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Patient and Health Care Provider Factors Associated With Prescription of Opioids After Delivery

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Abstract

Objective: To identify patient and health care provider characteristics associated with receipt of a high amount of prescribed opioid at postpartum discharge.

Methods: This was a retrospective case-control study of all opioid-naïve women delivering at a single, high volume tertiary care center between December 1, 2015–November 30, 2016. Inpatient, outpatient, pharmacy, and billing records were queried for clinical, prescription, and health care provider (training, age, gender) data. The discharging health care provider, whether an opioid prescription was provided, and the details of any opioid prescription were determined. A high amount of prescribed opioid was defined as morphine milligram equivalents greater than the 90th percentile (determined as 300 MME for vaginal and 500 MME for cesarean delivery). Multivariable logistic regression models with random effects were used to identify patient and health care provider factors independently associated with receipt of a high amount of prescribed opioids at discharge. Findings were analyzed separately by mode of delivery.

Results: The analysis included 12,362. High amounts of opioids were prescribed for 636/9,038 (7.0%) of women who delivered vaginally and 241/3288 (7.3%) of those delivering by cesarean. In multivariable analysis, patient factors associated with receipt of a high amount of prescribed opioids at discharge after a vaginal delivery included nulliparity, intrapartum neuraxial anesthesia, major laceration, and infectious complication. Discharge by a trainee physician was associated with decreased odds of receiving a high amount of opioid (8.5% vs. 1.9%; aOR 0.08, 95% CI 0.01–0.53). For women who underwent cesarean delivery, the only patient factor associated with receipt of a high amount of prescribed opioid was hemorrhage. Discharge by a trainee physician was associated with decreased odds of being provided a high opioid prescription (7.9% vs. 0.4%; aOR 0.01, 95% CI 0.00–0.36).

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Conclusion: Even after adjusting for patient factors, discharge by a trainee physician is significantly associated with decreased odds of a high amount of prescribed opioids at postpartum discharge.

PRÉCIS

Postpartum hospital discharge by a trainee physician is significantly associated with decreased odds of receipt of a prescription for a high amount of opioids.

INTRODUCTION

Opioid overdose is now a leading cause of death nationwide, and 40% of these deaths involve opioids derived from prescriptions.¹ Opioid misuse has been declared a national emergency by the United States (U.S.) government.² The rise of the opioid epidemic has been attributed in part to health care provider overprescribing and an increase in the availability of an excess of opioid tablets available for misuse and diversion.^{3,4} The overprescribing of opioids has been demonstrated in many contexts, including the postpartum setting. Data suggest women are commonly prescribed opioids at the time of hospital discharge for management of post-delivery pain and there is evidence that these prescriptions are often in excess of patient need.^{5,6} With upwards of 4 million hospitalizations annually for delivery in the U.S., mitigating excess prescribing in the postpartum setting has the potential to be impactful.^{7,8}

Provider-specific factors are likely to influence prescribing patterns. For example, the quantity of opioid tablets prescribed for similar conditions varies by county and by health care provider.⁹ Although some variability may be expected due to patients' specific needs, condition, and co-morbidities, the high degree of variation indicates that patient-specific factors cannot fully account for the findings. The U.S Food and Drug Administration Commissioner (FDA) recently highlighted the critical role that health care providers play in addressing the opioid epidemic. As part of an action plan issued in 2016, the FDA stressed the need to increase prescriber training in order to decrease inappropriate opioid prescribing.¹⁰

Correspondingly, it is essential to understand both patient and health care provider factors that are associated with prescribing patterns and excess opioid prescribing in the obstetric population. Thus, our objective was to identify patient and health care provider characteristics associated with the prescribing of high amounts of opioids at the time of hospital discharge in a large cohort of postpartum women who are cared for by a diverse group of health care providers.

MATERIALS AND METHODS

This is a retrospective case-control study of all opioid-naïve women hospitalized for delivery at Northwestern Memorial Hospital over one year (i.e., December 1, 2015 to November 30, 2016). Northwestern Memorial Hospital is a large academic tertiary care center affiliated with Northwestern University. Women were included in this analysis if they were at least 18 years of age and did not have a documented allergy to a non-steroidal anti-inflammatory

drug or morphine. Women were excluded if they had explicit evidence of recent opioid use (including oral or transdermal), defined as either a diagnosis of opioid abuse, 3 or more prescriptions for an opioid in the year prior to delivery, or a prescription for buprenorphine or methadone within a year of hospitalization. Ascertainment of prior prescriptions was performed through use of electronic medical record prescribing data and hospital admission documentation of patient or health care provider report. Additionally, we excluded women from analysis if they had received general anesthesia without concurrent neuraxial anesthesia, underwent a peripartum hysterectomy, had been admitted to the intensive care unit, or had a postpartum admission exceeding 10 days. These conditions were felt to represent rare events¹¹ that may reasonably be expected to result in analgesic requirements beyond the typical range.

