

# COLORADO TYPE 2 DIABETES REPORT 2008

Featuring Demographic, Utilization,  
Charges and Pharmacotherapy Data



Colorado Business Group on Health



Presented by  
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in conjunction with the  
Colorado Business Group on Health

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## Introduction

The Colorado Business Group on Health (CBGH) is pleased to present the **Colorado Type 2 Diabetes Report** for 2008, 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** for 2008 helps CBGH to fulfill its mission of helping local employers play an active and enthusiastic role in collaboration with health plans, providers and purchasers; and to be a catalyst in promoting cost-effective delivery of quality health care to the benefit of the community.

This fourth 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 (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 5.7% of the U.S. population—have the Type 2 variety.

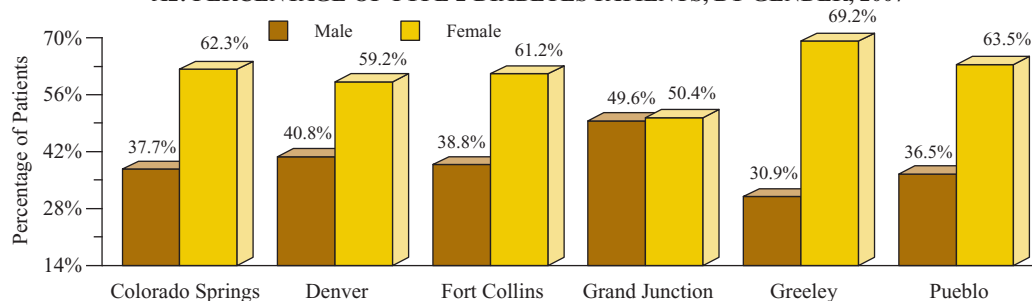
The data in this report (covering 2006 and 2007) were gathered by Verispan LLC, Yardley, Pa., a recognized leader in the health care information industry. The data provide employers with independent, third-party information against which they can benchmark their own data on patient demographics, professional (provider) and facility (hospital) charges, service utilization and pharmacotherapy.

## PATIENT DEMOGRAPHICS

**A1: PERCENTAGE OF TYPE 2 DIABETES PATIENTS, BY AGE\***

MARKET	0-17		18-35		36-64		65-79		80+	
	2006	2007	2006	2007	2006	2007	2006	2007	2006	2007
Colo. Springs	0.4%	0.7%	4.5%	5.3%	58.4%	62.3%	29.6%	24.7%	7.2%	7.0%
Denver	0.6	0.6	4.1	4.4	55.7	57.2	29.9	28.5	9.8	9.4
Fort Collins	0.3	0.1	5.2	4.1	54.9	53.9	29.3	30.5	10.2	11.4
Gr. Junction	—	—	0.3	0.4	36.7	33.2	47.6	49.8	15.4	16.6
Greeley	0.3	0.2	6.9	7.6	57.7	57.9	26.2	26.4	9.0	8.0
Pueblo	0.5	0.3	4.6	4.2	52.2	53.8	32.0	31.3	10.7	10.4
Colorado	0.5	0.5	4.3	4.4	55.5	56.4	30.1	29.2	9.6	9.5
NATION	0.4%	0.4%	3.6%	3.4%	50.6%	49.5%	33.3%	34.1%	12.1%	12.7%

**A2: PERCENTAGE OF TYPE 2 DIABETES PATIENTS, BY GENDER, 2007\***



Data source: Verispan LLC © 2008

### SHARE OF WORKING AGE TYPE 2 DIABETES PATIENTS RISES IN C.S.

The share of all patients in the Colorado Springs metropolitan statistical area (MSA) diagnosed with Type 2 diabetes who were between the ages of 18 and 64 was 67.6% in 2007, up from 62.9% in 2006, the highest mark of the eight markets listed (see table A1). By comparison, just 52.9% of patients diagnosed with Type 2 diabetes nationally were in this age category.

\* 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.

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

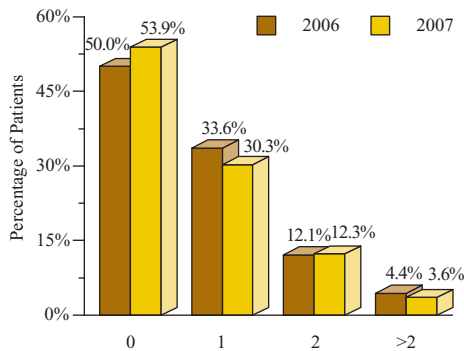
MARKET	0		1		2		>2	
	2006	2007	2006	2007	2006	2007	2006	2007
Colo. Springs	50.0%	53.9%	33.6%	30.3%	12.1%	12.3%	4.4%	3.6%
Denver	57.2	57.4	30.3	29.5	9.6	9.9	2.9	3.3
Fort Collins	62.5	60.1	27.1	27.4	8.5	9.3	1.9	3.2
Grand Junction	36.4	37.1	48.0	47.8	11.8	11.2	3.7	3.9
Greeley	54.4	52.7	35.5	35.2	8.3	9.2	1.8	3.1
Pueblo	63.4	58.8	26.3	29.4	7.9	9.2	2.4	2.7
Colorado	57.6	57.1	30.3	29.8	9.4	9.9	2.7	3.3
<b>NATION</b>	<b>64.2%</b>	<b>62.5%</b>	<b>27.5%</b>	<b>28.2%</b>	<b>6.7%</b>	<b>7.3%</b>	<b>1.7%</b>	<b>2.0%</b>

**PATIENT SHARE WITH NO COMPLICATIONS IS HIGH IN FT. COLLINS**  
Of patients diagnosed with Type 2 diabetes in the Ft. Collins MSA, 60.1% had no complications from the disease (see table B1), down from 62.5% in 2006, but still the highest patient share by MSA. By comparison, Type 2 diabetes patients in Grand Junction (37.1%) were least likely, by MSA, to have no complications. In 2007, all seven Colorado markets had shares below the national rate (62.5%).

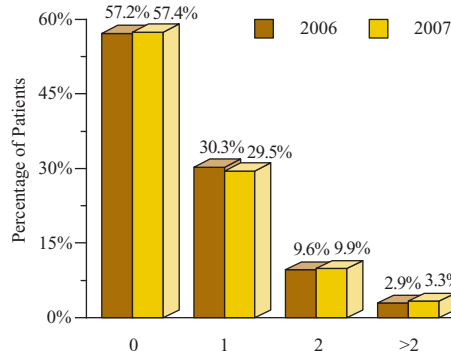
**PERCENTAGE OF TYPE 2 PATIENTS WITH MANY COMPLICATIONS RISES**  
Between 2006 and 2007, the share of Type 2 diabetes patients with more than two diagnosed complications from the disease grew in five of six MSAs listed (Colorado Springs being the lone exception). Type 2 diabetes patients in the state of Colorado saw this percentage grow slightly during this period, to 3.3% from 2.7% the year before.

**COMPLICATION-FREE PATIENT SHARE FALLS SHARPLY IN PUEBLO**  
The share of Type 2 diabetes patients in Pueblo with no diagnosed complications declined to 58.8% in 2007 from 63.4% in 2006. In spite of this drop, the share of complication-free patients in Pueblo remained higher than the Colorado state patient share (57.1%) in 2007.

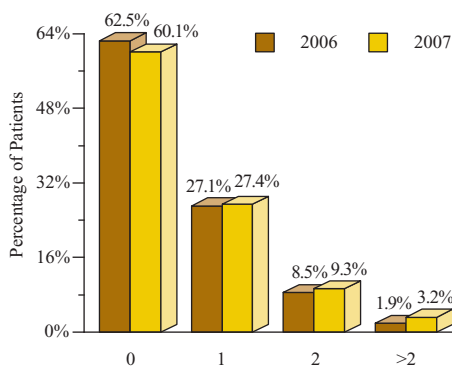
**B2: PERCENTAGE OF TYPE 2 DIABETES PATIENTS, BY NUMBER OF COMPLICATIONS, COLORADO SPRINGS\***



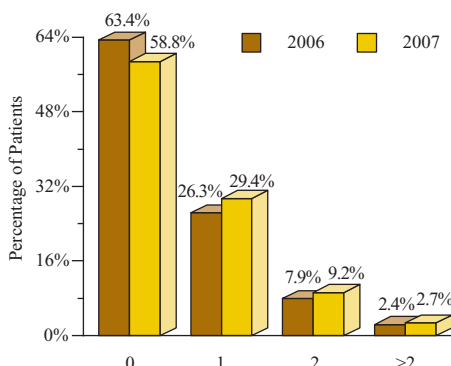
**B3: PERCENTAGE OF TYPE 2 DIABETES PATIENTS, BY NUMBER OF COMPLICATIONS, DENVER\***



**B4: PERCENTAGE OF TYPE 2 DIABETES PATIENTS, BY NUMBER OF COMPLICATIONS, FORT COLLINS\***



**B5: PERCENTAGE OF TYPE 2 DIABETES PATIENTS, BY NUMBER OF COMPLICATIONS, PUEBLO\***



Data source: Verispan LLC © 2008

\* Complications of Type 2 diabetes include, but are not limited to, coronary artery disease, hypoglycemia, nephropathy, neuropathy and retinopathy.

