University of California
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# Prescriptive Authority and Nurse Practitioner Opioid Prescribing Practices

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The National Council of State Boards of Nursing Symposium
March 22 , 2021

- National Council of State Boards of Nursing

- My team:
  - Joanne Spetz, UCSF
  - Jennifer Perloff, Brandeis
  - Cindy Thomas, Brandeis
  - Matthew Jura, UCSF

# Background

**Total Number of Prescriptions and Average Number of Prescriptions Per Beneficiary for 20 Most Common Drug Classes**

| | Total Number of Prescriptions | | | | | Average Number of Prescriptions per Beneficiary | | |
|---|---|---|---|---|---|---|---|---|
| | NP | | PCP | | | NP | PCP | |
| Drug Group | Number | % | Number | % | *p* value[a] | Number | Number | *p* value[b] |
| Antihypertensives | 175,860 | 9.71 | 831,848 | 10.52 | < .001 | 10.72 | 10.67 | .017 |
| Antihyperlipidemics | 150,143 | 8.29 | 773,218 | 9.78 | < .001 | 10.08 | 10.12 | .767 |
| Beta-blockers | 119,215 | 6.59 | 589,950 | 7.46 | < .001 | 9.75 | 9.54 | < .001 |
| Diuretics | 118,965 | 6.57 | 523,428 | 6.62 | .021 | 9.45 | 9.12 | < .001 |
| Antidiabetics | 110,942 | 6.13 | 481,413 | 6.09 | .038 | 14.2 | 13.87 | < .001 |
| Antidepressants | 138,746 | 7.66 | 480,710 | 6.08 | < .001 | 11.1 | 10.1 | < .001 |
| Ulcer drugs | 97,062 | 5.36 | 436,466 | 5.52 | < .001 | 8.39 | 8.14 | < .001 |
| Calcium channel blockers | 78,125 | 4.32 | 381,995 | 4.83 | < .001 | 9.46 | 9.26 | < .001 |
| Thyroid agents | 74,885 | 4.14 | 331,083 | 4.19 | .002 | 10.59 | 10.47 | < .001 |
| Analgesics, opioids | 56,711 | 3.13 | 220,121 | 2.78 | < .001 | 4.44 | 3.68 | < .001 |
| Anticonvulsants | 57,003 | 3.15 | 197,533 | 2.5 | < .001 | 9.83 | 8.45 | < .001 |
| Antiasthmatics | 44,856 | 2.48 | 196,461 | 2.48 | .617 | 6.66 | 6.91 | < .001 |
| Minerals | 45,480 | 2.51 | 180,113 | 2.28 | < .001 | 7.44 | 7.12 | < .001 |
| Psychotherapeutic agents | 69,774 | 3.85 | 180,050 | 2.28 | < .001 | 12.59 | 11.01 | < .001 |
| Anticoagulants | 36,765 | 2.03 | 179,968 | 2.28 | < .001 | 9.98 | 8.57 | < .001 |
| Hematologic agents | 33,212 | 1.83 | 163,905 | 2.07 | < .001 | 9.02 | 8.55 | < .001 |
| Endocrine-metabolic agents | 32,697 | 1.81 | 159,131 | 2.01 | < .001 | 7.92 | 7.82 | .222 |
| Ophthalmic agents | 29,490 | 1.63 | 131,788 | 1.67 | < .001 | 4.69 | 4.51 | .597 |
| Antipsychotics | 51,889 | 2.87 | 118,273 | 1.5 | < .001 | 10.44 | 8.56 | < .001 |
| Anti-inflammatories | 23,645 | 1.31 | 113,471 | 1.43 | < .001 | 4.66 | 4.36 | < .001 |



Muench et al. 2016 Prescribing practices by nurse practitioners and primary care physicians: A descriptive analysis of Medicare beneficiaries. *Journal of Nursing Regulation*

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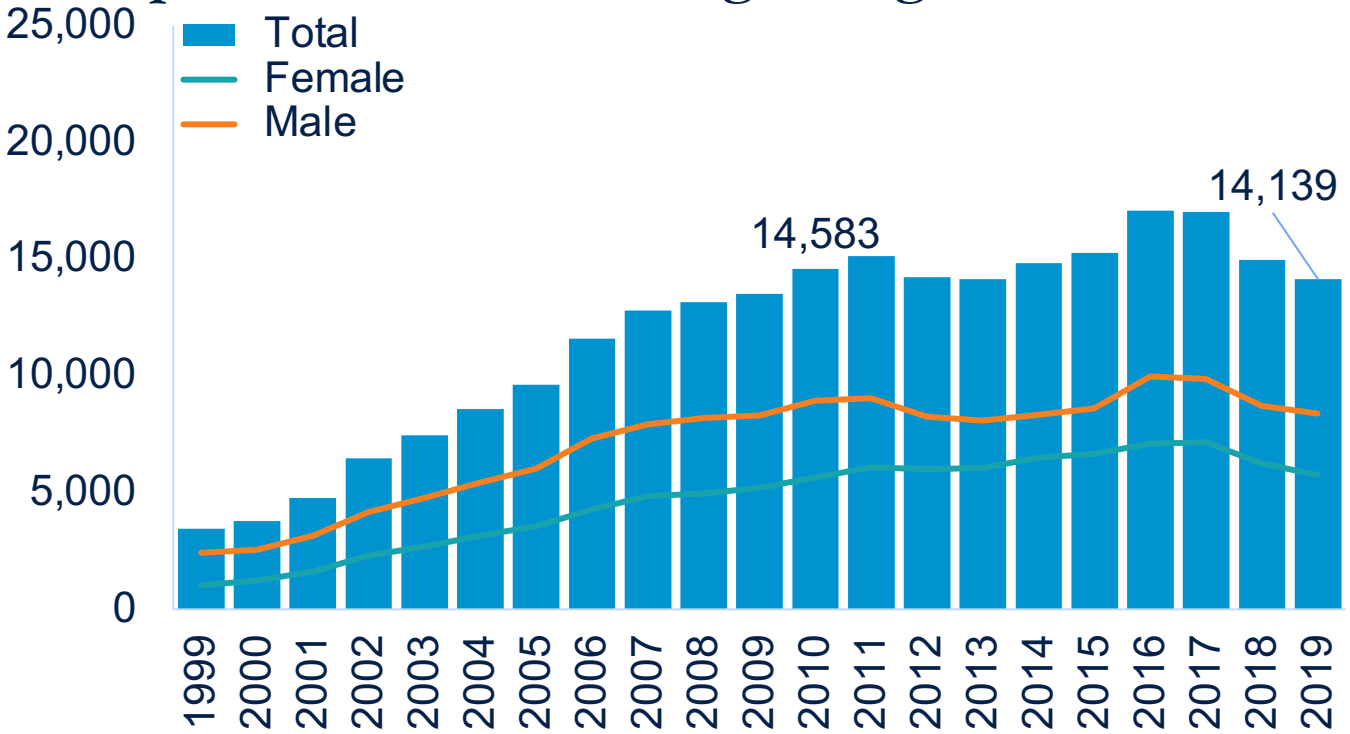
# Good medication adherence in beneficiaries managed by NPs or Primary Care Physicians

