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2022

MANAGED CARE DIGEST SERIES®

TYPE 2 DIABETES REPORT™

LEHIGH VALLEY BUSINESS COALITION ON HEALTHCARE

With a Focus on How Cardiovascular Conditions Can Impact Diabetes Care

10TH EDITION LVBCH℠

Intended for use with payers, formulary committees, or other similar entities for purposes of population-based drug selection, coverage, and/or reimbursement decision making, pursuant to FD&C Act Section 502(a).

INTRODUCTION

Sanofi U.S. (Sanofi), in conjunction with the Lehigh Valley Business Coalition on Healthcare (LVBCH), is pleased to present the tenth edition of the **LVBCH Type 2 Diabetes Report™** for 2022, an overview of key demographic, utilization, pharmacotherapy, and charge measures for Type 2 diabetes patients, as well as a focus on how cardiovascular conditions can impact diabetes care. To commemorate this 10th year of the report, multi-year retrospective views will be provided throughout, demonstrating how the care of Type 2 diabetes patients with LVBCH's service area has changed in the last decade. Although data capture methodologies vary from year to year, these retrospective views should provide directional insight into the health care trends affecting the Lehigh Valley. The report also provides national benchmarks that can help providers and employers identify opportunities to better serve the needs of their patients. All data are drawn from the Sanofi Managed Care Digest Series®.

Most of the data in this report (current as of calendar year 2021) were gathered by IQVIA, Durham, NC. Data in this report may have been restated from prior years to account for updates to methodology and patient samples.

Sanofi, as sponsor of this report, maintains an arm's-length relationship with the organizations that prepare the report and carry out the research for its contents. The desire of Sanofi is that the information in this report be completely independent and objective.

Through collective employer action and partnerships with providers/payers, LVBCH strives to improve the delivery, cost, and quality of health care in our communities. For a list of organizations, please visit www.lvbch.com. The role of LVBCH is to help make these data more widely available to interested parties.

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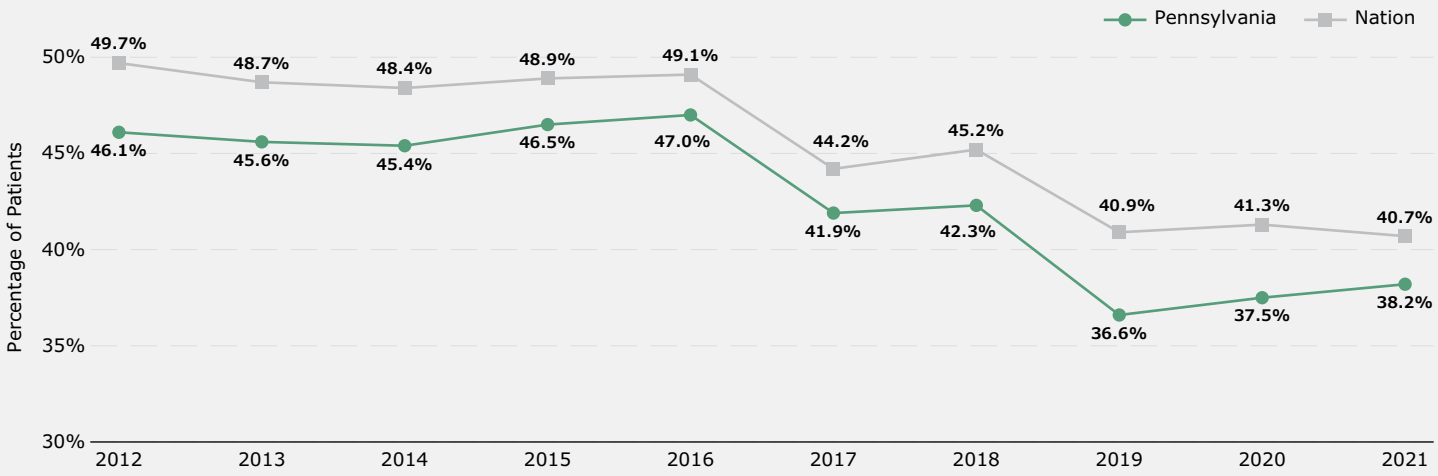
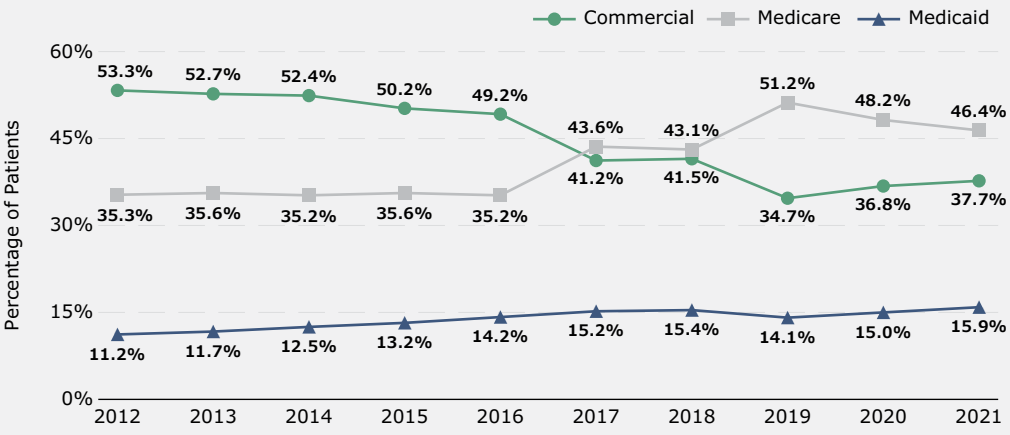
Data provided by: IQVIA, Durham, NC

PERCENTAGE OF TYPE 2 DIABETES PATIENTS <65 YEARS OF AGE, 2012–2021[1]



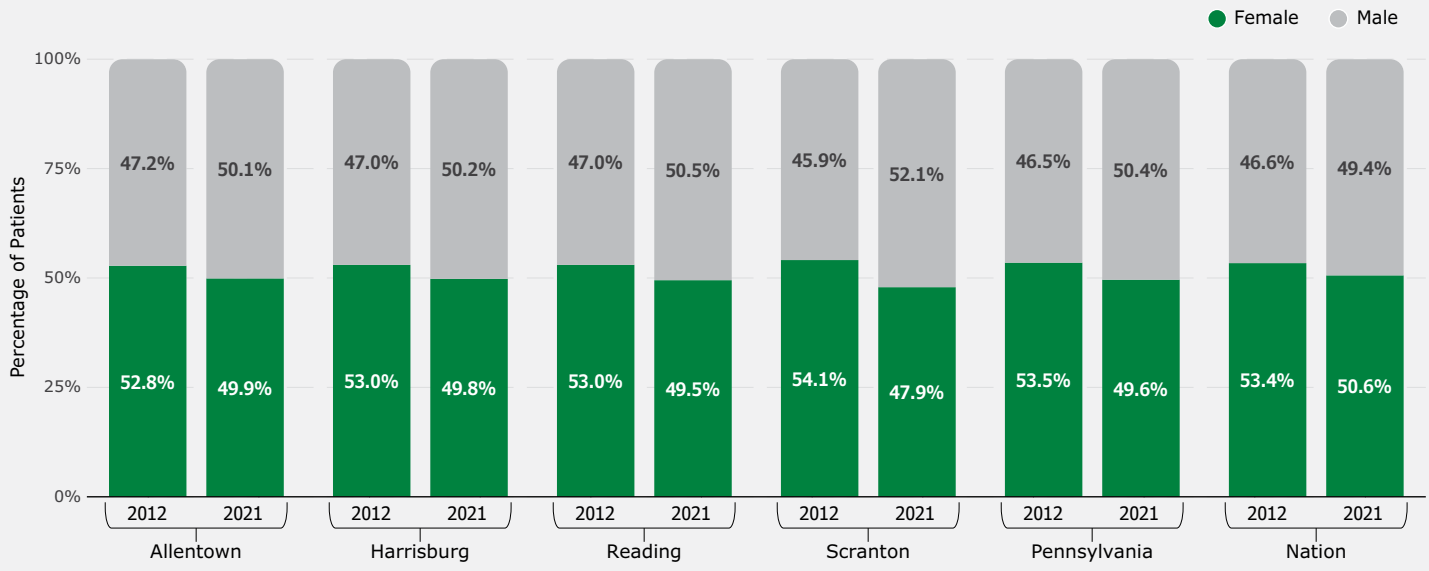
PERCENTAGE OF TYPE 2 DIABETES PATIENTS, BY PAYER, PENNSYLVANIA, 2012–2021[1]



NEARLY 49% OF PA COMMERCIAL TYPE 2 DIABETES PATIENTS HAVE ≥2 COMPLICATIONS

In 2021, 48.7% of commercial Type 2 diabetes patients in Pennsylvania had two or more profiled complications, a percentage that expanded fractionally from 2020. In Allentown and Reading, this percentage was even higher, at 51.5% and 50.1%, respectively, in 2021. Compared with both the Commonwealth and the nation, the portions of Allentown commercial Type 2 diabetes patients with CKD, nephropathy, or retinopathy were higher in 2021.

DISTRIBUTION OF TYPE 2 DIABETES PATIENTS, BY GENDER, 2012 VS. 2021[1]



Reference: 1. IQVIA © 2022

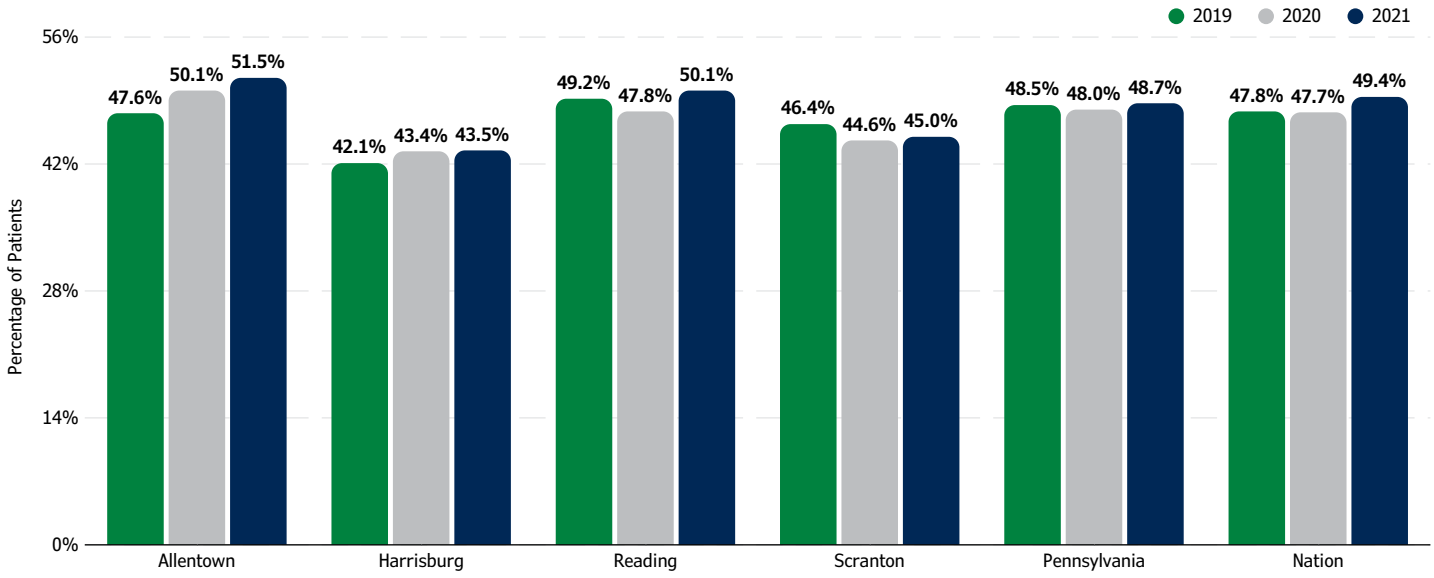
NOTE: Throughout this report, the Allentown market includes Bethlehem and Easton, and parts of New Jersey; the Harrisburg market includes Carlisle; the Scranton market includes Wilkes-Barre and Hazleton. An n/a indicates that data were not available.