## LARGER SHARE OF COLORADO PATIENTS IS COMORBIDITY-FREE

Of Type 2 diabetes patients in Colorado, 40.9% were without a diagnosed comorbidity in 2007, up from 38.5% in 2006 (see table C1). The greatest share of comorbidity-free patients was in the Pueblo MSA, at 56.2%, up from 55.6% the prior year. Nationwide, this share also rose slightly, to 46.7% from 45.4% in 2006.

## PATIENT SHARE WITH TWO COMORBIDITIES IS LOWEST IN PUEBLO

In 2007, the percentage of Type 2 diabetes patients in Pueblo diagnosed with exactly two comorbidities was 19.8%, the lowest share of the eight markets listed. In contrast, nearly one-third (32.8%) of Type 2 diabetes patients in the Colorado Springs MSA had two diagnosed comorbidities, the highest share among the eight markets profiled.

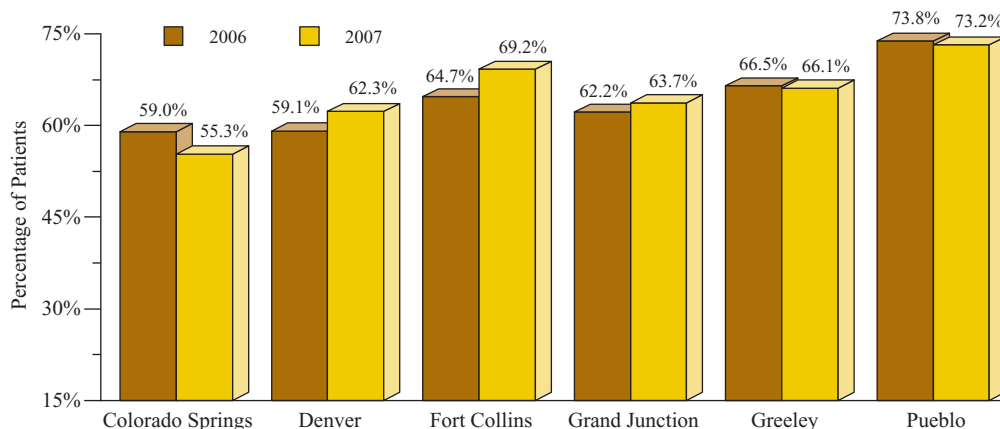
## DENVER MULTIPLE COMORBIDITY PATIENT SHARE DECREASES

The share of Type 2 diabetes patients in the Denver MSA diagnosed with two or more comorbidities fell to 37.8% in 2007 from 40.9% in 2006. Similarly, the share of Type 2 diabetes patients in the Fort Collins MSA with two or more comorbidities also fell notably, to 30.8% from 35.4% the year before.

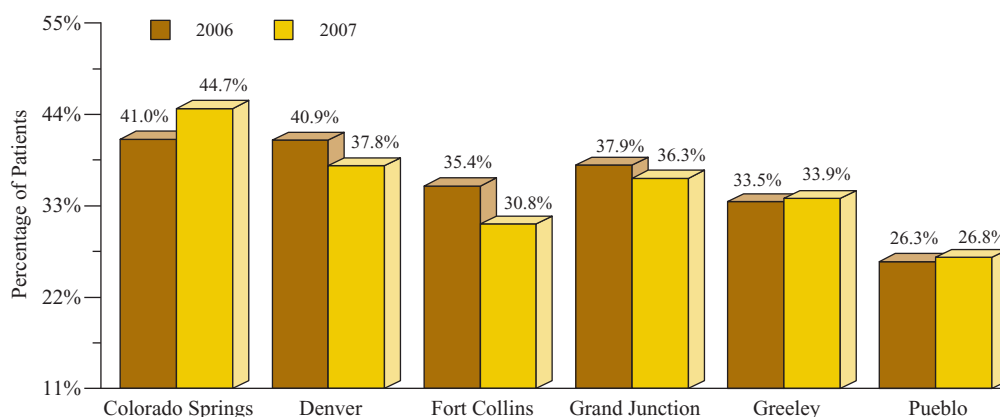
**C1: PERCENTAGE OF TYPE 2 DIABETES PATIENTS, BY NUMBER OF COMORBIDITIES\***

MARKET	0		1		2		>2	
	2006	2007	2006	2007	2006	2007	2006	2007
Colorado Springs	34.9%	29.7%	24.1%	25.6%	29.2%	32.8%	11.8%	11.9%
Denver	36.4	40.3	22.7	22.0	31.1	28.7	9.8	9.1
Fort Collins	44.7	48.6	20.0	20.6	27.5	24.0	7.9	6.8
Grand Junction	41.5	40.1	20.7	23.6	26.5	25.3	11.4	11.0
Greeley	44.5	43.6	22.0	22.5	24.3	24.8	9.2	9.1
Pueblo	55.6	56.2	18.2	17.0	19.8	19.8	6.5	7.0
Colorado	38.5	40.9	22.6	22.0	29.5	28.1	9.5	9.1
<b>NATION</b>	<b>45.4%</b>	<b>46.7%</b>	<b>24.0%</b>	<b>23.4%</b>	<b>25.0%</b>	<b>24.3%</b>	<b>5.6%</b>	<b>5.5%</b>

**C2: PERCENTAGE OF TYPE 2 DIABETES PATIENTS WITH ONE COMORBIDITY OR FEWER\***



**C3: PERCENTAGE OF TYPE 2 DIABETES PATIENTS WITH TWO OR MORE COMORBIDITIES\***



\* Comorbidities of Type 2 diabetes include, but are not limited to, congestive heart failure, coronary artery disease, dysmetabolic syndrome, hyperlipidemia, hypertension and obesity.

Data source: Verispán LLC © 2008

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

MARKET	A1c Test*		Serum Cholesterol Test		Ophthalmologic Exam		Urine Microalbumin Test	
	2006	2007	2006	2007	2006	2007	2006	2007
Colo. Springs	77.7%	79.2%	84.6%	85.1%	71.5%	65.5%	74.2%	71.4%
Denver	77.9	78.7	83.3	83.7	68.4	69.8	72.3	71.4
Fort Collins	78.0	76.0	81.9	85.3	80.8	76.0	73.0	72.0
Gr. Junction	78.0	75.6	88.0	87.4	63.0	70.9	86.0	68.5
Greeley	80.1	75.9	81.6	82.7	65.8	64.3	65.1	70.1
Pueblo	76.6	75.8	83.1	84.0	69.9	65.9	69.3	70.1
Colorado	77.9	78.4	83.3	84.0	69.0	69.2	72.2	71.3
<b>NATION</b>	<b>73.9%</b>	<b>73.8%</b>	<b>83.7%</b>	<b>83.8%</b>	<b>68.8%</b>	<b>69.2%</b>	<b>70.8%</b>	<b>71.1%</b>

## LARGER SHARE OF SPRINGS PATIENTS RECEIVES A1c TEST

The share of Type 2 diabetes patients in the Colorado Springs MSA who received an A1c test grew in 2007, to 79.2% from 77.7% in 2006, the highest share of the eight markets profiled (see table D1). Meanwhile, Type 2 diabetes patients in the Grand Junction MSA were least likely to receive an A1c test, at 75.6%, down from 78.0% the prior year.

