Medicare-Medicaid Data Integration (MMDI) Use Case: Profiling the Provider Role in Opioid Prescribing Among Dual Eligibles

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Table of Contents

List of Tables

List of Figures

1 Program Overview

The Medicare-Medicaid Data Integration (MMDI) program is an initiative jointly-sponsored by the Centers for Medicare & Medicaid Services (CMS) Medicare-Medicaid Coordination Office (MMCO) and the Center for Medicaid and CHIP Services (CMCS). The focus of the MMDI program is to provide technical support to selected states and assist them with integrating Medicare and Medicaid data in order to enhance care coordination and reduce costs for the dual eligible population. In each contract year, the MMDI team collaborates with a certain number of participating Financial Alignment Initiative (FAI) and Medicaid Innovation Accelerator Program (IAP) states to gain an in-depth understanding of the data integration challenges faced, provide technical support and assistance in addressing those challenges, and document common issues and best practices. One of the services offered by the MMDI team is to provide states with use cases that demonstrate how states can leverage integrated Medicare and Medicaid data to potentially inform policy and program design, educate stakeholders, and benefit dual eligibles.

2 Objective

The purpose of this use case is to demonstrate how states can use Medicare data sources to investigate opioid prescribing patterns specific to the dual eligible population. The analytic approach described in this use case will enhance states' ability to identify potentially inappropriate prescribing behaviors that may play a role in dual eligibles' misuse of opioids.

3 Analysis Overview

3.1 Background

Opioid use disorders and prescription opioid misuse are prevalent and costly public health problems in the United States. Over two million Americans were identified as having a diagnosed opioid use disorder in 2016.[1] In 2015, 97.5 million individuals ages 12 and older used a prescription pain reliever; 12.5 million of which reported misusing* pain reliever prescriptions in the past year.[2]

Opioid use is particularly concerning in the dual eligible population. These beneficiaries have higher rates of co-occurring substance use disorders (SUD) and chronic pain

* In the 2015 National Survey on Drug Use and Health, the ". . . definition of misuse referred to the use of prescription drugs in any way a doctor did not direct respondents to use them and focused specifically on behaviors that constituted misuse. Examples of behaviors that were presented to respondents for misuse included (a) use without a prescription of the respondent's own; (b) use in greater amounts, more often, or longer than told to take a drug; or (c) use in any other way a doctor did not tell respondents to take a drug." See endnote 1 for source.

compared to both the Medicare-only and Medicaid-only populations, placing them at greater risk for opioid misuse.[3]

Research has shown that excessive and inappropriate prescribing of opioids is largely responsible for the observed misuse trends.[4] High-frequency prescribing of opioids has been associated with opioid addiction[5] and opioid-associated overdose deaths, which have claimed more than 200,000 lives from 1999 to 2016.[6]

In response to these trends, the federal government has increased efforts to build and improve the response to the opioid crisis.[7] One example is CMS' Medicaid IAP, which includes the reduction of SUDs as one of the priority areas.[8] Specific to dual eligibles, CMS released a memo to Medicare-Medicaid Plans (MMPs), Dual Eligible Special Needs Plans (D-SNPs), and Programs of All-inclusive Care for the Elderly (PACE), emphasizing opportunities to prevent and address potential opioid misuse in the dual eligible population.[9]

States have also developed policies[10] and programs[11] to address the opioid crisis. Examples include: providing treatment and anti-relapse supports through Medicaid;[12] making Naloxone available for distribution for overdose prevention;[13] tracking opioid dispensing through Prescription Drug Monitoring Programs (PDMPs);[14] and limiting the number of opioid painkillers that doctors can prescribe.[15]

To reduce the potential for opioid misuse in this high-risk population, it is important that states understand patterns in opioid prescribing to dual eligibles. This use case demonstrates how states can use Medicare Part D Prescription Drug Event (PDE) data to examine these prescribing patterns.

3.2 Potential Application of Findings

Understanding Prescribing Practices:

- States can use these findings to understand opioid prescribing practices at the provider level and to identify provider types with potentially high-risk prescribing patterns. States can then work with these providers to monitor and/or alter prescribing patterns through targeted notification and education about patterns that may be inappropriate.

Policy and Program Planning:

- States can use these findings to inform policy, laws, and regulations aimed at decreasing the likelihood of risky opioid prescribing patterns.
- States can develop programs that utilize evidence-based opioid prescribing guidelines to support providers in making informed decisions about managing pain in the dual eligible population.

3.3 Approach

Data Sources

The MMDI team used calendar year (CY) 2015 historic Medicare data for a sample state, hereafter referred to as "State A." All analyses were performed in CMS' Virtual Research Data Center (VRDC).

The data files used are listed below:

- Chronic Conditions Data Warehouse (CCW) Medicare enrollment data
  - Master Beneficiary Summary File (MBSF) – Base A/B/C/D
  - MBSF – Other Chronic or Potentially Disabling Conditions
- CCW Medicare claims data
  - Medicare Fee-for-Service (FFS) Hospice Claims (Part A and B)
- Yearly and Monthly Medicare Part D PDE data from the Integrated Data Repository (IDR)
- Medicare FFS Public Provider Enrollment (PPE) data

States may want to use Medicaid* and/or other data sources for their profiles of opioid prescribing depending on the desired elements or measures.

Defining the Dual Eligible Population

We defined the population as those who had at least one month of dual eligible status in CY 2015 and who had Medicare Parts A/B or Part C, and Medicare Part D for 11 or more months of the year or, for those who died, for all months they were alive during the year.†

When analyzing the prescribing of immediate release (IR)/short acting (SA) and extended release (ER)/long acting (LA) opioids, we further limited our population to individuals who had Medicare Part D coverage for 11 or more months during the observation year and the last three months of the prior year or, for those who died, for all months alive during the observation year and the last three months of the prior year.

For analysis on opioid prescribing to dual eligibles with and without behavioral health conditions, we limited the population to those who had Medicare Parts A/B FFS and Part D coverage for 11 or more months of the year or, for those who died, for all months

* We did not include Medicaid data in the identification of opioid fills because there were very few unique (not duplicative with PDE) opioid records for dual eligibles in State A's Medicaid Analytic eXtract (MAX) prescription drug file. However, states may want to explore the extent to which there are unique opioid records for dual eligibles in their Medicaid prescription drug data before determining whether to use both data sources together or PDE data alone.

† This continuous coverage approach enabled us to obtain robust annual estimates of opioid fills. However, it may exclude beneficiaries who were newly enrolled or had coverage lapses during the observation year.

alive. This assured a full claims history, including the diagnosis codes required to identify behavioral health conditions.*

Opioid Fills

To identify opioid fills, we cross referenced dual eligibles' PDE data with the "Oral MME† – Data File" that is embedded in the Prescription Drug Monitoring Program Training and Technical Assistance Center (PDMP TTAC) guide.[16] The PDMP TTAC guide classifies opioids based on the National Drug Code (NDC). We retained PDEs with an NDC that was classified as an opioid according to the PDMP TTAC. We further classified opioid fills into the following days supplied categories: less than 3 days, 3-7 days, 8-14 days, 15-30 days, and 31+ days.

We used the PDMP TTAC guide on Calculating Daily MMEs[17] to determine the following:

- Generic drug types
- Master form (tablet, solution, patch)
- Strength per unit for each fill (less than 50 mg, 50-89 mg, 90-119 mg, and 120+ mg)
- Classification of opioids into ER and IR categories
- Drug Enforcement Administration (DEA) scheduling classification[18] of controlled substances (schedule II-V)

Provider Groups

We identified providers based on the unique National Provider Identifier (NPI) in Medicare PDE data for dual eligibles' opioid fills. We linked these providers to the Medicare FFS PPE data, which includes enrollment information for providers and suppliers who are approved to bill Medicare. For those providers who had an NPI in Medicare PDE data that matched an NPI in the Medicare FFS PPE data for State A, we used the PPE provider type codes to create provider groups. We classified providers into two high-level, mutually-exclusive groups: 1) physician and 2) non-physician. We further classified these two groups into mutually-exclusive subgroups:

- Physician – primary care only, specialty care only, and combined (those who had provider type codes associated with primary care and with specialty care)
- Non-Physician – nursing professional, physician assistant, podiatrist, dentist, and other non-physician

Within the physician primary care only and specialty care only subgroups, we also identified non mutually-exclusive provider types (e.g., internal medicine, pain management). If the NPI was not found in the Medicare FFS PPE data for State A, or

* The Medicare data sources available to states do not include encounter records for those enrolled in Medicare Advantage. Thus, we excluded these individuals when doing analysis that was reliant on claims.

† Morphine Milligram Equivalent

was matched to an unknown provider type code, the provider was classified as "unknown." This classification enabled us to report on all dual eligibles' opioid PDEs fills in CY 2015 regardless of provider registration in State A during that year. In determining the provider grouping methodology, we aimed to strike a balance between providing detail on prescribing by provider type and minimizing overlap of providers among the categories.

For more detail on data sources, methodologies, and variables, states may refer to *Appendix A – Technical Supplement*.

