

WHITE PAPER

Opioid Abuse and Dependence

A National Tapestry of Care and Cost with a State-by-State
Analysis

A FAIR Health White Paper, August 2018



Summary

Following its series of three white papers on the national opioid crisis, FAIR Health, a national, independent, nonprofit organization, studied how regions and states across the country differ in the medical procedures used to treat opioid abuse and dependence. Drawing on its database of billions of privately billed healthcare claims, FAIR Health analyzed, for the recent year 2017, the top 10 procedure codes associated with opioid abuse and dependence diagnoses by utilization and aggregate cost in each US census region (Northeast, Midwest, South, West); five types of such opioid-related codes by state (behavioral health, medication-assisted treatment, inpatient treatment, outpatient rehabilitative services, emergency department visits); and the top five opioid-related codes by utilization and cost in each state.

The study revealed considerable variation across regions and states:

- Group psychotherapy (CPT^{®1} 90853) and methadone administration (H0020) were common throughout much of the country. But, methadone administration was particularly associated with the Northeast, while another medication, naltrexone injection (J2315), was more closely associated with the Midwest.
 - Group psychotherapy was one of the 10 most common procedures by utilization in every region except the South.
 - Methadone administration was among the 10 most common procedures by utilization in every region, and among the top 10 by cost in one region, the Northeast.
 - Naltrexone injection was in the top 10 list by cost in only one region, the Midwest.
- Outpatient rehabilitative services were linked more to the South and West than to other regions.
- The South relied more on testing than on therapeutic procedures, while the West had a strong emphasis on treatment.
- Two inpatient treatments, sub-acute detoxification (H0010) and short-term residential (H0018), were included in the list of top 10 procedures by cost in one region, the West.
- Emergency department (ED) visits were found in the top 10 lists by cost only in the Northeast and Midwest.
- Among the 50 states and the District of Columbia:
 - Only New York had group counseling (H0005) as one of its five most common procedures by utilization and cost.
 - Only California had intensive outpatient treatment (H0015) in its top five list by utilization.
 - Sub-acute detoxification (H0010) appeared in the top five lists of only two states, Mississippi and Tennessee, and there only by cost.
 - Only five states—Delaware, Nebraska, North Dakota, South Dakota and Wisconsin— included psychotherapy, 45 minutes (CPT 90834), as one of their five most common procedures by utilization.
 - Only Wyoming included among its top five procedures by cost an ED visit, high severity, immediate significant threat to life or physiologic function (CPT 99285).
- The variations in the dominant procedures offer opportunities to investigate what kinds of outcomes are associated with the various treatment strategies.

Background

This is the fourth in a series of white papers released by FAIR Health on the current epidemic of opioid abuse and dependence. The first white paper examined national trends in the epidemic;² the second, the

¹ CPT © 2017 American Medical Association (AMA). All rights reserved.

² *The Opioid Crisis among the Privately Insured: The Opioid Abuse Epidemic as Documented in Private Claims Data*, A FAIR Health White Paper, FAIR Health, July 2016,

impact of the epidemic on the healthcare system;³ and the third, geographic variations in the epidemic.⁴ One of the findings reported in the third white paper was that the five states selected for analysis (California, Illinois, New York, Pennsylvania and Texas) markedly differed in how they approached treatment of opioid-related diagnoses (defined there as opioid abuse and dependence as well as overdose of heroin or other opioids). This finding raised the question of how regions and states across the country differ in the medical services (or procedures) most frequently associated with such diagnoses. The question arose in part from healthcare stakeholders whose states were not studied in the third white paper and who wanted insights into what was happening in their own states.

Other researchers have explored the topic of geographic variations in treatment related to opioid abuse and dependence. For example, McAuliffe and Dunn reported disparities in substance abuse treatment services among states even after accounting for variations in treatment need.⁵ Hand and colleagues analyzed the treatment received by pregnant women entering treatment for opioid use disorder by census region.⁶ They found that pregnant women admitted for opioid use disorder treatment in regions other than the South were twice as likely as those in the South to be admitted to medication-assisted treatment (MAT). Borders and Wen examined metropolitan versus non-metropolitan differences in perceived treatment need and treatment utilization for opioid use and other illicit drug use disorders.⁷ Until now, however, detailed, systematic analysis of the most common procedures related to opioid abuse and dependence in the various US regions and states has been lacking.

FAIR Health, a national, independent, nonprofit organization dedicated to healthcare transparency, is uniquely positioned to help fill that gap. By studying 2017 data in its database of more than 26 billion privately billed healthcare claim records dating back to 2002, FAIR Health has been able to analyze geographically what medical services associated with opioid abuse and dependence diagnoses were most often billed to private insurers that year. This white paper presents both the categories of procedure codes and the particular services identified by specific codes most commonly associated (by utilization and aggregate charges) with opioid abuse and dependence in the privately insured US population, by census region (Northeast, South, Midwest and West) and state. The discussion of the states in this paper focuses on broad patterns among the states. For the most common procedure codes in each individual state, this paper is supplemented by an [online collection of 51 infographics](#), one for each state and the District of Columbia.

Not all of the procedures examined in this paper are treatments. Drug tests, for example, are medical services for which providers often bill when a patient is undergoing treatment, but they are not themselves

<https://s3.amazonaws.com/media2.fairhealth.org/whitepaper/asset/FH%20White%20Paper%20-%20The%20Opioid%20Crisis%20among%20the%20Privately%20Insured%20-%20July%202016-5972409963cf3.pdf>.

³ *The Impact of the Opioid Crisis on the Healthcare System: A Study of Privately Billed Services*, A FAIR Health White Paper, FAIR Health, September 2016,

<https://s3.amazonaws.com/media2.fairhealth.org/whitepaper/asset/FH%20White%20Paper%20-%20The%20Impact%20of%20the%20Opioid%20Crisis%20on%20the%20Healthcare%20System%20-%20Sept%202016-5972407510d1f.pdf>.

⁴ *Peeling Back the Curtain on Regional Variation in the Opioid Crisis: Spotlight on Five Key Urban Centers and Their Respective States*, A FAIR Health White Paper, FAIR Health, June 2017,

<https://s3.amazonaws.com/media2.fairhealth.org/whitepaper/asset/FH%20White%20Paper%20-%20Peeling%20Back%20the%20Curtain%20on%20Regional%20Variation%20in%20the%20Opioid%20Crisis%20-%20June%202017-5972405d4efee.pdf>.

⁵ William E. McAuliffe and Ryan Dunn, "Substance Abuse Treatment Needs and Access in the USA: Interstate Variations," *Addiction* 99, no. 8 (2004): 999-1014; doi:10.1111/j.1360-0443.2004.00783.x.

⁶ Dennis J. Hand, Vanessa L. Short and Diane J. Abatemarco, "Substance Use, Treatment, and Demographic Characteristics of Pregnant Women Entering Treatment for Opioid Use Disorder Differ by United States Census Region," *Journal of Substance Abuse Treatment* 76 (2017): 58-63; doi:10.1016/j.jsat.2017.01.011.

⁷ Tyrone F. Borders and Hefei Wen, "Perceived Treatment Need and Utilization for Illicit Drug and Opioid Use Disorders in Non-Metropolitan Areas," *Rural & Underserved Health Research Center Publications*, University of Kentucky, 2018, https://uknowledge.uky.edu/ruhrc_reports/2.

therapeutic. Office or outpatient visits of various lengths are billed as procedures, although what is done in the visit is not specified. Nevertheless, systematic geographic analysis of common procedures provides valuable information about what medical services, including treatments, are being rendered to patients with opioid abuse and dependence.