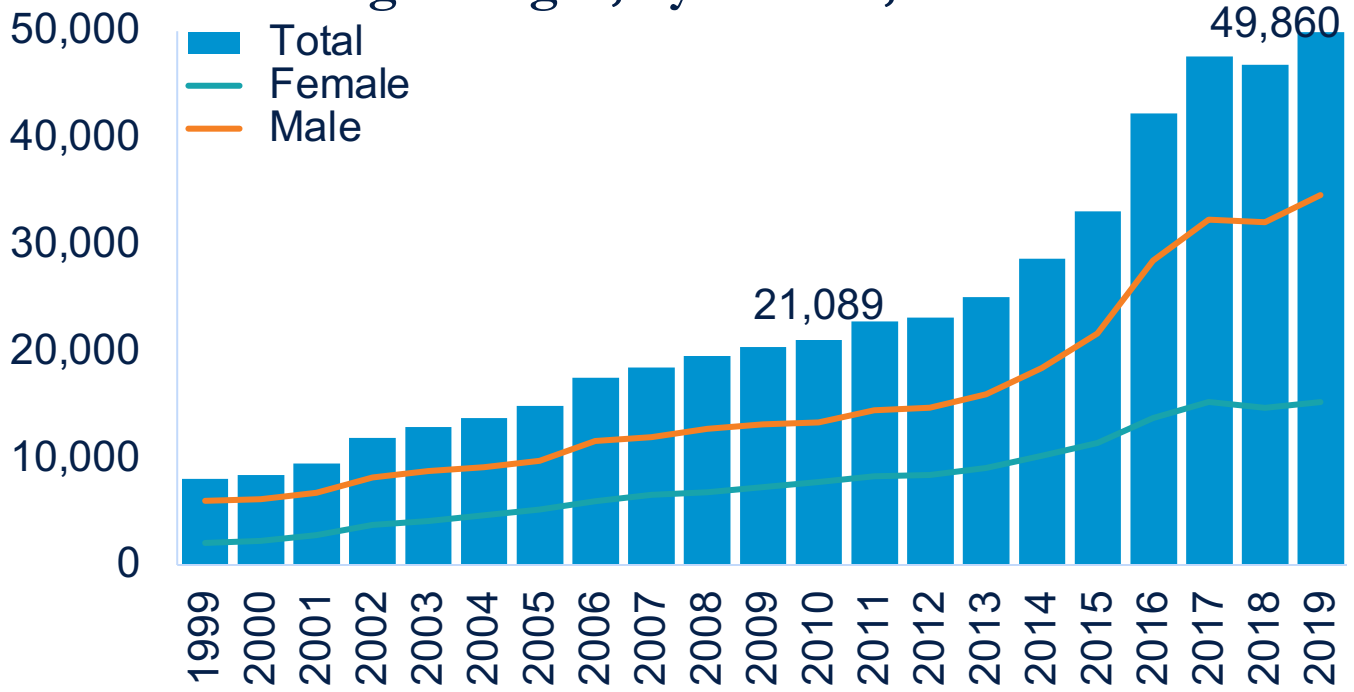
| | NP | PCP |
|---|---|---|
| Percent high medication adherent | | |
| Anti-diabetics (N = 75 649) | 76.46% | 77.34% |
| RASA (N = 195 950) | 77.81% | 77.93% |
| Statins (N = 190 087) | 73.87% | 74.84% |

Muench et al. 2018 Medication adherence, costs, and ER visits of NP & primary care physician patients: Evidence from three cohorts of Medicare beneficiaries. *Health Services Research*

# National Overdose Deaths Involving Prescription Opioids, Number Among All Ages, 1999-2019



# National Overdose Deaths Involving Any Opioid, Number Among All Ages, by Gender, 1999-2019



# Literature

# Largest Number of Opioid Prescriptions are written in Primary Care

**Table 1.** Opioid-Prescribing Rates by Specialty, IMS Health, U.S., 2012

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| Internal medicine | 43.6(15.1) | 913.9 (21.5) |
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| Surgery[c] | 28.3 (9.8) | 77.6 (1.8) |
| Dentistry | 18.5 (6.4) | 64.0 (1.5) |
| Pain medicine[d] | 14.5 (5.0) | 29.8 (0.7) |
| Emergency medicine | 12.5 (4.3) | 60.5 (1.4) |

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**Table 1.** Opioid Prescribing by Specialty and Volume, July 1, 2016–June 30, 2017

| Specialty | Prescribers, *n* (%) | Opioid prescriptions, *n* (%) | Average per prescriber |
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| Dentist[b] | 153,647 (15.8) | 18,091,864 (8.6) | 117.7 |
| Nurse practitioner | 119,599 (12.3) | 20,773,394 (9.9) | 173.7 |
| Family medicine | 100,173 (10.3) | 42,914,316 (20.5) | 428.4 |
| Physician assistant | 82,412 (8.5) | 19,513,698 (9.3) | 236.8 |
| Surgery[c] | 70,321 (7.2) | 10,441,677 (5.0) | 148.5 |