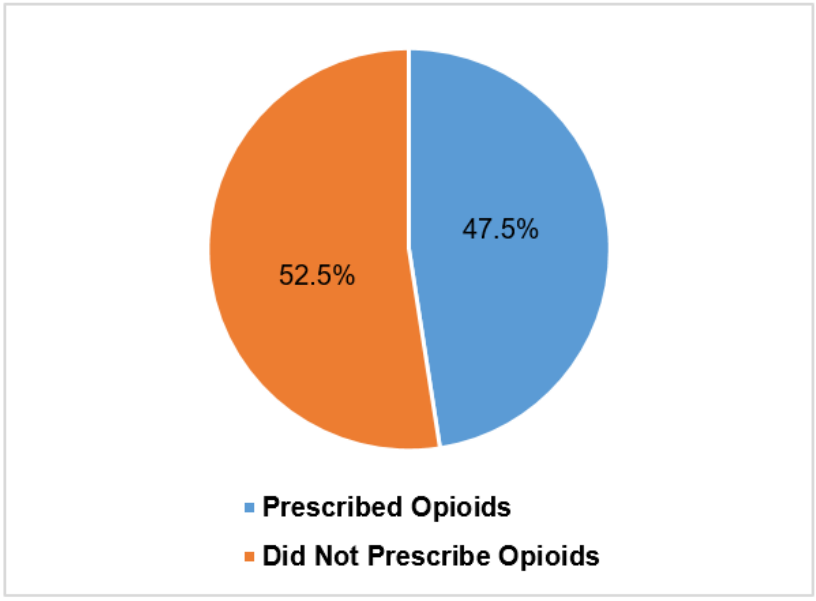
4 Analytic Findings

In this section, the MMDI team presents findings on opioid prescribing among dual eligibles in State A. All analyses were conducted at the state level. To tailor their analyses, states may want to stratify results by region, county, or other subgroups of interest. To protect the confidentiality of State A, we do not report identifiable information such as dual eligible beneficiary counts, prescriber counts, or overall counts of opioid fills.

4.1 Prevalence of Opioid Prescribing for Dual Eligibles

Among providers who prescribed medications to dual eligibles in State A in 2015, 47.5% prescribed at least one opioid prescription (Figure 1).

Figure 1: Percentage of Providers Who Prescribed Opioids to Dual Eligibles in State A, 2015



In Table 1 below, we describe the following characteristics of opioid prescribing towards dual eligibles in State A by provider type:

- Percentage of opioids prescribed of the total number of opioid fills

- Percentage of total opioid prescribers
- Percentage of providers who prescribed opioids
- Average number of opioid fills per beneficiary, among beneficiaries with an opioid fill

Table 1: Opioid Fills for Dual Eligibles by Mutually-Exclusive Provider Type in State A, 2015

Provider Type	Provider Sub-Type	Percentage of Total Opioid Fills	Percentage of Total Opioid Prescribers	Percentage Who Prescribed Opioids	Average Number of Opioid Fills per Beneficiary with an Opioid Fill
Physician	Primary Care only	50.0%	23.9%	71.4%	7.6
	Specialty Care only	19.9%	27.8%	55.4%	4.6
	Combined	7.0%	5.5%	52.9%	5.3
Non-Physician	Nursing Professional	7.1%	7.4%	52.7%	4.3
	Physician Assistant	7.5%	10.3%	69.4%	3.3
	Podiatrist	0.7%	1.8%	59.6%	3.2
	Dentist	0.5%	2.0%	50.8%	1.4
	Other Non-Physician	0.0%	0.1%	3.9%	1.3
Unknown Provider Type	N/A	7.3%	21.2%	27.6%	3.7

Note: The “combined” physician category includes physicians with both a primary care and specialty care type code. Providers were classified as “unknown” if they had an NPI that did not match any NPIs listed in the Medicare FFS PPE data or did not have an NPI associated with a “practitioner” or “ordering and referring practitioner” category. Further detail is provided in Appendix A – Technical Supplement. Multiple non-physician providers (those with more than one non-physician provider type code) were not displayed due to small cell size (N<11). Beneficiaries may receive multiple opioid fills from multiple provider types.

Over three-quarters of all opioid fills were prescribed by physicians (not shown). In particular, primary care only physicians prescribed half of all opioid fills, were most likely to prescribe opioids among the provider types observed, and had the highest average number of opioid fills per beneficiary with an opioid fill compared to other provider types.

Since physicians prescribed the majority of opioid fills, we further examined prescribing by specific primary care and specialty care types (Tables 2 and 3, respectively). We limited primary care only physicians to those who did not also have a specialty care provider type code (Table 2). Likewise, specialty care only physicians included those who did not also have a primary provider type code (Table 3). We further limited

reporting of specialty care only physicians to the top ten specialties as measured by the number of opioid fills.

As shown in Table 2, the primary care physicians who were most likely to have prescribed an opioid to dual eligibles during the year were affiliated with geriatric medicine (90.0%) or family practice (82.3%). Family practice physicians also prescribed the largest share of total opioid fills (27.8%), followed by internal medicine physicians (21.2%). The average number of opioid fills per beneficiary was relatively similar across all primary care provider types, with the exception of pediatric and preventive medicine physicians.

Table 2: Opioid Fills by Provider Type among Primary Care Physicians without specialty care in State A, 2015

Provider Type*	Percentage of Total Opioid Fills	Percentage Who Prescribed Opioids	Average Number of Opioid Fills per Beneficiary with a Fill
Family Practice	27.8%	82.3%	7.2
Internal Medicine	21.2%	65.0%	6.7
Geriatric Medicine	4.1%	90.0%	7.0
General Practice	2.3%	79.0%	6.8
Pediatrics	0.4%	27.5%	5.0
Preventive Medicine	0.0%	70.6%	3.9

*Providers may have more than one provider type code. Total percentages in each category may exceed 100% since providers and their opioid prescriptions may fall into multiple provider types; Beneficiaries may receive multiple opioid fills from multiple provider types.

As shown in Table 3, the specialty care physicians who most frequently prescribed opioids to dual eligibles during the year were affiliated with orthopedic surgery (92.8%), pain management (88.8%), and rheumatology (87.7%). Physicians in pain management had the largest share of opioid fills (6.6%), followed by those in physical medicine and rehabilitation (4.1%) and anesthesiology (4.0%). These specialty care physicians also generally had the highest average number of opioid fills per beneficiary. While high percentages of emergency medicine and general surgery physicians prescribed opioids to dual eligibles, these provider types had lower shares of total opioid fills and average numbers of opioid fills per beneficiaries compared to the other top ten specialty care physicians.

Table 3: Opioid Fills by Provider Type among Top Ten Specialty Care Physicians without Primary Care in State A, 2015

Provider Type*	Percentage of Total Opioid Fills	Percentage who Prescribed Opioids	Average Number of Opioid Fills per Beneficiary with a Fill
Pain Management	6.6%	88.8%	8.0
Physical Medicine and Rehabilitation	4.1%	80.6%	8.2

Provider Type*	Percentage of Total Opioid Fills	Percentage who Prescribed Opioids	Average Number of Opioid Fills per Beneficiary with a Fill
Anesthesiology	4.0%	64.7%	7.2
Orthopedic Surgery	2.5%	92.8%	3.1
Emergency Medicine	2.1%	82.4%	1.5
Neurology	1.5%	43.4%	7.3
General Surgery	1.0%	79.1%	2.0
Rheumatology	1.0%	87.7%	6.5
Hematology/Oncology	0.6%	69.7%	4.1
Psychiatry	0.5%	25.6%	5.4

*Providers may have more than one provider type code. Total percentages in each category may exceed 100% since providers and their opioid prescriptions may fall into multiple provider types; Beneficiaries may receive multiple opioid fills from multiple provider types.

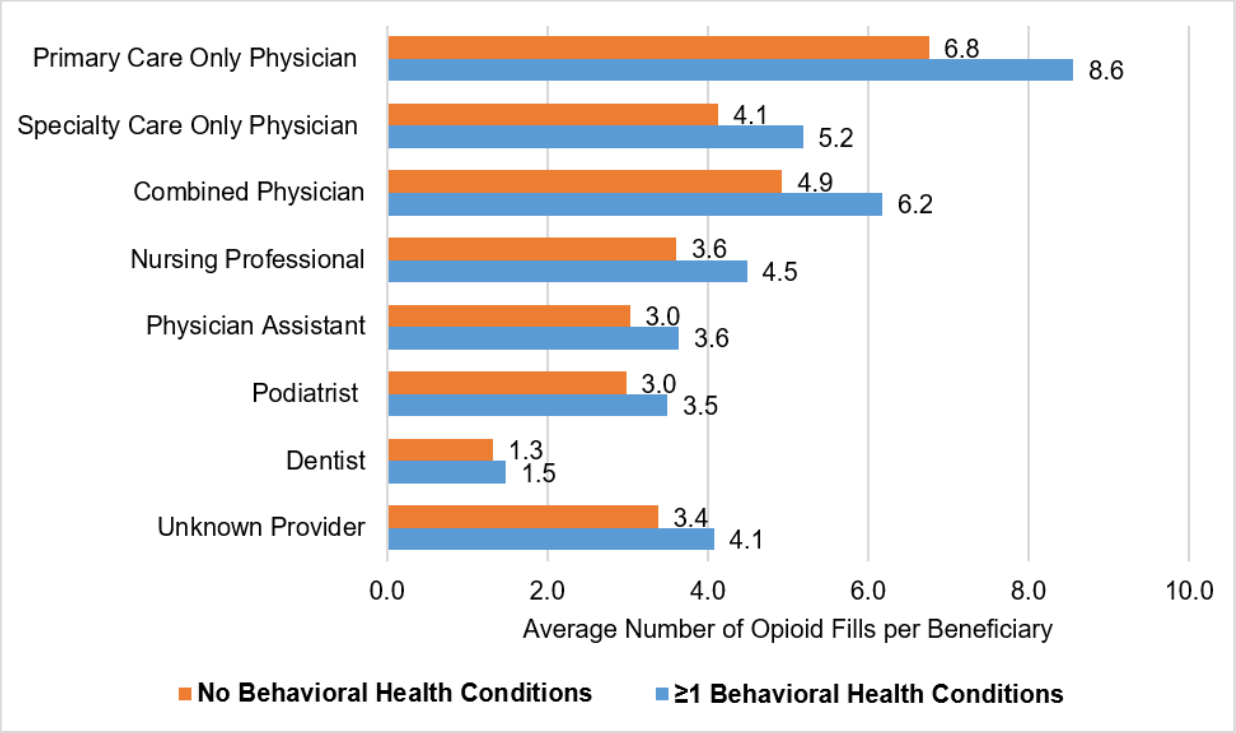
4.2 Opioid Prescribing Patterns for Dual Eligibles by Behavioral Health Status

To demonstrate how states can characterize prescribing patterns among dual eligible subpopulations, we examined the average number of opioid fills per beneficiary by behavioral health status and provider type. Behavioral health conditions included the following: anxiety disorders, depressive disorders, bipolar disorder, personality disorder, schizophrenia and other psychotic disorders, alcohol use disorder, and drug use disorder.*

As shown in Figure 2, across all provider types, the average number of opioid fills per beneficiary was consistently higher for those with one or more behavioral health conditions as compared to those with no behavioral health conditions.