Methodology

Using the International Classification of Diseases (ICD-9-CM and ICD-10-CM) diagnostic codes as reported on claims in the FAIR Health dataset, FAIR Health examined claims of professional providers and segregated data that were indicative of opioid dependence (e.g., ICD-9-CM 304.00, opioid-type dependence, unspecified, and ICD-10-CM F11.20, opioid dependence, uncomplicated), opioid abuse (e.g., ICD-9-CM 305.51, opioid abuse, continuous, and ICD-10-CM F11.10, opioid abuse, uncomplicated), heroin overdose and overdose of opioids excluding heroin.

Data were then evaluated by stratifying the geographic location in which the service was performed using a combination of the US Census Bureau's classification categorizations, including the urban-rural data and the standard census regions of Northeast, Midwest, South and West.

Studies were conducted on CPT codes (maintained by the American Medical Association) and HCPCS Level II codes (maintained by the Centers for Medicare & Medicaid Services), such as laboratory tests (e.g., CPT 83925, opiates, drug and metabolites, each procedure), alcohol and/or drug services/therapy (e.g., HCPCS H0015, alcohol and/or drug services; intensive outpatient treatment), evaluation and management (E&M; e.g., CPT 99283, ED visit, moderate severity) and hospitalization (e.g., CPT 99233, subsequent hospital care per day, 35 minutes) and their individual component procedure codes.

The data were aggregated by a variety of key fields, including state, region, urban and rural designations, procedure code and year of service, to identify trends and patterns in utilization and cost. The data were evaluated with single and multiple variables to look for distinct trends and associations.

The states in the census regions are:

- **Northeast:** Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont;
- **Midwest:** Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, Wisconsin;
- **South:** Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia; and
- **West:** Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, Wyoming.

Regions

The top 10 procedure codes associated with opioid abuse and dependence by utilization in 2017 differed among the four census regions. In addition, their top 10 codes by utilization differed from their own top 10 codes by aggregate cost, which, in turn, differed from the top 10 codes by cost of the other regions.

There were some similarities. All of the top 10 lists contained codes for drug tests, one of which appeared in every region's top 10 list both by utilization and cost: presumptive drug test for any number of drug classes (CPT 80307). In three regions—the Northeast, South and West—this test was the number one

procedure by utilization, and in the Northeast it was also the number one procedure by cost. In the Midwest, it was the fourth most common procedure by utilization and the third most common by cost.

Other common drug tests in the regional top 10 lists by utilization or cost included drug test, presumptive, any number of drug classes, any number of devices or procedures—capable of being read by direct optical observation only (CPT 80305); drug test, definitive, 22 or more classes (G0483); drug test, definitive, 1-7 classes (G0480); drug test, definitive, 8-14 classes (G0481); and drug test, definitive, 15-21 classes (G0482).

Procedure codes for office or other outpatient visits were in all the regional top 10 lists by utilization or cost except for the list by cost in the West. Depending on the list, the code was a 15-minute visit (CPT 9913), a 25-minute visit (CPT 99214) or both.

Group psychotherapy (CPT 90853), a behavioral health procedure, was among the 10 most common procedures by utilization in every region except the South. It was among the 10 most common procedures by cost in the South, as it was in the Midwest and West. The only other therapeutic procedure that appeared nearly as often in the top 10 lists was alcohol and/or drug services; methadone administration (H0020). Methadone is one of three drugs commonly used in MAT, along with naltrexone and buprenorphine.⁸ Methadone administration was in the top 10 list of procedure codes by utilization in every region, and in the top 10 list by cost in one region, the Northeast.

Aside from group psychotherapy and methadone administration, there was great regional diversity in the treatments associated with opioid abuse and dependence. For example, alcohol and/or drug services; intensive outpatient treatment (H0015) was included in one list by utilization, in the West, and two lists by cost, in the West and South. It did not appear at all in the top 10 lists of the Northeast and Midwest.

Alcohol and/or drug services; group counseling by a clinician (H0005), was one of the 10 most common procedures by utilization and cost in the Northeast, but was not in any of the other regional top 10 lists. Two other procedures included in just two top 10 lists were partial hospitalization, less than 24 hours (S0201) and mental health partial hospitalization, treatment, less than 24 hours (H0035). The former was found in the top 10 list by cost in the South and West. The latter was found only in the West, in the top 10 lists by both utilization and cost.

Several treatments each appeared in only one top 10 procedure code list. For example, injection, naltrexone, depot form, 1 mg (J2315), was only in the list by cost in the Midwest, and psychotherapy, 45 minutes (CPT 90834), was only in the list by utilization in the Northeast.

A description of the findings for each region follows.

Northeast. Utilization of methadone administration was higher in the Northeast than in any other region except the Midwest (table 1). In the Northeast, methadone administration ranked second in the top 10 list of procedure codes by utilization and accounted for 18 percent of the list. In addition, in the Northeast, methadone administration appeared in the list of top 10 codes by cost, ranking sixth and constituting seven percent of the total cost of the 10 procedures in the list, while it was not included in any of the other regions' top 10 lists by cost (table 2).

Behavioral health was also emphasized in the Northeast. Group counseling, group psychotherapy and psychotherapy, 45 minutes, all appeared in the region's top 10 list by utilization. One of these, group counseling, was also in the northeastern top 10 list by cost. Group counseling ranked third in the list by utilization, at 13 percent, and seventh in the list by cost, at six percent. Group psychotherapy ranked sixth by utilization, at six percent. Psychotherapy, 45 minutes, ranked ninth by utilization, at four percent.

⁸ "Medication-Assisted Treatment (MAT)," Substance Abuse and Mental Health Services Administration (SAMHSA), February 7, 2018, <https://www.samhsa.gov/medication-assisted-treatment>.

In only two of the four regions, the Northeast and Midwest, ED visits appeared in the top 10 lists. In both the Northeast and Midwest, ED visits were found in the lists by cost, but not by utilization. The list by cost in the Northeast included ED visit, high/urgent severity (CPT 99284), ranking ninth and constituting six percent of the total cost of the 10 procedures in the list.

Table 1. Top 10 procedure codes associated with opioid abuse and dependence diagnoses in the Northeast in 2017, by utilization.

Procedure Code	Description	Percent of List
CPT 80307	DRUG TST PRSMV INSTRMNT CHEM ANALYZERS PR DATE	22
H0020	ALCOHOL AND/OR DRUG SERVICES; METHADONE ADMINISTRATION AND/OR SERVICE	18
H0005	ALCOHOL AND/OR DRUG SERVICES; GROUP COUNSELING BY A CLINICIAN	13
CPT 99213	OFFICE OUTPATIENT VISIT 15 MINUTES	12
G0480	DRUG TEST DEF 1-7 CLASSES	11
CPT 90853	GROUP PSYCHOTHERAPY (OTHER THAN OF A MULTIPLE-FAMILY GROUP)	6
CPT 99214	OFFICE OUTPATIENT VISIT 25 MINUTES	6
CPT 80305	DRUG TEST PRSMV READ DIRECT OPTICAL OBS PR DATE	4
CPT 90834	PSYCHOTHERAPY; 45 MINS	4
CPT 36415	COLLECTION OF VENOUS BLOOD BY VENIPUNCTURE	4

Table 2. Top 10 procedure codes associated with opioid abuse and dependence diagnoses in the Northeast in 2017, by total cost.

