Medication-Assisted Treatment Utilization Among Pregnant Women With Opioid Use Disorder

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Abstract

Objective: To evaluate temporal trends in medication-assisted treatment utilization among pregnant women with opioid use disorder.

Methods: We conducted a retrospective cohort study using Pennsylvania Medicaid administrative data. Trends in medication-assisted treatment utilization, opioid pharmacotherapy (methadone and buprenorphine) and behavioral health counselling, were calculated using pharmacy records and procedure codes. Cochrane-Armitage tests evaluated linear trends in characteristics of pregnant women using methadone versus buprenorphine.

Results: In total, we evaluated 12,587 pregnancies among 10,741 women with opioid use disorder who had a live birth between 2009 and 2015. Across all years, 44.1% of pregnant women received no opioid pharmacotherapy, 27.1% used buprenorphine, and 28.8% methadone. Fewer than half of women had any behavioral health counseling during pregnancy. The adjusted prevalence of methadone use declined from 31.6% (95% CI: 29.3%–33.9%) in 2009 to 25.2% (95% CI: 23.3%–27.1%) in 2015, while the adjusted prevalence of buprenorphine use increased from 15.8% (95% CI: 13.9%–17.8%) to 30.9% (95% CI: 28.8%–33.0%). Greater increases in buprenorphine use were found in geographic regions with large metropolitan centers, such as the Southwest (+24.9%) and the Southeast (+12.0%), compared to largely rural regions, such as the New West (+5.2%). In 2015, the adjusted number of behavioral health counseling visits during pregnancy was 3.4 (95% CI: 2.6–4.1) among women using buprenorphine, 4.0 (95% CI: 3.3–4.7)

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among women who did not use pharmacotherapy, and 6.4 (95% CI: 4.9–7.9) among women using methadone.

Conclusions: Buprenorphine use among Medicaid-enrolled pregnant women with opioid use disorder increased significantly over time, with a small concurrent decline in methadone use. Behavioral health counseling utilization was low, but highest among women using methadone.

Precis

Although medication-assisted treatment use during pregnancy increased over the past decade, gaps between treatment need and receipt remain.

INTRODUCTION

Over the past 15 years, the prevalence of opioid use disorder among pregnant women has increased 333% resulting in increased treatment needs during pregnancy.[1] Medication-assisted treatment, consisting of opioid pharmacotherapy and behavioral health counseling, is the recommended, evidence-based treatment approach for opioid use disorder during pregnancy.[2–5] A consensus of government agencies and professional organizations, including the American College of Obstetrics and Gynecology (ACOG), endorse the effectiveness of medication-assisted treatment for pregnant women, which improves maternal health outcomes by providing a stable opioid dosing regimen, reducing illicit drug use and decreasing behaviors that increase the risk for HIV and HCV infection.[2–5] Medication-assisted treatment use during pregnancy also improves neonatal health outcomes by minimizing the fetal stress response that results from illicit opioid use.[6]

Despite recommendations, medication-assisted treatment is underutilized during pregnancy. Evaluations of the Treatment Episodes Data Set (TEDS) indicate that only half of pregnant women with opioid use disorder admitted to substance use treatment facilities in the United States received opioid pharmacotherapy, which has remained relatively unchanged over the past 20 years.[7,8] Although previous research highlights significant unmet treatment need, prior analyses are limited to publicly funded treatment programs, have not investigated differences in opioid pharmacotherapy type (methadone versus buprenorphine), and have not evaluated behavioral health counseling utilization, an important component of comprehensive substance use treatment.[7,8] As such, a population-level assessment of temporal trends in medication-assisted treatment utilization patterns during pregnancy remain largely unknown.

State Medicaid programs comprise the single largest payer in the United States for pregnancy and births[9] and are the primary insurer for women with opioid use disorder.[10,11] Because of this, many women with opioid use disorder reengage or newly engage in healthcare services during pregnancy and obstetric providers often assume the critical role of linking patients to treatment.[12] Thus, the purpose of this research is to describe temporal trends in medication-assisted treatment utilization among pregnant women with opioid use disorder enrolled in Pennsylvania Medicaid. Specifically, our objectives are to evaluate a) individual-level factors associated with medication-assisted treatment use during pregnancy, b) temporal trends in methadone versus buprenorphine use across rural and urban

geographic regions, and c) corresponding temporal trends in behavioral health counseling use. Our evaluation can help focus ongoing efforts to expand treatment access and availability during pregnancy.