*These conditions were identified using the Medicare end-of-year chronic condition flags, which are developed from algorithms that search administrative claims data for relevant diagnosis, Medicare Severity-Diagnosis Related Group (MS-DRG), and procedure codes. Further information is published at https://www.ccwdata.org/web/guest/condition-categories. See Appendix A – Technical Supplement for more detail.

Figure 2: Average Number of Opioid Fills per Beneficiary by Behavioral Health Status and Provider Type in State A, 2015



Note: The "combined" physician category includes physicians with both a primary care and specialty care type code. Providers were classified as "unknown" if they had an NPI that did not match any NPIs listed in the Medicare FFS PPE data or did not have an NPI associated with a "practitioner" or "ordering and referring practitioner" category. Further detail is provided in Appendix A – Technical Supplement. Multiple non-physician providers (those with more than one non-physician provider type code) were not displayed due to small cell size (N<11).

4.3 Drug Type, Duration, Strength, and Drug Schedule of Opioids Prescribed for Dual Eligibles

In this section, we present the information on the following aspects of opioid fills by provider type:

- Drug type, as defined by the generic drug name
- Number of days the opioid was supplied for
- Strength of dosage based on the MME
- Drug schedule based on the DEA's classification system for controlled substances

Drug Type

The top five most frequently prescribed opioids for dual eligibles in State A are shown in Figure 3. They accounted for 82.4% of all opioid fills for dual eligibles in State A in 2015.

The most commonly prescribed opioid was acetaminophen/hydrocodone bitartrate (22.1%) and the least prescribed opioid was Fentanyl (6.4%).

Figure 3: Top Five Opioids Prescribed for Dual Eligibles in State A, 2015

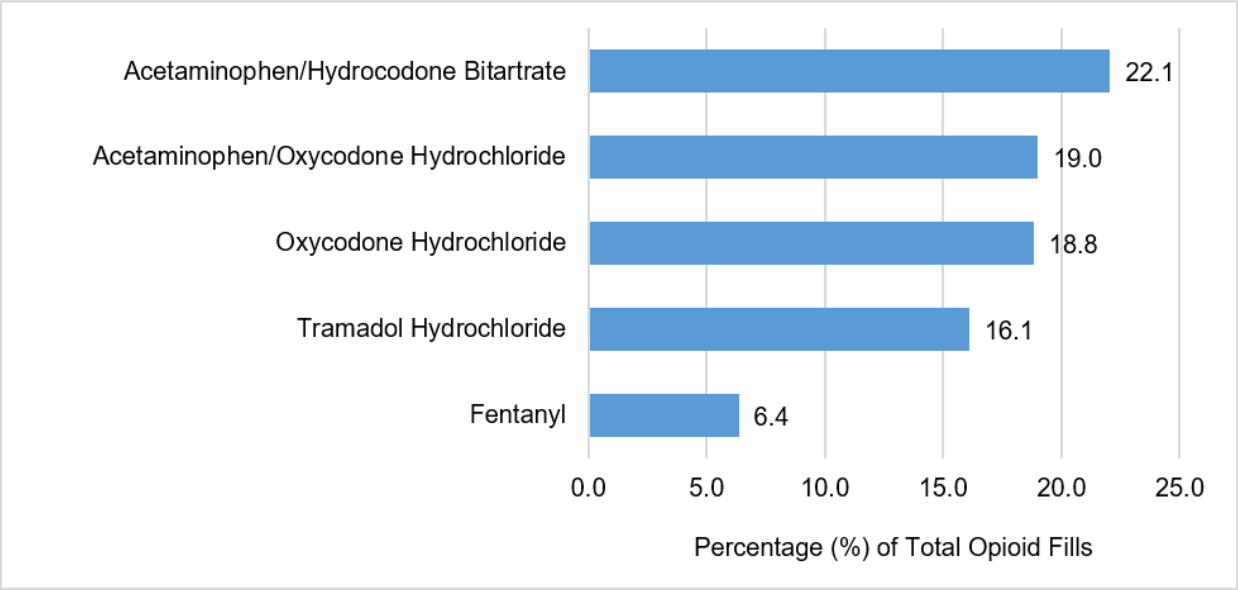
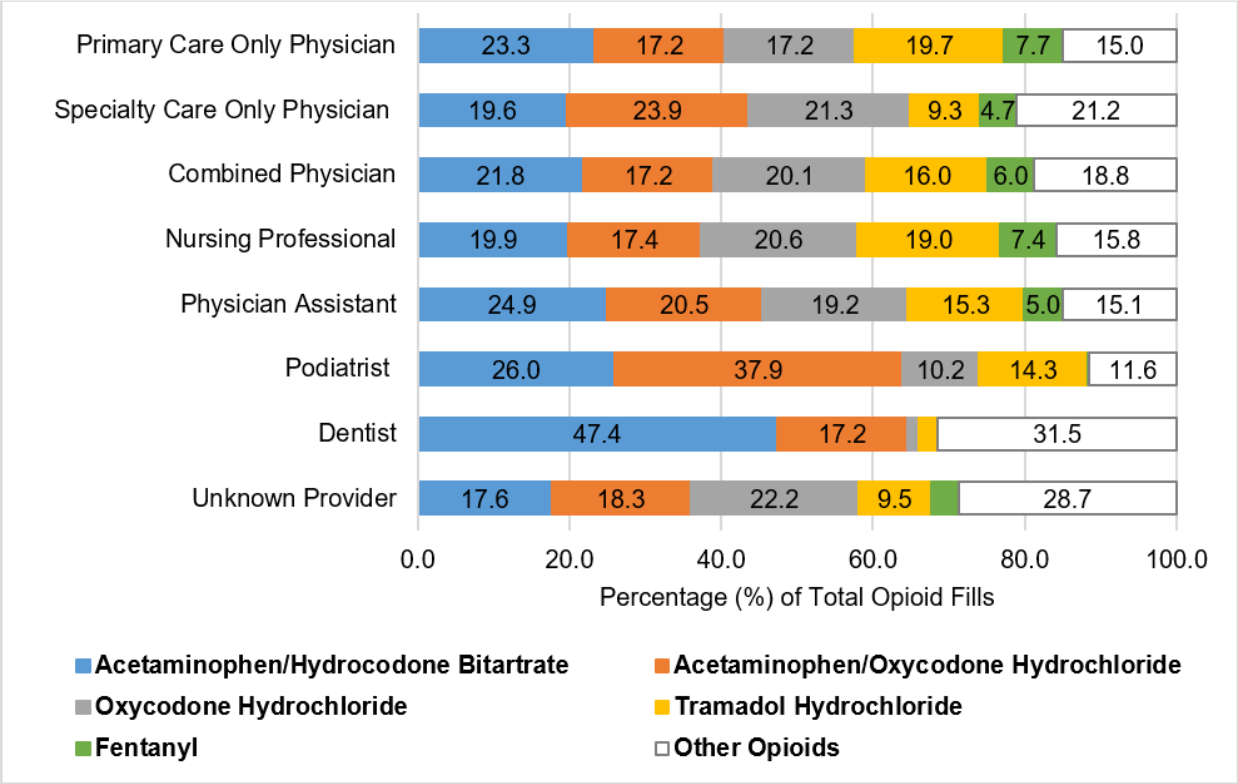


Figure 4 further shows the percentage of opioid fills attributed to the top five generic opioids by physician and non-physician groups.

Figure 4: Top Five Generic Opioids Prescribed for Dual Eligibles by Provider Type in State A, 2015



Note: The "combined" physician category includes physicians with both a primary care and specialty care type code. Providers were classified as "unknown" if they had an NPI that did not match any NPIs listed in the Medicare FFS PPE data or did not have an NPI associated with a "practitioner" or "ordering and referring practitioner" category. Further detail is provided in Appendix A – Technical Supplement. Multiple non-physician providers (those with more than one non-physician provider type code) were not displayed due to small cell size (N<11).