PATIENT DEMOGRAPHICS

PERCENTAGE OF COMMERCIAL TYPE 2 DIABETES PATIENTS WITH VARIOUS COMPLICATIONS, 2021[1,c]

MARKET	CKD	Hypoglycemia	Nephropathy	Neuropathy	Retinopathy
Allentown	22.5%	2.9%	36.0%	32.9%	18.0%
Harrisburg	19.3	2.5	31.6	33.1	19.6
Reading	18.0	2.4	29.6	31.5	26.1
Scranton	17.2	2.1	28.2	36.8	23.4
Pennsylvania	**18.5**	**3.0**	**31.9**	**34.6**	**17.7**
NATION	**18.5%**	**2.9%**	**31.9%**	**32.9%**	**16.4%**

PERCENTAGE OF COMMERCIAL TYPE 2 DIABETES PATIENTS WITH ≥2 COMPLICATIONS, 2019–2021[1]



PERCENTAGE OF COMMERCIAL TYPE 2 DIABETES PATIENTS, BY CO-OCCURRING CONDITION, 2020–2021[1,d]

	COVID-19		Depression		Obesity	
MARKET	2020	2021	2020	2021	2020	2021
Allentown	7.1%	11.0%	16.8%	14.7%	40.7%	37.8%
Harrisburg	5.8	10.7	12.7	13.4	31.3	30.3
Reading	7.3	12.0	10.6	11.4	27.9	28.6
Scranton	4.7	9.2	12.2	13.4	33.4	30.1
Pennsylvania	**6.3**	**10.2**	**13.0**	**13.0**	**33.2**	**32.9**
NATION	**7.0%**	**10.5%**	**12.1%**	**12.5%**	**28.0%**	**28.7%**

Reference: 1. IQVIA © 2022

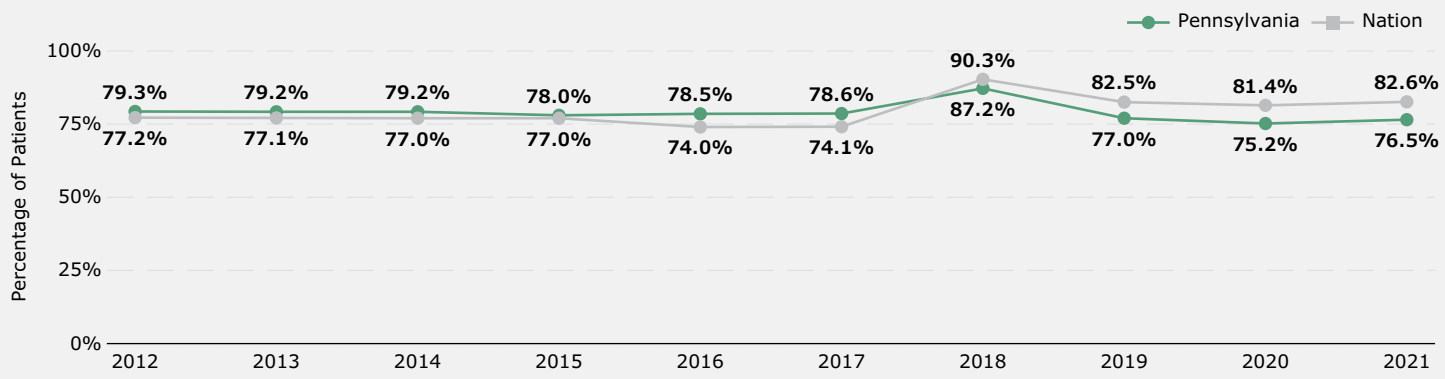
[a] Includes HMOs, PPOs, point-of-service plans, and exclusive provider organizations.

[b] Medicaid includes fee-for-service and managed care.

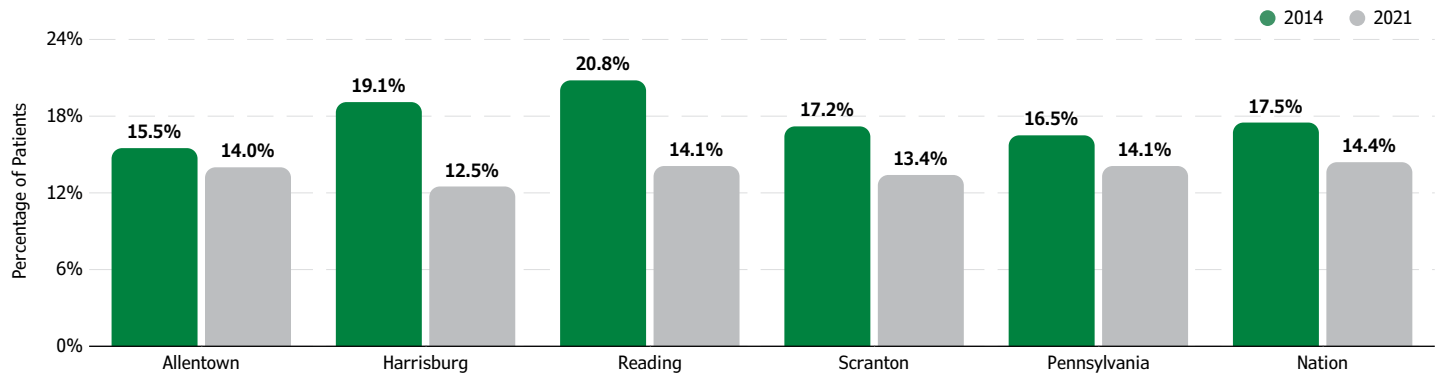
[c] A complication is defined as a patient condition caused by diabetes. Complications of diabetes include, but are not limited to, atherosclerotic cardiovascular disease (ASCVD), cardiovascular (CV) disease, chronic kidney disease (CKD), congestive heart failure, diabetic ketoacidosis (DKA), end-stage renal disease (ESRD), hyperglycemia, hypoglycemia, myocardial infarction (MI), nephropathy, neuropathy, peripheral artery disease (PAD), retinopathy, and stroke. ASCVD includes patients with acute coronary syndromes (ACS), MI, stroke, and other cardiovascular diseases.

[d] A co-occurring condition is a condition a patient with diabetes may also have, which may or may not be directly related to the diabetes. Co-occurring conditions were narrowed down to a subset of conditions, including, but not limited to, atherosclerotic cardiovascular disease (ASCVD; includes patients with acute coronary syndromes, myocardial infarction, stroke, and other cardiovascular conditions), chronic kidney disease (CKD), COVID-19, depression, gastrointestinal (GI) symptoms, congestive heart failure, hyperglycemia, hypoglycemia, obesity, peripheral artery disease (PAD), and stroke.

PERCENTAGE OF COMMERCIAL TYPE 2 DIABETES PATIENTS RECEIVING AN A1c TEST, 2012–2021[1,a]



PERCENTAGE OF COMMERCIAL TYPE 2 DIABETES PATIENTS WITH AN A1c LEVEL >9.0%, 2014 VS. 2021[1,a]



PERCENTAGE OF COMMERCIAL TYPE 2 DIABETES PATIENTS, BY LOCATION OF SERVICE, 2019–2021[1]

	Office/Clinic			Inpatient			Outpatient			Emergency Department			Telehealth		
MARKET	2019	2020	2021	2019	2020	2021	2019	2020	2021	2019	2020	2021	2019	2020	2021
Allentown	86.3%	82.8%	80.2%	14.4%	14.6%	15.9%	39.6%	38.3%	42.7%	19.8%	19.8%	22.2%	0.4%	18.2%	11.9%
Harrisburg	80.9	79.7	80.0	12.7	12 .2	11.8	22.9	19.7	20.1	10.9	6.3	6.2	0.4	8.7	5.2
Reading	86.8	86.4	88.0	14.6	11.9	12.5	27.3	26.0	28.9	15.3	14.3	16.8	0.3	15.3	8.6
Scranton	84.4	84.8	84.5	13.9	13.9	14.2	35.4	31.9	29.2	16.2	13.4	13.2	0.4	11.3	7.9
Pennsylvania	**80.8**	**78.3**	**78.8**	**13.8**	**13.2**	**13.1**	**29.8**	**26.5**	**27.0**	**18.6**	**16.5**	**16.8**	**0.3**	**17.4**	**11.6**
NATION	**80.2%**	**79.0%**	**78.4%**	**13.2%**	**12.9%**	**12.8%**	**27.3%**	**24.4%**	**24.9%**	**19.8%**	**18.4%**	**18.4%**	**0.5%**	**16.1%**	**11.6%**

PERCENTAGE OF COMMERCIAL TYPE 2 DIABETES PATIENTS RECEIVING LONG-ACTING BASAL CATEGORY 1 VS. CATEGORY 2 WITH AN A1c LEVEL ≤7.0% OR >9.0%, 2019 AND 2021[1,a]

	≤7.0%				>9.0%			
	Category 1		Category 2		Category 1		Category 2	
MARKET	2019	2021	2019	2021	2019	2021	2019	2021
Pennsylvania	26.7%	28.1%	25.8%	26.9%	28.2%	26.5%	26.8%	23.2%
NATION	**25.1%**	**24.5%**	**23.7%**	**24.1%**	**32.1%**	**33.0%**	**31.6%**	**30.5%**

Reference: 1. IQVIA © 2022

[a] The A1c test measures the average blood glucose over the past 3 months. Figures reflect the percentage of diabetes patients who have had at least one A1c test in a given year.

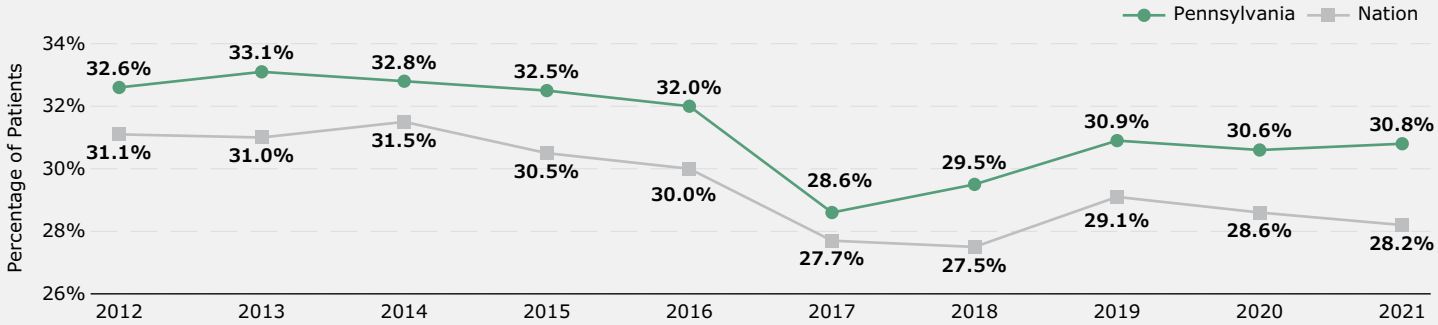
NOTE: "Category 1" refers to long-acting basal insulins approved through 2014 and follow-on long-acting insulins approved after 2014. "Category 2" refers to non-follow-on long-acting basal insulins approved in or after 2015. Some data were unavailable for the selected markets.