Outpatient and inpatient electronic medical records (from the records used directly for clinical care) were queried for demographic and clinical data. Billing information, including International Classification of Diseases (ICD) 9 and ICD 10 codes, were used to corroborate documented diagnoses of postpartum complications, substance abuse and psychiatric comorbidities. Complications of interest were postpartum hemorrhage (defined as estimated blood loss of greater than 1000 ml), infectious complications (a composite of chorioamnionitis, endometritis, and wound infection occurring during hospitalization), and major laceration (defined 3rd or 4th degree perineal lacerations). Evaluation of laceration was limited to those who underwent vaginal delivery.

Electronic medical and pharmacy records were used to determine the discharge health care provider, whether an opioid prescription was provided at discharge, and if so, the details of the prescription. Those details included the type of opioid as well as the strength and number of tablets prescribed. Administrative databases were queried for health care provider data, including health care provider training level, age, and gender. Provider training was assessed as attending physician, advanced practitioner, or trainee physician (described below). Gender was dichotomized as male versus female.

At the academic medical center where this study occurred, approximately 12,000 women deliver each year and are cared for by a diverse group of health care providers. All trainee physicians who provide peripartum care at this hospital are in an obstetrics and gynecology residency or maternal fetal medicine fellowship. For the purposes of this analysis, both nurse practitioners and certified nurse-midwives are categorized as advanced practitioners. Practice groups include both university-employed and private health care providers and range in size from solo practitioners to 14-member groups. Groups include a mix of attending physicians and advanced practitioners. No family medicine physicians provide intrapartum or postpartum care at this hospital. A total of 251 unique prescribing health care providers were identified in the study period; this included 143 attending physicians, 49 advanced practitioners and 59 trainee physicians. The majority of the health care providers are female (215, 85.7%).

Postpartum rounding and discharge responsibilities differ among groups. In some groups, individual health care providers will continue to see patients whom they have delivered, while in other groups, that responsibility may be shared or performed by advanced

practitioners. Trainee physicians are primarily involved in the postpartum care of women who received antenatal care in the hospital-based clinics at this institution. When residents and fellows provide care for postpartum patients, they are supervised by university-employed attending physicians, but they independently write discharge prescriptions. Trainee physicians are not universally involved in all deliveries nor are they universally involved in the postpartum care of all patients. Though trainee physicians sometimes do assist in the postpartum care of patients not meeting the conditions described above, each private health care provider group is responsible for discharge and prescribing of their group's patients. No discharge order set or protocols for postpartum prescribing of pain medications, for either trainee or attending physicians, existed during the period of this study.

The primary outcome of this analysis was receipt of a high amount of prescribed opioid at postpartum discharge. While guidelines caution against prescribing greater than 50 MME per day for the management of pain¹², there remains a lack of consensus regarding appropriate opioid prescribing for acute pain. As such, a population parameter of greater than or equal to the 90th percentile for the cohort (for the total MME prescribed) was used to define a high amount of prescribed opioids at postpartum discharge. Patients who were not prescribed opioids at discharge were included in the comparison group. All opioids were converted to oral morphine milligram equivalents (MME) to allow for comparison across types of opioids.¹³ Total MME of the prescription was calculated by converting the type and strength of opioid prescribed to MME and multiplying this value by the number of tablets prescribed. Women who underwent vaginal delivery were analyzed separately from those who underwent cesarean delivery.

We performed bivariable comparisons to identify differences in patient and health care provider characteristics associated with providing high amount of prescribed opioid versus the comparison group (no opioid prescription or prescription amount that was not considered high based on the definition above). Multivariable logistic regression models accounting for prescribing health care provider as a random effect were used to identify patient and health care provider factors independently associated with receipt of a high amount of prescribed opioids at discharge. Models retained covariates with $p < 0.05$ on bivariable analysis. Postpartum length of stay was not included in the final regression model as it was collinear with the postpartum complications presented. A p -value of <0.05 was used to define statistical significance and all tests were two-tailed. Statistical analyses were performed with Stata v. 15 (StataCorp, College Station, TX). This study was approved by the Institutional Review Board at Northwestern University.