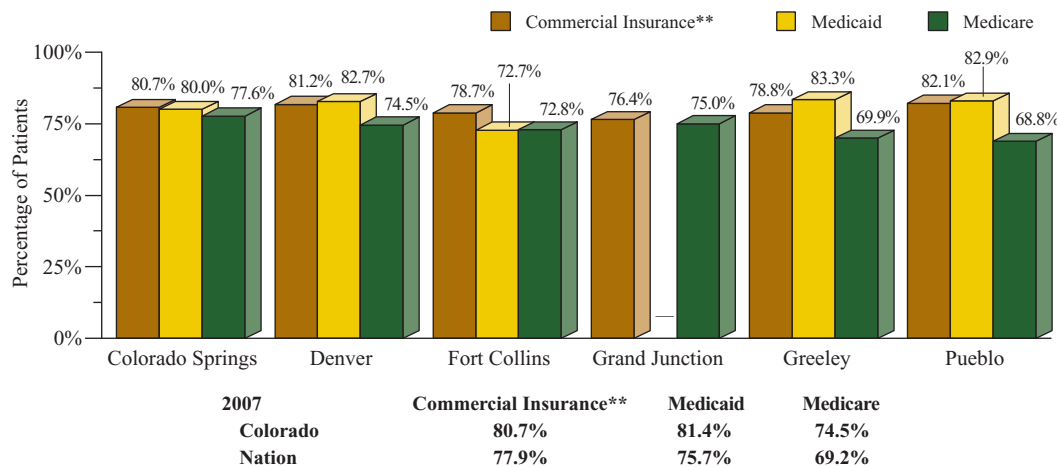
## GRAND JUNCTION PATIENT SHARE WITH EYE EXAM INCREASES

At least one ophthalmologic examination was given to 70.9% of Type 2 diabetes patients in the Grand Junction MSA, up notably from 63.0% in 2006. Although the share of Type 2 diabetes patients in Ft. Collins who received an eye examination fell, to 76.0% from 80.8% the year before, it remained the highest share, by MSA, by a wide margin.

## A1c LEVELS ARE LOW FOR TYPE 2 PATIENTS IN FORT COLLINS

Of Type 2 diabetes patients in Fort Collins, 70.1% had A1c levels of 7.0% or lower in 2007, by far the greatest percentage of the eight profiled markets. By comparison, 63.6% of Type 2 diabetes patients statewide and 61.1% of such patients nationwide recorded A1c levels of 7.0% or below.

**D2: PERCENTAGE OF TYPE 2 DIABETES PATIENTS RECEIVING A1c TEST, BY PAYER TYPE, 2007**



**D3: PERCENTAGE OF TYPE 2 DIABETES PATIENTS, BY A1c LEVEL RANGE**

MARKET	≤7.0%		7.1–7.9%		8.0–9.0%		>9.0%	
	2006	2007	2006	2007	2006	2007	2006	2007
Colo. Springs	61.5%	65.6%	16.0%	14.1%	11.6%	9.0%	11.0%	11.4%
Denver	61.3	63.4	17.7	16.5	10.0	9.6	11.0	10.5
Fort Collins	59.0	70.1	17.3	11.8	12.5	8.2	11.2	9.9
Gr. Junction	58.2	62.8	18.7	17.1	14.2	7.8	8.9	12.4
Greeley	63.7	62.4	13.7	17.1	9.7	8.5	12.8	12.0
Pueblo	60.7	63.7	18.3	16.0	10.3	8.3	10.6	12.1
Colorado	61.0	63.6	17.4	16.2	10.4	9.2	11.2	11.0
<b>NATION</b>	<b>58.3%</b>	<b>61.1%</b>	<b>18.6%</b>	<b>17.4%</b>	<b>10.9%</b>	<b>9.8%</b>	<b>12.2%</b>	<b>11.7%</b>

Data source: Verispan LLC © 2008

\* The A1c test measures how much glucose has been 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 commercial insurance companies, Blue Cross/Blue Shield, HMOs, PPOs, point-of-service plans and exclusive provider organizations.

## SHARE OF DENVER PATIENTS TAKING A1C TEST TOPS NATION

The share of patients in Denver diagnosed with Type 2 diabetes and undergoing at least one A1c test in 2007 was 78.7%, up from 77.9% in 2006 (see table E1). This percentage was well above the national average of 73.8% in 2007, which fell slightly from 73.9% the year before. Patients diagnosed with Type 2 diabetes in Minneapolis/St. Paul (85.9%) and Seattle alike (81.7%) accounted for higher A1c test shares than such patients in Denver.

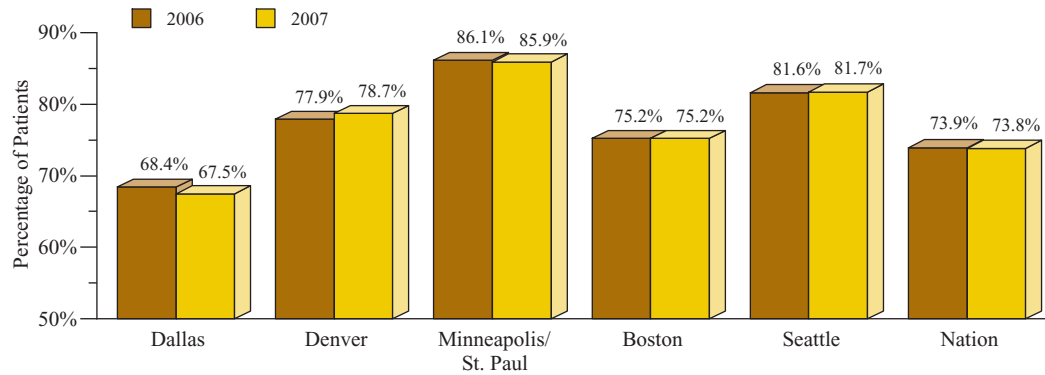
## DENVER EYE EXAM SHARE RISES PAST NATIONAL AVERAGE

The percentage of Denver Type 2 diabetes patients who were administered an ophthalmologic examination was 69.8% in 2007, slightly higher than the national average of 69.2%. By comparison, Type 2 diabetes patients in Minneapolis/St. Paul were most likely, by MSA, to receive an eye examination, at 77.8%, down slightly from 78.1% in 2006.

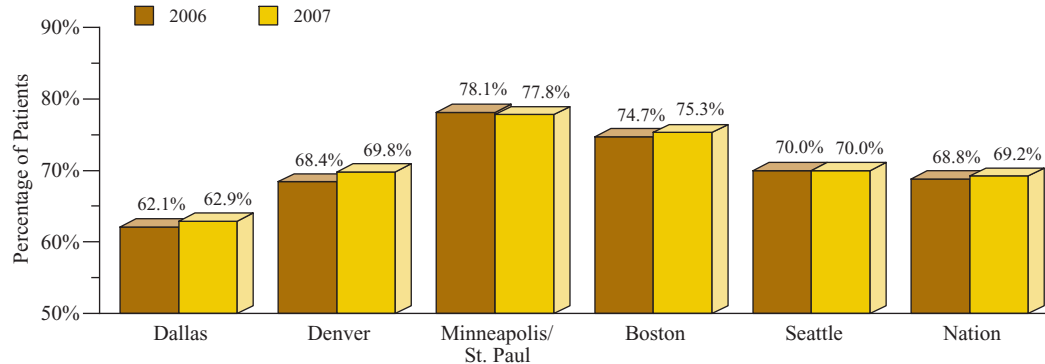
**E1: PERCENTAGE OF TYPE 2 DIABETES PATIENTS, BY SERVICE**

MARKET	A1C Test*		Serum Cholesterol Test		Ophthalmologic Exam		Urine Microalbumin Test	
	2006	2007	2006	2007	2006	2007	2006	2007
Dallas	68.4%	67.5%	79.0%	78.5%	62.1%	62.9%	62.9%	62.6%
Denver	77.9	78.7	83.3	83.7	68.4	69.8	72.3	71.4
Minneapolis/ St. Paul	86.1	85.9	87.7	88.3	78.1	77.8	81.6	82.5
Boston	75.2	75.2	89.2	89.2	74.7	75.3	81.6	82.5
Seattle	81.6	81.7	83.6	84.4	70.0	70.0	75.8	75.5
<b>NATION</b>	<b>73.9%</b>	<b>73.8%</b>	<b>83.7%</b>	<b>83.8%</b>	<b>68.8%</b>	<b>69.2%</b>	<b>70.8%</b>	<b>71.1%</b>