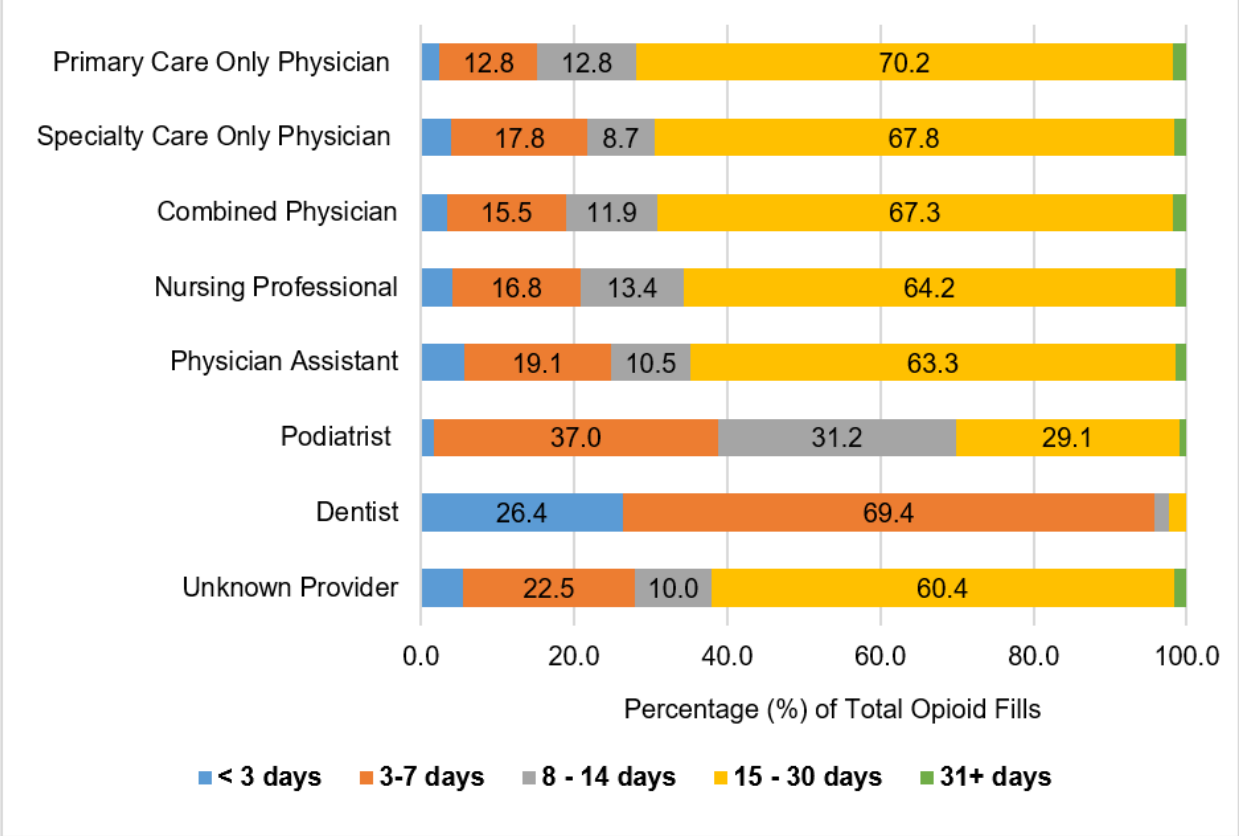
We observed a variation in prescribing by provider type within these top five types of opioids, especially between physicians and non-physicians (and within non-physicians). Among physicians, primary care physicians tended to prescribe acetaminophen/hydrocodone bitartrate (23.3%) and tramadol hydrochloride (19.7%) most often, while specialty care physicians prescribed acetaminophen/oxycodone hydrochloride (23.9%) and oxycodone hydrochloride (21.3%) more frequently.

Number of Days Supplied

As shown in

Figure 5 below, across provider types, the most common number of days supplied for opioid fills was 15-30 days, with the exception of dentists and podiatrists. Both dentists and podiatrists most frequently prescribed opioid fills for 3-7 days, with nearly 70% of dentists' fills in this category. With the exception of dentists, most providers did not prescribe opioid fills for less than 3 days. Among all provider types, opioid fills for 31+ days were uncommon, accounting for less than 2%.

Figure 5: Length of Days Supplied for Opioid Fills by Provider Type in State A, 2015

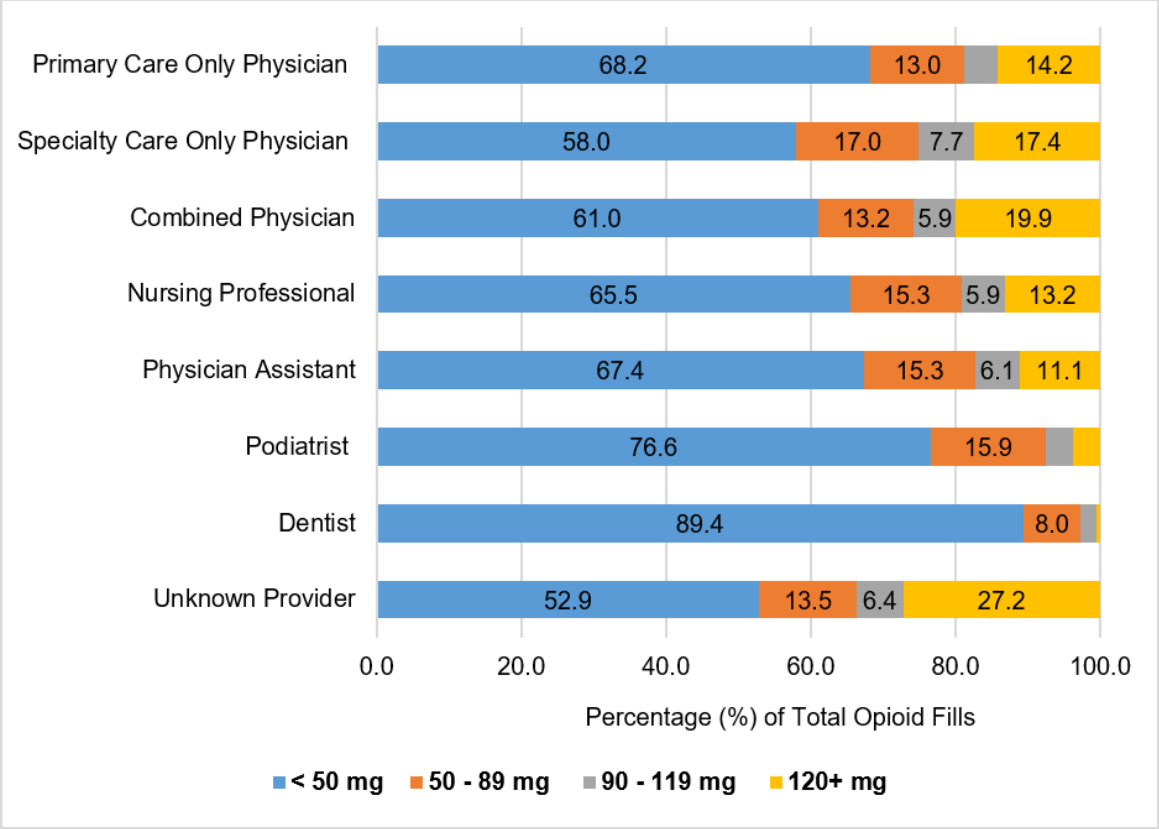


Note: The "combined" physician category includes physicians with both a primary care and specialty care type code. Providers were classified as "unknown" if they had an NPI that did not match any NPIs listed in the Medicare FFS PPE data or did not have an NPI associated with a "practitioner" or "ordering and referring practitioner" category. Further detail is provided in Appendix *A – Technical Supplement*. Multiple non-physician providers (those with more than one non-physician provider type code) were not displayed due to small cell size (N<11).

Strength of Dosage

As shown in Figure 6, the majority of opioid fills prescribed by all provider types were for a dosage of less than 50 mg MME, particularly among dentists and podiatrists. These provider types were also more likely to prescribe fills with a lower number of days supplied (Figure 5). The highest dosage (120+ mg MME) was most frequently prescribed by unknown provider types and physicians and the least prescribed by dentists and podiatrists.

Figure 6: Strength of Dosage (MME) for Opioid Fills by Provider Type in State A, 2015

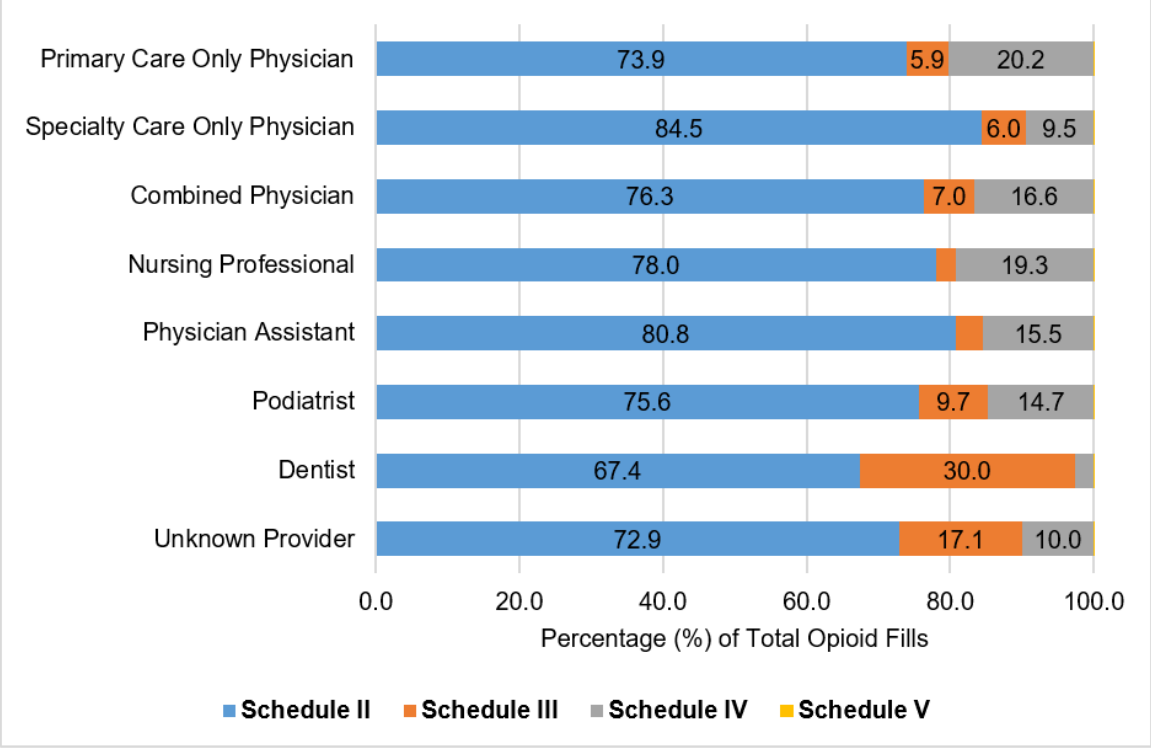


Note: The "combined" physician category includes physicians with both a primary care and specialty care type code. Providers were classified as "unknown" if they had an NPI that did not match any NPIs listed in the Medicare FFS PPE data or did not have an NPI associated with a "practitioner" or "ordering and referring practitioner" category. Further detail is provided in *Appendix A – Technical Supplement*. Multiple non-physician providers (those with more than one non-physician provider type code) were not displayed due to small cell size (N<11).