PERCENTAGE OF COMMERCIAL TYPE 2 DIABETES PATIENTS RECEIVING VARIOUS INSULIN AND COMBINATION THERAPIES, 2020–2021[1,a]

	Any Insulin Products			Long-Acting Basal Category 1			Long-Acting Basal Category 2			Fixed Ratio (Long-Acting Insulin/ GLP-1 RA)			Free Ratio (Variable Long-Acting Insulin + GLP-1 RA)			Rapid-/Short-Acting Insulin		
MARKET	2019	2020	2021	2019	2020	2021	2019	2020	2021	2019	2020	2021	2019	2020	2021	2019	2020	2021
Allentown	31.7%	32.1%	32.2%	17.7%	17.8%	17.9%	7.6%	6.9%	6.5%	0.9%	0.9%	0.8%	7.5%	8.4%	10.2%	13.1%	15.4%	14.7%
Harrisburg	31.4	31.5	30.7	17.7	17.4	17.3	5.9	5.9	5.3	0.7	0.7	0.8	7.2	8.5	8.3	13.9	15.4	14.6
Reading	31.3	30.7	30.8	17.7	17.5	17.1	7.5	7.0	7.1	0.5	0.5	0.5	6.3	7.7	8.6	15.2	14.4	14.6
Scranton	28.9	28.3	28.1	14.9	14.4	14.2	8.1	8.1	8.0	0.7	0.7	0.7	7.9	8.4	9.4	14.3	14.4	14.3
Pennsylvania	**30.9**	**30.6**	**30.8**	**16.9**	**16.9**	**16.9**	**7.3**	**7.0**	**6.8**	**0.9**	**0.8**	**0.8**	**7.5**	**8.6**	**9.8**	**14.8**	**15.0**	**15.1**
NATION	**29.1%**	**28.6%**	**28.2%**	**16.6%**	**16.0%**	**15.5%**	**7.2%**	**7.3%**	**7.1%**	**0.9%**	**0.9%**	**0.8%**	**7.2%**	**8.1%**	**8.9%**	**12.8%**	**12.7%**	**12.6%**

10 YEAR TREND

PERCENTAGE OF COMMERCIAL TYPE 2 DIABETES PATIENTS RECEIVING ANY INSULIN PRODUCT, 2012–2021[1]



PERCENTAGE OF COMMERCIAL TYPE 2 DIABETES PATIENTS RECEIVING VARIOUS NON-INSULIN ANTIDIABETIC THERAPIES, 2019–2021[1,a]

	Any Non-Insulin Antidiabetic Product			Biguanides			DPP-4 Inhibitors			GLP-1 RAs			Insulin Sensitizing Agents			SGLT-2 Inhibitors		
MARKET	2019	2020	2021	2019	2020	2021	2019	2020	2021	2019	2020	2021	2019	2020	2021	2019	2020	2021
Allentown	92.9%	92.8%	92.7%	63.4%	64.2%	62.7%	13.8%	12.2%	11.1%	16.3%	20.1%	24.7%	3.8%	3.7%	3.3%	18.1%	18.4%	20.4%
Harrisburg	92.1%	92.2%	92.8%	66.9%	65.9%	64.3%	12.6%	10.9%	10.6%	16.4%	20.8%	24.8%	5.9%	5.5%	6.0%	16.2%	19.0%	21.3%
Reading	92.0%	93.2%	93.6%	64.6%	64.7%	65.7%	13.3%	11.7%	10.9%	15.4%	19.3%	23.7%	3.8%	2.9%	2.8%	18.4%	21.3%	22.5%
Scranton	93.8%	93.7%	94.4%	67.8%	67.8%	67.4%	14.9%	14.0%	12.7%	19.6%	22.3%	26.3%	6.1%	5.4%	5.6%	18.3%	20.4%	23.4%
Pennsylvania	**92.6%**	**92.9%**	**93.5%**	**67.0%**	**67.2%**	**66.3%**	**12.8%**	**12.0%**	**10.9%**	**17.7%**	**21.3%**	**26.0%**	**4.8%**	**4.6%**	**4.6%**	**16.8%**	**19.4%**	**22.0%**
NATION	**93.5%**	**93.9%**	**94.3%**	**69.0%**	**69.1%**	**68.3%**	**11.4%**	**10.4%**	**9.4%**	**18.1%**	**21.4%**	**25.9%**	**6.6%**	**6.7%**	**6.9%**	**15.7%**	**17.7%**	**20.2%**

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

GLP-1 Receptor Agonists (RAs): Increase glucose-dependent insulin secretion and pancreatic beta-cell sensitivity, reduce glucagon production, slow rate of absorption of glucose in the digestive tract by slowing gastric emptying, and suppress appetite. "Fixed ratio (long-acting insulin/GLP-1 RA)" refers to the two therapies combined in a single product. "Free ratio (variable long-acting insulin + GLP-1 RA)" refers to the two therapies taken separately and concurrently.

Insulin Sensitizing Agents: Increase insulin sensitivity by improving 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.

Long-Acting Basal Category 1/Category 2: Insulin replacement product with a long duration of action. "Category 1" refers to long-acting basal insulins approved through 2014 and follow-on long-acting insulins approved after 2014. "Category 2" refers to non-follow-on long-acting basal insulins approved in or after 2015.

Mixed Insulin: Insulin replacement product combining a short-acting and an intermediate-acting insulin product.

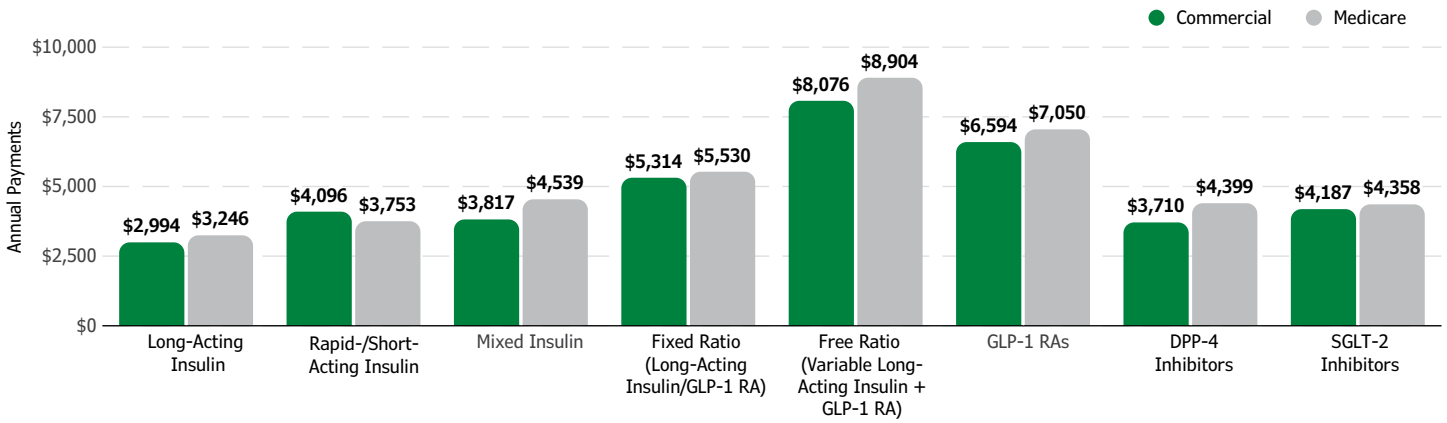
Rapid-/Short-Acting Insulin: Insulin replacement product with a rapid onset and shorter duration of action than short-acting insulin.

Sodium/Glucose Cotransporter 2 (SGLT-2) Inhibitors: Lower blood glucose concentration so that glucose is excreted instead of reabsorbed.

Reference: 1. IQVIA © 2022

[a] Patients who filled prescriptions for any insulin products may have also filled prescriptions for products in the non-insulin category and vice versa.

ANNUAL PAYMENTS PER TYPE 2 DIABETES PATIENT RECEIVING VARIOUS INSULIN AND NON-INSULIN ANTIDIABETIC THERAPIES, BY PAYER, PENNSYLVANIA, 2021[1,a]



AVERAGE ANNUAL PAYMENTS PER COMMERCIAL TYPE 2 DIABETES PATIENT RECEIVING VARIOUS INSULIN AND COMBINATION THERAPIES, 2021[1,a]

MARKET	Long-Acting Insulin	Rapid-/Short-Acting Insulin	Mixed Insulin	Fixed Ratio (Long-Acting Insulin/ GLP-1 RA)	Free Ratio (Variable Long-Acting Insulin + GLP-1 RA)	GLP-1 RAs	DPP-4 Inhibitors	SGLT2 Inhibitors
Allentown	$2,774	$3,616	$3,075	$4,500	$6,997	$5,869	$3,542	$4,095
Harrisburg	3,190	4,289	3,197	5,331	8,419	6,658	3,719	4,172
Reading	2,600	3,506	3,969	5,491	7,134	6,103	3,856	4,174
Scranton	3,546	5,013	4,971	5,505	9,572	7,183	3,946	4,379
Pennsylvania	**2,994**	**4,096**	**3,817**	**5,314**	**8,076**	**6,594**	**3,710**	**4,187**
NATION	**$3,062**	**$3,768**	**$3,376**	**$4,821**	**$7,840**	**$6,447**	**$3,663**	**$4,099**

AVERAGE ANNUAL OUT-OF-POCKET COSTS PER COMMERCIAL TYPE 2 DIABETES PATIENT RECEIVING VARIOUS INSULIN AND COMBINATION THERAPIES, 2021[1,b]

MARKET	Long-Acting Insulin	Rapid-/Short-Acting Insulin	Mixed Insulin	Fixed Ratio (Long-Acting Insulin/ GLP-1 RA)	Free Ratio (Variable Long-Acting Insulin + GLP-1 RA)	GLP-1 RAs	DPP-4 Inhibitors	SGLT2 Inhibitors
Allentown	$200	$151	$204	$94	$469	$219	$179	$212
Harrisburg	211	178	151	184	641	257	187	246
Reading	220	202	287	192	665	260	214	273
Scranton	134	131	145	97	207	148	159	158
Pennsylvania	**209**	**167**	**198**	**193**	**534**	**245**	**212**	**234**
NATION	**$217**	**$169**	**$200**	**$211**	**$589**	**$252**	**$243**	**$228**

PERCENTAGE OF AND ANNUAL PAYMENTS FOR COMMERCIAL TYPE 2 DIABETES PATIENTS RECEIVING VARIOUS COMBINATION THERAPIES, 2021[1,a]

	Use of 1 Oral Antidiabetic Product		Use of 2 Oral Antidiabetic Products		Use of 3 Oral Antidiabetic Products	
	%	$	%	$	%	$
Allentown	49.0%	$2,888	27.2%	$5,242	10.2%	$7,098
Harrisburg	46.0	3,103	28.2	5,425	11.5	6,851
Reading	49.6	2,934	28.8	5,492	9.6	7,597
Scranton	46.5	3,521	28.9	6,269	12.3	8,161
Pennsylvania	**47.4**	**3,224**	**28.7**	**5,582**	**10.9**	**7,275**
NATION	**48.1%**	**$2,976**	**29.1%**	**$5,215**	**10.9%**	**$6,899**

Reference: 1. IQVIA © 2022

[a] Figures reflect the per-patient yearly payments for diabetes patients receiving a particular type of therapy. These are the actual amounts paid by the insurer and patient for such prescriptions.