METHODS

For this retrospective cohort study, we utilized administrative healthcare claims data from the Pennsylvania Department of Health and Human Services Medicaid Program. This dataset is composed of claims, encounters and pharmacy data for all Medicaid enrollees in Pennsylvania (including Medicaid managed care and traditional fee-for-service plans) from January 1, 2008-September 30, 2015. In Pennsylvania, Medicaid provides reimbursement for all components of medication-assisted treatment including methadone, buprenorphine and behavioral health counseling services.[13] Demographic information, including age, race-ethnicity, and county of residence identified by enrollee zip codes were obtained from patient enrollment files. Medication-assisted treatment utilization data, including buprenorphine prescription fills, methadone treatment services and behavioral health counseling visits were obtained from pharmacy, professional, outpatient and inpatient claims data. Pennsylvania Medicaid includes 5 regions that correspond to state population centers and are served by different managed care organizations.[14] These Medicaid regional classifications were used to identify variation in medication-assisted treatment utilization across geographic regions within Pennsylvania. The study was approved by the University of Pittsburgh, Institutional Review Board (IRB).

We identified Medicaid-enrolled women ages 15–44 years who had a live birth from January 1, 2009-September 30, 2015 and who had an International Classification of Diseases, Ninth Revision (ICD-9) diagnosis of OUD (304.0X, 304.7X, 305.50, 305.51, 305.52) during their pregnancy. Because a woman could have more than one pregnancy in the dataset, the pregnancy was chosen as the unit of analysis and medication-assisted treatment use during each pregnancy was evaluated. Live births were identified using the date of delivery in inpatient data. The pregnancy period was approximated using an algorithm validated by the National Committee for Quality Assurance.[15] Using this method, we calculated 280 days prior to the date of delivery to approximate the date of conception. Because we focused on pregnancies that resulted in a preterm or term live birth, if a woman had an interpregnancy interval of less than 24 weeks (<168 days), the later pregnancy was excluded from the analysis.

Demographic characteristics included continuous as well as categorical measures of patient age (15–19, 20–34, 35–45 years), race (African American, Caucasian, Asian, or other) and ethnicity (Hispanic or Latina). Urban versus rural county of patient residence was defined based on the Rural Urban Commuting Area (RUCA) codes developed by the United States Department of Agriculture.[16] All metropolitan areas are defined as urban, and rural areas include micropolitan areas, small towns, and rural areas. Medical co-morbidities were identified by ICD-9 diagnostic codes that were associated with the pregnancy in the dataset. Medical co-morbidity diagnoses included in the analysis were pre-gestational diabetes mellitus, chronic hypertension, asthma, thyroid disorder, HIV, hepatitis C virus (HCV) and psychiatric disorders. Psychiatric disorders included major depressive disorder, bipolar

disorder and schizophrenia. Pregnancy-associated co-morbidities included were gestational diabetes mellitus and gestational hypertensive disorders which included gestational hypertension, pre-eclampsia and eclampsia.

Substance use during pregnancy other than opioid use was identified by ICD-9 codes for tobacco, alcohol, cocaine, marijuana, amphetamine, hallucinogen, sedatives and other substance use or drug dependence during pregnancy. Opioid pharmacotherapy utilization with either methadone or buprenorphine was also identified. Buprenorphine use was identified according to National Drug Codes for buprenorphine formulations and was defined as having 1 outpatient prescription fill for buprenorphine during pregnancy. Methadone use in pregnancy was identified through outpatient and professional claims for methadone treatment services (procedure codes H0020 or J1230) during pregnancy. We created 3 mutually exclusive opioid pharmacotherapy utilization groups: methadone only, any buprenorphine, and no pharmacotherapy. In a small number of pregnancies (n=365, 2.9%) we observed claims for both buprenorphine and methadone. Because of the extremely small sample size of the combined group, we categorized these pregnancies in the "any buprenorphine group." We chose to create an "any buprenorphine" and a "methadone only" group because women are clinically more likely to switch from buprenorphine to methadone than methadone to buprenorphine during pregnancy.