Procedure Code	Description	Percent of Total Cost in List
CPT 80307	DRUG TST PRSMV INSTRMNT CHEM ANALYZERS PR DATE	29
G0483	DRUG TEST DEF 22+ CLASSES	16
G0480	DRUG TEST DEF 1-7 CLASSES	11
G0481	DRUG TEST DEF 8-14 CLASSES	7
CPT 99213	OFFICE OUTPATIENT VISIT 15 MINUTES	7
H0020	ALCOHOL AND/OR DRUG SERVICES; METHADONE ADMINISTRATION AND/OR SERVICE	7
H0005	ALCOHOL AND/OR DRUG SERVICES; GROUP COUNSELING BY A CLINICIAN	6
G0482	DRUG TEST DEF 15-21 CLASSES	6
CPT 99284	EMERGENCY DEPARTMENT VISIT HIGH/URGENT SEVERITY	6
CPT 99214	OFFICE OUTPATIENT VISIT 25 MINUTES	5

Midwest. In the Midwest, methadone administration ranked first in the top 10 list by utilization, constituting 18 percent of the list, the same percentage as in the Northeast (table 3). In addition, in the list by cost in the Midwest, injection of another drug used in MAT, naltrexone, ranked second, accounting for 17 percent (table 4).

Group psychotherapy was the only behavioral health code included on the Midwest lists, ranking sixth and accounting for seven percent of the top 10 list by utilization, and ranking ninth and accounting for five percent of the top 10 list by cost.

As in the Northeast, the list by cost in the Midwest included ED visit, high/urgent severity, which ranked eighth, at five percent. Also in the list was ED visit, high severity, immediate significant threat to life or physiologic function (CPT 99285), which ranked seventh by cost, at five percent.

The Midwest was the only region with pregnancy-related procedures in its lists. Ultrasound, pregnant uterus, real time, follow-up, transabdominal approach (CPT 76816) was included in the Midwest list by utilization. It ranked 10th and accounted for five percent of that list. Obstetric care including antepartum care, vaginal delivery and postpartum care (CPT 59400) was in the list by cost in the Midwest. It ranked fourth and accounted for eight percent of the list by cost.

Table 3. Top 10 procedure codes associated with opioid abuse and dependence diagnoses in the Midwest in 2017, by utilization.

Procedure Code	Description	Percent of List
H0020	ALCOHOL AND/OR DRUG SERVICES; METHADONE ADMINISTRATION AND/OR SERVICE	18
CPT 99213	OFFICE OUTPATIENT VISIT 15 MINUTES	17
CPT 99214	OFFICE OUTPATIENT VISIT 25 MINUTES	12
CPT 80307	DRUG TST PRSMV INSTRMNT CHEM ANALYZERS PR DATE	12
CPT 36415	COLLECTION OF VENOUS BLOOD BY VENIPUNCTURE	11
CPT 90853	GROUP PSYCHOTHERAPY (OTHER THAN OF A MULTIPLE-FAMILY GROUP)	7
CPT 80305	DRUG TEST PRSMV READ DIRECT OPTICAL OBS PR DATE	7
CPT 85025	BLOOD COUNT COMPLETE AUTO&AUTO DIFRNTL WBC	6
CPT 82951	GLUCOSE TOLERANCE TEST GTT 3 SPECIMENS	5
CPT 76816	US PREG UTERUS REAL TIME F/U TRNSABDL PER FETUS	5

Table 4. Top 10 procedure codes associated with opioid abuse and dependence diagnoses in the Midwest in 2017, by total cost.

Procedure Code	Description	Percent of Total Cost in List
G0483	DRUG TEST DEF 22+ CLASSES	26
J2315	INJECTION, NALTREXONE, DEPOT FORM, 1MG	17
CPT 80307	DRUG TST PRSMV INSTRMNT CHEM ANALYZERS PR DATE	16
CPT 59400	OB CARE ANTEPARTUM VAG DLVR & POSTPARTUM	8
CPT 99214	OFFICE OUTPATIENT VISIT 25 MINUTES	7
CPT 99213	OFFICE OUTPATIENT VISIT 15 MINUTES	6
CPT 99285	EMERGENCY DEPT VISIT HIGH SEVERITY&THREAT FUNCJ	5
CPT 99284	EMERGENCY DEPARTMENT VISIT HIGH/URGENT SEVERITY	5
CPT 90853	GROUP PSYCHOTHERAPY (OTHER THAN OF A MULTIPLE-FAMILY GROUP)	5
G0482	DRUG TEST DEF 15-21 CLASSES	5

South. The top 10 list in the South by utilization included only one therapeutic procedure, methadone administration, ranking eighth at six percent (table 5). Instead of such procedures, the list emphasized testing. With six tests and the collection of venous blood by venipuncture (CPT 36415), the list included seven tests or test-related procedures, more than in any other region.

The top 10 list by cost in the South also included six tests, as well as two outpatient rehabilitative services that were found in only one other region's lists, those of the West (table 6). The services were partial hospitalization, less than 24 hours, which ranked seventh in the southern top 10 list by cost, at four percent of the list, and intensive outpatient treatment, which ranked eighth, at two percent. Group psychotherapy ranked ninth, at two percent.

Table 5. Top 10 procedure codes associated with opioid abuse and dependence diagnoses in the South in 2017, by utilization.

Procedure Code	Description	Percent of List
CPT 80307	DRUG TST PRSMV INSTRMNT CHEM ANALYZERS PR DATE	26
CPT 99213	OFFICE OUTPATIENT VISIT 15 MINUTES	12
CPT 80305	DRUG TEST PRSMV READ DIRECT OPTICAL OBS PR DATE	11
G0483	DRUG TEST DEF 22+ CLASSES	11
CPT 99214	OFFICE OUTPATIENT VISIT 25 MINUTES	8
G0480	DRUG TEST DEF 1-7 CLASSES	8
CPT 36415	COLLECTION OF VENOUS BLOOD BY VENIPUNCTURE	7
H0020	ALCOHOL AND/OR DRUG SERVICES; METHADONE ADMINISTRATION AND/OR SERVICE	6
G0482	DRUG TEST DEF 15-21 CLASSES	6
G0481	DRUG TEST DEF 8-14 CLASSES	5

Table 6. Top 10 procedure codes associated with opioid abuse and dependence diagnoses in the South in 2017, by total cost.

Procedure Code	Description	Percent of Total Cost in List
G0483	DRUG TEST DEF 22+ CLASSES	35
CPT 80307	DRUG TST PRSMV INSTRMNT CHEM ANALYZERS PR DATE	20
G0482	DRUG TEST DEF 15-21 CLASSES	12
G0481	DRUG TEST DEF 8-14 CLASSES	10
CPT 80305	DRUG TEST PRSMV READ DIRECT OPTICAL OBS PR DATE	8
G0480	DRUG TEST DEF 1-7 CLASSES	5
S0201	PARTIAL HOSPITALIZATION SERVICES, LESS THAN 24 HOURS, PER DIEM	4
H0015	ALCOHOL AND/OR DRUG SERVICES; INTENSIVE OUTPATIENT TREATMENT	2
CPT 90853	GROUP PSYCHOTHERAPY (OTHER THAN OF A MULTIPLE-FAMILY GROUP)	2
CPT 99213	OFFICE OUTPATIENT VISIT 15 MINUTES	2

West. The West had a strong emphasis on treatment in both of its top 10 lists of procedure codes. Group psychotherapy ranked higher in the list by utilization in the West than in any other region, taking second place and accounting for 13 percent of the list (table 7). The same procedure ranked higher in the West by cost than in any other region, taking fifth place and accounting for 10 percent of the list (table 8).