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- Opioid prescriptions from NPs (and PAs) account for the third-largest share of all Opioid Rx



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## Adherence to Prescription Opioid Monitoring Guidelines among Residents and Attending Physicians in the Primary Care Setting FREE

Laila Khalid, MD ✉, Jane M. Liebschutz, MD, MPH, Ziming Xuan, ScD, Shernaz Dossabhoy, BA, Yoona Kim, MD, Denise Crooks, MPH, Christopher Shanahan, MD, MPH, Allison Lange, BA, Orlaith Heymann, MA, Karen E. Lasser, MD, MPH

*Pain Medicine*, Volume 16, Issue 3, March 2015, Pages 480–487, https://doi.org/10.1111/pme.12602
**Published:** 19 March 2015

**Original Article | Open Access**
Volume 19 | Article ID 857952 | https://doi.org/10.1155/2014/857952

Show citation

## Differential Prescribing of Opioid Analgesics According to Physician Specialty for Medicaid Patients with Chronic Noncancer Pain Diagnoses

## Opioids for Back Pain Patients: Primary Care Prescribing Patterns and Use of Services

Richard A. Deyo, David H. M. Smith, Eric S. Johnson, Marilee Donovan, Carrie J. Tillotson, Xiuhai Yang, Amanda F. Petrik and Steven K. Dobscha

The Journal of the American Board of Family Medicine November 2011, 24 (6) 717-727; DOI: https://doi.org/10.3122/jabfm.2011.06.100232



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# NP Opioid Prescribing Literature

- Association of Opioid Prescribing and Scope of Practice
- Schirle & McCabe 2016
  - Mean number of opioids per 100 patients
  - Higher number of opioids in states that require physician oversight for prescriptive authority
- Ladd et al. 2017
  - Aggregated opioid prescriptions at the state level
  - Used full, reduced and restricted definition from the AANP.
  - Found that prescriptions rates where higher in full SOP states, but this applied to both NPs and MDs.
  - Study did not examine provider or patient level outcomes - their prescriptions where aggregated at the state level.

# NP Opioid Prescribing Literature

- Muench U, Spetz J, Jura M, Thompson C, Perloff J. Opioid-prescribing outcomes of Medicare beneficiaries managed by nurse practitioners and physicians. *Medical Care*. Volume 57, Number 6, June 2019

- First study on opioid prescribing outcomes of patients receiving care by NPs

# Opioid-prescribing Outcomes of Medicare Beneficiaries Managed by Nurse Practitioners and Physicians

*Ulrike Muench, PhD, RN, FAAN,* Joanne Spetz, PhD,† Matthew Jura, MS,†‡ Chaoran Guo, PhD,§ Cindy Thomas, PhD,‖ and Jennifer Perloff, PhD‖*

- Patient level analysis with patients being assigned to an NP or physician based who provided the most care to them.
- Analysis included 14 states with full practice authority for NPs, including the prescribing of controlled substances.
- Data included the years 2009/2010 and 2012/2013.
- Methods: propensity score weighted multivariable regressions
- Outcomes included:

Any opioid
Morphine Milligram Equivalent (MME) > 100mg/day
7 day overlap of opioid Rx

7 day overlap of a benzo & opioid Rx
Acute user in 09/10 or 12/13
Chronic user in 09/10 or 12/13



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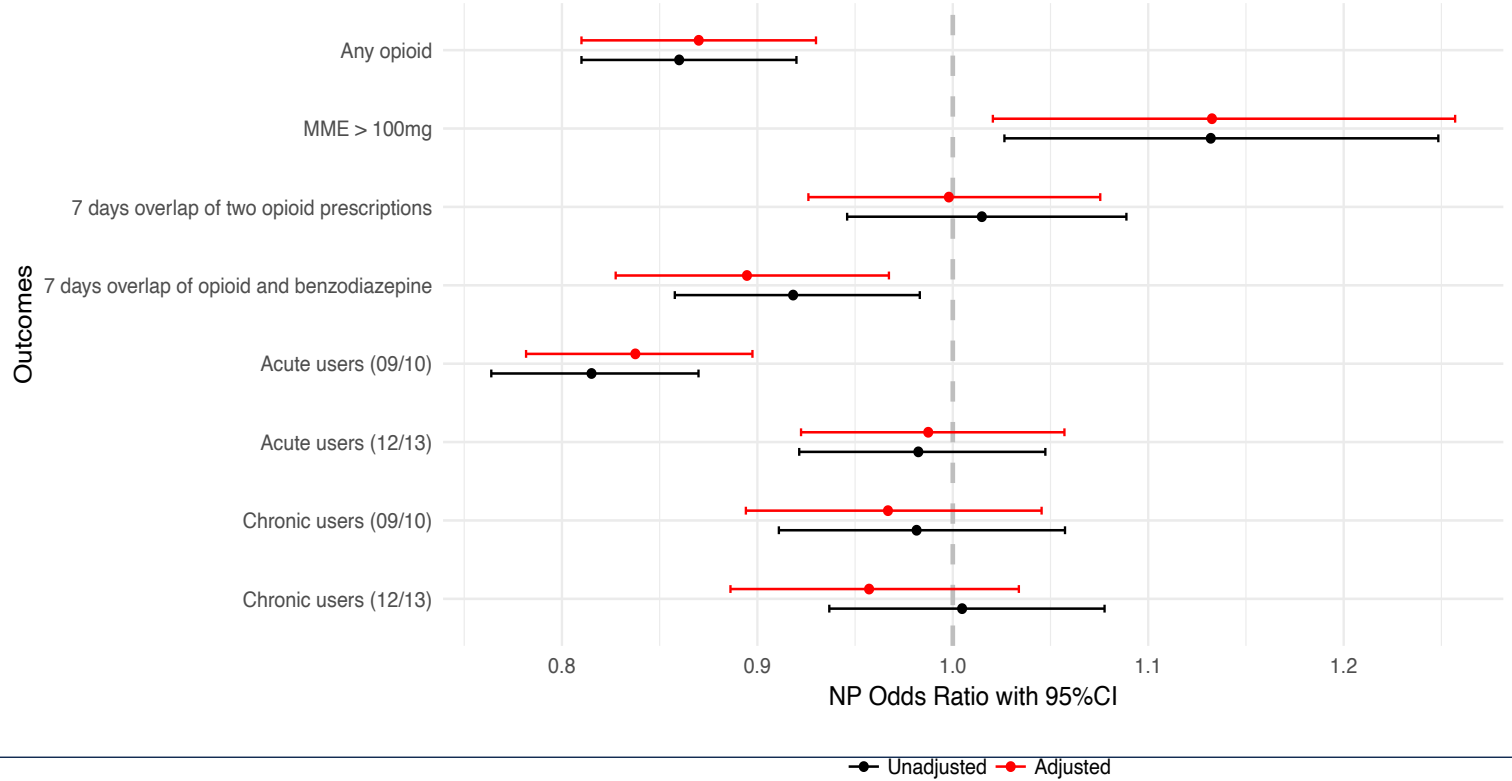
# Results: Odds of experiencing the outcome