Behavioral health counseling visits for each patient during pregnancy were identified in professional claims using procedure codes. We also categorized behavioral health counseling professional claims by the ICD-9 diagnostic codes associated with those claims. Counseling for drug or alcohol abuse was defined as a behavioral health professional claim associated with a diagnostic code for drug or alcohol abuse. Counseling for a psychiatric disorder was defined as a behavioral health professional claim associated with a diagnostic code for a psychiatric disorder.

Geographic trends in opioid pharmacotherapy utilization over time were evaluated across five Medicaid regions designated by the Pennsylvania Department of Health and Human Services: New East, Southeast, Lehigh-Capital, New West and Southwest. Within each region, each county was defined as rural versus urban according to each county's population density as defined by the Center for Rural Pennsylvania.[17] The New West (Region 1) includes Erie and has 13 counties, 12 (92.3%) of which are rural. The New East (Region 2) includes Scranton and has 22 counties, 20 (90.9%) of which are rural. The Southwest (Region 3) includes the greater Pittsburgh area and has 14 counties, 11 (78.6%) of which are rural. The Lehigh-Capital (Region 4) includes Harrisburg and has 13 counties, 5 (38.5%) of which are rural. The Southeast (Region 5) includes the greater Philadelphia area and has 5 counties, none (0%) of which are rural.

We stratified the descriptive statistics of our study cohort by category of opioid pharmacotherapy to identify potential differences among the study population for each group using the chi-square test. Multivariable multinomial logistic regression was used to evaluate time trends in the prevalence of opioid pharmacotherapy utilization and negative binomial regression was used to evaluate the frequency of behavioral health visits during pregnancy. Both opioid pharmacotherapy and behavioral health visit models were adjusted

for year of delivery, age, race, ethnicity, Medicaid region, medical co-morbidities including psychiatric disorder, HCV and HIV infection and substance use history including tobacco, alcohol and substance use other than opioid use. After running the regression analysis, predictive margins of the outcome for each year were obtained to generate adjusted prevalence estimates in each year. Adjusted prevalence estimates in each year were reported with 95% confidence intervals (CI).

We also calculated the changes over time in opioid pharmacotherapy utilization between geographic regions in Pennsylvania. Specifically, we calculated the percentage change from 2009–2015 in no opioid pharmacotherapy observed, buprenorphine, and methadone among pregnant women in each of the 5 geographic regions. All previously described variables were included as independent variables. P-values less than 0.05 were significant for all tests. All programming and statistical analyses were performed using the SAS software version 9.4.

RESULTS

From January 1, 2009-September 30, 2015, we identified 354,891 Medicaid enrolled pregnancies with a live birth. Within this sample, we identified a cohort of 12,587 pregnancies (3.5%) among 10,741 women who had a diagnosis of opioid used disorder (Table 1). Among 12,587 pregnancies, 5,553 (44.1%) did not use opioid pharmacotherapy during pregnancy. Of the 7,034 women who received opioid pharmacotherapy, 3,618 (51.4%) received methadone and 3,416 (48.6%) received buprenorphine. Overall, 4,930 (39.2%) women with opioid use disorder received behavioral health counseling during pregnancy. The majority of behavioral health claims (59.8%) were associated with drug and alcohol diagnoses with the remaining claims associated with psychiatric disorder diagnoses (7.9%), both drug and alcohol and psychiatric disorder diagnoses (13.2%), and a mix of other pregnancy-related diagnoses codes (19.1%).

Between 2009 and 2015, the adjusted prevalence of no opioid pharmacotherapy observed during pregnancy decreased from 52.6% (95% CI: 50.1%–55.1%) to 43.9% (95% CI: 41.8%–46.1%) with the most significant decrease occurring between 2009 and 2010 (9.5%) (Figure 1). Increased utilization rates were largely due to buprenorphine use which increased from 15.8% (95% CI: 13.9%–17.8%) to 30.9% (95% CI: 28.8%–33.0%) between 2009 and 2015. In contrast, methadone use decreased from 31.6% (95% CI: 29.3%–33.9%) to 25.2% (95% CI: 23.3%–27.1%) during the study period.