**E2: PERCENTAGE OF TYPE 2 DIABETES PATIENTS RECEIVING A1C TEST**



**E3: PERCENTAGE OF TYPE 2 DIABETES PATIENTS RECEIVING OPHTHALMOLOGIC EXAMINATION**



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

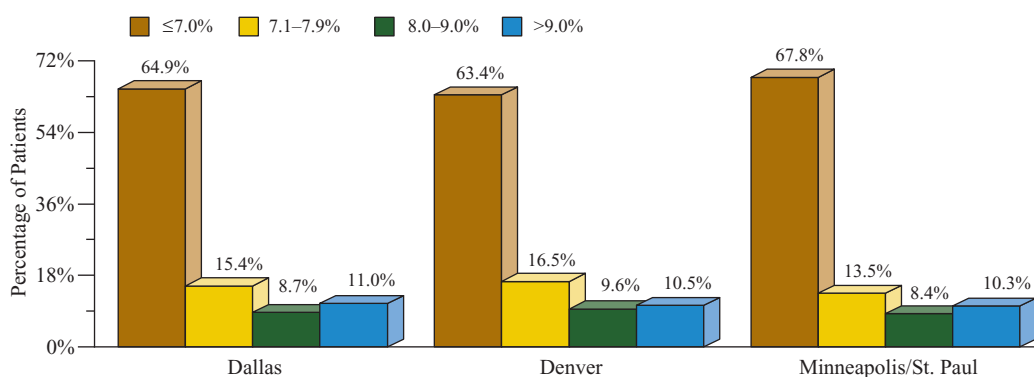
Data source: Verispan LLC © 2008

\* The A1c test measures how much glucose has been 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.

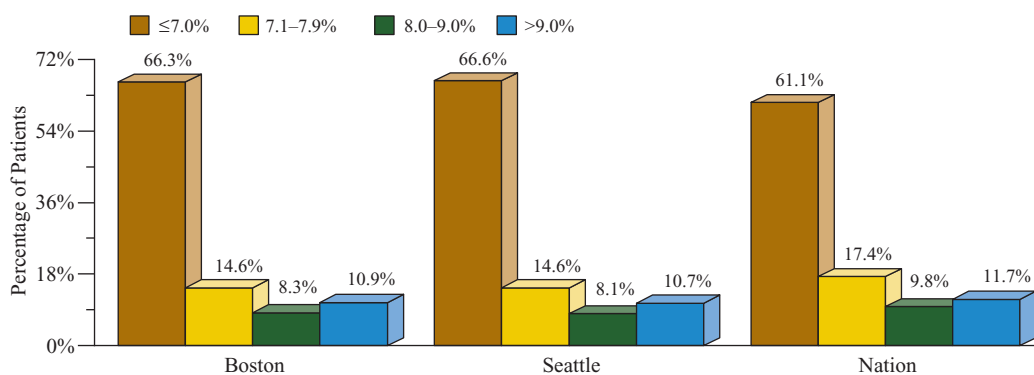
**E4: PERCENTAGE OF TYPE 2 DIABETES PATIENTS, BY A1C LEVEL RANGE**

MARKET	≤7.0%		7.1–7.9%		8.0–9.0%		>9.0%	
	2006	2007	2006	2007	2006	2007	2006	2007
Dallas	61.8%	64.9%	16.4%	15.4%	9.8%	8.7%	11.9%	11.0%
Denver	61.3	63.4	17.7	16.5	10.0	9.6	11.0	10.5
Minneapolis/ St. Paul	64.0	67.8	15.6	13.5	9.1	8.4	11.4	10.3
Boston	63.8	66.3	15.5	14.6	9.2	8.3	11.4	10.9
Seattle	63.9	66.6	15.6	14.6	9.1	8.1	11.4	10.7
<b>NATION</b>	<b>58.3%</b>	<b>61.1%</b>	<b>18.6%</b>	<b>17.4%</b>	<b>10.9%</b>	<b>9.8%</b>	<b>12.2%</b>	<b>11.7%</b>

**E5: PERCENTAGE OF TYPE 2 DIABETES PATIENTS, BY A1C LEVEL RANGE, 2007**



**E6: PERCENTAGE OF TYPE 2 DIABETES PATIENTS, BY A1C LEVEL RANGE, 2007**



Data source: Verispán LLC © 2008

**DENVER TYPE 2 DIABETES PATIENTS IMPROVE A1C LEVELS**

In 2007, 63.4% of Type 2 diabetes patients in Denver reported A1c levels of 7.0% or lower, up from 61.3% in 2006 (see table E4). Although this percentage was higher than the national average (61.1%), it lagged behind each of the four other MSAs profiled, most notably Minneapolis/St. Paul, to 67.8% from 64.0% the previous year. Overall, all five listed MSAs reported shares of patients with controlled A1c levels well above the national average in 2007.

**DENVER PATIENT SHARE WITH HIGHEST A1C LEVELS IS LOW**

Among the MSAs profiled, Denver accounted for the second-lowest percentage of Type 2 diabetes patients with A1c test levels above 9.0% in 2007, at 10.5%. Meanwhile, Type 2 diabetes patients in Minneapolis/St. Paul were least likely to have A1c levels in this highest range, at 10.3%. Nationally, 11.7% of all patients diagnosed with Type 2 diabetes recorded A1c test levels greater than 9.0%, down slightly from 12.2% in 2006.

## COLORADO TYPE 2 PATIENTS HAVE LOW INPATIENT CHARGES

Average annual hospital inpatient charges for patients diagnosed with Type 2 diabetes in Colorado were \$29,964 in 2007, down moderately from \$31,701 in 2006 (see table F1). Of the three MSAs profiled, such charges were highest for patients diagnosed with Type 2 diabetes in Pueblo (to \$43,127 from \$38,523 the prior year). By comparison, hospital inpatient charges were \$49,870 for Type 2 diabetes patients nationwide in 2007, up from \$41,381 in 2006.

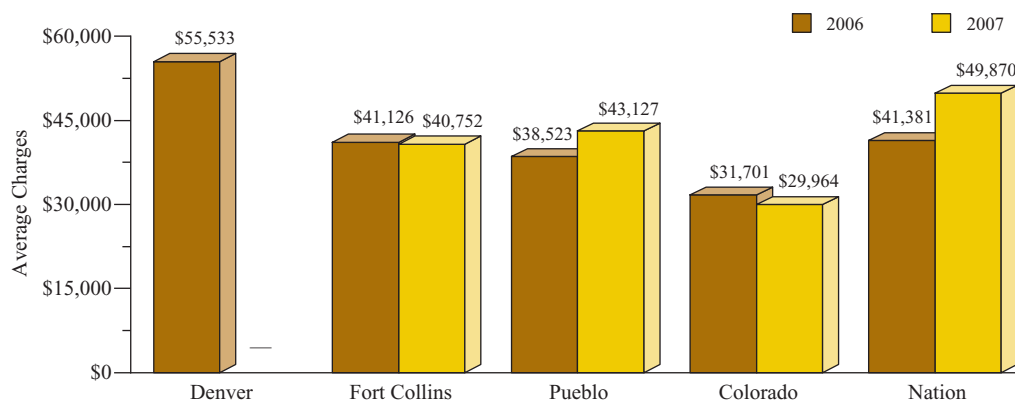
## AVERAGE ER CHARGES DECLINE FOR TYPE 2 PATIENTS IN DENVER

In 2007, average hospital emergency room (ER) charges per year for care delivered to Type 2 diabetes patients in the Denver MSA fell considerably, to \$951 from \$1,433 in 2006. Conversely, such charges increased for Type 2 diabetes patients across the state of Colorado, to \$1,698 from \$1,484 the year before. Nationally, ER charges for Type 2 diabetes patients rose sharply in 2007, to \$1,651 from \$1,299 in 2006.