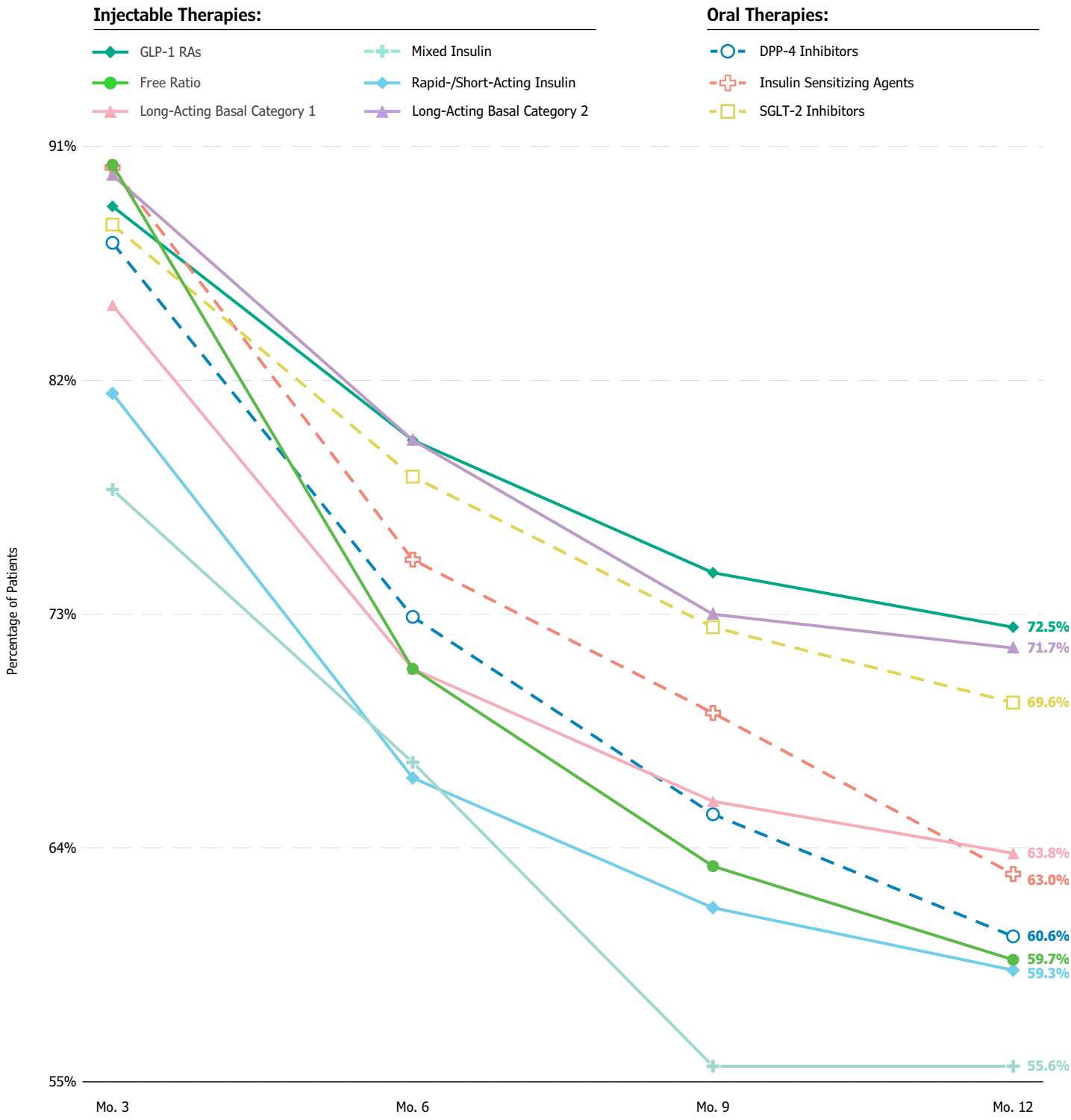
[b] Out-of-pocket cost is the actual amount paid by the patient for each prescription. This cost mainly includes copayments, but can also include tax, deductibles, and cost differentials where applicable.

NOTE: "Category 1" refers to long-acting basal insulins approved through 2014 and follow-on long-acting insulins approved after 2014. "Category 2" refers to non-follow-on long-acting basal insulins approved in or after 2015. "Fixed ratio (long-acting insulin/GLP-1 RA)" refers to the two therapies combined in a single product. "Free ratio (variable long-acting insulin + GLP-1 RA)" refers to the two therapies taken separately and concurrently.

INJECTABLE PERSISTENCY IS HIGHEST FOR PA COMMERCIAL TYPE 2 DIABETES PATIENTS ON GLP-1 RAs OR CAT. 2 INSULINS

In 2021, the percentage of new-to-brand commercial Type 2 diabetes patients in Pennsylvania who remained persistent 12 months past their initial fill—measured as the portion of those who continued or restarted their prescription—was highest, by injectable therapy, for those who received a GLP-1 RA, followed by long-acting basal Category 2. Among similar patients who received oral therapies, persistency was highest for those on an SGLT-2 inhibitor.

PERSISTENCY: COMMERCIAL TYPE 2 DIABETES PATIENTS RECEIVING VARIOUS THERAPIES, PENNSYLVANIA, 2021[1]



Reference: 1. IQVIA © 2022

NOTE: "Persistency" measures whether patients maintain their prescribed therapy. It is calculated by identifying patients who filled a prescription for the reported drug class in the six 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 patients fill 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. Persistency is tracked for patients who are new to therapy (those who have not filled the therapy in question in the six months prior to their first fill of the study period). "Category 1" refers to long-acting basal insulins approved through 2014 and follow-on long-acting insulins approved after 2014. "Category 2" refers to non-follow-on long-acting basal insulins approved in or after 2015. Some data were unavailable for the selected therapies.

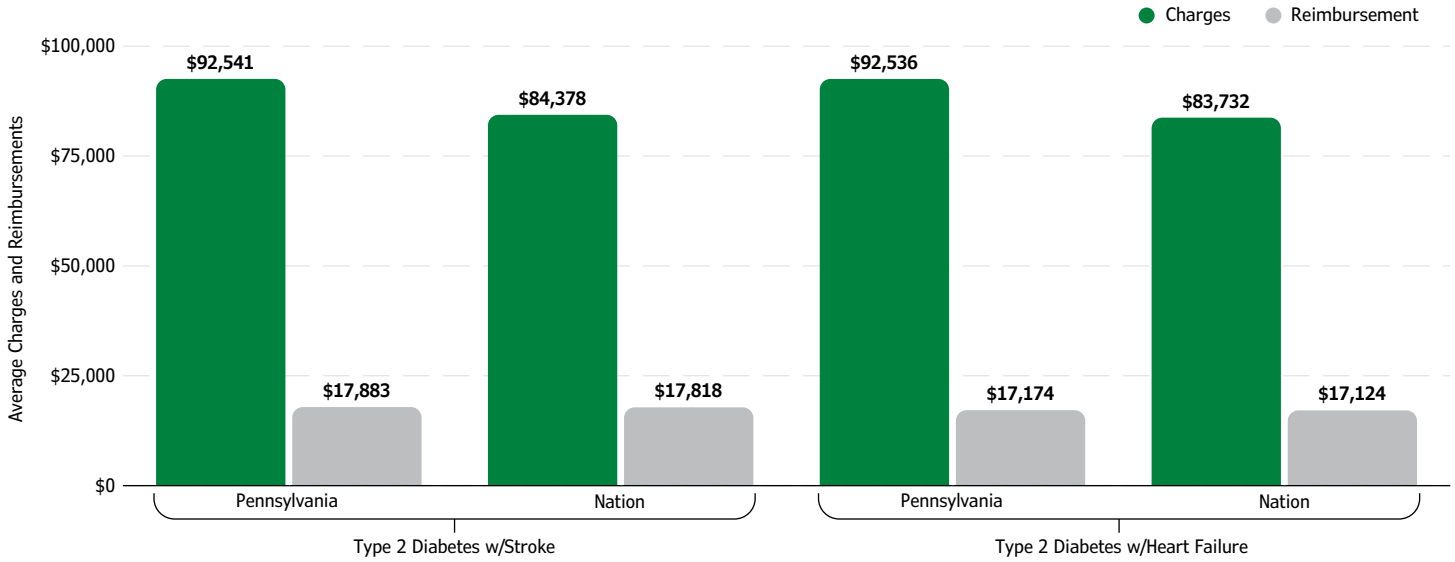
PERCENTAGE OF COMMERCIAL TYPE 2 DIABETES PATIENTS WITH VARIOUS CO-OCCURRING CONDITIONS, 2019 AND 2021[1,a]

	AFib		Cardiovascular Disease		Heart Failure		Hyperlipidemia		Hypertension		MI		PAD		Stroke	
MARKET	2019	2021	2019	2021	2019	2021	2019	2021	2019	2021	2019	2021	2019	2021	2019	2021
Allentown	9.4%	9.5%	32.0%	32.5%	11.3%	12.6%	65.0%	60.6%	79.9%	78.9%	2.2%	2.5%	14.4%	15.8%	3.9%	4.4%
Harrisburg	11.1	11.0	30.6	29.3	12.0	12.7	57.5	50.9	79.9	79.5	2.4	1.7	13.5	16.8	4.2	4.5
Reading	11.6	11.9	37.4	37.4	13.2	14.0	69.9	67.2	77.8	78.3	2.6	2.3	13.5	15.2	4.3	4.4
Scranton	11.4	11.0	40.4	37.1	12.4	12.9	59.3	55.5	81.3	79.9	2.5	3.0	18.2	19.1	4.2	4.1
Pennsylvania	**10.6**	**10.3**	**36.1**	**34.2**	**13.0**	**13.2**	**65.4**	**61.5**	**79.3**	**77.9**	**3.1**	**2.7**	**16.6**	**17.1**	**4.5**	**4.5**
NATION	**8.5%**	**8.8%**	**34.6%**	**34.6%**	**12.0%**	**12.4%**	**66.8%**	**66.4%**	**80.6%**	**79.2%**	**2.8%**	**2.9%**	**15.3%**	**16.0%**	**4.0%**	**4.0%**

INPATIENT FACILITY CHARGES PER YEAR FOR TYPE 2 DIABETES PATIENTS, OVERALL VS. WITH AFib OR CARDIOVASCULAR DISEASE, BY PAYER, 2021[1,a,b]

	Commercial[c]			Medicare		
MARKET	Type 2 Diabetes	AFib	Cardiovascular Disease	Type 2 Diabetes	AFib	Cardiovascular Disease
Allentown	$50,438	$48,444	$57,944	$53,481	$52,118	$39,771
Harrisburg	52,137	n/a	n/a	75,228	62,276	77,480
Reading	54,890	77,799	69,281	59,981	85,276	62,991
Scranton	41,180	13,783	67,611	42,252	19,466	50,882
Pennsylvania	**64,491**	**68,963**	**74,603**	**74,478**	**81,207**	**80,158**
NATION	**$50,837**	**$54,203**	**$54,709**	**$58,310**	**$64,002**	**$62,329**

MEDICARE CHARGES AND REIMBURSEMENT PER INPATIENT CLAIM, 2021[2,c,d]



References: 1. IQVIA © 2022 **2.** Definitive Healthcare © 2022

[a] A co-occurring condition is a condition a patient with diabetes may also have, which may or may not be directly related to the diabetes. Co-occurring conditions were narrowed down to a subset of conditions, including, but not limited to, atherosclerotic cardiovascular disease (ASCVD; includes patients with acute coronary syndromes, myocardial infarction, stroke, and other cardiovascular conditions), chronic kidney disease (CKD), COVID-19, depression, gastrointestinal (GI) symptoms, congestive heart failure, hyperglycemia, hypoglycemia, obesity, peripheral artery disease (PAD), and stroke.