Between 2009 and 2015, an increase in the adjusted number of behavioral health visits occurred among women who received methadone during pregnancy, 5.7 (95% CI: 4.3–7.1) versus 6.4 (95% CI: 4.9–7.9) visits, although the increase was not statistically significant. (Figure 2). There were no significant changes over time in the adjusted number of behavioral health visits during pregnancy among women using buprenorphine (3.1 versus 3.4 visits) and among women with no observed opioid pharmacotherapy use (3.6 versus 4.0 visits). However, in 2014 and 2015, we did find significant differences in the number of counseling visits during pregnancy by opioid pharmacotherapy type. In 2015, the adjusted number of behavioral health counseling visits during pregnancy was 3.4 (95% CI: 2.6–4.1) among

women using buprenorphine, 4.0 (95% CI: 3.3–4.7) among women who did not use pharmacotherapy, and 6.4 (95% CI: 4.9–7.9) among women using methadone (Figure 2). Crude and adjusted prevalences and counts for Figures 1 and 2 are described in Appendixes 1 and 2, available online at http://links.lww.com/xxx.

Between 2009 and 2015, we found a significant decrease in no opioid pharmacotherapy observed during pregnancy across all 5 Medicaid regions except for the New West (Region 1) which had a +0.6% increase. The New West region includes Erie and is the most rural Medicaid region with 12 of 13 counties (92.3%) designated as rural. Accordingly, we found an increase in buprenorphine use across all Medicaid regions with the most significant increases found in regions with large urban centers such as the Southwest (+24.9%) and the Southeast (+12.0%) compared to the largely rural New West region (+5.2%). The Southwest region includes the greater Pittsburgh metropolitan area and the Southeast region includes the greater Philadelphia area. Conversely, we found a decrease in methadone utilization during pregnancy across all Medicaid regions except for the Lehigh-Capital region which had a +2.9% increase in methadone utilization during pregnancy between 2009 and 2015.

DISCUSSION

Our evaluation of medication-assisted treatment utilization patterns among Medicaid-enrolled pregnant women with opioid use disorder demonstrates that opioid pharmacotherapy use increased by approximately 10% over the past decade with utilization rates largely driven by an increase in buprenorphine use in urban geographic areas. Despite these gains, a significant gap between treatment need and receipt remains. In 2015, only 56% of women with opioid use disorder received opioid pharmacotherapy during pregnancy and fewer than 40% had a claim for a behavioral health services. Behavioral health utilization varied by opioid pharmacotherapy type. In 2014 and 2015, women who received methadone had significantly more counseling visits during pregnancy than women who received buprenorphine and women with no pharmacotherapy observed. Therefore, despite current recommendations emphasizing the importance of medication-assisted treatment use during pregnancy, our findings demonstrate the need to further expand medication-assisted treatment access and availability for pregnant women with opioid use disorder.

Increases in pharmacotherapy utilization were largely driven by increases in buprenorphine use during pregnancy, which more than doubled over the study period and was accompanied by a corresponding decline in methadone use. Similar trends in pharmacotherapy utilization have been found in the general Medicaid population where buprenorphine has been the primary driver of increased pharmacotherapy use.[18] Buprenorphine's office-based availability, pharmacy-based dispensing, and decreased risk of overdose compared to methadone have resulted in a multitude of initiatives from federal, state and local agencies to rapidly expand the number of buprenorphine waivered physicians and outpatient programs to meet increased demands for substance use treatment.[19,20] Further, randomized clinical trials have established buprenorphine's safety in pregnancy and demonstrated superior neonatal outcomes including a shorter treatment duration for NAS and a shorter neonatal length of stay compared to methadone.[21–23] As a result, buprenorphine has emerged a safe

and effective, office-based treatment alternative to methadone and use during pregnancy has subsequently escalated.