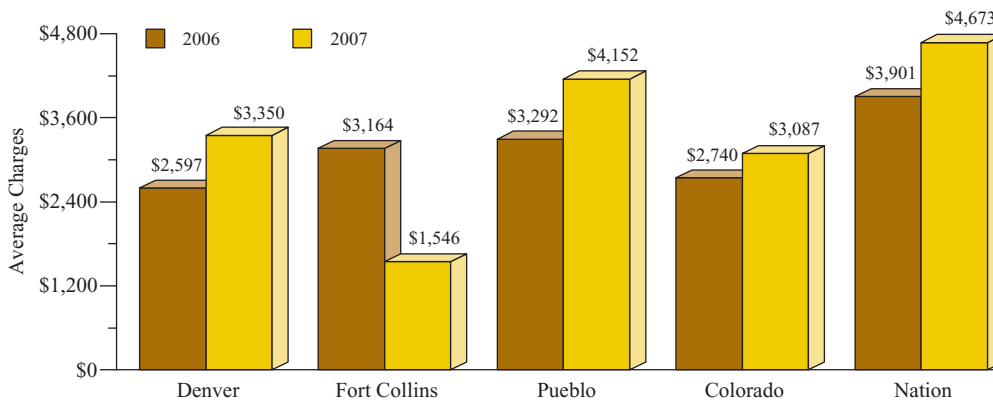
**F1: HOSPITAL CHARGES PER YEAR FOR TYPE 2 DIABETES PATIENTS\***

MARKET	Emergency Room		Hospital Inpatient		Hospital Outpatient	
	2006	2007	2006	2007	2006	2007
	Denver	\$1,433	\$951	\$55,533	—	\$2,597
Fort Collins	1,811	1,468	41,126	\$40,752	3,164	1,546
Pueblo	1,635	1,963	38,523	43,127	3,292	4,152
Colorado	1,484	1,698	31,701	29,964	2,740	3,087
<b>NATION</b>	<b>\$1,299</b>	<b>\$1,651</b>	<b>\$41,381</b>	<b>\$49,870</b>	<b>\$3,901</b>	<b>\$4,673</b>

**F2: HOSPITAL INPATIENT CHARGES PER YEAR FOR TYPE 2 DIABETES PATIENTS\***



**F3: HOSPITAL OUTPATIENT CHARGES PER YEAR FOR TYPE 2 DIABETES PATIENTS\***



NOTE: Facility charge data were unavailable for the Colorado Springs, Grand Junction and Greeley MSAs.

Data source: Verispan LLC © 2008

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



**F4: HOSPITAL INPATIENT CHARGES PER YEAR FOR TYPE 2 DIABETES PATIENTS, BY PAYER TYPE\***

MARKET	Commercial Insurance**		Medicaid		Medicare	
	2006	2007	2006	2007	2006	2007
	Denver	\$32,025	—	—	—	\$34,651
Fort Collins	28,442	\$35,305	\$34,754	\$50,058	46,310	\$41,852
Pueblo	34,819	42,046	48,515	45,057	—	—
Colorado	28,937	35,141	47,603	43,745	29,916	22,780
<b>NATION</b>	<b>\$36,468</b>	<b>\$43,606</b>	<b>\$37,917</b>	<b>\$47,039</b>	<b>\$41,689</b>	<b>\$48,839</b>

**MEDICAID HOSPITAL INPATIENT CHARGES RISE IN FORT COLLINS**

Type 2 diabetes patients in the Fort Collins MSA with Medicaid coverage reported average annual charges of \$50,058 for hospital inpatient care in 2007, up from \$34,754 in 2006 (see table F4). Such charges were moderately lower for Type 2 diabetes patients with Medicaid coverage in the state of Colorado, at \$43,745, down from \$47,603 the previous year. Hospital inpatient charges were \$47,039 for Type 2 diabetes patients nationwide with Medicaid coverage, up notably from \$37,917 in 2006.

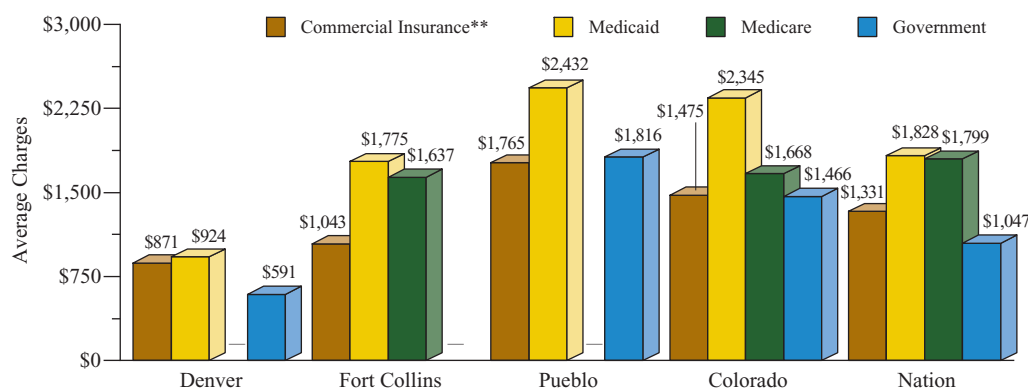
**F5: HOSPITAL OUTPATIENT CHARGES PER YEAR FOR TYPE 2 DIABETES PATIENTS, BY PAYER TYPE\***

MARKET	Commercial Insurance**		Medicaid		Medicare	
	2006	2007	2006	2007	2006	2007
	Denver	\$2,119	\$2,667	\$2,684	\$6,297	\$3,174
Fort Collins	1,884	1,427	3,925	2,132	3,923	1,568
Pueblo	2,892	4,038	3,905	4,618	—	—
Colorado	2,159	2,981	3,372	4,181	3,295	2,752
<b>NATION</b>	<b>\$3,277</b>	<b>\$4,030</b>	<b>\$3,735</b>	<b>\$4,317</b>	<b>\$4,347</b>	<b>\$5,103</b>

**OUTPATIENT CHARGES DROP FOR COLORADO MEDICARE PATIENTS**

Average annual charges for hospital outpatient care delivered to Type 2 diabetes patients with Medicare coverage in Colorado fell sharply in 2007, to \$2,752 from \$3,295 in 2006. Average annual hospital outpatient charges were considerably lower for Type 2 diabetes patients with Medicare coverage in Colorado than the national average (\$5,103) in 2007.

**F6: HOSPITAL EMERGENCY ROOM CHARGES PER YEAR FOR TYPE 2 DIABETES PATIENTS, BY PAYER TYPE, 2007\***



Data source: Verispan LLC © 2008

NOTE: Facility charge data were unavailable for the Colorado Springs, Grand Junction and Greeley MSAs.

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

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

# HOSPITAL CHARGES: MSA COMPARISON

## EMERGENCY ROOM CHARGES DECREASE NOTABLY IN DENVER

Between 2006 and 2007, emergency room (ER) charges per year for Type 2 diabetes patients in Denver fell notably, to \$951 from \$1,433 the previous year (See table G1). In contrast, each of the other three MSAs profiled saw average ER charges increase for Type 2 diabetes patients, most significantly in the Minneapolis/St. Paul MSA, to \$1,958 from \$1,614 in 2006, or 21.3%. Nationally, hospital ER charges were \$1,651 in 2007, up 27.0% from \$1,299 the prior year.

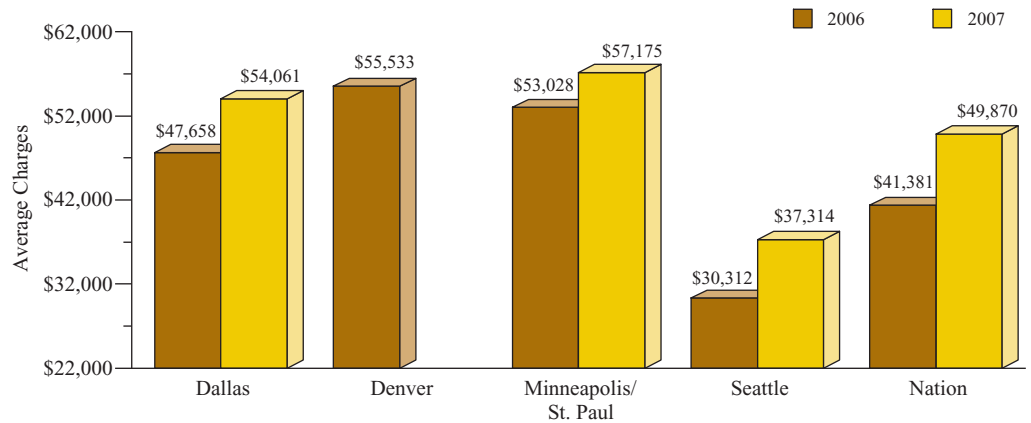
## OUTPATIENT CHARGES REMAIN LOW FOR DENVER HOSPITALS

Despite increasing nearly 30% between 2006 (\$2,597) and 2007 (\$3,350), annual hospital outpatient charges for Type 2 diabetes patients in Denver remained the lowest of the four MSAs profiled. In contrast, such charges were highest in the Dallas MSA, at \$5,406, up 21.8% from \$4,440 the year before. Average hospital outpatient charges per year were \$4,673 for Type 2 diabetes patients nationwide, up from \$3,901 in 2006.