- Beneficiaries who saw NPs:
  - received fewer opioids!

  When they received opioids, they were:
  - less likely to be acute users at baseline (2009/2010)
  - less likely to have overlap of an opioid and benzodiazepine
  - were more likely to receive too high of a dose (MME >100)

# Unable to Determine…

- Differences in prescribing patterns vs differences in pathways of care.
- Important to examine specific subpopulations of patients

# Methods

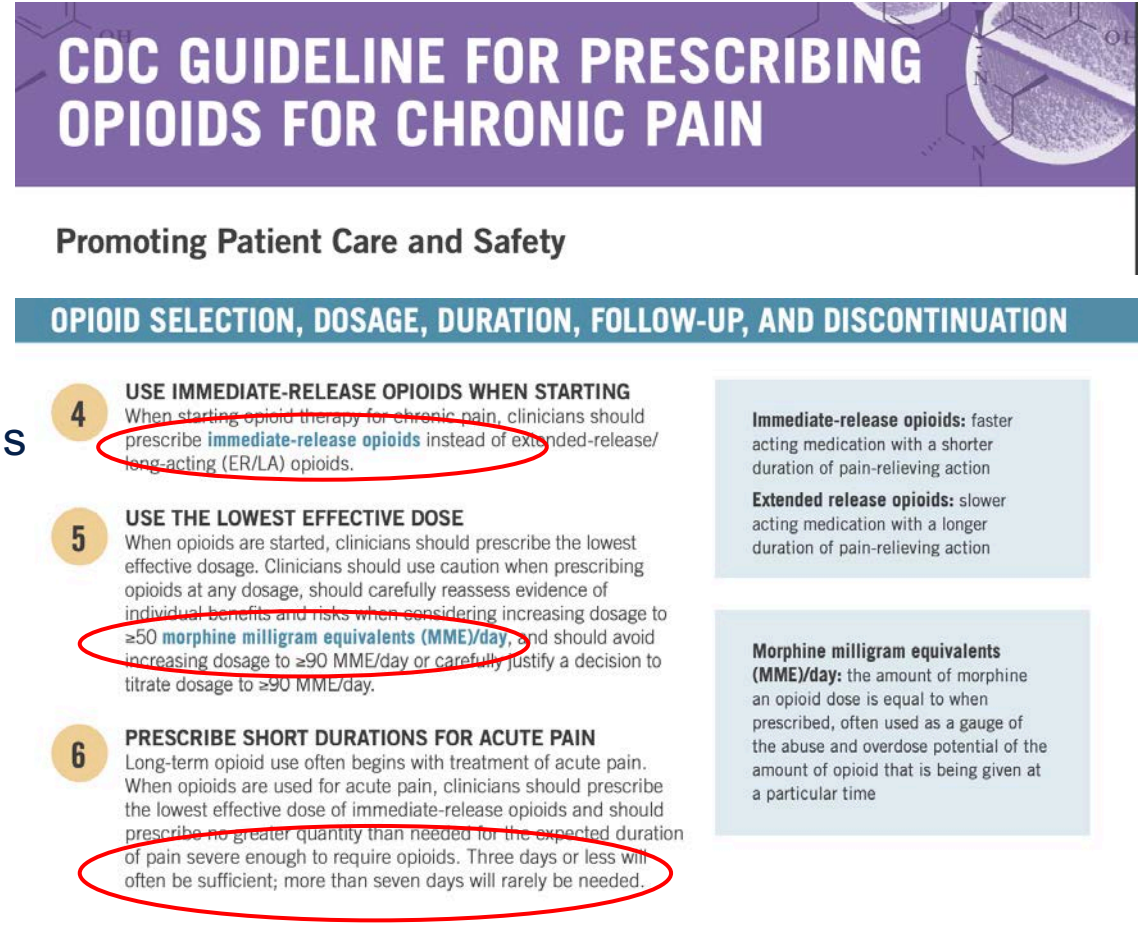
- Aim: To examine opioid initiations by NPs and physicians in Medicare beneficiaries and to examine if there are differences in Full Practice Authority States versus not-FPA states.
- Sample: 100% Medicare population age 65 or older in 2017/2018
- Opioid Naïve: No opioid Rx in 2017
- Exclusions: no cancer or end stage renal disease and no hospice claim
- Outcome Measures: guided by the 2016 CDC guidelines on opioid prescribing

Measures:

Short Acting / Long Acting Opioids

MME > 50mg/day

Average Number of Days Supply >7 Days Supply



# CDC GUIDELINE FOR PRESCRIBING OPIOIDS FOR CHRONIC PAIN

## Promoting Patient Care and Safety

### OPIOID SELECTION, DOSAGE, DURATION, FOLLOW-UP, AND DISCONTINUATION

**4 USE IMMEDIATE-RELEASE OPIOIDS WHEN STARTING**

When starting opioid therapy for chronic pain, clinicians should prescribe **immediate-release opioids** instead of extended-release/long-acting (ER/LA) opioids.

