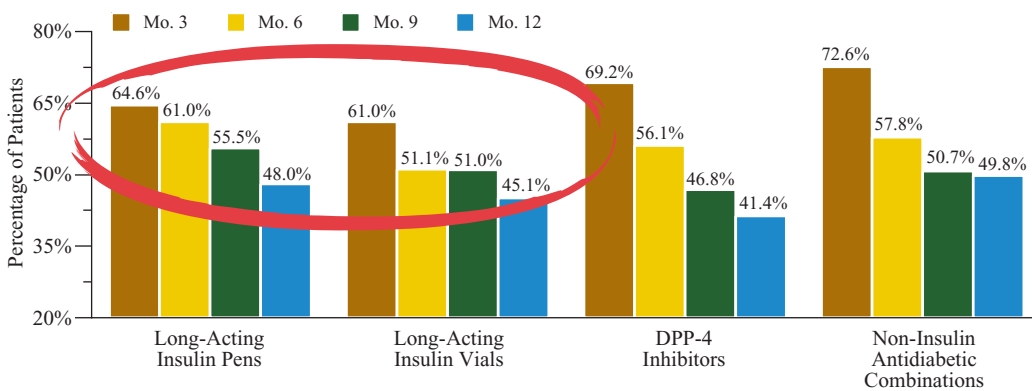


# PERSISTENCY

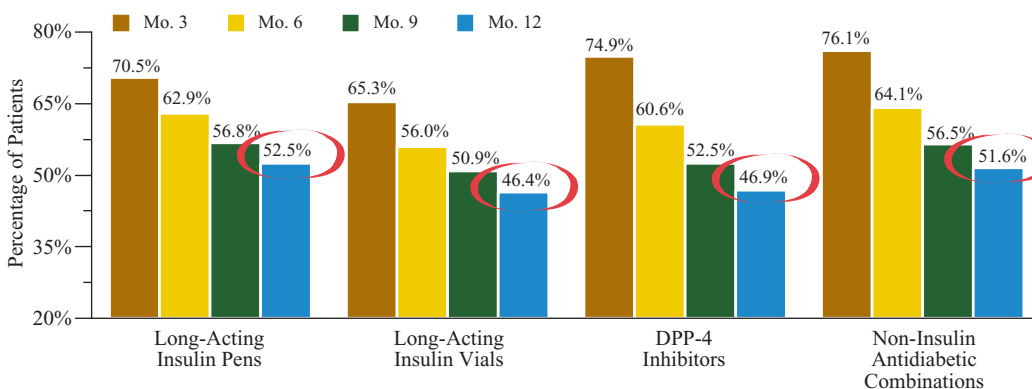
G1: PERSISTENCY: DENVER, 2009



G2: PERSISTENCY: COLORADO, 2009



G3: PERSISTENCY: NATION, 2009



NOTE: “Persistence” measures whether patients maintain their prescribed therapy. It is calculated by identifying patients who filled a prescription for the reported drug class in the four months prior to the reported year, and then tracking prescription fills for those same patients in each of the months in the current reported year. If a patient fills a prescription in a month, they are reported among the patients who have continued or restarted on therapy. Continued means that the patient has filled the drug group in each of the preceding months. Restarted means that the patient did not fill in one or more of the preceding months. Continuing and restarting patients are reported together. All patients tracked are “New to Brand,” meaning they have not filled a prescription for their cohort product during the six months prior to initiation of therapy on that product.

Data source: SDI © 2010

## Antidiabetic Combinations

Fixed-dose combinations of non-insulin antidiabetic medications utilizing different mechanisms of action; used when adequate blood sugar control cannot be obtained with a single agent.

## Dipeptidyl Peptidase 4 (DPP-4) Inhibitors

Inhibit DPP-4 enzymes and slow inactivation of incretin hormones, helping to regulate glucose homeostasis through increased insulin release and decreased glucagon levels.

## Long-Acting Insulin

Insulin replacement product with a long duration of action.

# HOSPITAL/PROFESSIONAL CHARGES

\* Figures reflect the charges generated for Type 2 diabetes patients by the facilities that delivered care.

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

NOTE: Facility charge data were reported for the state of Colorado because such data were unavailable for the Denver MSA. Facility charge data were also unavailable for the Boston MSA.