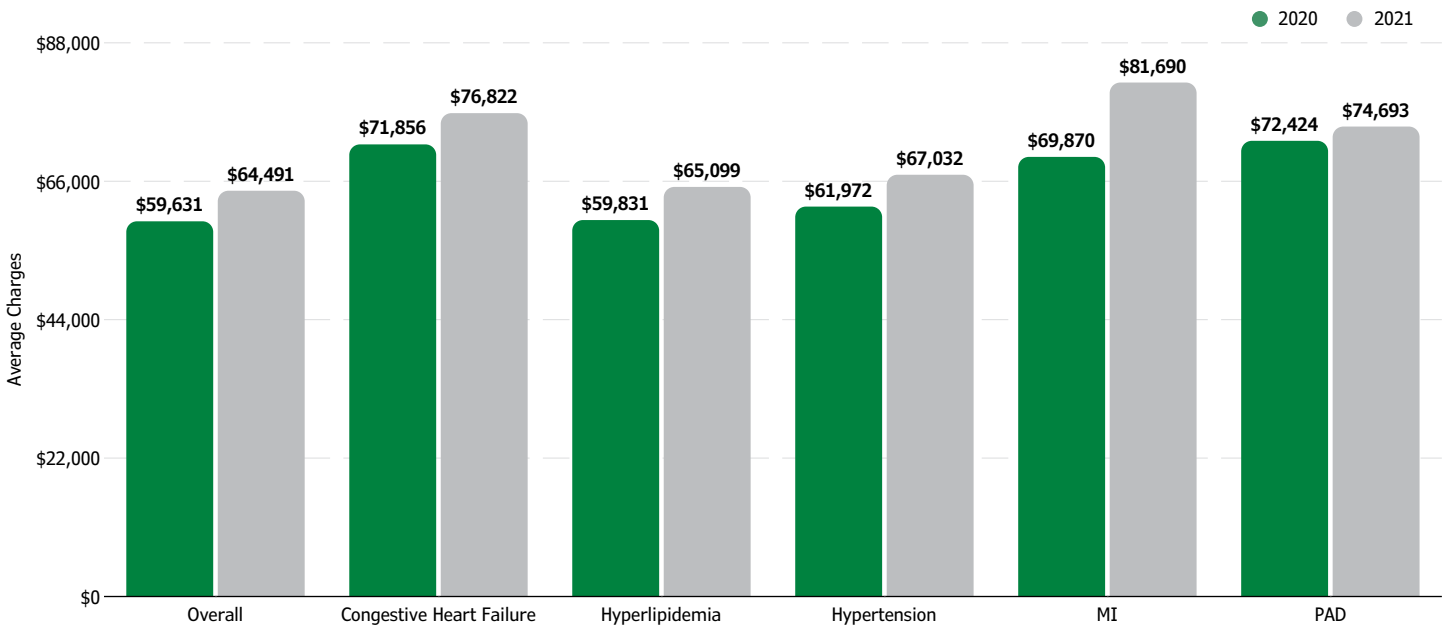
[b] Data reflect the charges generated for diabetes patients by the facilities that delivered care. The data also reflect the average amounts charged, not the amounts paid.

[c] Includes HMOs, PPOs, point-of-service plans, and exclusive provider organizations.

[d] Charge data are per-case averages for patients with a particular diagnosis of interest. Charges may be for treatment related to other diagnoses. Data reflect the total charges billed by the acute-care hospital for the entire episode of care, and may include accommodation, pharmacy, laboratory, radiology, etc. Data are from submitted claims forms and do not necessarily indicate final amounts paid.

NOTE: Throughout this report, unless otherwise specified, hospital case data include primary and secondary diagnoses. AFib is atrial fibrillation.

INPATIENT FACILITY CHARGES PER YEAR FOR COMMERCIAL TYPE 2 DIABETES PATIENTS, OVERALL VS. WITH COMMON CO-OCCURRING CONDITIONS, PENNSYLVANIA, 2020–2021[1,a,b]



OUTPATIENT FACILITY CHARGES PER YEAR FOR COMMERCIAL TYPE 2 DIABETES PATIENTS, OVERALL VS. WITH COMMON CO-OCCURRING CONDITIONS, 2021[1,a,b]

MARKET	Overall	Congestive Heart Failure	Hyperlipidemia	Hypertension	MI	PAD
Pennsylvania	$20,589	$25,607	$20,066	$22,747	$28,333	$31,107
NATION	**$14,435**	**$20,959**	**$14,140**	**$15,462**	**$21,916**	**$19,648**

INPATIENT PROFESSIONAL CHARGES PER YEAR FOR TYPE 2 DIABETES PATIENTS, OVERALL VS. WITH AFib OR CARDIOVASCULAR DISEASE, BY PAYER, 2021[1,b,c]

	Commercial[d]			Medicare		
MARKET	Overall	AFib	Cardiovascular Disease	Overall	AFib	Cardiovascular Disease
Allentown	$4,837	$6,531	$6,061	$4,445	$5,956	$5,454
Harrisburg	2,926	3,674	3,381	3,734	4,312	4,496
Reading	5,314	6,312	6,278	3,353	3,931	3,720
Scranton	4,749	6,684	5,817	4,461	6,079	5,228
Pennsylvania	**3,932**	**5,172**	**4,824**	**4,031**	**5,111**	**4,735**
NATION	**$4,735**	**$6,199**	**$5,665**	**$5,328**	**$6,980**	**$6,349**

Reference: 1. IQVIA © 2022

[a] Data reflect the charges generated for diabetes patients by the facilities that delivered care. The data also reflect the average amounts charged, not the amounts paid.

[b] A co-occurring condition is a condition a patient with diabetes may also have, which may or may not be directly related to the diabetes. Co-occurring conditions were narrowed down to a subset of conditions, including, but not limited to, atherosclerotic cardiovascular disease (ASCVD; includes patients with acute coronary syndromes, myocardial infarction, stroke, and other cardiovascular conditions), chronic kidney disease (CKD), COVID-19, depression, gastrointestinal (GI) symptoms, congestive heart failure, hyperglycemia, hypoglycemia, obesity, peripheral artery disease (PAD), and stroke.

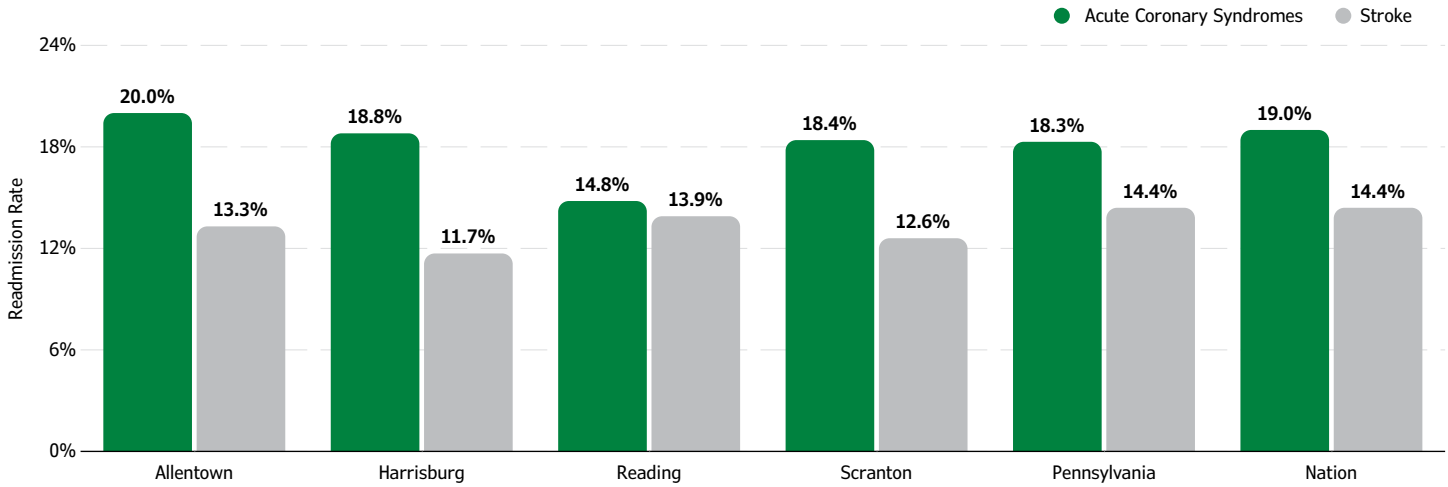
[c] Professional charges are those generated by the providers delivering care to patients with diabetes in various settings.

[d] Includes HMOs, PPOs, point-of-service plans, and exclusive provider organizations.

AVERAGE LENGTH OF STAY (DAYS) AND CHARGES PER MEDICARE PRIMARY INPATIENT ACUTE CORONARY SYNDROMES CASE, 2020–2021[1,a]

	Average Length of Stay		Average Charges[b]	
MARKET	2020	2021	2020	2021
Allentown	4.0	4.1	$165,919	$170,043
Harrisburg	5.0	4.7	117,800	106,893
Reading	4.4	4.3	90,311	99,347
Scranton	4.3	4.5	140,803	147,118
Pennsylvania	**4.2**	4.3	111,037	**120,537**
NATION	**4.2**	4.3	$108,963	**$114,814**

30-DAY MEDICARE HOSPITAL READMISSION RATES FOR ACUTE CORONARY SYNDROMES OR STROKE, 2021[1,a]



AVERAGE LENGTH OF STAY (DAYS) AND CHARGES PER MEDICARE PRIMARY INPATIENT STROKE CASE, 2020–2021[1,a]

	Average Length of Stay		Average Charges[b]	
MARKET	2020	2021	2020	2021
Allentown	5.2	5.6	$134,978	$152,686
Harrisburg	5.0	5.7	61,260	66,887
Reading	4.7	5.9	66,394	75,449
Scranton	5.5	5.0	86,780	86,888
Pennsylvania	**4.5**	4.8	79,807	**86,770**
NATION	**4.7**	4.9	$73,191	**$78,392**

EMERGENCY DEPARTMENT PROFESSIONAL CHARGES PER YEAR FOR COMMERCIAL TYPE 2 DIABETES PATIENTS, OVERALL VS. WITH STROKE, 2019–2021[2,c,d]

	Overall			Stroke		
MARKET	2019	2020	2021	2019	2020	2021
Allentown	$1,093	$1,100	$1,129	$1,792	$1,698	$1,966
Harrisburg	1,179	1,316	1,273	1,418	1,692	1,531
Reading	1,804	1,970	1,909	2,480	2,717	2,448
Scranton	1,199	1,389	1,564	1,366	1,921	2,014
Pennsylvania	**1,305**	**1,352**	**1,398**	**1,684**	**1,864**	**1,896**
NATION	**$1,806**	**$1,896**	**$1,928**	**$2,511**	**$2,618**	**$2,688**

References: 1. Definitive Healthcare © 2022 **2.** IQVIA © 2022

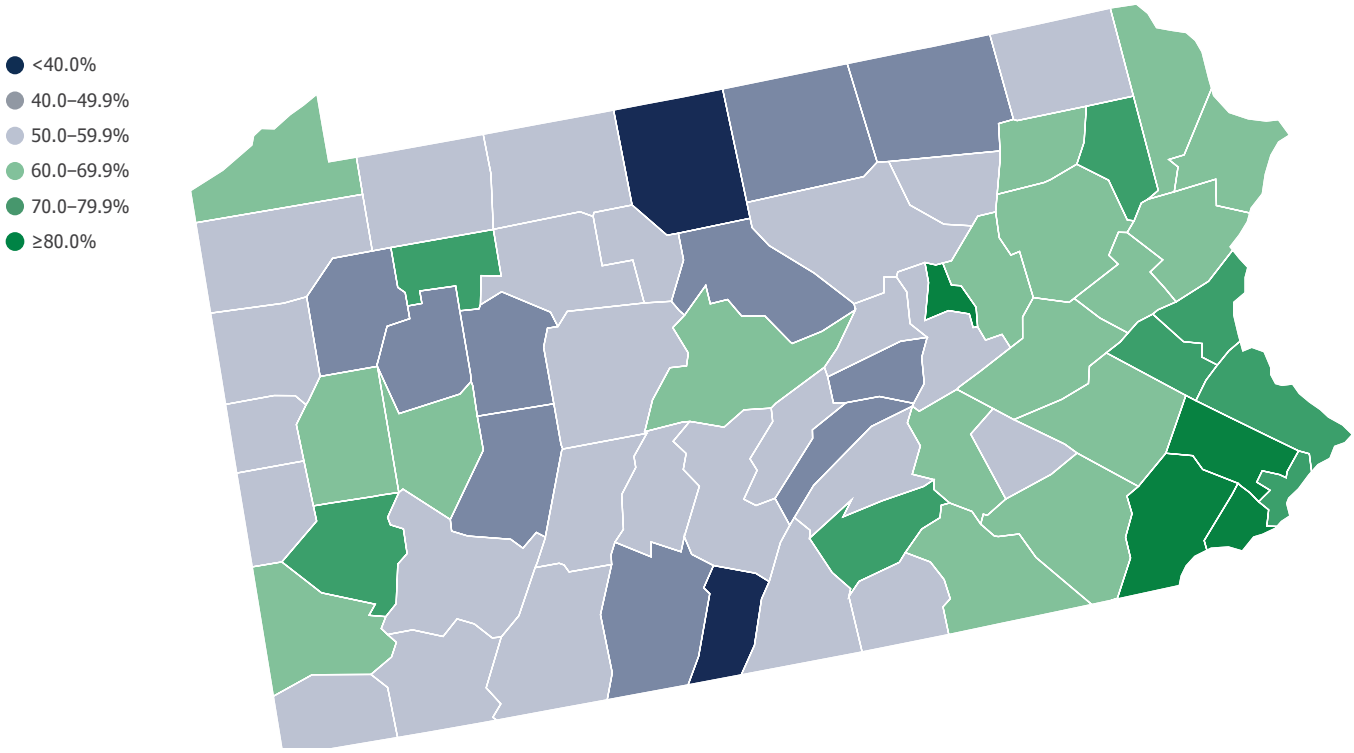
[a] Data for 2020 and 2021 include Medicare claims for January 1 through September 30, 2021.