DEA Drug Schedule

As shown in Figure 7, the majority of opioid fills for all provider types were in the DEA schedule II drug category, which are prescribed drugs that have the highest potential for abuse and psychological or physical dependence.[19] Specialty care physicians were the most likely to prescribe schedule II opioids (84.5%), followed by physician assistants (80.8%), and nursing professionals (78.0%). Dentists prescribed schedule III opioids (30%) more frequently than did other provider types while primary care physicians prescribed schedule IV opioids (20.2%), which have a low potential for abuse and dependence,[20] more frequently than did others. There was very little prescribing by any of the provider types of schedule V opioids (drugs with the lowest potential for abuse).

Figure 7: DEA Drug Schedule for Opioid Fills by Provider Types in State A, 2015



Note: The "combined" physician category includes physicians with both a primary care and specialty care type code. Providers were classified as "unknown" if they had an NPI that did not match any NPIs listed in the Medicare FFS PPE data or did not have an NPI associated with a "practitioner" or "ordering and referring practitioner" category. Further detail is provided in Appendix A – Technical Supplement. Multiple non-physician providers (those with more than one non-physician provider type code) were not displayed due to small cell size (N<11).

4.4 Prevalence of Immediate-Release (IR)/Short Acting (SA) and Extended-Release (ER)/Long Acting (LA) Opioids

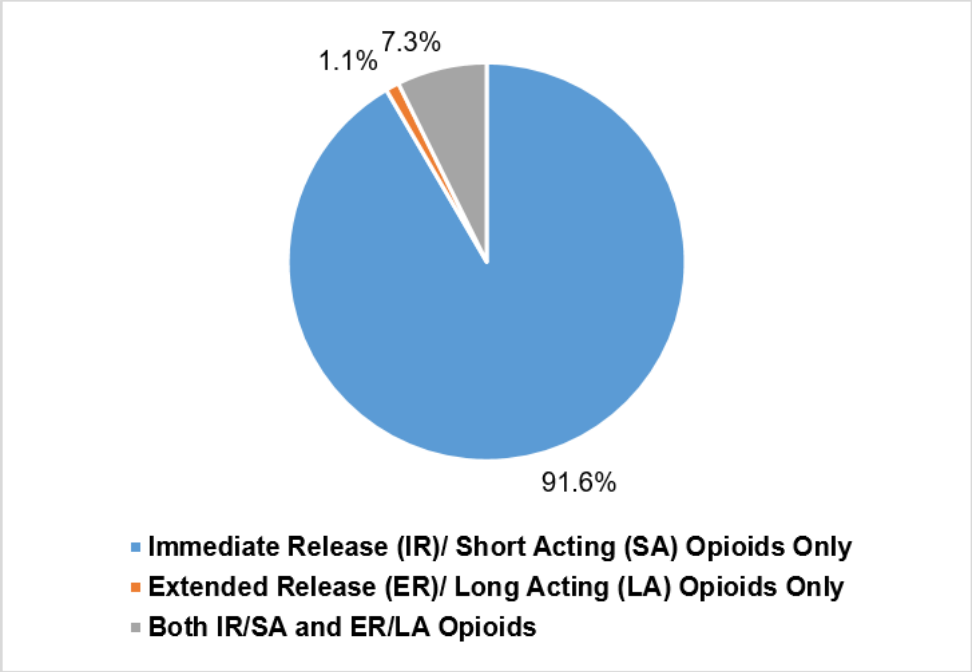
The Centers for Disease Control and Prevention's (CDC's) "Guideline for Prescribing Opioids for Chronic Pain" recommends that physicians prescribe IR/SA opioids instead of ER/LA opioids at the start of therapy, as the latter are associated with a higher risk of overdose and dependency. The CDC also recommends prescribing ER/LA opioids only for the management of severe pain that requires continuous treatment.[21]

In this section, we examined the frequency of the prescribing of IR/SA opioids and ER/LA opioids at the start of opioid therapy to assess risk mitigation prescribing practices. We defined an opioid fill in 2015 as the "start of opioid therapy" if there were

no other opioid fills during the prior 90 days*. This subset of opioid fills represented 59.5% of the total opioid fills for dual eligibles in State A in 2015.

As shown in Figure 8 below, most providers (91.6%) in State A prescribed only IR/SA opioids at the start of therapy, which is consistent with the CDC guidelines. Some providers prescribed both IR/SA and ER/LA opioids (7.3%) and only 1.1% prescribed ER/LA opioids at the start of therapy.

Figure 8: Percentage of Providers by the Type of Opioid Prescribed at the Start of Therapy in State A, 2015



4.5 Limitations

- We limited our analyses to PDEs prescribed by providers registered in State A in 2017 according to the most recent version of the Medicare FFS PPE directory. Our analyses revealed a considerable occurrence of "unknown" provider types, likely partly due to the mismatch between the directory and the PDE data. Thus, it is our recommendation that states consider the extent to which the time period of their provider directory matches the time period of the prescription drug data analyzed.
    - It is possible that the providers captured in the 2015 Medicare PDE data do not match providers in the June 2017 version of the Medicare FFS PPE data that was used to categorize providers.

*The look-back period was determined as the last 90 days of 2014 to be able to include those who were prescribed opioids in the first quarter of 2015.

  - It is possible that some opioid fills were prescribed by providers registered in other states for beneficiaries residing in-state. If states want to look at prescribing behaviors for all opioid providers for their dual eligible populations, they can expand their list of Medicare FFS PPE providers to those registered in neighboring states.
- We could not include drugs dispensed during hospital stays or in skilled nursing facilities as they are not submitted through Medicare Part D.
- We used the Medicare MBSF end-of-year chronic condition indicators to determine if a beneficiary had a behavioral health condition. These indicators are based on diagnosis and procedure codes reported in Medicare FFS claims. Dual eligibles may have both Medicare and Medicaid claims with behavioral health diagnoses and procedure codes. Since Medicaid claims were not considered, it is possible that behavioral health conditions were underreported.
- We used the NPIs available in the Medicare PDE data to categorize providers into physician and non-physician groups. It is possible for one NPI to be associated with more than one provider type code, which is a limitation in categorizing providers into mutually exclusive categories. States can refer to the Technical Supplement for a more detailed description of the methodology used and the extent to which providers overlap among specific provider categories (Table 4 and Table 5).
- Some opioids may have been prescribed as a component of Medication Assisted Treatment (MAT) for Opioid Use Disorder (OUD) rather than for treatment of pain. However, we could not validate the purpose for the opioid fill with the available data sources. States interested in identifying MAT could do so by matching PDE data to clinical records or claims that indicate MAT receipt, or by flagging known MAT drugs (e.g., Buprenorphine/Naloxone)

4.6 Other Considerations

- Although beneficiaries who had a hospice claim within the measurement year were excluded, a small percentage of providers affiliated with hospice services were included as physician providers. It is possible that these providers may follow different guidelines for opioid prescribing than other provider types.
- States should consider the degree to which their drug directory represents the opioid NDCs in the year of data used in their analysis.
- States may be interested in investigating additional subgroups within the dual eligible population for targeted interventions.

5 Summary

This use case provides examples of analyses states can conduct using Medicare PDE data, Medicare person-level summary data, and publicly available Medicare FFS PPE data to develop a better understanding of opioid prescribing behaviors specific to the dual eligible population. We examined prescribing behaviors by opioid drug type, number of days supplied, dosage, and the DEA drug schedule, as well as whether prescribing of opioids differs for those with a behavioral health condition. Additionally, we explored high-risk opioid prescribing patterns at the start of opioid therapy by looking at the distribution of IR/SA and ER/LA opioid groups. The integration of these data sources expands the types of analyses states can perform to understand opioid prescribing patterns among dual eligibles. In turn, states can use this information to inform care coordination and other efforts designed to improve the health and care of this high-need and high-cost population.

6 Contact Information

Any state that is currently integrating or plans to integrate Medicare and Medicaid data in order to enhance care coordination and reduce costs for the dual eligible population and is interested in technical support related to this particular topic may contact:

- The MMDI Team: MMDIFEITeam@feisystems.com

Appendix A – Technical Supplement

Data Sources

All analyses presented in this use case were performed using historic 2015 Medicare data from the IDR and the CCW. States can refer to Appendix B for more detailed information on Medicare data sources available to them. The MMDI team used the following data sources in this use case:

- CCW Medicare enrollment data
  - MBSF – Base A/B/C/D segment
  - MBSF – Other Chronic or Potentially Disabling Conditions
- CCW Medicare claims data
  - Medicare FFS Hospice Claims (Part A and B)
- Yearly and Monthly Medicare Part D PDE data from the IDR
- Medicare FFS Public Provider Enrollment (PPE) data

Defining the Dual Eligible Population

Using the MBSF, we identified Medicare beneficiaries who were residents in State A in 2015. State residency was obtained from the STATE_CD variable, which identifies state residency at the end of the calendar year. We then limited the population to those who were full-benefit dual eligibles for one or more months in 2015. Dual eligibility was identified in the CCW Medicare MBSF using the Dual Status Code (DUAL_STUS_CD_01-12) field. A beneficiary was defined as a dual eligible if the value for this code was 01-06 or 08. However, because the PDE data includes only full-benefit dual eligibles (code 02, 04, and 08), our analyses is limited to dual eligibles who had at least one month of full-benefit status during the year.

We excluded the following: (1) beneficiaries with more than one Medicaid Statistical Information System (MSIS) ID per Beneficiary ID (BENE_ID) during the calendar year and (2) beneficiaries who received hospice services (identified by having one or more claims in the monthly Hospice Claims Files during the year), as higher rates of opioids prescribed to these individuals is expected.

For analyses that reported on opioid prescribing by behavioral health status, we further limited the sample to beneficiaries with FNF FFS. This was defined as having 12 months (full) or 11 months (nearly full) of Medicare Part D and Parts A/B coverage or for all months alive for those who died. We imposed this restriction because MBSF behavioral health condition flags are based on MBSF Parts A/B FFS claims only. Thus, those who were enrolled in Medicare Advantage would not be accurately categorized by these flags.

We also further restricted the sample population when we examined the frequency of IR/SA or ER/LA opioid therapy to assess risk mitigation prescribing practices. To ensure complete data, we limited the events analyzed to those belonging to beneficiaries with FNF FFS Part D coverage for the observation year and the three months prior.