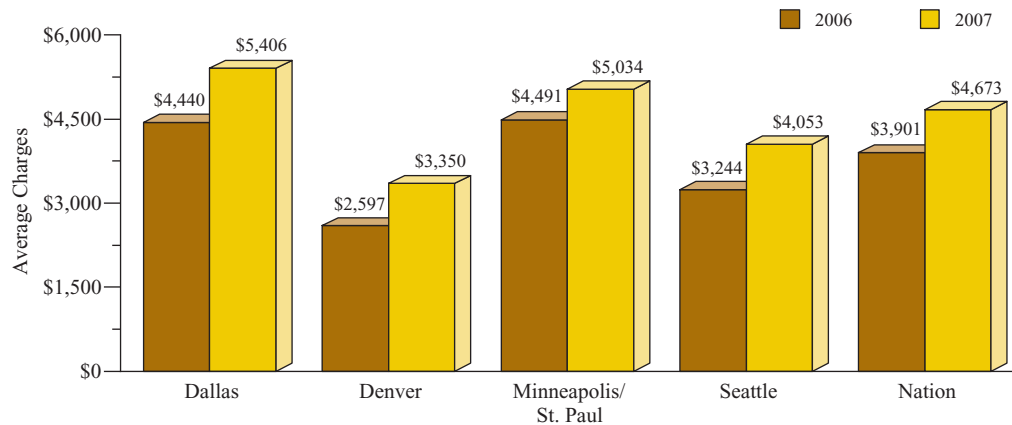
**G1: HOSPITAL CHARGES PER YEAR FOR TYPE 2 DIABETES PATIENTS\***

MARKET	Emergency Room		Hospital Inpatient		Hospital Outpatient	
	2006	2007	2006	2007	2006	2007
Dallas	\$1,232	\$1,448	\$47,658	\$54,061	\$4,440	\$5,406
Denver	1,433	951	55,533	—	2,597	3,350
Minneapolis/ St. Paul	1,614	1,958	53,028	57,175	4,491	5,034
Seattle	2,013	2,398	30,312	37,314	3,244	4,053
<b>NATION</b>	<b>\$1,299</b>	<b>\$1,651</b>	<b>\$41,381</b>	<b>\$49,870</b>	<b>\$3,901</b>	<b>\$4,673</b>

**G2: HOSPITAL INPATIENT CHARGES PER YEAR FOR TYPE 2 DIABETES PATIENTS\***



**G3: HOSPITAL OUTPATIENT CHARGES PER YEAR FOR TYPE 2 DIABETES PATIENTS\***



NOTE: Hospital charge data were unavailable for the Boston MSA.

Data source: Verispan LLC © 2008

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

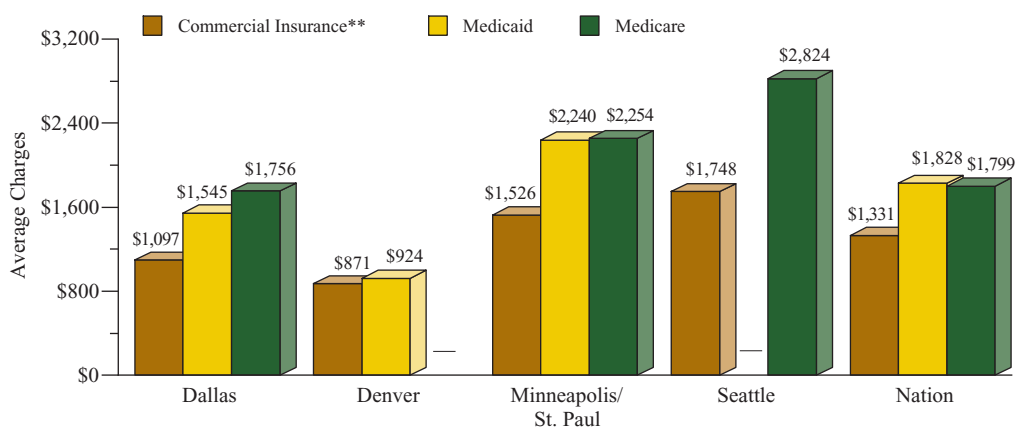
**G4: HOSPITAL INPATIENT CHARGES PER YEAR FOR TYPE 2 DIABETES PATIENTS, BY PAYER TYPE\***

MARKET	Commercial Insurance**		Medicaid		Medicare	
	2006	2007	2006	2007	2006	2007
Dallas	\$37,462	\$42,746	\$40,027	\$55,165	\$52,483	\$58,997
Denver	32,025	—	—	—	34,651	—
Minneapolis/ St. Paul	43,095	48,666	48,259	60,267	58,182	58,665
Seattle	25,554	32,530	31,639	42,124	32,134	37,292
<b>NATION</b>	<b>\$36,468</b>	<b>\$43,606</b>	<b>\$37,917</b>	<b>\$47,039</b>	<b>\$41,689</b>	<b>\$48,839</b>

**G5: HOSPITAL OUTPATIENT CHARGES PER YEAR FOR TYPE 2 DIABETES PATIENTS, BY PAYER TYPE\***

MARKET	Commercial Insurance**		Medicaid		Medicare	
	2006	2007	2006	2007	2006	2007
Dallas	\$3,367	\$4,162	\$4,247	\$4,449	\$5,561	\$7,169
Denver	2,119	2,667	2,684	—	3,174	—
Minneapolis/ St. Paul	3,896	4,590	3,476	3,894	4,737	5,270
Seattle	2,585	3,305	3,657	4,911	4,137	5,004
<b>NATION</b>	<b>\$3,277</b>	<b>\$4,030</b>	<b>\$3,735</b>	<b>\$4,317</b>	<b>\$4,347</b>	<b>\$5,103</b>

**G6: HOSPITAL EMERGENCY ROOM CHARGES PER YEAR FOR TYPE 2 DIABETES PATIENTS, BY PAYER TYPE, 2007\***



Data source: Verispan LLC © 2008

NOTE: Facility charge data were unavailable for the Colorado Springs, Grand Junction and Greeley MSAs.

**OP CHARGES ARE LOW FOR TYPE 2 PATIENTS IN DENVER**

Average annual hospital outpatient charges per year for Type 2 diabetes patients in the Denver MSA who paid with commercial insurance were \$2,667 in 2007, up notably from \$2,119 in 2006, but still well below the national average of \$4,030 (see table G5). By comparison, Type 2 diabetes patients in Minneapolis/St. Paul with commercial insurance saw hospital outpatient charges rise 17.8%, to \$4,590 from \$3,896 in 2006, highest of the four profiled MSAs and 13.9% higher than the national average.

**MEDICAID PATIENTS HAVE RELATIVELY LOWER CHARGES**

Type 2 diabetes patients in Denver paid an average of \$924 for hospital emergency room (ER) care in 2007, lowest of the MSAs profiled by a considerable margin. In contrast, Type 2 diabetes patients nationwide with Medicaid coverage had average ER charges of \$1,828 in 2007.

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

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

## ER PROFESSIONAL CHARGES DROP FOR COLORADO PATIENTS

In 2007, average annual professional charges for emergency room (ER) care delivered to Type 2 diabetes patients in Colorado were \$369, down 8.9% from \$405 in 2006 (see table H1). Such charges fell for patients in three of six profiled Colorado MSAs, most notably Fort Collins, to \$232 from \$300 the year before, or -22.7%. In contrast, the nationwide average for professional ER charges rose to \$647 in 2007 from \$575 in 2006.