Intensive outpatient treatment ranked fourth on the list by utilization in the West, at 11 percent, and third in the list by cost, at 15 percent. Mental health partial hospitalization, which appeared only on the lists in the West, ranked sixth by utilization, at 8 percent, and second by cost, at 16 percent. Methadone administration ranked tenth in the West by utilization, at seven percent, and was not included in the list by cost.

Partial hospitalization was in the top 10 list in the West by cost, ranking sixth at eight percent. Two inpatient treatments were only in the list by cost for the West; they were in no other region's lists. They were alcohol and/or drug services; sub-acute detoxification, residential addiction program inpatient (H0010) and behavioral health; short-term residential, non-hospital residential treatment program (H0018). Sub-acute detoxification ranked eighth in the list, at five percent, and short-term residential ranked ninth at four percent.

Table 7. Top 10 procedure codes associated with opioid abuse and dependence diagnoses in the West in 2017, by utilization.

Procedure Code	Description	Percent of List
CPT 80307	DRUG TST PRSMV INSTRMNT CHEM ANALYZERS PR DATE	16
CPT 90853	GROUP PSYCHOTHERAPY (OTHER THAN OF A MULTIPLE-FAMILY GROUP)	13
CPT 80305	DRUG TEST PRSMV READ DIRECT OPTICAL OBS PR DATE	13
H0015	ALCOHOL AND/OR DRUG SERVICES; INTENSIVE OUTPATIENT TREATMENT	11
G0483	DRUG TEST DEF 22+ CLASSES	10
H0035	MENTAL HEALTH PARTIAL HOSPITALIZATION, TREATMENT, LESS THAN 24 HOURS	8
CPT 99214	OFFICE OUTPATIENT VISIT 25 MINUTES	8
CPT 82075	ALCOHOL, BREATH	7
CPT 99213	OFFICE OUTPATIENT VISIT 15 MINUTES	7
H0020	ALCOHOL AND/OR DRUG SERVICES; METHADONE ADMINISTRATION AND/OR SERVICE	7

Table 8. Top 10 procedure codes associated with opioid abuse and dependence diagnoses in the West in 2017, by total cost.

Procedure Code	Description	Percent of Total Cost in List
G0483	DRUG TEST DEF 22+ CLASSES	18
H0035	MENTAL HEALTH PARTIAL HOSPITALIZATION, TREATMENT, LESS THAN 24 HOURS	16
H0015	ALCOHOL AND/OR DRUG SERVICES; INTENSIVE OUTPATIENT TREATMENT	15
CPT 80307	DRUG TST PRSMV INSTRMNT CHEM ANALYZERS PR DATE	14
CPT 90853	GROUP PSYCHOTHERAPY (OTHER THAN OF A MULTIPLE-FAMILY GROUP)	10
S0201	PARTIAL HOSPITALIZATION SERVICES, LESS THAN 24 HOURS, PER DIEM	8
CPT 80305	DRUG TEST PRSMV READ DIRECT OPTICAL OBS PR DATE	6
H0010	ALCOHOL AND/OR DRUG SERVICES; SUB-ACUTE DETOXIFICATION (RESIDENTIAL ADDICTION PROGRAM INPATIENT)	5
H0018	BEHAVIORAL HEALTH; SHORT-TERM RESIDENTIAL (NON-HOSPITAL RESIDENTIAL TREATMENT PROGRAM), WITHOUT ROOM AND BOARD, PER DIEM	4
G0481	DRUG TEST DEF 8-14 CLASSES	4

States

As seen in the foregoing analysis, regions differed in the specific procedure codes and the types of procedure codes most commonly associated with opioid abuse and dependence diagnoses, whether the codes were ranked by utilization or cost. ED visits, for example, were found only in the top 10 procedure lists of the Northeast and Midwest; outpatient rehabilitative services only in the South and West; and inpatient treatments only in the West. To find out which types of procedure codes and which specific procedure codes were most common in 2017 at the state level, FAIR Health conducted two further analyses.

First, selected types of procedure codes were studied by state. Second, the top five procedure codes by utilization and the top five procedure codes by aggregate cost associated with opioid abuse and dependence were determined for each of the 50 states and the District of Columbia.

Types of Procedure Codes

Five types of procedure codes were identified for study:

- **Behavioral health**, e.g., group psychotherapy; group counseling; and psychotherapy, 45 minutes;
- **MAT**, e.g., methadone administration; naltrexone injection; and injection, buprenorphine hydrochloride, 0.1 mg (J0592);
- **Inpatient treatment**, e.g., sub-acute detoxification; short-term residential; behavioral health, long-term residential (H0019); and alcohol and/or drug services, acute detoxification, residential addiction program inpatient (H0011);
- **Outpatient rehabilitative services**, e.g., intensive outpatient treatment, partial hospitalization and mental health partial hospitalization; and
- **ED visits**, e.g., ED visit, high/urgent severity; and ED visit, high severity, immediate significant threat to life or physiologic function.

Behavioral Health

In the heat map below, states toward the red end of the spectrum are those in which behavioral health procedures associated with opioid abuse and dependence diagnoses were a larger percentage of total medical services (figure 1). States toward the green end are those in which behavioral health codes associated with opioid abuse and dependence were a smaller percentage of total services. The top five states (those in which behavioral health codes associated with opioid abuse and dependence were a larger percentage) were, in order from highest to lowest, New York, Hawaii, Rhode Island, Wisconsin and Arizona. The bottom five, in order from lowest to highest, were Arkansas, Oklahoma, Minnesota, Tennessee and North Carolina.

The findings of which states have the highest levels of a type of code should not be expected to align perfectly with the earlier regional analysis, because that study used a different measure, top 10 codes by utilization or cost. States can be expected to vary within a region, and the prevalence of a particular code in a region might be different from the prevalence of a type of code in a state within the region.

Nevertheless, in the case of behavioral health, the results of the state analysis are generally consistent with the regional analysis. New York and Rhode Island, which are among the top five states for behavioral health, are in the Northeast, where behavioral health was emphasized in the top 10 lists of procedure codes. Of the remaining top five states in this category, Wisconsin is a midwestern state and Hawaii and Arizona western ones. Both Midwest and West had a behavioral health procedure, group psychotherapy, in their top 10 lists by utilization and cost. Of the bottom states for behavioral health, all but Minnesota (a midwestern state) are southern. The South had no behavioral health procedures in its top 10 list by utilization.