[b] Charge data are per-case averages for patients with a particular diagnosis of interest. Data reflect the total charges billed by the acute-care hospital for the entire episode of care, and may include accommodation, pharmacy, laboratory, radiology, and other charges not billed by the physician. Data do not necessarily indicate final amounts paid.

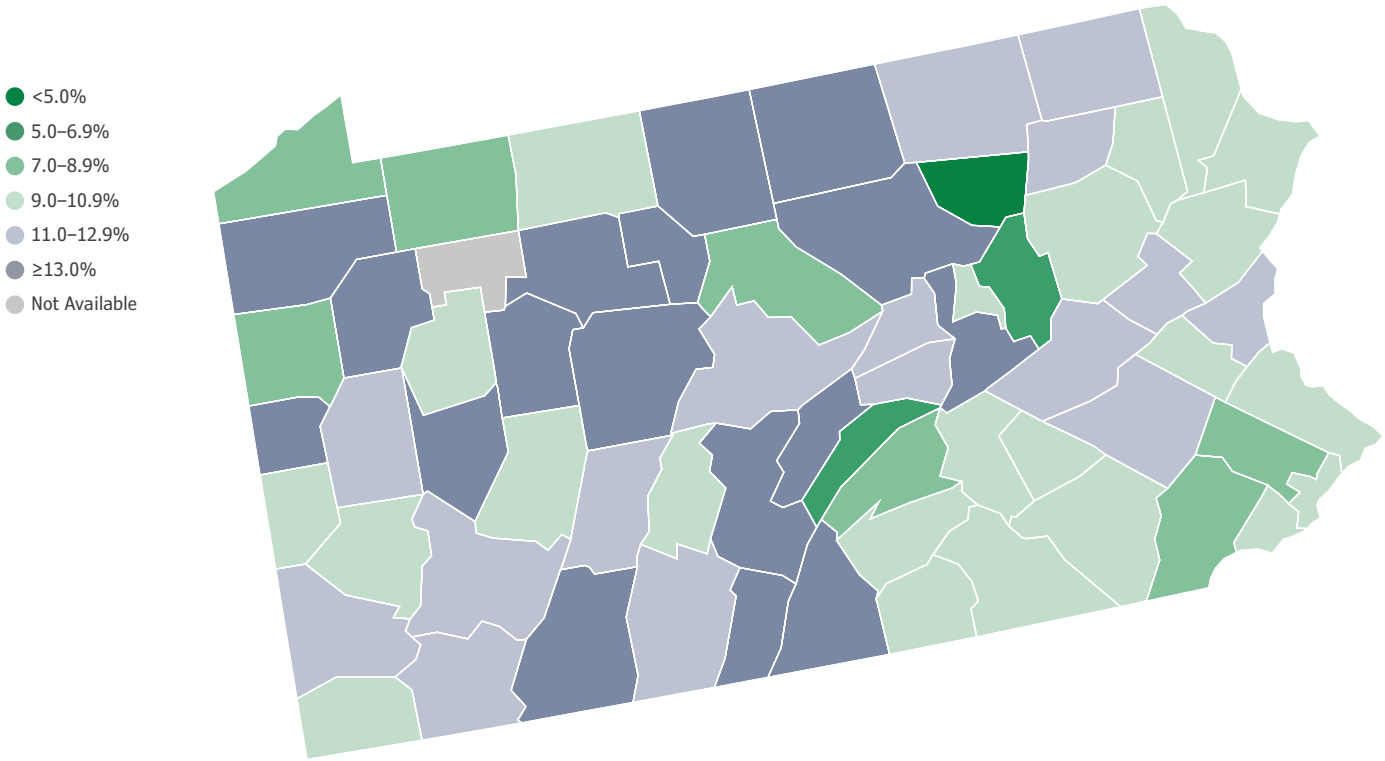
[c] Professional charges are those generated by the providers delivering care to patients with diabetes in various settings.

[d] A complication is defined as a patient condition caused by diabetes. Complications of diabetes include, but are not limited to, atherosclerotic cardiovascular disease (ASCVD), cardiovascular (CV) disease, chronic kidney disease (CKD), congestive heart failure, diabetic ketoacidosis (DKA), end-stage renal disease (ESRD), hyperglycemia, hypoglycemia, myocardial infarction (MI), nephropathy, neuropathy, peripheral artery disease (PAD), retinopathy, and stroke. ASCVD includes patients with acute coronary syndromes (ACS), MI, stroke, and other cardiovascular diseases.

PERCENTAGE OF AGE 12+ POPULATION FULLY VACCINATED, BY COUNTY, AS OF OCTOBER 14, 2022[2,a]



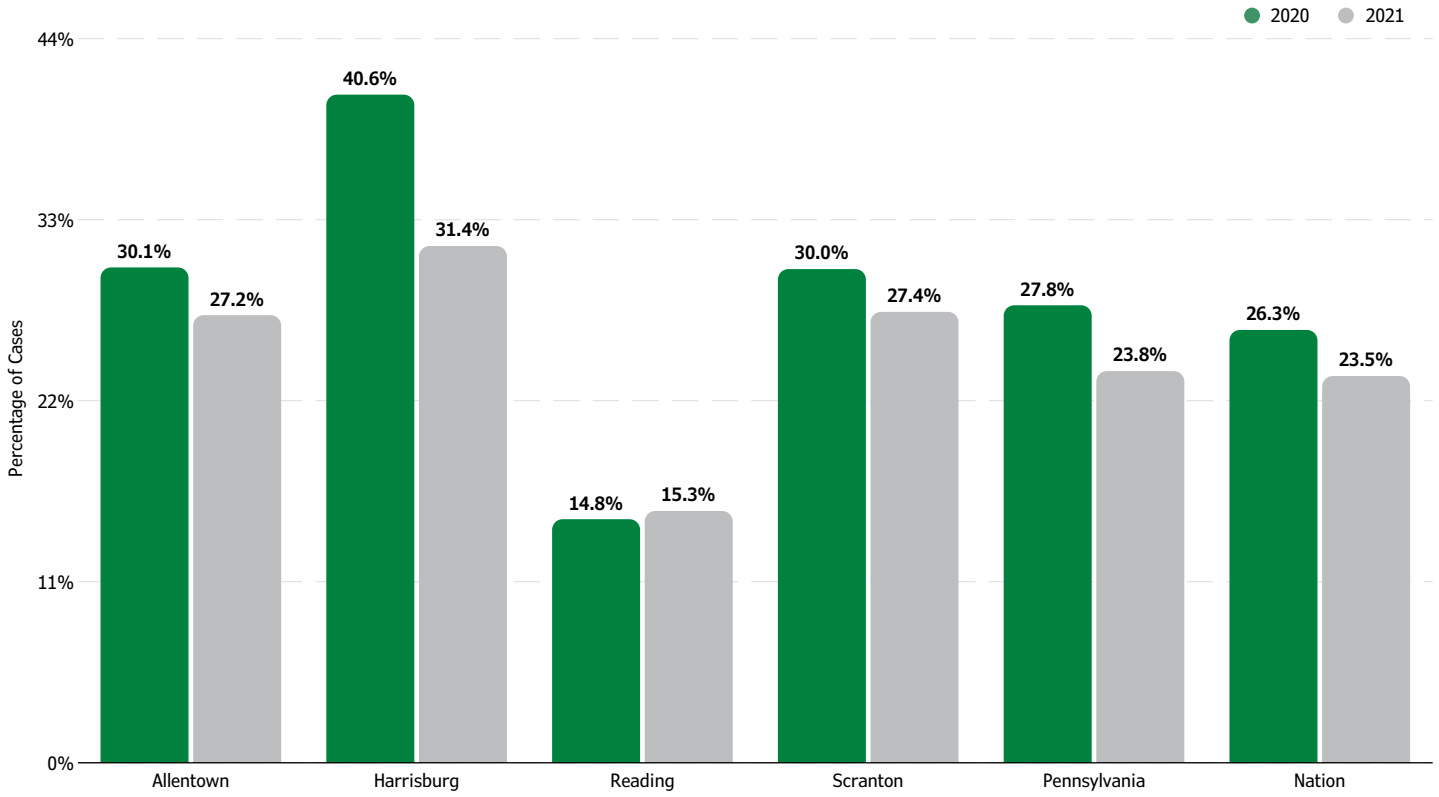
PERCENTAGE OF COMMERCIAL TYPE 2 DIABETES PATIENTS WITH COVID-19, BY COUNTY, 2021[2]



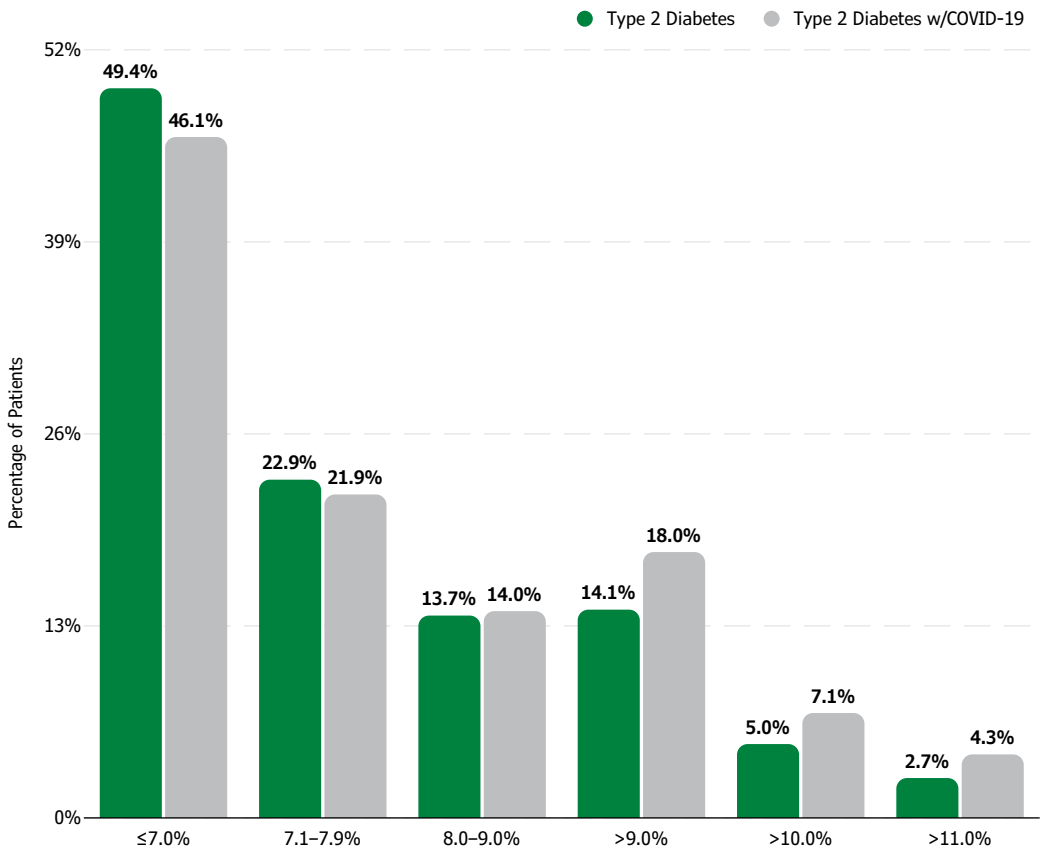
References: 1. Centers for Disease Control & Prevention **2.** IQVIA © 2022

[a] Figures represent the percent of people with a completed primary series (have second dose of a two-dose vaccine or one dose of a single-dose vaccine) based on the jurisdiction where recipient lives.