**5 USE THE LOWEST EFFECTIVE DOSE**

When opioids are started, clinicians should prescribe the lowest effective dosage. Clinicians should use caution when prescribing opioids at any dosage, should carefully reassess evidence of individual benefits and risks when considering increasing dosage to ≥50 **morphine milligram equivalents (MME)/day**, and should avoid increasing dosage to ≥90 MME/day or carefully justify a decision to titrate dosage to ≥90 MME/day.

**6 PRESCRIBE SHORT DURATIONS FOR ACUTE PAIN**

Long-term opioid use often begins with treatment of acute pain. When opioids are used for acute pain, clinicians should prescribe the lowest effective dose of immediate-release opioids and should prescribe no greater quantity than needed for the expected duration of pain severe enough to require opioids. Three days or less will often be sufficient; more than seven days will rarely be needed.

**Immediate-release opioids:** faster acting medication with a shorter duration of pain-relieving action

**Extended release opioids:** slower acting medication with a longer duration of pain-relieving action

**Morphine milligram equivalents (MME)/day:** the amount of morphine an opioid dose is equal to when prescribed, often used as a gauge of the abuse and overdose potential of the amount of opioid that is being given at a particular time



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# Results

| SPECIALTY | FIRST OPIOID PRESCRIPTIONS (N) | |
|---|---|---|
| TOTAL | 2,031,186 | |
| General surgery | 343,341 | 17% |
| Internal medicine | 247,074 | 12% |
| Family practice | 234,789 | 12% |
| Physician assistant | 212,756 | 10% |
| Emergency medicine | 187,652 | 9% |
| Nurse practitioner | 160,000 | 8% |
| Oral surgery (dentists only) | 84,874 | 4% |
| Dentist | 61,867 | 3% |
| Urology | 47,905 | 2% |
| Podiatry | 32,568 | 2% |

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| SPECIALTY | FIRST OPIOID PRESCRIPTIONS (N) | | FIRST OPIOID PRESCRIPTIONS - NO SURGERY (N) | |
|---|---|---|---|---|
| TOTAL | 2,031,186 | | 1,234,731 | |
| General surgery | 343,341 | 17% | 114,877 | 9% |
| Internal medicine | 247,074 | 12% | 182,145 | **15%** |
| Family practice | 234,789 | 12% | 182,533 | **15%** |
| Physician assistant | 212,756 | 10% | 106,228 | 9% |
| Emergency medicine | 187,652 | 9% | 141,929 | 11% |
| Nurse practitioner | 160,000 | 8% | 101,927 | **8%** |
| Oral surgery (dentists only) | 84,874 | 4% | 69,643 | 6% |
| Dentist | 61,867 | 3% | 51,711 | 4% |
| Urology | 47,905 | 2% | 15,205 | 1% |
| Podiatry | 32,568 | 2% | 12,919 | 1% |

| SPECIALTY | FIRST OPIOID PRESCRIPTIONS (N) | | FIRST OPIOID PRESCRIPTIONS - NO SURGERY (N) | | FIRST OPIOID PRESCRIPTIONS - PRIMARY CARE | |
|---|---|---|---|---|---|---|
| TOTAL | 2,031,186 | | 1,234,731 | | 572,833 | |
| General surgery | 343,341 | 17% | 114,877 | 9% | | |
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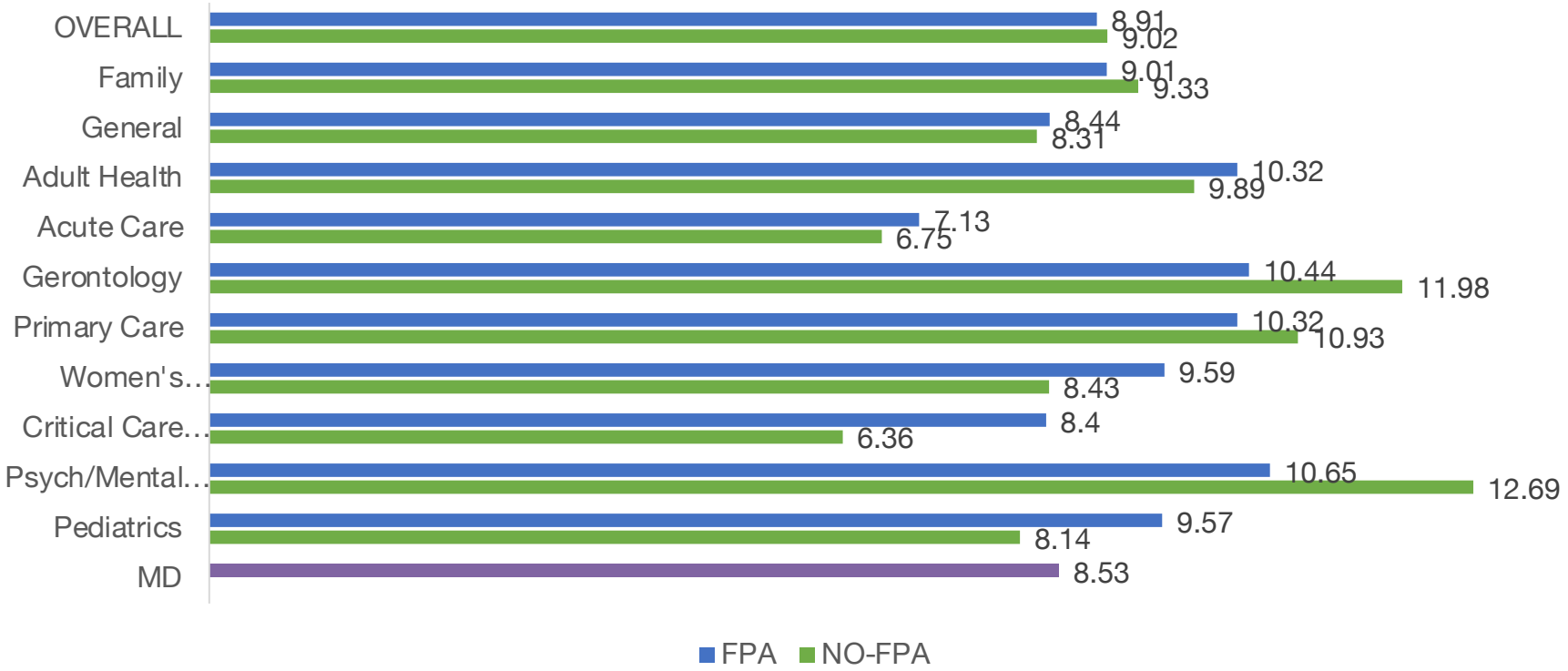
| Podiatry | 32,568 | 2% | 12,919 | 1% | | |