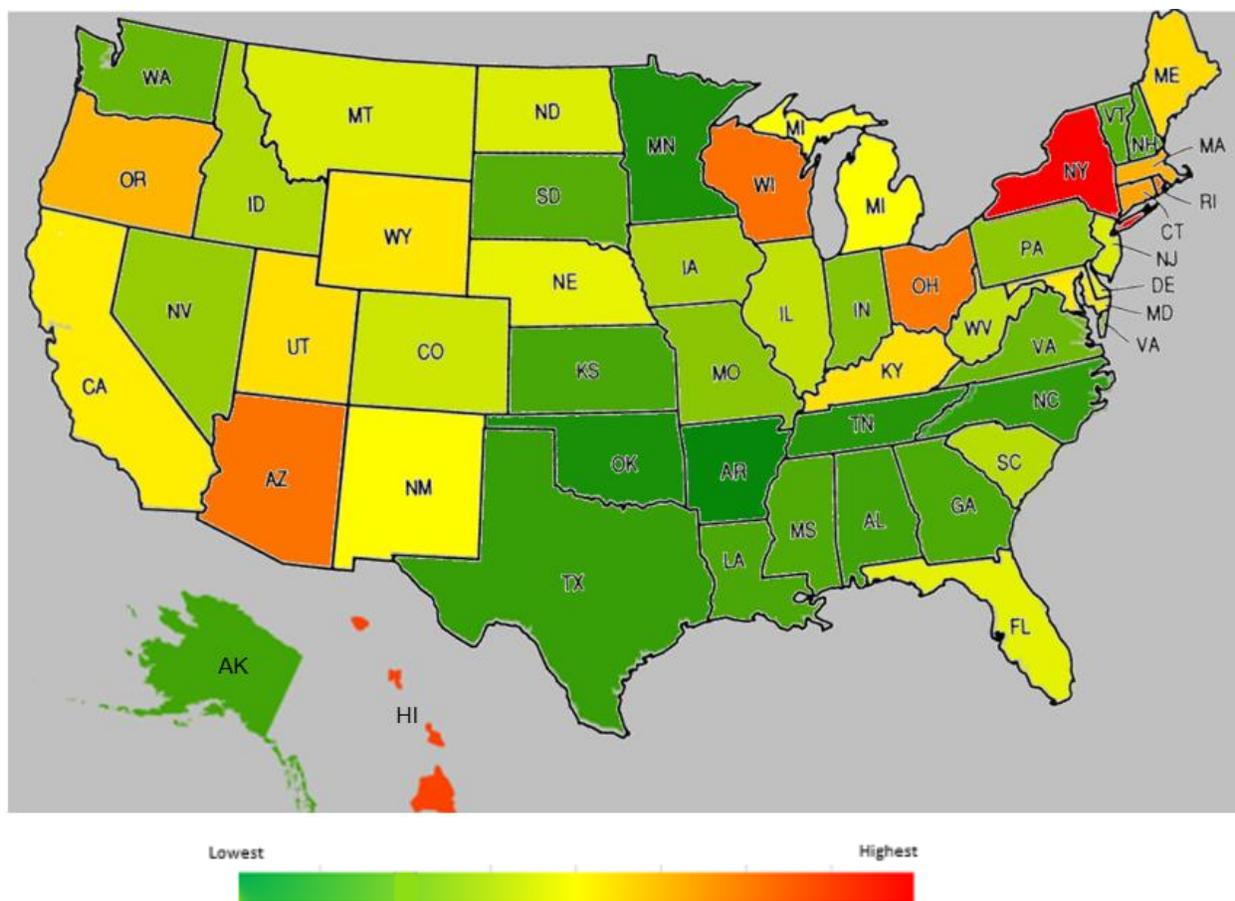


Figure 1. Behavioral health procedures associated with opioid abuse and dependence diagnoses as a percentage of total medical services in a state, 2017.

MAT

Although MAT combines medication with behavioral therapy, for purposes of this analysis only procedure codes for the medication component were considered as MAT codes. In the heat map below, states toward the red end of the spectrum are those in which MAT procedures were a larger percentage of all services associated with opioid abuse and dependence diagnoses (figure 2). The top five states, in order from highest to lowest, were Delaware, Maine, Oregon, Connecticut and New York. The bottom five, in order from lowest to highest, were North Dakota, Arkansas, Hawaii, Florida and Wyoming.

In the regional analysis, methadone administration was in the top 10 list of procedure codes by utilization in every region, and naltrexone injection was in the top 10 list by cost in the Midwest. (Buprenorphine injection was not in any list.) The majority of the top five states for MAT, however, were northeastern: Maine, Connecticut and New York. Notably, the Northeast was the only region in which methadone administration appeared in the top 10 list of procedure codes by cost.

Of the bottom five states for MAT, none is northeastern. The regions represented in the bottom five are South (Arkansas, Florida), Midwest (North Dakota) and West (Hawaii, Wyoming).

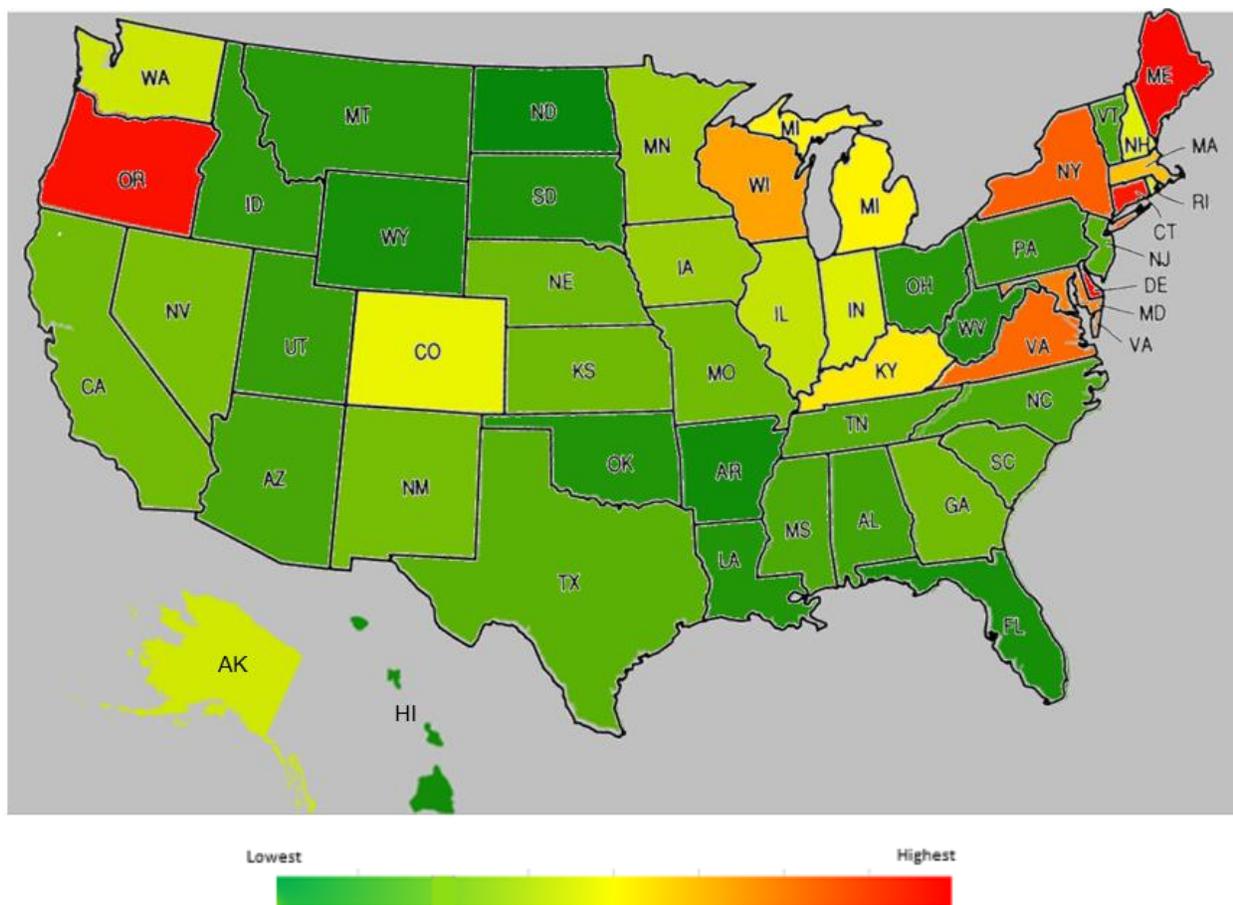


Figure 2. MAT procedures as a percentage of all services associated with opioid abuse and dependence diagnoses in a state, 2017.