Specifically, this subset of beneficiaries had 14+ months of Part D coverage, or for those who died, all months alive.

PDE and Opioid Fill Flags

Each PDE includes the provider who prescribed the drug, which can be identified using the NPI field. Since each provider or NPI can be associated with multiple PDEs during the year, patient identifiers (BENE_ID), service date, NDC, length of days supplied, provider and pharmacy identifiers, and other information were retained. Additional details regarding specific Part D data elements available to states can be obtained from the State Data Resource Center (SDRC).[22]

We identified eligible PDEs for the study sample as described in the "Defining the Dual Eligible Population" section above. All PDE data used for this use case was final actioned. States that would like to final action their PDE data can reach out to MMDI for further consultation on the methodology used. Final actioned PDE data was then merged with the PDMP TTAC guide "Oral MME – Data File"[23] using the NDC field to create an indicator for whether a fill was an opioid fill or not. We retained all PDEs with an NDC in an opioid drug class as an opioid fill.

We further classified opioid fills based on the NDC code to determine the generic drug name, master form (e.g., tablet, capsule, solution), type of opioid (immediate release or extended release), strength per unit, and drug schedule as defined in the PDMP TTAC guide. Drug Schedule categories were based on DEA Schedule of drug (Schedule II, Schedule III, Schedule IV, and Schedule V).

To standardize opioid dosages, we calculated MME dosage. Morphine is considered the gold standard for the treatment of pain.[24] The PDMP TTAC guide provides guidance on how to calculate MME dosage for all listed NDCs in their "Oral MME – Data File". Strength of dosage categories (less than 50 mg, 50-89 mg, 90-119 mg, 120+ mg) were derived from MME calculations per opioid fill.

To evaluate the prescription of IR/SA or ER/LA opioids at the start of opioid therapy, we defined the "start of opioid therapy" for each fill per beneficiary as a fill which was not preceded by another opioid fill for that beneficiary within the previous 90 days (as indicated by a SRVC_DT on or after October 1st of the previous year). We then categorized providers into three categories depending on what kind of opioids they had prescribed to beneficiaries at the start of therapy: (1) providers prescribing IR/SA opioids only, (2) providers prescribing ER/LA opioids only, and (3) providers who prescribed both IR/SA and ER/LA to beneficiaries in CY 2015.

To determine the number of days supplied, we used the pharmacy recorded number of days supplied (DAYS_SUPPLY_NUM). Days supplied categories were based on the number of days covered by each fill (< 3 days, 3-7 days, 8-14 days, 15-30 days, and 31+ days). We excluded all values of days supplied equal to zero, which may arise when less than a full day's quantity of drugs are supplied or when there is a data entry error.

Behavioral Health Condition Flags

We reported opioid fills by behavioral health status (yes/no) for beneficiaries with FNF FFS only (11 or more months of FFS or for all months alive for those who died during the year). All behavioral health condition diagnoses (anxiety disorders, bipolar disorder, major depressive affective disorder, personality disorders, schizophrenia, other psychotic disorders, alcohol use disorder, and drug use disorder) were identified using the Medicare end-of-year indicators found in the MBSF Common Chronic Conditions and MBSF Other Chronic or Potentially Disabling Conditions segments. Indicators are developed from algorithms that search administrative claims data for relevant diagnosis, MS-DRG, and procedure codes. An individual was flagged as having a behavioral health condition if any of the condition indicators had a value of 1 (met claims criteria but did not have sufficient FFS coverage) or 3 (met claims criteria and had sufficient FFS coverage).

Provider Groups

We reported opioid prescribing within provider categories defined in two ways: 1) mutually-exclusive provider groups and 2) non mutually-exclusive physician sub-specialties. To identify the categories, we matched the NPI associated with each PDE record to the Medicare FFS PPE* data files for State A.

The Medicare FFS PPE includes enrollment information for providers and suppliers approved to bill Medicare in two files: (1) base provider enrollment file and (2) the secondary sub-specialty file. We selected providers who were identified as practitioners (14-XX) or ordering and referring practitioners (33-XX). Providers that matched to either file in the Medicare FFS PPE database were categorized based on provider type codes (PROVIDER_TYPE_CD) associated with their NPI. Providers who did not match to the Medicare FFS PPE database for State A were classified as “unknown.” States should be aware that providers may not completely match because they are not listed in the most recent Medicare FFS PPE files pulled in June 2017 or they may have been registered in another state. In addition, NPIs associated with a non-practitioner provider-type code (PROVIDER_TYPE_CD other than 14-XX or 33-XX), or an unknown code (such as 14-99 or 33-99 “Undefined Physician”) were also classified as “unknown”. States should be aware that providers identified in PDE records may not completely match those included in the FFS PPE because of differences in dates between the PDE fills and the extraction of the Medicare FFS PPE files or because the providers found in the PDEs may have been registered in another state.

We then grouped providers into physician and non-physician groups after consultation with a subject matter expert. To customize reporting, states may choose to use their own provider categorization methodology.

* The Medicare Fee-For-Service Provider Enrollment files are publicly available and are published on https://data.cms.gov/public-provider-enrollment. These files are updated on a quarterly basis.

Physicians (MD/DO*)

Providers with at least one "physician" provider type code were classified as follows:

1. Primary care only: NPI associated with one or more physician primary care provider type code(s) without a specialty code. Primary care was defined as having one or more of the following provider type codes:
    - Internal Medicine
    - Geriatric Medicine
    - Family Medicine
    - General Practice
    - Pediatrics
    - Preventive Medicine
2. Specialty care only: NPI associated with one or more specialty care provider type code(s) without a primary care code (Appendix C). For the purpose of this analysis, we further reported the top 10 specialties based on the number of opioid fills.
3. Primary/Specialty (Combined): NPI associated with both a primary care and specialty care provider type code.

Non-Physicians

Providers who did not have a physician provider code, but had a valid provider code were considered "non-physicians" and grouped as follows:

1. Dentist
2. Nursing Professional
3. Physician Assistant
4. Podiatrist
5. Other Non-Physician (includes the following):
    - Psychologist
    - Social Worker
    - Dietician
    - Chiropractor
    - Speech Pathologist
    - Anesthesiology Assistant
    - Optometry
    - Audiologist

* MD=Doctor Medicine; DO=Doctor of Osteopathic Medicine

- Physical Therapist
- Occupational Therapist
- Other Non-Physician Professional

6. Multiple Non-Physician*

We categorized providers who had physician type codes and non-physician type codes as physicians.

For each provider type group in Table 4, we described the proportion of physicians who had only primary care or specialty care affiliations and the proportion of physicians with both primary care and specialty care affiliations to understand the overlap of specialties among specific provider type groups who prescribed opioids.

Table 4: Proportion of Specific Provider Type Codes among Mutually Exclusive Physician Groups in State A, 2015

Provider Type	Provider Sub-Type	Primary Care Only Physicians	Specialty Care Only Physicians	Combined (Primary Care/Specialty Care) Physicians
Primary Care	Internal Medicine	74.3%	---	25.7%
	Geriatric Medicine	87.5%	---	12.5%
	Family Practice	89.5%	---	10.5%
	General Practice	76.8%	---	23.2%
	Pediatrics	75.2%	---	24.8%
	Preventive Medicine	48.0%		52.0%
Specialty Care*	Pain Management	----	89.5%	10.5%
	Physical Medicine and Rehabilitation	----	93.7%	6.3%
	Anesthesiology	----	98.0%	2.0%
	Orthopedic Surgery	----	99.4%	0.6%
	Emergency Medicine	----	80.5%	19.5%
	Neurology	----	94.9%	5.1%
	General Surgery	----	97.0%	3.0%
	Rheumatology	----	59.1%	40.9%
	Hematology/Oncology	----	74.4%	25.6%
	Psychiatry	----	97.8%	2.2%

* If the Non-Physician provider had multiple non-Non-Physician codes they were grouped into the "Multiple Non-Physician" category. Since only 2 opioid providers were in the "Multiple Non-Physician" category, this category was not reported in use case results.

*Top 10 opioid prescribing specialties based on codes associated with highest number of fills among physicians with a specialty code.

Since physicians could have more than one primary care or specialty care affiliation, Table 5 describes the proportion of physicians with multiple specialties among each provider type group who prescribed opioids to provide states with additional context for determining provider groupings.

Table 5: Proportion of Physicians with More than One Provider Type Code by Mutually Exclusive Physician Groups in State A, 2015

Provider Type	Provider Sub-Type	Proportion of Primary Care Only Physicians with ≥1 Primary Care Specialty	Proportion of Specialty Care Only Physicians with ≥1 Specialty Care Specialty
Primary Care	Internal Medicine	9.1%	---
	Geriatric Medicine	89.8%	---
	Family Practice	6.8%	---
	General Practice	40.1%	---
	Pediatric Medicine	69.6%	---
	Preventive Medicine	58.3%	
Specialty Care*	Pain Management	----	86.4%
	Physical Medicine and Rehabilitation	----	25.5%
	Anesthesiology	----	72.9%
	Orthopedic Surgery	----	14.0%
	Emergency Medicine	----	1.9%
	Neurology	----	8.8%
	General Surgery	----	27.0%
	Rheumatology	----	1.3%
	Hematology/Oncology	----	13.5%
	Psychiatry	----	11.4%

Appendix B – Historic and Current Medicare Data Sources Available to States

Table 6: Medicare Data Sources Available to States

Data Files	Time Period Available	Source
Historic annual Medicare Parts A/B claims	2007 through 2015	CCW[25]
Master Beneficiary Summary File (MBSF) Base Segment (A/B/C/D)	2007 through 2015	CCW
MBSF Cost & Use Segment	2007 through 2015	CCW
MBSF Chronic Condition Segment MBSF Other Chronic and Potentially Disabling Conditions	2007 through 2015	CCW
Identifier Crosswalks	2007 through current	CCW
Historic monthly Medicare Parts A/B claims	Up to a four month lag from date of service, to allow for three months of maturity plus up to one month for processing	CCW
Medicare Assessment Data (Minimum Data Set (MDS), Inpatient Rehabilitation Facility-Patient Assessment Instrument (IRF-PAI), Outcome and Assessment Information Set (OASIS), Swing-Bed	2007 through 2017	CCW
Current Medicare Parts A/B, Enhanced Coordination of Benefits Agreement (COBA)	Two weeks post-adjudication	Benefits Coordination and Recovery Center (BCRC)
Historic Medicare Part D PDE	2007 – 2017	IDR
Monthly Medicare Part D PDE	One month processing lag	IDR
Medicaid claims and enrollment	Varies by State	State Medicaid Management Information System (MMIS), Data Warehouse or other environment

Appendix C – Grouping of Providers Based on Medicare FFS PPE Data

Provider type was determined based on the Medicare FFS PPE, which includes providers actively approved to bill Medicare Parts A/B and was pulled from the Provider Enrollment and Chain Ownership System (PECOS) enrollment. Files are updated on a quarterly basis. More information, states can refer to the data dictionary that is available on the following website: https://data.cms.gov/public-provider-enrollment.