PERCENTAGE OF COVID-19 COMMERCIAL CASES WITH TYPE 2 DIABETES, 2020–2021[1,a]



PERCENTAGE OF COMMERCIAL TYPE 2 DIABETES PATIENTS, OVERALL VS. WITH COVID-19, BY A1c LEVEL RANGE, PENNSYLVANIA, 2021[2,b]



SHARE OF PA TYPE 2 DIABETES PATIENTS WITH A1c >9.0% IS HIGHER FOR THOSE WITH COVID

In 2021, 10.2% of commercial Type 2 diabetes patients across Pennsylvania had a claim for COVID-19, an increase from 6.3% the prior year (data not shown). That same year, 14.1% of commercial Type 2 diabetes patients in Pennsylvania had an A1c level greater than 9.0% on their last exam. Among such patients who also had a claim for COVID-19 that year, this share was even higher, at 18.0%.

References: 1. Definitive Healthcare © 2022 **2.** IQVIA © 2022

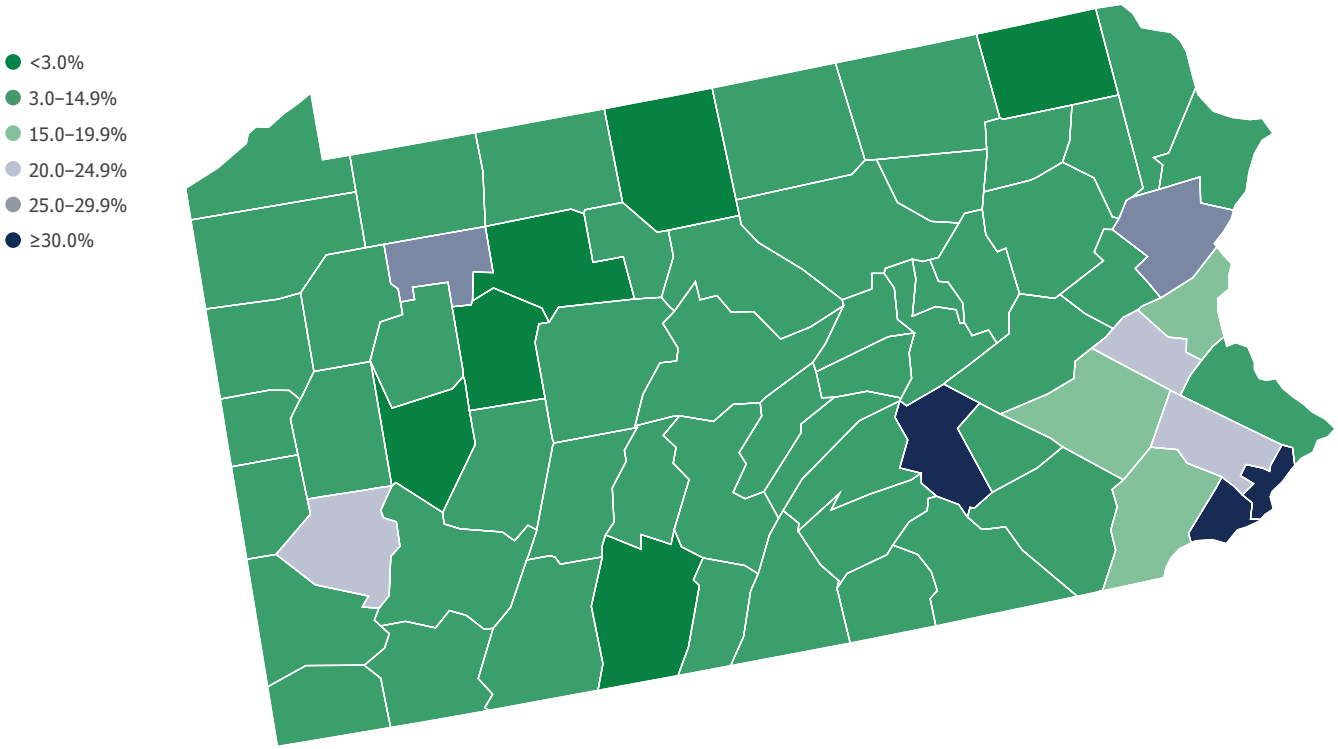
[a] Data for 2020 and 2021 include commercial and Medicaid claims for the full calendar year and Medicare claims for January 1 through September 30, 2021.

[b] The A1c test measures the average blood glucose over the past 3 months. Figures reflect the percentage of diabetes patients who have had at least one A1c test in a given year.

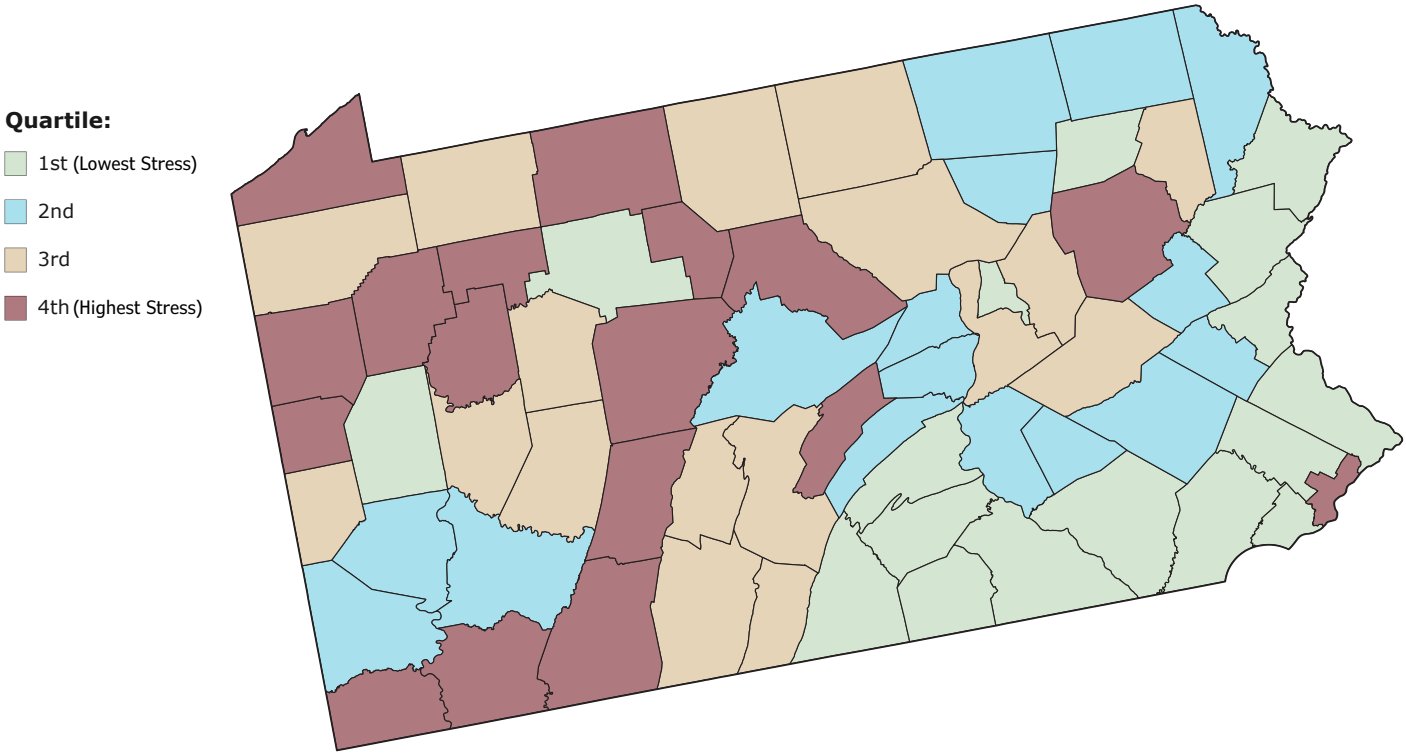
LUZERNE COUNTY HAS HIGH SDoH STRESS AND LOW VEHICLE ACCESS VS. OTHER COUNTIES IN SCRANTON MARKET

- In 2019, Luzerne County placed in the fourth quartile (highest stress) for overlapping high percentages of: households without internet access, families earning below the federal poverty level, households receiving SNAP benefits, and Census tracts qualifying as food deserts.
- Nearly 11% of housing units (owner or renter occupied) in Luzerne County had no vehicle within the household in 2020, a higher percentage than those of the other counties that make up the Scranton market: Lackawanna at 9.9% and Wyoming at 4.9%.

PERCENTAGE OF POPULATION REPORTING NON-WHITE AS RACE, BY COUNTY, 2019[1]



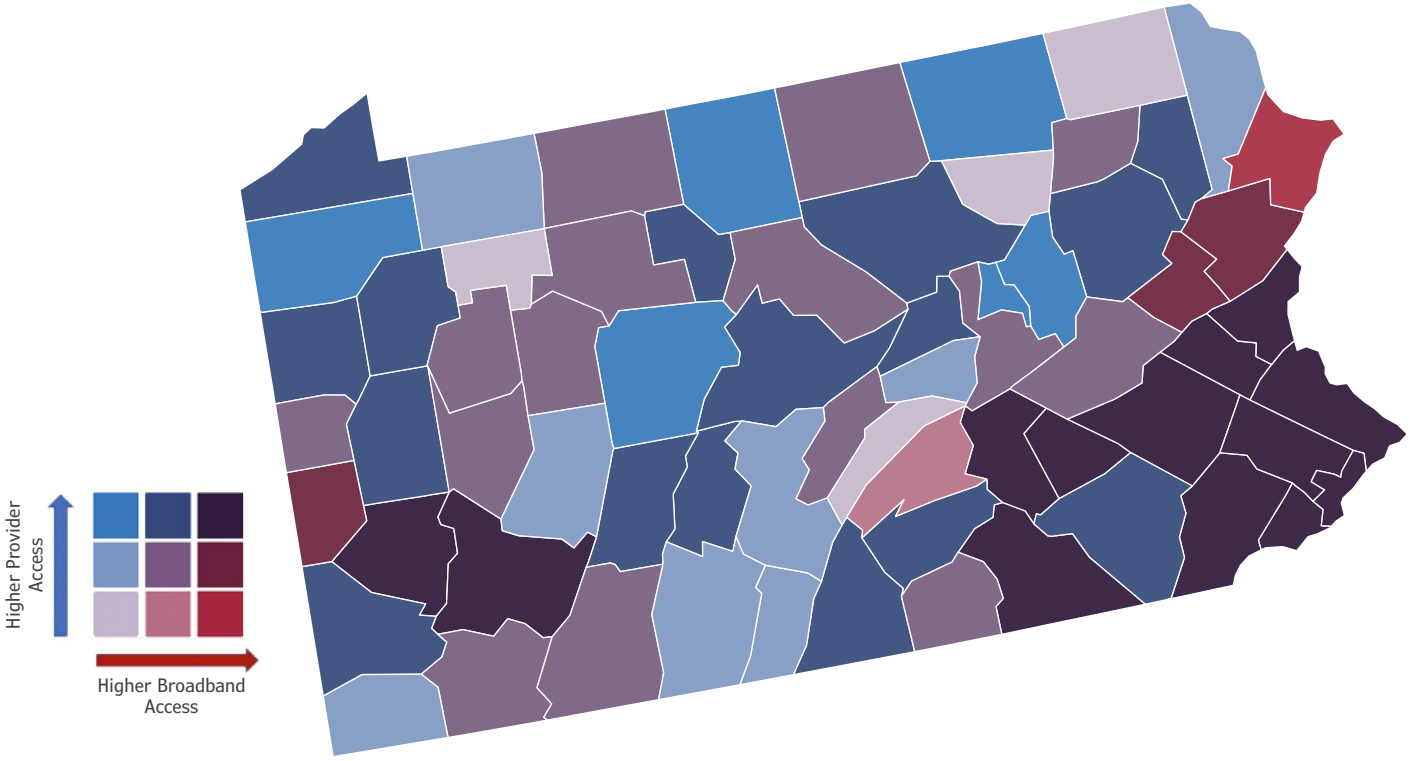
COMBINED SOCIAL DETERMINANT OF HEALTH (SDOH) STRESS BY COUNTY, 2019[1,2]