Inpatient Treatment

In the heat map below, states toward the red end of the spectrum are those in which inpatient treatment procedures were a larger percentage of all services associated with opioid abuse and dependence diagnoses (figure 3). The top five states, in order from highest to lowest, were California, Missouri, Utah, Kansas and Illinois. The bottom five, in order from lowest to highest, were New Mexico, Minnesota, Hawaii, Maine and North Carolina.

In the regional analysis, inpatient treatments did not appear in the top 10 lists of procedure codes by utilization in any region. In lists by cost, they were found only in the West. It is not surprising, then, that a western state, California, is the state in which inpatient treatment codes associated with opioid abuse and dependence are the largest percentage of total medical services. Another western state, Utah, is also among the top five states for inpatient treatment. But, the region most represented in the top five list of states is the Midwest (Missouri, Kansas and Illinois).

The Midwest is also represented in the bottom five list for inpatient treatment, by Minnesota. All the other regions are also represented in that list: the West by New Mexico and Hawaii, the Northeast by Maine and the South by North Carolina.

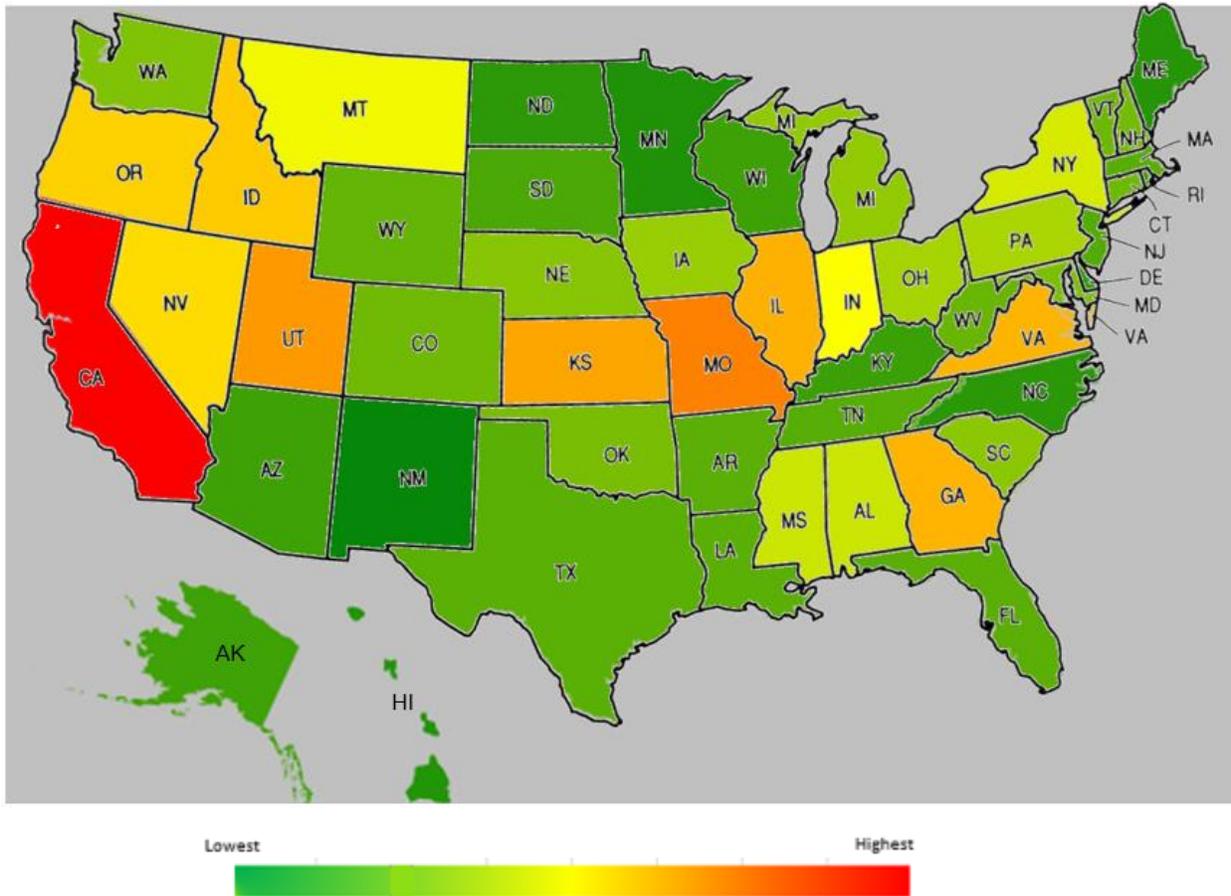


Figure 3. Inpatient treatment procedures as a percentage of all services associated with opioid abuse and dependence diagnoses in a state, 2017.

Outpatient Rehabilitative Services

In the heat map below, states toward the red end of the spectrum are those in which outpatient rehabilitative services were a larger percentage of all services associated with opioid abuse and dependence diagnoses (figure 4). The top five states, in order from highest to lowest, were Connecticut, California, Utah, the District of Columbia and Arizona. The bottom five, in order from lowest to highest, were Wyoming, West Virginia, South Dakota, Nebraska and North Dakota.

States from the West (California, Utah and Arizona), Northeast (Connecticut) and South (the District of Columbia) constitute the list of top five states for outpatient rehabilitative services. In the regional analysis, the West and South were the only two regions in which outpatient rehabilitative services were represented in top 10 lists of procedure codes.

Most of the bottom five states for outpatient rehabilitative services are in the Midwest: South Dakota, Nebraska and North Dakota.