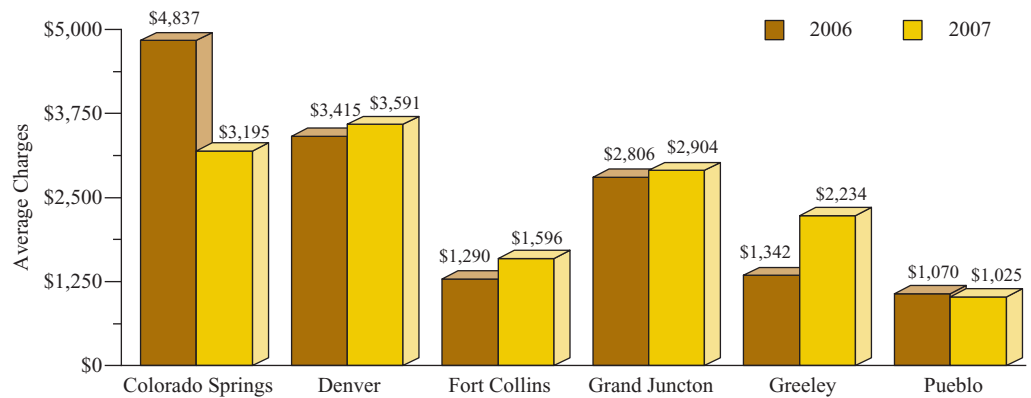
## PROFESSIONAL OP CHARGES DECREASE IN DENVER IN 2007

Professional hospital outpatient charges for Type 2 diabetes patients in Denver fell, to \$1,792 in 2007 from \$1,865 in 2006. Such charges likewise dropped in Colorado Springs (to \$980 from \$1,471) and Greeley (to \$629 from \$696) during this period. Meanwhile, professional hospital outpatient charges for Type 2 diabetes patients in Colorado rose fractionally, to \$1,223 from \$1,212 in 2006.

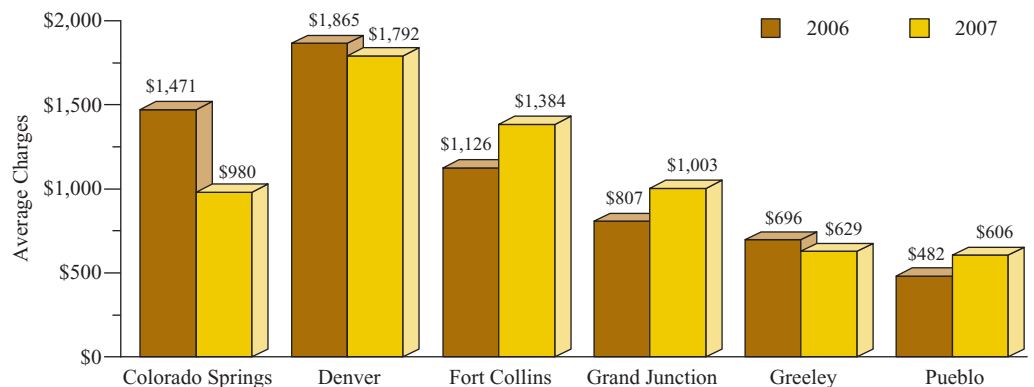
**H1: PROFESSIONAL CHARGES PER YEAR FOR TYPE 2 DIABETES PATIENTS\***

MARKET	ASC**		Emergency Room		Hospital Inpatient		Hospital Outpatient		Office	
	2006	2007	2006	2007	2006	2007	2006	2007	2006	2007
	Colorado Springs	\$1,477	\$1,453	\$738	\$648	\$4,837	\$3,195	\$1,471	\$980	\$1,311
Denver	1,468	1,682	604	470	3,415	3,591	1,865	1,792	962	1,169
Fort Collins	1,110	1,462	300	232	1,290	1,596	1,126	1,384	577	563
Gr. Junction	691	—	129	—	2,806	2,904	807	1,003	928	915
Greeley	1,342	1,603	381	623	1,342	2,234	696	629	445	451
Pueblo	1,111	875	263	268	1,070	1,025	482	606	571	628
Colorado	1,436	1,690	405	369	3,460	3,797	1,212	1,223	930	992
<b>NATION</b>	<b>\$2,791</b>	<b>\$3,055</b>	<b>\$575</b>	<b>\$647</b>	<b>\$5,653</b>	<b>\$6,070</b>	<b>\$1,814</b>	<b>\$1,919</b>	<b>\$2,630</b>	<b>\$2,818</b>

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



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



\* Professional charges are those generated by the providers delivering care to Type 2 diabetes patients in various settings. See page 9 for additional information on payers.

\*\* Ambulatory surgery center.

Data source: Verispan LLC © 2008

**H4: PROFESSIONAL INPATIENT CHARGES PER YEAR FOR TYPE 2 DIABETES PATIENTS, BY PAYER TYPE\***

MARKET	Commercial Insurance**		Medicaid		Medicare	
	2006	2007	2006	2007	2006	2007
Colo. Springs	\$5,136	\$2,695	\$4,477	\$4,343	\$4,279	\$3,200
Denver	2,884	3,009	3,045	2,717	3,722	4,094
Fort Collins	1,473	1,762	678	1,279	1,171	1,418
Grand Junction	2,422	2,806	4,354	2,366	3,015	2,872
Greeley	1,622	3,130	2,433	1,859	1,120	1,307
Pueblo	1,182	1,341	925	1,156	994	737
Colorado	3,655	3,776	2,629	2,264	3,215	3,702
<b>NATION</b>	<b>\$4,767</b>	<b>\$4,916</b>	<b>\$4,553</b>	<b>\$4,963</b>	<b>\$5,380</b>	<b>\$5,823</b>

**MEDICAID INPATIENT CHARGES DROP IN COLORADO IN 2007**

Average annual professional inpatient charges for Type 2 diabetes patients in Colorado with Medicaid coverage were \$2,264 in 2007, down 13.9% from \$2,629 in 2006 (see table H4). In contrast, the national average for such charges grew 9.0% during this period, to \$4,963 from \$4,553 the previous year.

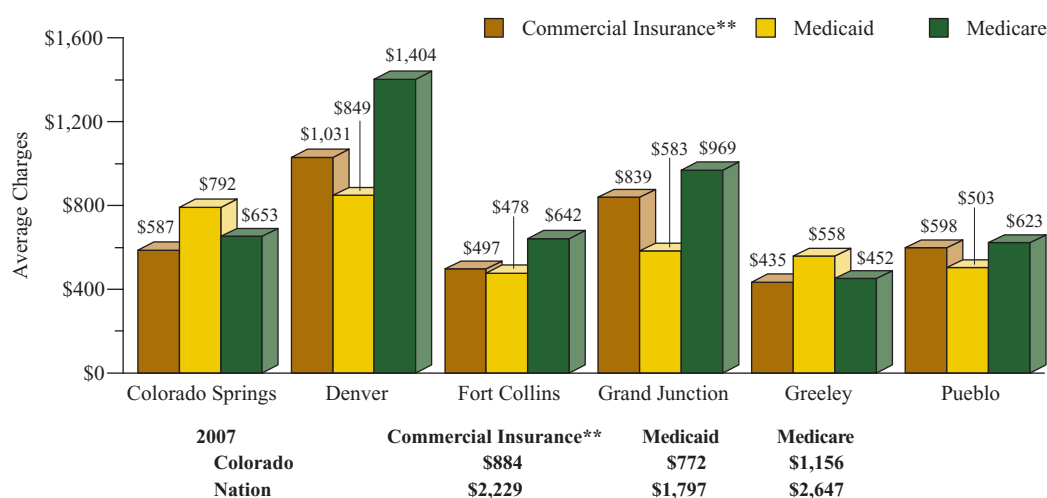
**H5: PROFESSIONAL OUTPATIENT CHARGES PER YEAR FOR TYPE 2 DIABETES PATIENTS, BY PAYER TYPE\***

MARKET	Commercial Insurance**		Medicaid		Medicare	
	2006	2007	2006	2007	2006	2007
Colo. Springs	\$1,352	\$952	\$3,289	\$267	\$1,872	—
Denver	1,886	1,666	1,497	1,575	1,767	\$1,946
Fort Collins	979	1,597	1,496	1,378	1,150	921
Grand Junction	761	939	1,300	895	858	1,070
Greeley	916	885	436	381	331	253
Pueblo	320	325	332	281	318	377
Colorado	1,274	1,211	757	652	1,011	996
<b>NATION</b>	<b>\$1,769</b>	<b>\$1,797</b>	<b>\$1,297</b>	<b>\$1,388</b>	<b>\$1,541</b>	<b>\$1,676</b>

**OUTPATIENT CHARGES PAID BY INSURANCE FALL IN DENVER MSA**

Between 2006 and 2007, average professional charges per year for Type 2 diabetes patients in Denver with commercial insurance decreased 11.7%, to \$1,666 from \$1,886. However, such charges increased for Type 2 diabetes patients in the Fort Collins, Greeley and Pueblo MSAs in 2007.