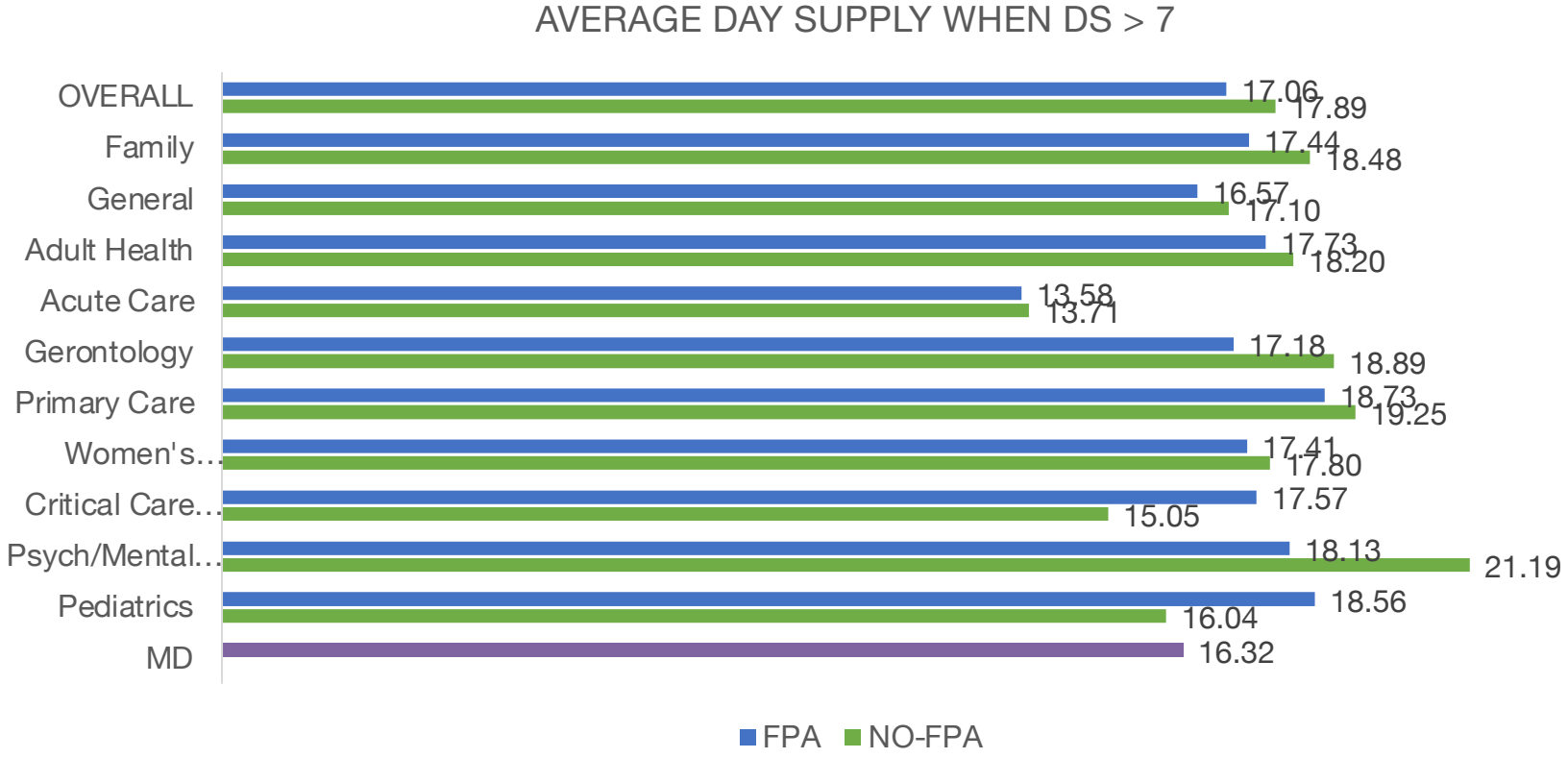
| | | | Days Supply | Days Supply >7 | | | MME > 50mg | | |
|---|---|---|---|---|---|---|---|---|---|
| | N | Col % | Mean | N | Col % | Row % | N | Col % | Row % |
| All | 160,000 | 100.0% | 8.98 | 54,492.00 | 100.0% | 34% | 13,133.00 | 100.0% | 8.2% |
| | | | | | | | | | |
| Family | 82,813 | 51.8% | 9.23 | 28,701.00 | 52.7% | 35% | 5,020.00 | 38.2% | 6.1% |
| General NP | 42,130 | 26.3% | 8.35 | 13,245.00 | 24.3% | 31% | 4,357.00 | 33.2% | 10% |
| Adult Health | 15,755 | 9.8% | 10.00 | 6,117.00 | 11.2% | 39% | 1,627.00 | 12.4% | 10% |
| Acute Care | 11,088 | 6.9% | 6.87 | 2,873.00 | 5.3% | 26% | 1,492.00 | 11.4% | 13% |
| Gerontology | 3,912 | 2.4% | 11.32 | 1,903.00 | 3.5% | 49% | 355.00 | 2.7% | 9.1% |
| Primary Care | 3,035 | 1.9% | 10.72 | 1,264.00 | 2.3% | 42% | 182.00 | 1.4% | 6.0% |
| Women's Health | 388 | 0.2% | 8.72 | 124.00 | 0.2% | 32% | 21.00 | 0.2% | 5.4% |
| Critical Care Medicine | 308 | 0.2% | 6.89 | 60.00 | 0.1% | 19% | 28.00 | 0.2% | 9.1% |
| Psych/Mental Health | 113 | 0.1% | 11.81 | 54.00 | 0.1% | 48% | 11.00 | 0.0% | 5.3% |
| Pediatrics | 113 | 0.1% | 8.43 | 37.00 | 0.1% | 33% | 11.00 | 0.0% | 2.7% |
| Community Health | 111 | 0.1% | 12.23 | 57.00 | 0.1% | 51% | 11.00 | 0.0% | 3.6% |
| Obstetrics & Gynecology | 109 | 0.1% | 7.28 | 26.00 | 0.0% | 24% | 16.00 | 0.1% | 15% |
| Occupational Health | 106 | 0.1% | 5.90 | 26.00 | 0.0% | 25% | 21.00 | 0.2% | 20% |