RESULTS

A total of 12,326 women were eligible for inclusion in this analysis. Of these women, 73.3% (N=9,038) underwent vaginal delivery and 26.6% (N=3,288) underwent cesarean delivery (Table 1). In the total cohort, the majority was non-Hispanic white (58.3%) and privately insured (52.5%). Approximately half were nulliparous. About two-thirds (67.3%) of women were discharged by an attending physician, a quarter (24.8%) by an advanced practitioner, and 7.8% by a trainee physician. The majority of patients were discharged by a female

health care provider (87.5%). The average discharge health care provider age was 43.7 ± 9.8 years (Table 1).

Overall, 45.3% of postpartum women received an opioid prescription on discharge, including 30.3% (N=2,749) of women who underwent vaginal delivery and 86.7% (N=2,849) of women who underwent cesarean delivery. A high amount of prescribed opioid at discharge was calculated at the 90th percentile to be at least 300 MME (10th percentile 60 MME, 50th percentile 200 MME) and at least 500 MME (10th percentile 120 MME, 50th percentile 300 MME) for vaginal delivery and cesarean delivery, respectively. Among women undergoing a vaginal delivery, 636 (7.0%) received a high amount of prescribed opioid at the time of hospital discharge (Figure 1). The proportion was similar among women who had undergone a cesarean delivery (n = 241, 7.3%) (Figure 1).

On bivariable analysis, among women who underwent a vaginal delivery, those who were discharged with a high amount of prescribed opioid were older, and were more likely to be married non-Hispanic white, and nulliparous. Additionally, they were more likely to have a history of depression and anxiety. With regard to clinical factors, they were more likely to have had a major laceration, regional analgesia, and an infectious complication (Table 2). Patients who were prescribed a high amount of opioid at discharge were less likely to be discharged by trainee physician (8.5% vs. 1.9%; OR 0.18, 95% CI 0.10-0.32). In multivariable analysis, multiple patient characteristics, including nulliparity (aOR 1.53, 95% CI 1.21-1.94), major laceration (aOR 7.85, 95% CI 4.97-12.40), use of intrapartum regional analgesia (aOR 1.88, 95% CI 1.25-2.82), and infectious complications (aOR 1.70, 95% CI 1.17-2.46) remained significantly associated with receipt of a high amount of opioid prescription while other factors did not remain significantly associated (Table 2). However, even after adjusting for these characteristics, a prescription written by a trainee physician (aOR 0.08, 95% CI 0.01-0.53) was significantly less likely to be for a high amount of opioid.

Among women who underwent a cesarean delivery, fewer differences were noted between those who did and did not receive a high amount of prescribed opioid at discharge. Specifically, those who were discharged with a high amount of prescribed opioid were more likely to have experienced a postpartum hemorrhage (17.0% vs 10.7%) (Table 3). As in the vaginal delivery cohort, women who underwent cesarean delivery were less likely to receive a prescription with a high amount of opioid if they had been discharged by a trainee physician (7.9% vs. 0.4%; OR 0.04, 95% CI 0.01-0.28) (Table 3). In multivariable analysis, postpartum hemorrhage remained significantly associated with receipt of a high amount of prescribed opioid at hospital discharge (aOR 2.38, 95% CI 1.39-4.09). Women who received high amounts of prescribed opioids after cesarean delivery were significantly less likely to have been discharged by trainee physicians (aOR 0.01, 95% CI 0.00-0.36) on adjusted analysis.

Opioid prescribing patterns were analyzed by health care provider type (Table 4). Although attending physicians and advanced practitioners prescribed a quantity of tablets which ranged from 5 to 180 count, trainee health care providers prescribed a quantity of tablets which ranged from 5 to 60 count. Attending physicians prescribed a median MME of 300

(IQR 150-300) and a median tablet count of 30 (IQR 24-30). Trainee physicians prescribed a median of 120 MME (IQR 100-240) and a median tablet count of 24 (IQR 12-24). We additionally evaluated the proportion of patients prescribed the same MME upon discharge; trainee physicians prescribed the same MME for 75.8% of patients and attending physicians prescribed the same MME for 76.9% of patients.