The following table includes original "provider type code" and "provider type code description" fields from the Medicare FFS PPE database as well as the MMDI adapted "provider type group" and "provider specialty group" fields.

Table 7: Provider Classifications based on Medicare PPE Provider Type Codes

Provider Type Code	Provider Type Code Description	Provider Type Group	Provider Specialty Group
14-01	PRACTITIONER - GENERAL PRACTICE	Primary Care	General Practice
14-02	PRACTITIONER - GENERAL SURGERY	Specialty Care	General Surgery
14-03	PRACTITIONER - ALLERGY/IMMUNOLOGY	Specialty Care	Immunology
14-04	PRACTITIONER – OTOLARYNGOLOGY	Specialty Care	Otolaryngology
14-05	PRACTITIONER – ANESTHESIOLOGY	Specialty Care	Anesthesiology
14-06	PRACTITIONER - CARDIOVASCULAR DISEASE (CARDIOLOGY)	Specialty Care	Cardiology
14-07	PRACTITIONER – DERMATOLOGY	Specialty Care	Dermatology
14-08	PRACTITIONER - FAMILY PRACTICE	Primary Care	Family Practice
14-09	PRACTITIONER - INTERVENTIONAL PAIN MANAGEMENT	Specialty Care	Pain Management
14-10	PRACTITIONER - GASTROENTEROLOGY	Specialty Care	Gastroenterology
14-11	PRACTITIONER - INTERNAL MEDICINE	Primary Care	Internal Medicine
14-12	PRACTITIONER - OSTEOPATHIC MANIPULATIVE MEDICINE	Specialty Care	Osteomanipulative Medicine
14-13	PRACTITIONER - NEUROLOGY	Specialty Care	Neurology/Neurosurgery
14-14	PRACTITIONER - NEUROSURGERY	Specialty Care	Neurology/Neurosurgery
14-15	PRACTITIONER - SPEECH LANGUAGE PATHOLOGIST	Other Non-Physician	Speech Language Pathologist
14-16	PRACTITIONER - OBSTETRICS/GYNECOLOGY	Specialty Care	Obstetrics/Gynecology
14-17	PRACTITIONER - HOSPICE/PALLIATIVE CARE	Specialty Care	Hospice

Provider Type Code	Provider Type Code Description	Provider Type Group	Provider Specialty Group
14-18	PRACTITIONER - OPHTHALMOLOGY	Specialty Care	Ophthalmology
14-19	PRACTITIONER - ORAL SURGERY (DENTIST ONLY)	Dentist	Oral Surgery (Dentist)
14-20	PRACTITIONER - ORTHOPEDIC SURGERY	Specialty Care	Orthopedic Surgery
14-21	PRACTITIONER - CARDIAC ELECTROPHYSIOLOGY	Specialty Care	Cardiology
14-22	PRACTITIONER - PATHOLOGY	Specialty Care	Pathology
14-23	PRACTITIONER - SPORTS MEDICINE	Specialty Care	Sports Medicine
14-24	PRACTITIONER - PLASTIC AND RECONSTRUCTIVE SURGERY	Specialty Care	Plastic Surgery
14-25	PRACTITIONER - PHYSICAL MEDICINE AND REHABILITATION	Specialty Care	Physical Medicine and Rehabilitation
14-26	PRACTITIONER - PSYCHIATRY	Specialty Care	Psychiatry
14-27	PRACTITIONER - GERIATRIC PSYCHIATRY	Specialty Care	Psychiatry
14-28	PRACTITIONER - COLORECTAL SURGERY (PROCTOLOGY)	Specialty Care	Proctology
14-29	PRACTITIONER - PULMONARY DISEASE	Specialty Care	Pulmonary
14-30	PRACTITIONER - DIAGNOSTIC RADIOLOGY	Specialty Care	Radiology
14-32	PRACTITIONER - ANESTHESIOLOGY ASSISTANT	Other Non-Physician	Anesthesiology Assistant
14-33	PRACTITIONER - THORACIC SURGERY	Specialty Care	Thoracic Surgery
14-34	PRACTITIONER - UROLOGY	Specialty Care	Urology
14-35	PRACTITIONER - CHIROPRACTIC	Other Non-Physician	Chiropractor
14-36	PRACTITIONER - NUCLEAR MEDICINE	Specialty Care	Nuclear Medicine
14-37	PRACTITIONER - PEDIATRIC MEDICINE	Primary Care	Pediatrics
14-38	PRACTITIONER - GERIATRIC MEDICINE	Primary Care	Geriatric Medicine
14-39	PRACTITIONER - NEPHROLOGY	Specialty Care	Nephrology
14-40	PRACTITIONER - HAND SURGERY	Specialty Care	Hand Surgery
14-41	PRACTITIONER - OPTOMETRY	Other Non-Physician	Optometry
14-42	PRACTITIONER - CERTIFIED NURSE MIDWIFE	Nursing Professional	Certified Nurse Midwife (Nursing Professional)

Provider Type Code	Provider Type Code Description	Provider Type Group	Provider Specialty Group
14-43	PRACTITIONER - CERTIFIED REGISTERED NURSE ANESTHETIST	Nursing Professional	Certified Nurse Anesthetist (Nursing Professional)
14-44	PRACTITIONER - INFECTIOUS DISEASE	Specialty Care	Infectious Disease
14-46	PRACTITIONER - ENDOCRINOLOGY	Specialty Care	Endocrine
14-48	PRACTITIONER - PODIATRY	Podiatrist	Podiatrist
14-50	PRACTITIONER - NURSE PRACTITIONER	Nursing Professional	Nurse Practitioner
14-62	PRACTITIONER - PSYCHOLOGIST BILLING INDEPENDENTLY	Other Non-Physician	Psychologist
14-64	PRACTITIONER - AUDIOLOGIST	Other Non-Physician	Audiologist
14-65	PRACTITIONER - PHYSICAL THERAPIST	Other Non-Physician	Physical Therapy
14-66	PRACTITIONER - RHEUMATOLOGY	Specialty Care	Rheumatology
14-67	PRACTITIONER - OCCUPATIONAL THERAPIST	Other Non-Physician	Occupational Therapy
14-68	PRACTITIONER - CLINICAL PSYCHOLOGIST	Other Non-Physician	Psychologist (Clinical)
14-71	PRACTITIONER - REGISTERED DIETITIAN OR NUTRITION PROFESSIONAL	Other Non-Physician	Dietitian
14-72	PRACTITIONER - PAIN MANAGEMENT	Specialty Care	Pain Management
14-73	PRACTITIONER - MASS IMMUNIZATION ROSTER BILLER	Specialty Care	Immunology
14-76	PRACTITIONER - PERIPHERAL VASCULAR DISEASE	Specialty Care	Peripheral Vascular Disease
14-77	PRACTITIONER - VASCULAR SURGERY	Specialty Care	Vascular Surgery
14-78	PRACTITIONER - CARDIAC SURGERY	Specialty Care	Cardiac Surgery
14-79	PRACTITIONER - ADDICTION MEDICINE	Specialty Care	Addiction Medicine
14-80	PRACTITIONER - CLINICAL SOCIAL WORKER	Other Non-Physician	Social Worker
14-81	PRACTITIONER - CRITICAL CARE (INTENSIVISTS)	Specialty Care	Intensivist
14-82	PRACTITIONER - HEMATOLOGY	Specialty Care	Hematology/Oncology
14-83	PRACTITIONER - HEMATOLOGY/ONCOLOGY	Specialty Care	Hematology/Oncology

Provider Type Code	Provider Type Code Description	Provider Type Group	Provider Specialty Group
14-84	PRACTITIONER - PREVENTATIVE MEDICINE	Primary Care	Preventive Medicine
14-85	PRACTITIONER - MAXILLOFACIAL SURGERY	Specialty Care	Maxillofacial Surgery
14-86	PRACTITIONER - NEUROPSYCHIATRY	Specialty Care	Neuropsychiatry
14-88	PRACTITIONER - OTHER (NON-PHYSICIAN)	Other Non-Physician	Other Non-Physician
14-89	PRACTITIONER - CLINICAL NURSE SPECIALIST	Nursing Professional	Clinical Nurse Specialist
14-90	PRACTITIONER - MEDICAL ONCOLOGY	Specialty Care	Hematology/Oncology
14-91	PRACTITIONER - SURGICAL ONCOLOGY	Specialty Care	Hematology/Oncology
14-92	PRACTITIONER - RADIATION ONCOLOGY	Specialty Care	Hematology/Oncology
14-93	PRACTITIONER - EMERGENCY MEDICINE	Specialty Care	Emergency Medicine
14-94	PRACTITIONER - INTERVENTIONAL RADIOLOGY	Specialty Care	Radiology
14-97	PRACTITIONER - PHYSICIAN ASSISTANT	Physician Assistant	Physician Assistant
14-98	PRACTITIONER - GYNECOLOGICAL ONCOLOGY	Specialty Care	Hematology/Oncology
14-99	PRACTITIONER – UNDEFINED PHYSICIAN TYPE	Unknown	Undefined Physician Type
14-C0	PRACTITIONER - SLEEP LABORATORY/MEDICINE	Specialty Care	Sleep Medicine
14-C3	PRACTITIONER - INTERVENTIONAL CARDIOLOGY	Specialty Care	Cardiology
33-01	ORDER AND REFERRING ONLY - GENERAL PRACTICE	Primary Care	General Practice
33-02	ORDER AND REFERRING ONLY - GENERAL SURGERY	Specialty Care	General Surgery
33-03	ORDER AND REFERRING ONLY - ALLERGY/IMMUNOLOGY	Specialty Care	Immunology
33-04	ORDER AND REFERRING ONLY - OTOLARYNGOLOGY	Specialty Care	Otolaryngology
33-05	ORDER AND REFERRING ONLY - ANESTHESIOLOGY	Specialty Care	Anesthesiology