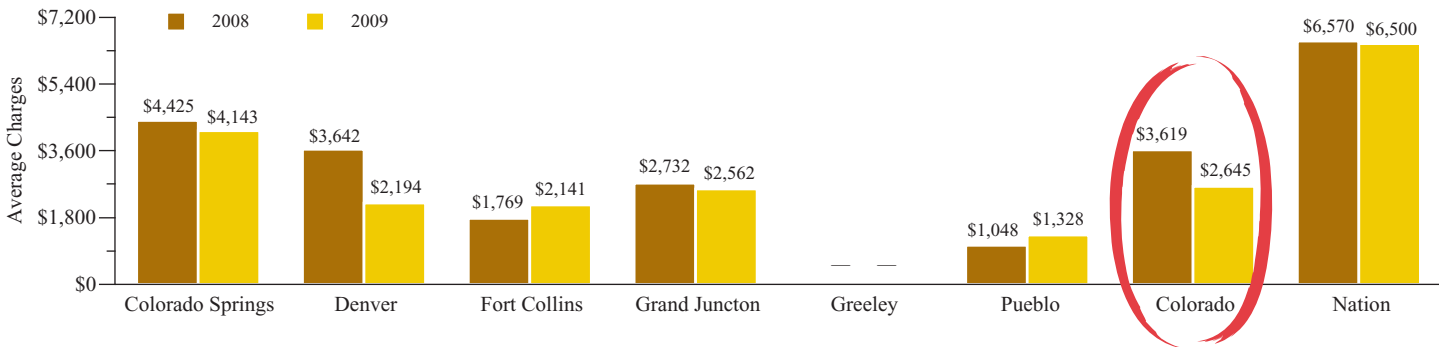
**H1: HOSPITAL CHARGES PER YEAR FOR TYPE 2 DIABETES PATIENTS\***

| MARKET                   | Emergency Room |                | Hospital Inpatient |                 | Hospital Outpatient |                |
|--------------------------|----------------|----------------|--------------------|-----------------|---------------------|----------------|
|                          | 2008           | 2009           | 2008               | 2009            | 2008                | 2009           |
| Colorado                 | \$2,160        | \$2,339        | \$41,382           | \$44,950        | \$4,269             | \$4,680        |
| Dallas                   | 1,581          | 1,695          | 54,502             | 55,111          | 5,689               | 5,515          |
| Minneapolis/<br>St. Paul | 2,120          | 2,338          | 58,209             | 58,791          | 5,406               | 5,816          |
| Seattle                  | 2,798          | 2,937          | 39,032             | 45,739          | 4,267               | 4,643          |
| <b>NATION</b>            | <b>\$1,854</b> | <b>\$1,948</b> | <b>\$52,730</b>    | <b>\$52,944</b> | <b>\$5,196</b>      | <b>\$5,656</b> |