DISCUSSION

In a recent statement, the Federal Drug Administration noted that “until clinicians stop prescribing opioids far in excess of the clinical need, (the opioid) crisis will continue unabated”.¹⁰ To that end, research has focused on individual patient and procedure characteristics that may drive prescribing patterns and utilization. Almost universally, data have shown that patients are prescribed opioids in excess of need.^{5,6,14–16} Additionally, work by our group has shown that health care providers commonly prescribe the same MME quantities for the majority of their patients, suggesting minimal individualization of prescribing.¹⁷ Although opioid prescribing patterns in the postpartum setting do appear to be associated with patient characteristics such as peripartum complications that may be reasonably expected to increase pain, our findings suggest that prescribing is also independently related to one specific health care provider–related factor, health care provider training status.

The influence of health care provider–specific factors on medication prescribing patterns has been demonstrated in non-obstetric populations. For example, Schmidt et al showed that being cared for by an older physician was independently associated with inappropriate receipt of an antibiotic prescription.¹⁸ Another study examining a sample of ambulatory care visits from the National Ambulatory Medical Care Survey and the National Hospital Ambulatory Study Care Survey found that resident physicians were less likely to prescribe antibiotics when not indicated.¹⁹ Although data are scant, similar findings have been reported within the opioid prescribing literature. For example, in a small retrospective cohort study of greater than 800 patients cared for at an academic primary care clinic,²⁰ patients cared for by a resident physician were less likely to receive high-dose opioid prescriptions, defined as ≥ 50 MME per day. Our results are similar: even after adjusting for patient factors, being discharged by a trainee physician was significantly associated with decreased odds of being prescribed a higher amount of opioid.

This finding may be attributable to several factors. First, the FDA action plan stressing increase prescriber training and education of appropriate opioid prescribing may differentially reach trainee physicians, as they have dedicated and protected learning time. For example, at this institution, there have been multiple seminars, guest lectures, and Grand Rounds on the opioid epidemic, and these are more likely to be widely attended by trainees. Alternatively, trainee physicians may not experience the same external pressures associated with “patient satisfaction” that attending physicians and advanced practitioners face. However, recent data suggest that the significance of such factors may be inflated. For example, a recent study found no association between amount of opioid prescribed and the likelihood of refill request.²¹ Additionally, studies show no association between postoperative opioid prescriptions and patient satisfaction⁵ or Hospital Consumer

Assessment of Healthcare Providers and Systems pain scores.²² Thus, we believe it is likely that education is the most likely explanation for our findings, which underscore the importance of efforts to disseminate information and education regarding opioid addition and prescribing patterns to health care providers.

This study is notable for its collection of detailed patient data from a large, tertiary care institution with a unified electronic medical and pharmacy record allowing for nuanced analysis. Additionally, the diverse patient and health care provider population allows for increased generalizability. Finally, this study is unique in its detailed health care provider data. However, our study is not without limitations. Primarily, this is a retrospective study and susceptible to incomplete data and misclassification. In particular, we cannot be certain that women with recent opioid use were completely ascertained and excluded from analysis, given the possibility of receipt of opioids with health care providers outside of this medical system. Additionally, the group size of trainee physicians in the high opioid prescription group is very low and the exact odds ratio may be somewhat imprecise as a result. However, the very low frequency of trainee physicians providing high opioid prescriptions is notable; similarly, some patient subgroups also infrequently received high opioid prescriptions and thus one limitation is the potential imprecision of the presented estimates. Finally, while health care provider information concerning discharge and prescribing was known, our data lacked information regarding specific group differences in rounding practices or postpartum care. For example, it is possible that groups may assign rounding responsibilities to physicians or advanced practitioners based on patient complexity. Additionally, our study was limited to one academic institution, thus affecting generalizability.

In summary, we assessed patient and health care provider factors independently associated with high amounts of opioid prescribing at the time of postpartum hospital discharge. Although patient factors account for some variation in postpartum prescribing of opioids at discharge, discharge by a trainee physician also is independently associated with lower odds of high opioid prescribing.

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Figure 1:

Cohort flowchart. This figure identifies the process for inclusion in the final analysis. *Not mutually exclusive. NSAID, nonsteroidal anti-inflammatory drug; ICU, intensive care unit; MME, morphine milligram equivalents.