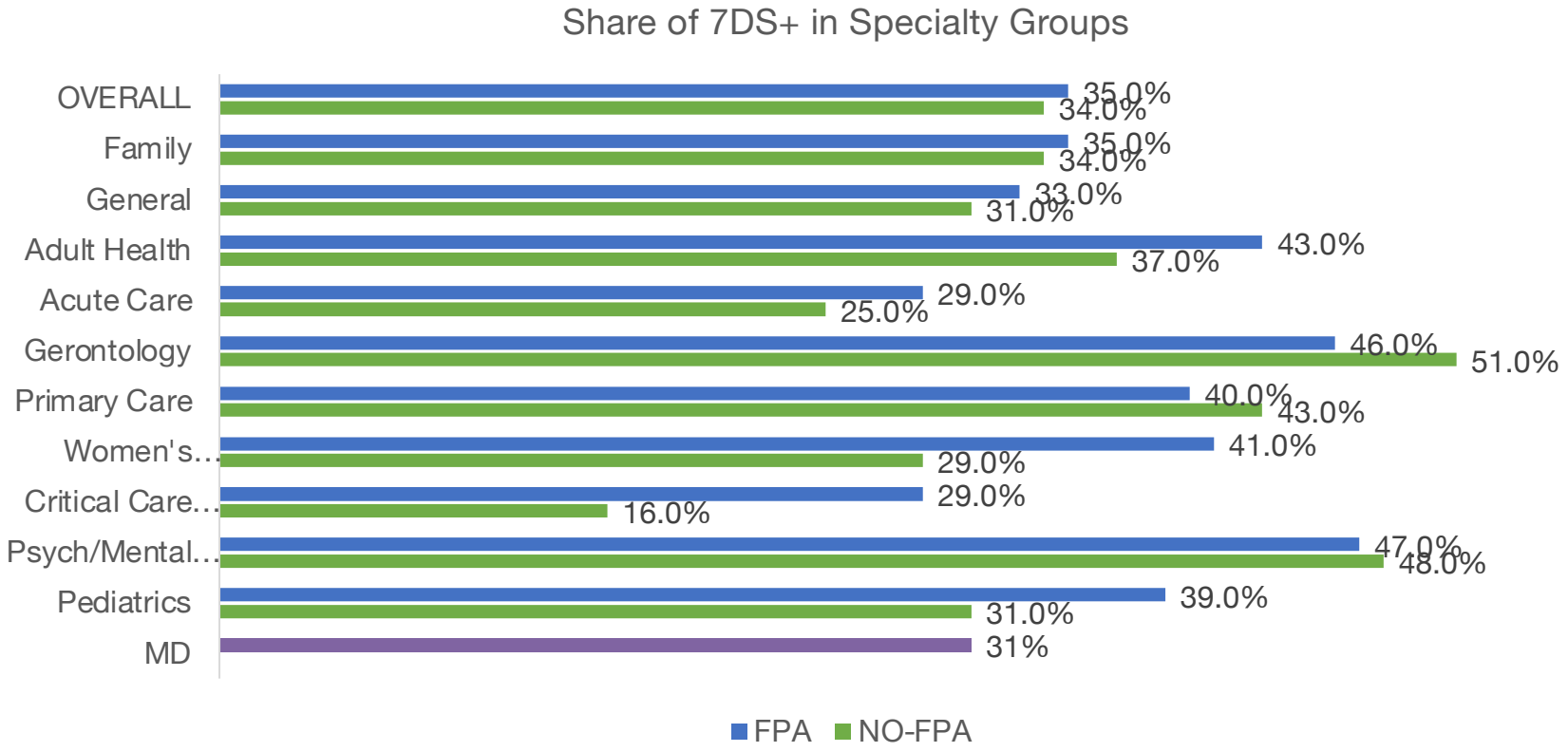
| | Long Acting Opioids | | | Short Acting Opioids | | |
|---|---|---|---|---|---|---|
| NP SPECIALTY | N | Col % | Row | N | Col % | Row % |
| All | 633 | 100.0% | 0.4% | 159,279 | 100.0% | 100% |
| Family | 304 | 48.0% | 0.4% | 82,466 | 51.8% | 100% |
| Nurse Practitioner | 146 | 23.1% | 0.3% | 41,954 | 26.3% | 100% |
| Adult Health | 104 | 16.4% | 0.7% | 15,643 | 9.8% | 99% |
| Acute Care | 21 | 3.3% | 0.2% | 11,063 | 6.9% | 100% |
| Gerontology | 33 | 5.2% | 0.8% | 3,878 | 2.4% | 99% |
| Primary Care | 20 | 3.2% | 0.7% | 3,013 | 1.9% | 99% |
| Women's Health | 11 | 0.2% | 0.3% | 387 | 0.2% | 100% |
| Critical Care Medicine | 0 | 0.0% | 0.0% | 308 | 0.2% | 100% |
| Psych/Mental Health | 11 | 0.2% | 0.9% | 112 | 0.1% | 99% |
| Pediatrics | 11 | 0.2% | 0.9% | 112 | 0.1% | 99% |
| Community Health | 0 | 0.0% | 0.0% | 111 | 0.1% | 100% |
| Obstetrics & Gynecology | 11 | 0.2% | 0.9% | 108 | 0.1% | 99% |
| Occupational Health | 11 | 0.2% | 0.9% | 105 | 0.1% | 99% |