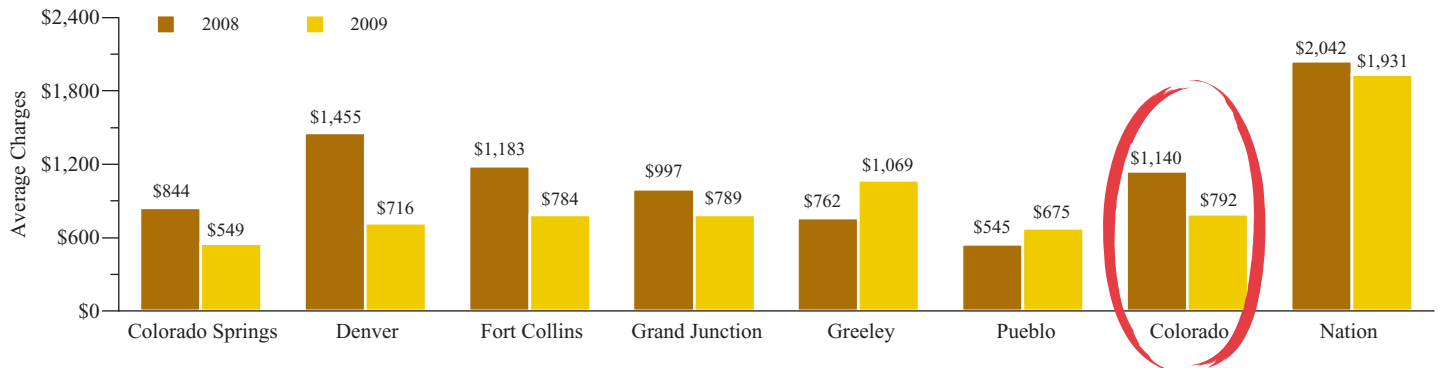
**H2: PROFESSIONAL CHARGES PER YEAR FOR TYPE 2 DIABETES PATIENTS\*\***

| MARKET           | Ambulatory Surgery Center |                | Emergency Room |              | Hospital Inpatient |                | Hospital Outpatient |                | Office/Clinic  |                |
|------------------|---------------------------|----------------|----------------|--------------|--------------------|----------------|---------------------|----------------|----------------|----------------|
|                  | 2008                      | 2009           | 2008           | 2009         | 2008               | 2009           | 2008                | 2009           | 2008           | 2009           |
| Colorado Springs | \$1,831                   | \$2,876        | \$229          | \$154        | \$4,425            | \$4,143        | \$844               | \$549          | \$788          | \$901          |
| Denver           | 2,229                     | 4,088          | 347            | 257          | 3,642              | 2,194          | 1,455               | 716            | 1,456          | 1,574          |
| Fort Collins     | —                         | 3,602          | 403            | 230          | 1,769              | 2,141          | 1,183               | 784            | 709            | 967            |
| Gr. Junction     | —                         | 4,641          | —              | —            | 2,732              | 2,562          | 997                 | 789            | 1,056          | 984            |
| Greeley          | 1,089                     | —              | —              | —            | —                  | —              | 762                 | 1,069          | 533            | 656            |
| Pueblo           | 889                       | 740            | 290            | 401          | 1,048              | 1,328          | 545                 | 675            | 501            | 493            |
| Colorado         | 2,284                     | 3,922          | 329            | 316          | 3,619              | 2,645          | 1,140               | 792            | 1,190          | 1,337          |
| <b>NATION</b>    | <b>\$3,077</b>            | <b>\$4,213</b> | <b>\$722</b>   | <b>\$646</b> | <b>\$6,570</b>     | <b>\$6,500</b> | <b>\$2,042</b>      | <b>\$1,931</b> | <b>\$3,399</b> | <b>\$3,798</b> |

**H3: PROFESSIONAL INPATIENT CHARGES PER YEAR FOR TYPE 2 DIABETES PATIENTS\*\***



**H4: PROFESSIONAL OUTPATIENT CHARGES PER YEAR FOR TYPE 2 DIABETES PATIENTS\*\***



Data source: SDI © 2010

# PROFESSIONAL CHARGES

**H5: PROFESSIONAL INPATIENT CHARGES PER YEAR FOR TYPE 2 DIABETES PATIENTS, BY PAYER TYPE\***

| MARKET         | Commercial Insurance** |                | Medicaid       |                | Medicare       |                |
|----------------|------------------------|----------------|----------------|----------------|----------------|----------------|
|                | 2008                   | 2009           | 2008           | 2009           | 2008           | 2009           |
| Colo. Springs  | \$3,328                | \$4,118        | —              | \$4,507        | —              | \$3,737        |
| Denver         | —                      | 1,930          | —              | 2,367          | —              | 2,075          |
| Fort Collins   | 1,898                  | 2,231          | —              | 1,382          | \$1,470        | 1,755          |
| Grand Junction | 2,792                  | 2,576          | \$2,521        | —              | —              | 2,529          |
| Greeley        | —                      | 4,648          | —              | —              | —              | —              |
| Pueblo         | 1,108                  | 1,358          | 948            | 1,514          | 986            | 1,240          |
| Colorado       | 3,266                  | 2,502          | 2,908          | 2,277          | 3,632          | 2,480          |
| <b>NATION</b>  | <b>\$5,211</b>         | <b>\$5,064</b> | <b>\$5,224</b> | <b>\$4,793</b> | <b>\$6,326</b> | <b>\$6,074</b> |

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

\*\* Includes HMOs, PPOs, point-of-service plans and exclusive provider organizations.