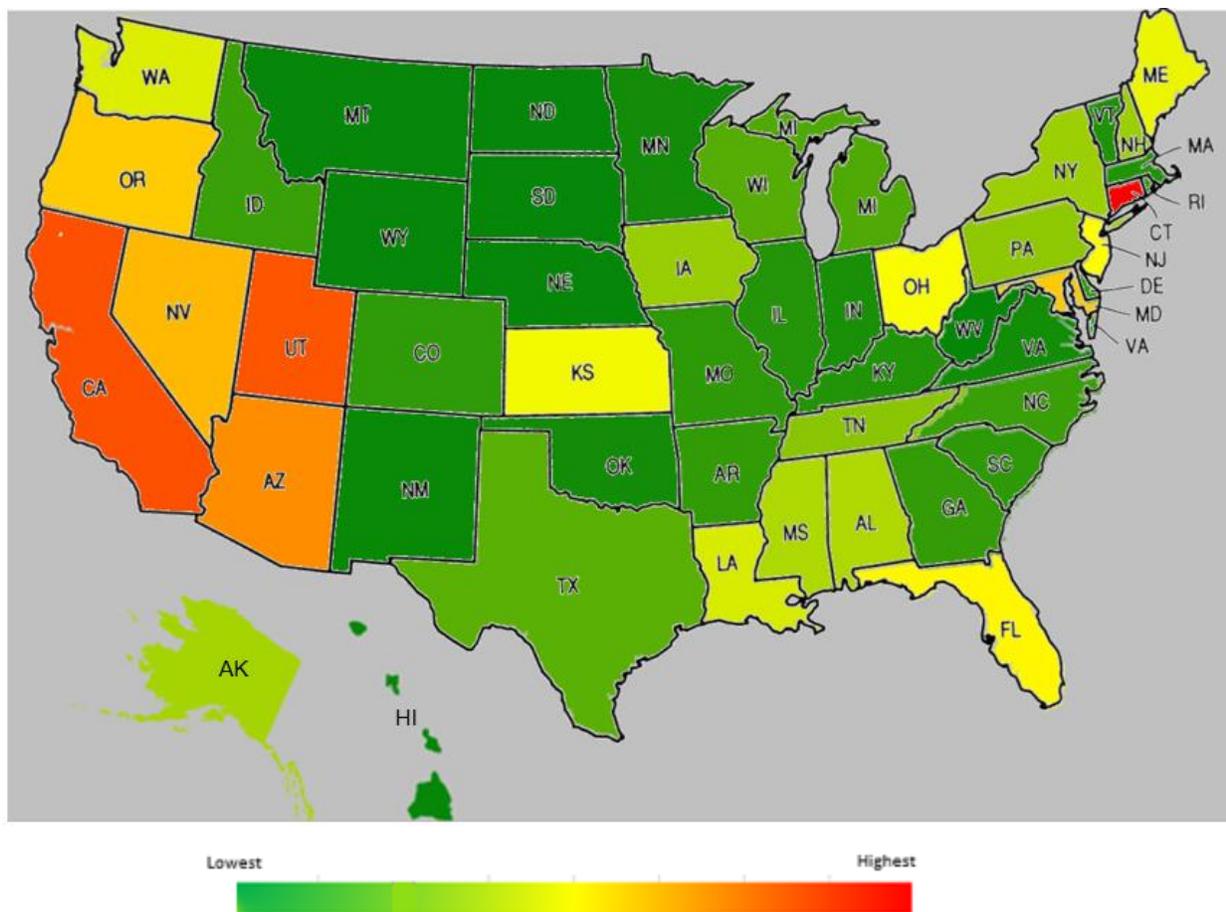


Figure 4. Outpatient rehabilitative services as a percentage of all services associated with an opioid abuse and dependence diagnoses in a state, 2017.

ED Visits

In the heat map below, states toward the red end of the spectrum are those in which ED visits associated with opioid overdose diagnoses were a larger percentage of all procedures associated with opioid overdose, abuse and dependence diagnoses (figure 5). The top five states, in order from highest to lowest, were Iowa, Hawaii, Nebraska, North Dakota and South Carolina. The bottom five, in order from lowest to highest, were North Carolina, West Virginia, Minnesota, New Mexico and Louisiana.

In the regional analysis, only two regions, the Northeast and Midwest, had ED visits in their top 10 lists, and only by cost. The Midwest dominated the top five states for ED visits, with Iowa, Nebraska and North Dakota, but no northeastern states were in the list. In the bottom five list for ED visits, the South was dominant (North Carolina, West Virginia and Louisiana), although the Midwest (Minnesota) and the West (New Mexico) were also represented.

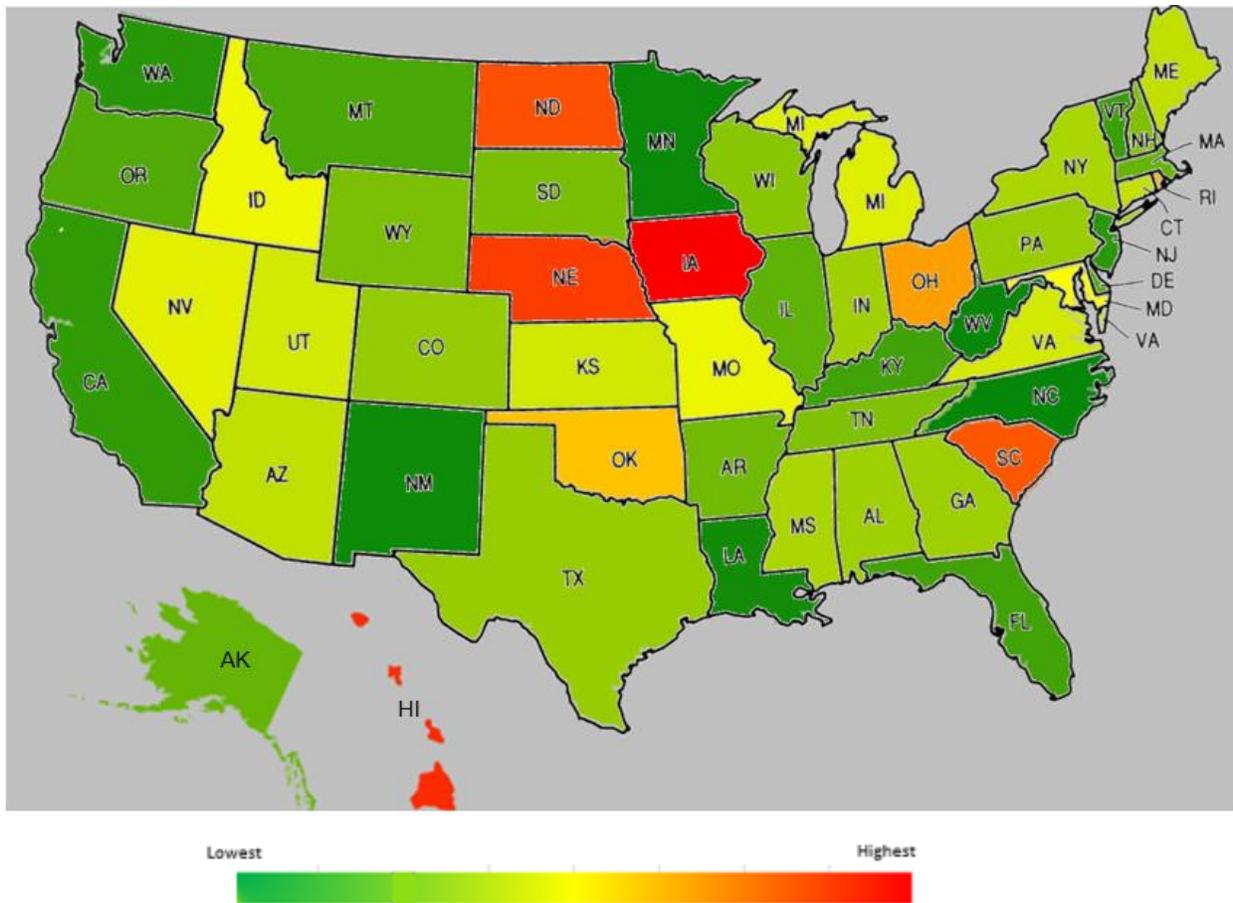


Figure 5. ED visits associated with opioid overdose diagnoses as a percentage of all procedures associated with opioid overdose, abuse and dependence diagnoses in a state, 2017.