Table 1:**Patient and Health Care Provider Characteristics**

Characteristics	N=12,326
Maternal age, years	32.26 ± 4.82
Married *	9,247 (77.01)
Race and ethnicity [†]	
Non-Hispanic White	6,771 (58.29)
Non-Hispanic Black	1,050 (9.04)
Hispanic	2,079 (17.90)
Asian	970 (8.35)
Other	747 (6.43)
Public insurance [‡]	5,764 (47.47)
Delivery BMI, kg/m ²	30.29 ± 5.56
Vaginal delivery	9,038 (73.30)
Gestational age, weeks	38.80 ± 2.47
Nulliparous	6,236 (50.59)
Prior cesarean delivery	1,570 (12.74)
Non-smoker [§]	10,925 (90.14)
History of substance abuse	68 (0.55)
Depressive disorder	1,429 (11.59)
Anxiety disorder	1,518 (12.32)
Postpartum LOS, days	2 (1-2)
Provider training ^{//}	
Attending physician	8,269 (67.34)
Advanced practitioner	3,044 (24.79)
Trainee physician	965 (7.84)
Provider age, years	43.68 ± 9.76
Female health care provider	10,737 (87.47)

Data provided as mean (± standard deviation) or N (%).

BMI, body mass index; LOS, length of stay

* Denominator 12,008

[†] Denominator 11,617

[‡] Denominator 12,143

[§] Denominator 12,120

^{//} Denominator 12,275

Table 2:

Patient and Health Care Provider Characteristics Associated With High Opioid Prescribing at Postpartum Discharge After Vaginal Delivery

Characteristics	Opioid Prescription < 90%ile MME N =8402	Opioid Prescription 90%ile MME N= 636	OR	95% CI	aOR	95% CI
Maternal age, years	31.78 ± 4.82	32.56 ± 4.10	1.04	1.02-1.05	1.01	0.99-1.04
Married *	6,214 (75.88)	526 (84.84)	1.78	1.42-2.23	1.05	0.76-1.44
Race and ethnicity [†]						
Non-Hispanic White	4,569 (57.72)	399 (66.72)	1.00		1.00	
Non-Hispanic Black	703 (8.88)	26 (4.35)	0.42	0.28-0.63	0.78	0.46-1.33
Hispanic	1,499 (18.94)	67 (11.20)	0.51	0.39-0.68	0.69	0.47-1.01
Asian	657 (8.30)	56 (9.36)	0.98	0.73-1.31	0.89	0.61-1.31
Other	488 (6.16)	50 (8.36)	1.17	0.86-1.60	1.08	0.71-1.63
Public insurance [‡]	4,014 (48.36)	286 (47.04)	0.95	0.80-1.12		
Delivery BMI, kg/m ²	29.77 ± 5.27	29.56 ± 4.81	0.99	0.98-1.01		
Gestational age, weeks	38.88 ± 2.50	39.12 ± 2.06	1.05	1.01-1.09		
Nulliparous	4,111 (48.93)	396 (62.26)	1.72	1.46-2.03	1.53	1.21-1.94
Prior cesarean delivery	315 (3.75)	28 (4.40)	1.18	0.80-1.76		
Major laceration	215 (2.56)	59 (9.28)	3.89	2.88-5.26	7.85	4.97-12.40
Intrapartum regional analgesia	7,252 (86.31)	592 (93.08)	2.13	1.56-2.92	1.88	1.25-2.82
Postpartum hemorrhage	47 (0.56)	3 (0.47)	0.77	0.26-2.71		
Infectious complications	513 (6.11)	74 (11.64)	2.02	1.57-2.62	1.70	1.17-2.46
Non-smoker [§]	7,484 (90.59)	562 (89.92)	1.08	0.82-1.42		
History of substance abuse	45 (0.54)	3 (0.47)	0.88	0.27-2.84		
Depressive disorder	946 (11.26)	89 (13.99)	1.28	1.01-1.62	1.43	0.85-2.43
Anxiety disorder	1,001 (11.91)	95 (14.94)	1.30	1.03-1.63	0.91	0.55-1.52
Postpartum LOS, days	2 (1-2)	2 (2-2)	1.62	1.42-1.85		
Provider training						
Attending physician	5,322 (63.64)	509 (80.03)	1.00		1.00	
Advanced practitioner	2,330 (27.86)	115 (18.08)	0.52	0.42-0.64	0.47	0.16-1.44
Trainee physician	709 (8.48)	12 (1.89)	0.18	0.10-0.32	0.08	0.01-0.53
Provider age, years	43.65 ± 9.85	43.73 ± 9.45	1.00	0.99-1.01		
Female health care provider	7,353 (87.94)	568 (89.31)	1.15	0.88-1.49		

Data provided as mean (± standard deviation) or N (%).