**H6: PROFESSIONAL OFFICE/CLINIC CHARGES PER YEAR FOR TYPE 2 DIABETES PATIENTS, BY PAYER TYPE, 2007\***



**MEDICARE OFFICE CHARGES ARE HIGH IN COLORADO IN 2007**

Professional office/clinic charges were highest, by payer, for Type 2 diabetes patients with Medicare coverage in four of six Colorado MSAs profiled. In addition, Type 2 diabetes patients with Medicare coverage had the highest office charges, by payer, in Colorado and nationwide.

Data source: Verispan LLC © 2008

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

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

## LONG-ACTING INSULIN USE IS LOWEST FOR PATIENTS IN DENVER

Of patients diagnosed with Type 2 diabetes in Denver in 2007, 17.4% used long-acting insulin, up from 16.3% in 2006, but still the lowest share of the eight markets profiled (see table I1). The statewide long-acting insulin use patient share (19.1%) was identical to the national share in 2007.

## COLORADO SPRINGS ANY INSULIN USE DECLINES SLIGHTLY

Just 31.2% of Type 2 diabetes patients in Colorado Springs used any insulin product in 2007, down fractionally from 32.0% in 2006, and the lowest share of the markets profiled. In contrast, 39.5% of Type 2 diabetes patients in the Pueblo MSA used insulin products in 2007, exceeding the state (33.5%) and national (35.6%) averages by a wide margin.

## COLORADO INSULIN COSTS ARE BELOW NATIONAL AVERAGE

Average per-patient costs for insulin therapy in Colorado was \$903 in 2007, more than \$100 less than the national average of \$1,004. Two Colorado MSAs—Pueblo (\$1,060) and Grand Junction (\$1,023)—had per-patient insulin payments above the national average in 2007.

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

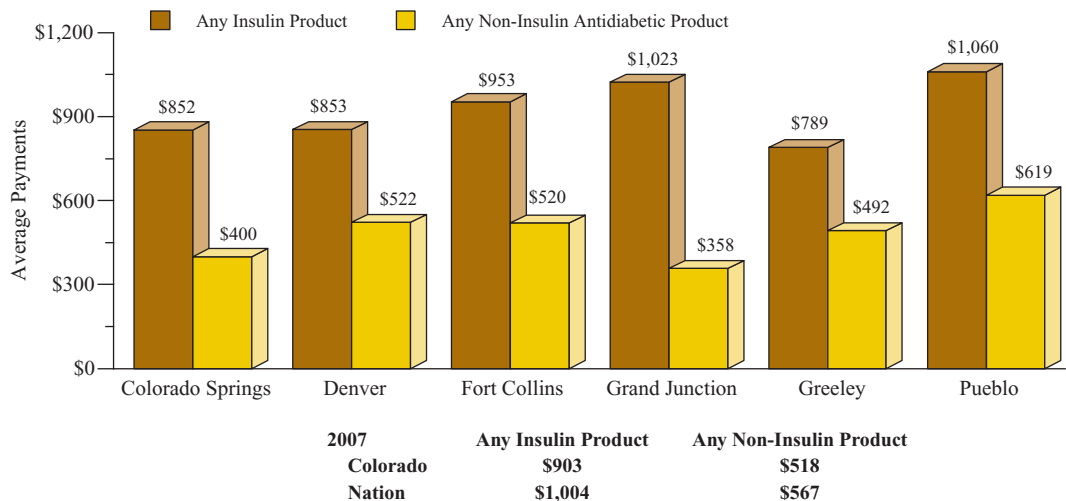
**I1: PERCENTAGE OF TYPE 2 DIABETES PATIENTS USING INSULIN THERAPIES**

MARKET	Any Insulin Product		Intermediate-Acting Insulin		Long-Acting Insulin		Short-Acting Insulin		Mixed Insulin	
	2006	2007	2006	2007	2006	2007	2006	2007	2006	2007
	Colo. Springs	32.0%	31.2%	4.7%	4.4%	17.9%	17.9%	17.6%	17.0%	3.3%
Denver	31.3	32.6	5.9	5.2	16.3	17.4	14.4	15.2	5.0	4.3
Fort Collins	33.9	35.6	4.4	4.2	19.3	23.5	16.8	18.7	4.9	4.0
Gr. Junction	36.2	36.0	3.5	3.9	21.5	24.5	17.6	18.6	5.3	3.1
Greeley	32.7	33.8	5.1	2.7	18.0	19.2	13.2	14.9	8.2	8.3
Pueblo	39.6	39.5	4.5	4.2	23.2	24.4	16.4	16.5	11.7	9.5
Colorado	32.8	33.5	5.3	4.7	18.0	19.1	15.2	15.8	5.8	4.9
<b>NATION</b>	<b>34.8%</b>	<b>35.6</b>	<b>5.7%</b>	<b>4.7%</b>	<b>17.1%</b>	<b>19.1%</b>	<b>14.6%</b>	<b>15.2%</b>	<b>9.6%</b>	<b>8.9%</b>

**I2: PERCENTAGE OF TYPE 2 DIABETES PATIENTS USING NON-INSULIN THERAPIES**

MARKET	Any Non-Insulin Antidiabetic Product		Biguanides		Sulfonylureas		Insulin Sensitizing Agents	
	2006	2007	2006	2007	2006	2007	2006	2007
	Colo. Springs	80.9%	82.2%	53.7%	56.6%	30.0%	28.6%	26.6%
Denver	83.1	83.0	55.8	55.8	34.4	32.0	30.3	25.6
Fort Collins	83.1	80.2	55.8	52.4	32.3	33.8	31.2	24.7
Gr. Junction	81.6	82.0	56.4	55.0	36.2	37.8	17.6	15.7
Greeley	81.3	80.5	52.7	53.6	31.9	28.8	31.4	23.3
Pueblo	81.5	81.7	46.7	50.9	35.2	33.2	33.1	28.4
Colorado	82.6	82.7	54.5	55.3	33.9	32.0	30.2	25.1
<b>NATION</b>	<b>84.7%</b>	<b>84.8%</b>	<b>51.7%</b>	<b>52.5%</b>	<b>40.8%</b>	<b>39.5%</b>	<b>31.1%</b>	<b>26.0%</b>

**I3: AVERAGE COSTS PER TYPE 2 DIABETES PATIENT, BY TYPE OF THERAPY, 2007\***



Data source: Verispan LLC © 2008

**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.

## Data 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 represent some 5 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

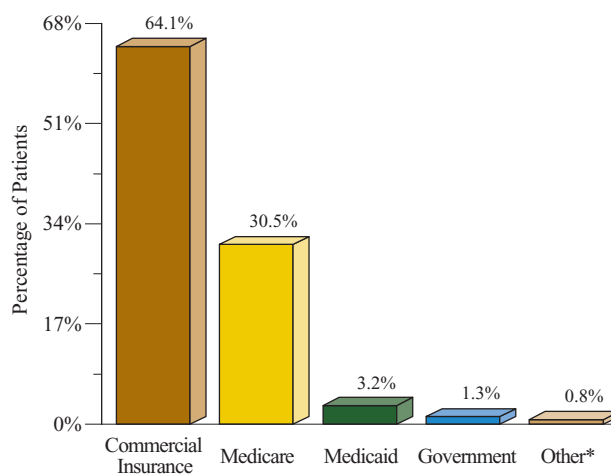
Data arriving into Verispan are put through a rigorous process to ensure that data elements match to valid references, such as product codes, ICD-9 (diagnosis) and CPT-4 (procedure) codes, and provider and facility data.

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 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 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.

**H1: COLORADO TYPE 2 DIABETES PATIENTS, BY PAYER TYPE, 2007**



\* Other includes self-pay and workers' compensation.

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## COLORADO TYPE 2 DIABETES REPORT 2008

The Colorado Business Group on Health (CBGH), in conjunction with sanofi-aventis U.S. LLC, is pleased to bring you the fourth edition of the **Colorado Type 2 Diabetes Report**.

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

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

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