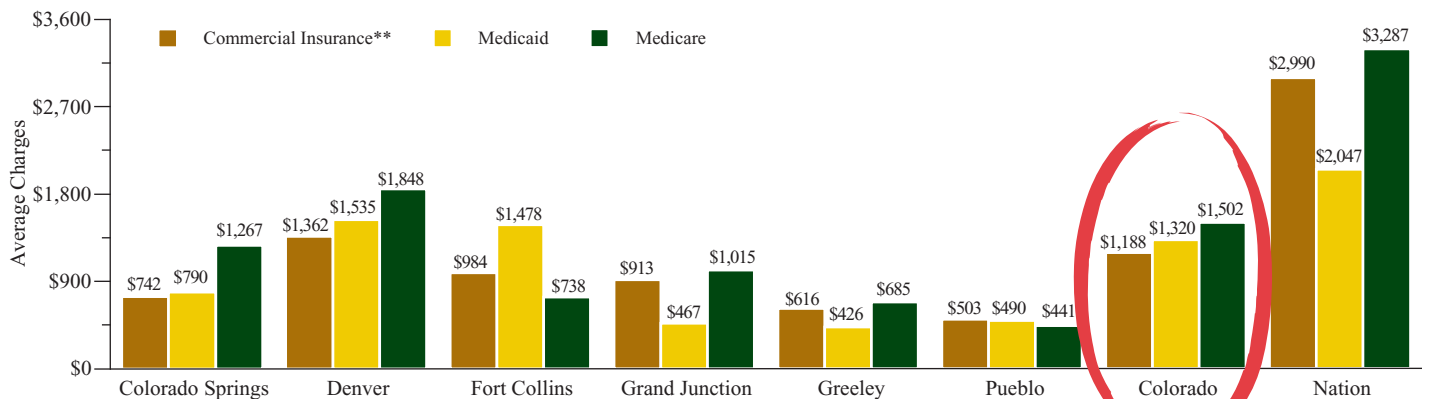
## PROVIDER CHARGES ARE LOW FOR COLORADO MARKETS

In all seven Colorado markets profiled, Type 2 diabetes patients reported annual provider charges that lagged the corresponding national marks, regardless of payer type or setting. Statewide, for instance, Colorado Type 2 diabetes patients covered by Medicare generated average provider office/clinic charges of \$1,502 in 2009, versus \$3,287 for such charges across the nation (see graph H7).

**H6: PROFESSIONAL OUTPATIENT CHARGES PER YEAR FOR TYPE 2 DIABETES PATIENTS, BY PAYER TYPE\***

| MARKET         | Commercial Insurance** |                | Medicaid       |                | Medicare       |                |
|----------------|------------------------|----------------|----------------|----------------|----------------|----------------|
|                | 2008                   | 2009           | 2008           | 2009           | 2008           | 2009           |
| Colo. Springs  | \$849                  | \$558          | —              | \$635          | —              | \$511          |
| Denver         | —                      | 638            | —              | 773            | —              | 781            |
| Fort Collins   | 1,051                  | 754            | —              | 657            | \$1,328        | 972            |
| Grand Junction | 1,083                  | 758            | \$815          | 684            | —              | 776            |
| Greeley        | 1,074                  | 1,392          | —              | —              | 453            | 592            |
| Pueblo         | 365                    | 484            | 321            | 436            | 322            | 510            |
| Colorado       | 1,118                  | 742            | 873            | 671            | 930            | 746            |
| <b>NATION</b>  | <b>\$1,934</b>         | <b>\$1,670</b> | <b>\$1,421</b> | <b>\$1,402</b> | <b>\$1,720</b> | <b>\$1,606</b> |

**H7: PROFESSIONAL OFFICE/CLINIC CHARGES PER YEAR FOR TYPE 2 DIABETES PATIENTS, BY PAYER TYPE, 2009\***



Data source: SDI © 2010

The 2009 American Diabetes Association (ADA)/European Association for the Study of Diabetes (EASD) consensus statement recommends timely use of insulin, as one approach, for patients who are not at their A1c goal. The ADA and EASD also recommend, as one approach, earlier addition of insulin in patients who do not meet glycemic goals after lifestyle intervention and metformin for 2 to 3 months.<sup>1</sup> To access the ADA's website for the latest ADA/EASD consensus statement and information on diabetes management, visit [www.diabetes.org](http://www.diabetes.org).

<sup>1</sup> Nathan DM, Buse JB, Ferrannini E, et al. Medical management of hyperglycemia in type 2 diabetes: a consensus algorithm for the initiation and adjustment of therapy. *Diabetes Care*. 2009;32(1): 193–203.

**Important Safety Information for Insulin: The most common side effect of insulin is hypoglycemia, which can be serious. Other possible side effects include injection site reactions and allergic reactions, including itching and rash. Monitor blood glucose in all patients treated with insulin.**

## 2009 ADA/EASD RECOMMENDATIONS

### Consensus Statement: Strategies for the Management of Type 2 Diabetes Mellitus

|  |   |
|--|---|
| STEP 1 At diagnosis: Lifestyle + Metformin       | Reinforce lifestyle interventions at every visit and check A1c every 3 months until A1c is <7% and then at least every 6 months.  |
| STEP 2 Tier 1: Well-validated core therapies     | Lifestyle + Metformin + Basal Insulin<br>Lifestyle + Metformin + Sulfonylurea   |
| Tier 2: Less well-validated therapies            | Lifestyle + Metformin + Pioglitazone<br>Lifestyle + Metformin + Pioglitazone + Sulfonylurea<br>Lifestyle + Metformin + GLP-1 agonist<br>Lifestyle + Metformin + Basal Insulin |
| STEP 3 Lifestyle + Metformin + Intensive Insulin |   |