Provider Type Code	Provider Type Code Description	Provider Type Group	Provider Specialty Group
33-06	ORDER AND REFERRING ONLY - CARDIOVASCULAR DISEASE (CARDIOLOGY)	Specialty Care	Cardiology
33-07	ORDER AND REFERRING ONLY - DERMATOLOGY	Specialty Care	Dermatology
33-08	ORDER AND REFERRING ONLY - FAMILY PRACTICE	Primary Care	Family Practice
33-09	ORDER AND REFERRING ONLY - INTERVENTIONAL PAIN MANAGEMENT	Specialty Care	Pain Management
33-10	ORDER AND REFERRING ONLY - GASTROENTEROLOGY	Specialty Care	Gastroenterology
33-11	ORDER AND REFERRING ONLY - INTERNAL MEDICINE	Primary Care	Internal Medicine
33-12	ORDER AND REFERRING ONLY - OSTEOPATHIC MANIPULATIVE MEDICINE	Specialty Care	Osteomanipulative Medicine
33-13	ORDER AND REFERRING ONLY - NEUROLOGY	Specialty Care	Neurology/Neurosurgery
33-14	ORDER AND REFERRING ONLY - NEUROSURGERY	Specialty Care	Neurology/Neurosurgery
33-16	ORDER AND REFERRING ONLY - OBSTETRICS/GYNECOLOGY	Specialty Care	Obstetrics/Gynecology
33-17	ORDER AND REFERRING ONLY - HOSPICE/PALLIATIVE CARE	Specialty Care	Hospice
33-18	ORDER AND REFERRING ONLY - OPHTHALMOLOGY	Specialty Care	Ophthalmology
33-19	ORDER AND REFERRING ONLY - ORAL SURGERY (DENTIST ONLY)	Dentist	Oral Surgery (Dentist)
33-20	ORDER AND REFERRING ONLY - ORTHOPEDIC SURGERY	Specialty Care	Orthopedic Surgery
33-21	ORDER AND REFERRING ONLY - CARDIAC ELECTROPHYSIOLOGY	Specialty Care	Cardiology
33-22	ORDER AND REFERRING ONLY - PATHOLOGY	Specialty Care	Pathology
33-23	ORDER AND REFERRING ONLY - SPORTS MEDICINE	Specialty Care	Sports Medicine
33-24	ORDER AND REFERRING ONLY - PLASTIC AND RECONSTRUCTIVE SURGERY	Specialty Care	Plastic Surgery

Provider Type Code	Provider Type Code Description	Provider Type Group	Provider Specialty Group
33-25	ORDER AND REFERRING ONLY - PHYSICAL MEDICINE AND REHABILITATION	Specialty Care	Physical Medicine and Rehabilitation
33-26	ORDER AND REFERRING ONLY - PSYCHIATRY	Specialty Care	Psychiatry
33-27	ORDER AND REFERRING ONLY - GERIATRIC PSYCHIATRY	Specialty Care	Psychiatry
33-28	ORDER AND REFERRING ONLY - COLORECTAL SURGERY (PROCTOLOGY)	Specialty Care	Proctology
33-29	ORDER AND REFERRING ONLY - PULMONARY DISEASE	Specialty Care	Pulmonary
33-30	ORDER AND REFERRING ONLY - DIAGNOSTIC RADIOLOGY	Specialty Care	Radiology
33-33	ORDER AND REFERRING ONLY - THORACIC SURGERY	Specialty Care	Thoracic Surgery
33-34	ORDER AND REFERRING ONLY - UROLOGY	Specialty Care	Urology
33-35	ORDER AND REFERRING ONLY - CHIROPRACTIC	Other Non-Physician	Chiropractor
33-36	ORDER AND REFERRING ONLY - NUCLEAR MEDICINE	Specialty Care	Nuclear Medicine
33-37	ORDER AND REFERRING ONLY - PEDIATRIC MEDICINE	Primary Care	Pediatrics
33-38	ORDER AND REFERRING ONLY - GERIATRIC MEDICINE	Primary Care	Geriatric Medicine
33-39	ORDER AND REFERRING ONLY - NEPHROLOGY	Specialty Care	Nephrology
33-40	ORDER AND REFERRING ONLY - HAND SURGERY	Specialty Care	Hand Surgery
33-41	ORDER AND REFERRING ONLY - OPTOMETRY	Specialty Care	Optometry
33-42	ORDER AND REFERRING ONLY - CERTIFIED NURSE MIDWIFE	Nursing Professional	Certified Nurse Midwife (Nursing Professional)
33-43	ORDER AND REFERRING ONLY - CERTIFIED REGISTERED NURSE ANESTHETIST	Nursing Professional	Certified Nurse Anesthetist (Nursing Professional)
33-44	ORDER AND REFERRING ONLY - INFECTIOUS DISEASE	Specialty Care	Infectious Disease

Provider Type Code	Provider Type Code Description	Provider Type Group	Provider Specialty Group
33-46	ORDER AND REFERRING ONLY - ENDOCRINOLOGY	Specialty Care	Endocrine
33-48	ORDER AND REFERRING ONLY - PODIATRY	Podiatrist	Podiatrist
33-50	ORDER AND REFERRING ONLY - NURSE PRACTITIONER	Nursing Professional	Nurse Practitioner
33-62	ORDER AND REFERRING ONLY - PSYCHOLOGIST BILLING INDEPENDENTLY	Other Non-Physician	Psychologist
33-66	ORDER AND REFERRING ONLY - RHEUMATOLOGY	Specialty Care	Rheumatology
33-68	ORDER AND REFERRING ONLY - CLINICAL PSYCHOLOGIST	Other Non-Physician	Psychologist (Clinical)
33-71	ORDER AND REFERRING ONLY - REGISTERED DIETITIAN OR NUTRITION PROFESSIONAL	Other Non-Physician	Dietitian
33-72	ORDER AND REFERRING ONLY - PAIN MANAGEMENT	Specialty Care	Pain Management
33-76	ORDER AND REFERRING ONLY - PERIPHERAL VASCULAR DISEASE	Specialty Care	Peripheral Vascular Disease
33-77	ORDER AND REFERRING ONLY - VASCULAR SURGERY	Specialty Care	Vascular Surgery
33-78	ORDER AND REFERRING ONLY - CARDIAC SURGERY	Specialty Care	Cardiac Surgery
33-79	ORDER AND REFERRING ONLY - ADDICTION MEDICINE	Specialty Care	Addiction Medicine
33-80	ORDER AND REFERRING ONLY - CLINICAL SOCIAL WORKER	Other Non-Physician	Social Worker
33-81	ORDER AND REFERRING ONLY - CRITICAL CARE (INTENSIVISTS)	Specialty Care	Intensivist
33-82	ORDER AND REFERRING ONLY - HEMATOLOGY	Specialty Care	Hematology/Oncology
33-83	ORDER AND REFERRING ONLY - HEMATOLOGY/ONCOLOGY	Specialty Care	Hematology/Oncology
33-84	ORDER AND REFERRING ONLY - PREVENTATIVE MEDICINE	Primary Care	Preventive Medicine
33-85	ORDER AND REFERRING ONLY - MAXILLOFACIAL SURGERY	Specialty Care	Maxillofacial Surgery

Provider Type Code	Provider Type Code Description	Provider Type Group	Provider Specialty Group
33-86	ORDER AND REFERRING ONLY - NEUROPSYCHIATRY	Specialty Care	Neuropsychiatry
33-88	ORDER AND REFERRING ONLY - OTHER (NON-PHYSICIAN)	Other Non-Physician	Other Non-Physician
33-89	ORDER AND REFERRING ONLY - CLINICAL NURSE SPECIALIST	Nursing Professional	Clinical Nurse Specialist
33-90	ORDER AND REFERRING ONLY - MEDICAL ONCOLOGY	Specialty Care	Hematology/Oncology
33-91	ORDER AND REFERRING ONLY - SURGICAL ONCOLOGY	Specialty Care	Hematology/Oncology
33-92	ORDER AND REFERRING ONLY - RADIATION ONCOLOGY	Specialty Care	Hematology/Oncology
33-93	ORDER AND REFERRING ONLY - EMERGENCY MEDICINE	Specialty Care	Hematology/Oncology
33-94	ORDER AND REFERRING ONLY - INTERVENTIONAL RADIOLOGY	Specialty Care	Hematology/Oncology
33-97	ORDER AND REFERRING ONLY - PHYSICIAN ASSISTANT	Physician Assistant	Physician Assistant
33-98	ORDER AND REFERRING ONLY - GYNECOLOGICAL ONCOLOGY	Specialty Care	Hematology/Oncology
33-99	ORDER AND REFERRING ONLY - OTHER (PHYSICIAN/ UNDEFINED PHYSICIAN TYPE)	Unknown	Unknown Undefined Physician Type
33-C0	ORDER AND REFERRING ONLY - SLEEP LABORATORY/MEDICINE	Specialty Care	Sleep Medicine
33-C3	ORDER AND REFERRING ONLY - INTERVENTIONAL CARDIOLOGY	Specialty Care	Cardiology
33-C5	ORDER AND REFERRING ONLY- DENTIST	Dentist	Dentist

End Notes

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