State-by-State Analysis: Top Five Procedure Codes by Utilization and Cost

FAIR Health has posted online a [collection of 51 infographics](#), one for each state and the District of Columbia, showing the top five procedure codes by utilization and the top five by aggregate cost associated with opioid abuse and dependence in each of those jurisdictions in 2017. For each state, the infographic also shows a breakdown by age group, in years (0-18, 19-22, 23-30, 31-40, 41-50, over 50) and a gender breakdown for claim lines with opioid abuse and dependence diagnoses.

Each state differed from the others in its top five procedure codes. Some patterns emerge, however, from study of the states' different top five lists.

Behavioral Health

Group psychotherapy was common in the states' top five lists by utilization. It appeared in the lists by utilization of 17 states: California, Connecticut, Delaware, the District of Columbia, Iowa, Kansas, Maine, Maryland, Missouri, Nebraska, New Hampshire, New Jersey, Ohio, Oregon, Utah, Wisconsin and Wyoming.

In 10 of those states and 4 others, group psychotherapy was also in the list by cost. Those 14 states were Arizona, the District of Columbia, Illinois, Iowa, Kansas, Maine, Nebraska, New Hampshire, Ohio, Oregon, South Dakota, West Virginia, Wisconsin and Wyoming.

The states that included group psychotherapy in their top five lists by utilization or cost represent all regions. This is consistent with the inclusion of group psychotherapy in the top 10 lists by utilization, cost or both in every region.

Psychotherapy, 45 minutes, was rarer in the states' top five lists, appearing in the lists by both utilization and cost in Nebraska, North Dakota, South Dakota and Wisconsin. In Delaware, it was only in the list by utilization.

Group counseling appeared in the top five lists of only one state: New York. There it was in the lists by both utilization and cost.

MAT

Methadone administration was even more common than group psychotherapy in the states' top five lists by utilization. It was included in the lists by utilization of 20 states: Alabama, Alaska, Colorado, Connecticut, Delaware, Indiana, Iowa, Maine, Maryland, Massachusetts, Minnesota, New Hampshire, New Mexico, New York, North Carolina, Oregon, Rhode Island, Virginia, Washington and Wisconsin.

Those states include the five top states in which MAT procedures were a larger percentage of all services associated with opioid abuse and dependence diagnoses: Delaware, Maine, Oregon, Connecticut and New York.

Methadone administration appeared less frequently in the top five lists by cost. It appeared in only seven lists by cost, those of Alaska, Connecticut, Delaware, Maine, Minnesota, New York and Rhode Island. All of those states also had methadone administration in their lists by utilization. Four of those states—Connecticut, Maine, New York and Rhode Island—are northeastern, which is consistent with the dominance of the Northeast in the list of states in which MAT procedures were a larger percentage of all services associated with opioid abuse and dependence.

Relative to the widespread inclusion of methadone administration in the top five lists by utilization, naltrexone injection was rare in such lists. It was found in the top five lists by utilization only in Illinois, Michigan and Mississippi. It appeared in the top five lists by cost in those three states, Delaware and Indiana. The inclusion of naltrexone injection in the top five lists by cost of three states in the Midwest—Illinois, Indiana and Michigan—is consistent with the finding in the regional analysis that naltrexone injection ranked second in the Midwest top 10 list by cost.

Buprenorphine injection did not appear in the top five lists of any state. This is consistent with its absence from the regional top 10 lists of procedure codes.

Inpatient Treatment

Inpatient treatment codes were generally not common in the states' top five lists. Long-term residential and acute detoxification did not appear in any of the top five lists. Sub-acute detoxification was included in the lists of only two states, Mississippi and Tennessee, and there only by cost. Short-term residential was found in none of the states' top five lists by utilization, but it did appear in the lists by cost in six states: Connecticut, Georgia, Idaho, Pennsylvania, Virginia and Washington.

Outpatient Rehabilitative Services

One state, California, included intensive outpatient treatment in its top five lists by both utilization and cost. An additional five states—Arizona, the District of Columbia, Oregon, Utah and Washington— included it in their top five lists by cost only. All but one of these six are western states; the one that is not, the District of Columbia, is southern. This finding is consistent with the regional analysis, which showed that intensive outpatient treatment appeared in the top 10 lists only in the West and South. In addition, the five states in which outpatient rehabilitative services were the largest percentage of all services associated with opioid abuse and dependence diagnoses included four of the states named here: California, Utah, the District of Columbia and Arizona.

Partial hospitalization and mental health partial hospitalization were not included in any of the states' top five lists by utilization, but they did appear in some lists by cost. Partial hospitalization was included in the top five lists by cost of Arizona, California, Massachusetts, New Hampshire, South Carolina and Utah. Mental health partial hospitalization was in the top five lists by cost of California, Mississippi and Nevada.

ED Visits

Codes for ED visits were very rare in the states' top five lists. ED visit, high severity, immediate significant threat to life or physiologic function, was found in no state's top five list by utilization, but it did appear in the top five list by cost in one state: Wyoming. ED visit, high/urgent severity, was included in none of the top five lists, whether by utilization or cost.

Conclusion

This study revealed a tapestry of variation by region and state in the types of procedures most commonly used in connection with opioid abuse and dependence. Group psychotherapy and methadone administration were common throughout much of the country. But, methadone administration was particularly associated with the Northeast, while another medication used in MAT, naltrexone injection, was more closely associated with the Midwest. Outpatient rehabilitative services were linked more to the South and West than to other regions. The South relied more on testing than on therapeutic procedures, while the West had a strong emphasis on treatment. Inpatient treatment and ED visits did not appear often in the states' lists of top five procedures. But, inpatient treatments were included in the list of top 10 procedures by cost in the West, and ED visits in the lists by cost in the Northeast and Midwest.

The variations in the dominant procedures raise important questions about what is working. The different approaches used in different states suggest that the states may be viewed as laboratories, offering opportunities to investigate what kinds of outcomes are associated with the various treatment strategies. With the capacity to perform longitudinal studies of representative samples of patients in all the states, FAIR Health stands ready to assist in this important work.

About FAIR Health

FAIR Health is a national, independent, nonprofit organization dedicated to bringing transparency to healthcare costs and health insurance information through data products, consumer resources and health systems research support. FAIR Health qualifies as a public charity under section 501(c)(3) of the tax code. FAIR Health possesses the nation's largest collection of private healthcare claims data, which includes over 26 billion claim records contributed by payors and administrators who insure or process claims for private insurance plans covering more than 150 million individuals. FAIR Health licenses its privately billed data and data products—including benchmark modules, data visualizations, custom analytics, episodes of care analytics and market indices—to commercial insurers and self-insurers, employers, providers, hospitals and healthcare systems, government agencies, researchers and others. FAIR Health also holds separate data representing the experience of more than 58 million individuals enrolled in Medicare. Certified by the Centers for Medicare & Medicaid Services (CMS) as a Qualified Entity, FAIR Health receives all of Medicare Parts A, B and D claims data for use in nationwide transparency efforts. FAIR Health can produce insightful analytic reports and data products based on combined Medicare and commercial claims data for government, providers, payors and other authorized users. FAIR Health's free, award-winning, national consumer websites are fairhealthconsumer.org and consumidor.fairhealth.org. For more information on FAIR Health, visit fairhealth.org.

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