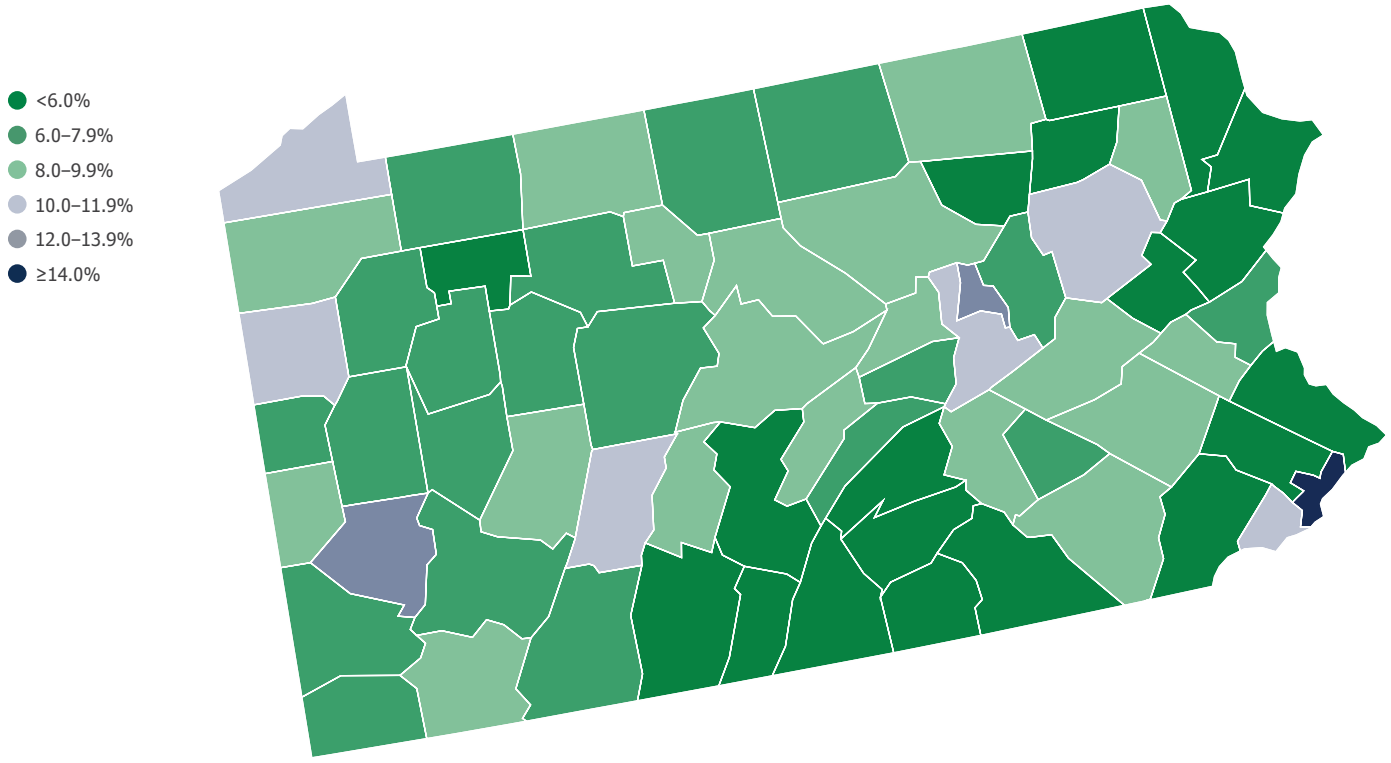
References: 1. U.S. Census Bureau, American Community Survey Five-Year Estimate **2.** U.S. Department of Agriculture

NOTE: Combined score represents a linear, equally weighted combination of county rankings for four SDoH elements: 1) percentage of population living below the federal poverty level; 2) percentage of households without internet access; 3) percentage of households receiving Supplemental Nutrition Assistance Program (SNAP) benefits; and 4) percentage of Census tracts in county classified as a food desert. A higher combined score represents higher levels of stress with respect to these SDoH elements. Patients in the 4th tier have the highest combined need.

OVERLAP OF PROVIDER ACCESS (PER 1,000 POPULATION) AND FIXED BROADBAND INTERNET ACCESS, BY COUNTY, 2019[1,2]



PERCENTAGE OF HOUSING UNITS WITHOUT A VEHICLE IN THE HOUSEHOLD, BY COUNTY, 2020[3]



References: 1. Health Resources and Services Administration © 2020 **2.** Federal Communications Commission © 2021 **3.** U.S. Census Bureau

METHODOLOGY

IQVIA generated the data for this data brief out of health care professional (837p) and institutional (837i) insurance claims, representing nearly 12.9 million unique patients nationally in 2021 with a diagnosis of Type 2 diabetes (ICD-10 codes E08, E09, E11, E13). Data from physicians of all specialties and from all hospital types are included. Substate markets represent core-based statistical areas (CBSAs).

IQVIA also gathers data on prescription activity from the National Council for Prescription Drug Programs (NCPDP). These data account for some 4 billion prescription claims annually, or more than 92% of the retail prescription universe and 72% of the traditional and specialty mail order universe. These prescription data represent the sampling of prescription activity from a variety of sources, including retail chains, mass merchandisers, and pharmacy benefit managers. Cash, Medicaid, and third-party transactions are tracked. Data arriving into IQVIA are put through a rigorous process to ensure that data elements match to valid references, such as product codes, ICD-10 (diagnosis) and CPT-4 (procedure) codes, and provider and facility data.

Proprietary lab data derive from one of the largest independent commercial lab companies in the U.S. Patient information is de-identified, matched, and linked with other patient data assets (e.g., medical claims data). The most common attributes used are the de-identified patient ID, observation date, diagnosis, test name, test code, and test result.

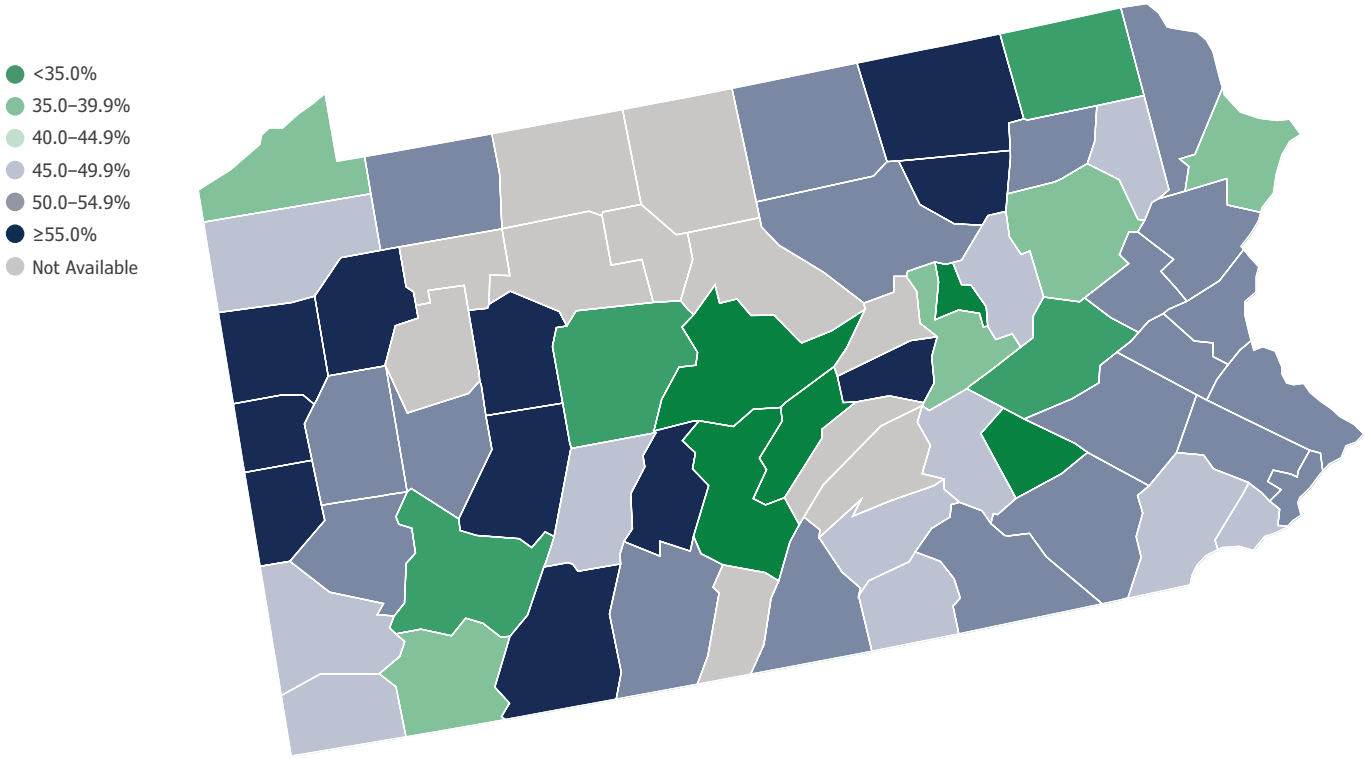
Claims undergo a careful de-duplication process to ensure that when multiple, voided, or adjusted claims are assigned to a patient encounter, they are applied to the database, but only for a single, unique patient.

Through its patient encryption methods, IQVIA 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 IQVIA 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.

Case volume, length of stay, and charges per case data are from Definitive Healthcare. Definitive Healthcare Medicare Standard Analytics Files (SAFs) are part of the Limited Data Set (LDS) files released on a yearly and quarterly basis by the Centers for Medicare & Medicaid Services. The SAFs capture adjudicated claims and are 100% Medicare fee-for-service claims (does not include Medicare Advantage). Claims adjudication refers to the determination of the insurer's payment or financial responsibility after the member's insurance benefits are applied to a medical claim to yield "final action" claims. The SAFs are available for all claim settings (e.g., Inpatient, Outpatient, Home Health Association, Skilled Nursing Facility, and Hospice).

The Definitive Healthcare commercial data set, which includes Medicaid, is sourced from some of the largest medical claim clearinghouses in the United States and includes a mixture of professional and institutional claims processed through those clearinghouses. Professional claims are generated for work performed by physicians, suppliers, and other non-institutional providers for both inpatient and outpatient services. Institutional claims are generated for work performed by hospitals, skilled nursing facilities, and other institutions for inpatient and outpatient services (e.g., use of equipment/supplies, laboratory, radiology). Definitive Healthcare aggregates claims data and reports as cases.

PERCENTAGE OF COMMERCIAL TYPE 2 DIABETES PATIENTS WITH AN A1c >7.0%, 2021[1,a]



Reference: 1. IQVIA © 2022

[a] The A1c test measures the average blood glucose over the past 3 months. Figures reflect the percentage of diabetes patients who have had at least one A1c test in a given year.