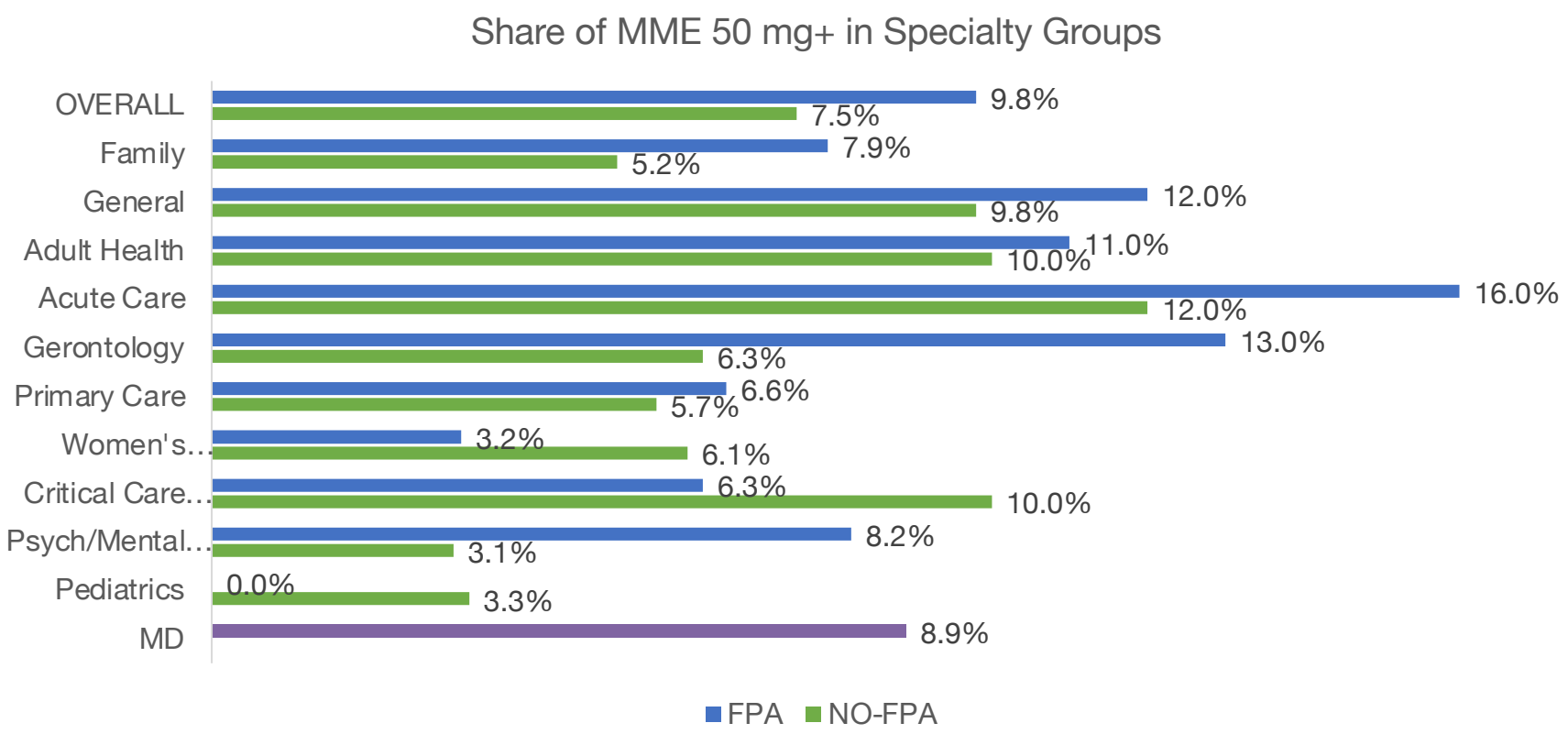
# Differences by Scope of Practice

# AVERAGE DAY SUPPLY




AVERAGE DAY SUPPLY WHEN DS > 7
OVERALL
Family
General
Adult Health
Acute Care
Gerontology
Primary Care
Women's…
Critical Care…
Psych/Mental…
Pediatrics
MD
17.06
17.89
17.44
18.48
16.57
17.10
17.73
18.20
13.58
13.71
17.18
18.89
18.73
19.25
17.41
17.80
17.57
15.05
18.13
21.19
18.56
16.04
16.32
FPA
NO-FPA


Share of 7DS+ in Specialty Groups
OVERALL
Family
General
Adult Health
Acute Care
Gerontology
Primary Care
Women's…
Critical Care…
Psych/Mental…
Pediatrics
MD
35.0%
34.0%
35.0%
34.0%
33.0%
31.0%
43.0%
37.0%
29.0%
25.0%
46.0%
51.0%
40.0%
43.0%
41.0%
29.0%
29.0%
16.0%
47.0%
48.0%
39.0%
31.0%
31%
FPA
NO-FPA


Share of MME 50 mg+ in Specialty Groups
OVERALL
Family
General
Adult Health
Acute Care
Gerontology
Primary Care
Women's…
Critical Care…
Psych/Mental…
Pediatrics
MD
9.8%
7.5%
7.9%
5.2%
12.0%
9.8%
11.0%
10.0%
16.0%
12.0%
13.0%
6.3%
6.6%
5.7%
3.2%
6.1%
6.3%
10.0%
8.2%
3.1%
0.0%
3.3%
8.9%
FPA
NO-FPA

# Other Analyses

- Multivariable analyses controlling for beneficiary and county level characteristics to determine if the type of provider predicts opioid initiation

# Summary

# Education and Policy

- Design provider specific opioid content.
- Studies needed to determine how best to design provider-specific training modules and provider specific guidelines and how best to support primary care providers who are at the frontlines.
  - especially in rural areas
- Increased educational efforts re pain management and addiction.

# Thank you!

Please contact me with question and suggestions.

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