MME, morphine milligram equivalents; OR, odds ratio; CI, confidence interval; aOR, adjusted odds ratio; BMI, body mass index; LOS, length of stay

aOR: Multivariable logistic regression accounting for covariates with p<0.05 on bivariable analysis and for clustering by health care provider

OR in referent to <90% MME opioid prescription

* Denominator 8,809

[†] Denominator 8,514

[†]Denominator 8,908

[§]Denominator 8,886

^{//}Denominator 8,997

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Table 3:

Patient and Health Care Provider Characteristics Associated With High Opioid Prescribing at Postpartum Discharge After Cesarean Delivery

Characteristics	Opioid Prescription < 90%ile MME N=3047	Opioid Prescription 90%ile MME N=241	OR	95% CI	aOR	95% CI
Maternal age, years	33.45 ± 4.75	33.01 ± 4.89	0.98	0.95-1.01		
Married [*]	2,322 ± 78.34	185 ± 78.72	1.02	0.74-1.42		
Race and ethnicity [†]						
Non-Hispanic White	1,684 (58.64)	119 (51.52)	1.00		1.00	
Non-Hispanic Black	304 (10.58)	17 (7.36)	0.79	0.47-1.33	1.28	0.62-2.66
Hispanic	459 (15.98)	54 (23.38)	1.66	1.19-2.33	1.25	0.67-2.34
Asian	241 (8.39)	16 (6.93)	0.94	0.55-1.61	1.00	0.48-2.10
Other	184 (6.41)	25 (10.82)	1.92	1.21-3.04	1.91	0.93-3.94
Public insurance [‡]	1,344 (44.79)	120 (51.28)	1.30	0.99-1.69		
Delivery BMI, kg/m ²	31.77 ± 6.16	31.57 ± 5.81	0.99	0.97-1.02		
Gestational age, weeks	38.51 ± 2.49	38.77 ± 2.04	1.05	0.99-1.12		
Nulliparous	1,594 (52.31)	135 (56.02)	1.16	0.89-1.51		
Postpartum hemorrhage	325 (10.67)	41 (17.01)	1.72	1.20-2.25	2.38	1.39-4.09
Infectious complications	301 (9.88)	29 (12.03)	1.25	0.83-1.87		
Non-smoker [§]	2,661 (88.79)	218 (91.98)	0.69	0.43-1.12		
History of substance abuse	20 (0.66)	0 (0)	omitted			
Depressive disorder	363 (11.91)	31 (12.86)	1.09	0.74-1.62		
Anxiety disorder	388 (12.73)	34 (14.11)	1.13	0.77-1.64		
Postpartum LOS, days	3 (3-4)	3 (3-4)	1.19	1.01-1.40		
Provider training ^{//}						
Attending physician	2,204 (72.55)	233 (96.68)	1.00		1.00	
Advanced practitioner	592 (19.49)	7 (2.90)	0.11	0.05-0.24	0.27	0.04-1.72
Trainee physician	241 (7.93)	1. (0.41)	0.04	0.01-0.28	0.01	0.00-0.36
Provider age, years	43.77 ± 9.72	43.35 ± 7.78	1.00	0.98-1.01		
Female health care provider	2,601 (85.64)	215 (89.21)	1.39	0.91-2.11		

Data provided as mean (± standard deviation) or N (%).

MME, morphine milligram equivalents; OR, odds ratio; CI, confidence interval; aOR, adjusted odds ratio; BMI, body mass index; LOS, length of stay

aOR: Multivariable logistic regression accounting for covariates with p<0.05 on bivariable analysis and for clustering by health care provider

OR in referent to <90% MME opioid prescription

^{*} Denominator 3,199

[†] Denominator 3,103

[‡] Denominator 3,235

[§] Denominator 3,234

^{//} Denominator 3,278

Table 4:

Postpartum Prescribing by Health Care Provider Type

Provider Type	MME	MME range	Tab number	Tab range	Proportion *
Attending	300 (150-300)	25-1950	30 (24-30)	5-180	76.9%
Advanced Practitioner	240 (150-300)	30-1800	30 (20-30)	5-180	85.7%
Trainee Physician	120 (100-240)	25-1380	24 (12-24)	5-60	75.8%

MME, morphine milligram equivalent; Tab, tablet

* Proportion of patients prescribed the same MME upon discharge