While pharmacotherapy use increased overall, significant disparities in pharmacotherapy use were found among teens, African-American and Hispanic women. Approximately 66% of pregnant women aged 15–19 did not receive opioid pharmacotherapy, compared to pregnant women aged 20–34 (43.8%) and aged 35 (40.6%), which reflects additional barriers for adolescent populations. In the United States, buprenorphine-naltrexone is only approved for persons age 16 years or older, while persons younger than 18 years must fail two attempts at detoxification and provide a written consent from a parent prior to the initiation of methadone.[24] While pregnant adolescents are emancipated to make their own decisions regarding their pregnancy, many providers may not extend this autonomy to medication-assisted treatment and provider willingness to provide medication-assisted treatment services to pregnant adolescents remains largely unknown. In 2016, a randomized clinical trial demonstrated that buprenorphine maintenance therapy was associated with significant improvements in treatment engagement and decreased rates of relapse among adolescents compared to medically-assisted withdrawal.[25] As a result, the American Association of Pediatrics has advocated for increasing resources to improve medication-assisted treatment access for adolescent populations.[26,27]

Non-Hispanic black (73%) and Hispanic (64%) pregnant women were also significantly more likely to not use opioid pharmacotherapy than non-Hispanic white pregnant women (41%) suggesting racial and ethnic disparities in pharmacotherapy use. Further, among black and Hispanic pregnant women who received opioid pharmacotherapy, both groups were more likely to receive methadone compared to buprenorphine. Previous evaluations of racial and ethnic substance use treatment disparities in the adult, non-pregnant population have been mixed. In an analysis of the National Survey on Drug Use and Health, unadjusted differences in racial-ethnic substance use treatment receipt did not persist after adjustment for criminal history and socioeconomic factors.[28] Likewise, racial-ethnic disparities in treatment completion using the TEDS-D data set were also largely explained by differences in socioeconomic status.[29] Further evaluations are warranted to explain differential racial-ethnic opioid pharmacotherapy use rates among pregnant women.

Pharmacotherapy utilization during pregnancy increased across all Medicaid regions except for Region 1 (New West), the most rural region in Pennsylvania and was largely driven by increases in buprenorphine use in urban versus rural geographic areas. Rural-urban disparities in pharmacotherapy use is of significant concern as the prevalence of maternal opioid use and neonatal abstinence syndrome (NAS) have disproportionately increased in rural areas across the United States and over 80% of pregnant women living in rural areas experience barriers to substance use treatment services.[30,31] In 2012, over 40% of counties in the United States did not have at least one outpatient substance use treatment facility that accepted Medicaid and only 3% of programs were located in rural areas.[32] Further, addiction stigma is especially powerful in rural areas[30,33] where fear of judgement, prosecution and child welfare involvement may prevent many women from self-disclosure during pregnancy and delay substance use treatment engagement.[34,35]

The majority of pregnant women in our cohort did not receive behavioral health counseling during pregnancy which is recommended as part of a comprehensive approach to treatment. [5,36] Future research is necessary to determine the effect of counseling on substance use treatment outcomes among pregnant women and to identify subpopulations which may be most likely to benefit from behavioral health interventions.[39,40]

Our results must be interpreted with certain limitations. Our sample represents a cohort of women with opioid use disorder enrolled in Pennsylvania Medicaid which may limit the generalizability of our findings to privately-insured or uninsured women and to women in other states. However, this limitation is minimized as Pennsylvania's Medicaid program is the fourth largest in the US, with expenditures of $27.6 billion in 2016,[13] and has demographic and socioeconomic profiles that closely track national averages.[41] While Pennsylvania Medicaid provides reimbursement for all components of medication-assisted treatment including methadone, buprenorphine and behavioral health counseling, our results may not be generalizable to states whose Medicaid programs do not cover the full range of treatment services. Methadone is not included on Medicaid preferred drug lists in 20 states while Medicaid covers buprenorphine in all 50 states.[42] Further, women that were classified as not receiving pharmacotherapy in our data may have received pharmacotherapy from a non-Medicaid-billing provider or a provider that accepted cash payments for services.[43] Finally, observational retrospective cohort analyses are vulnerable to bias and the possibility for confounding exists despite efforts to control for these factors.

Because many women with opioid use disorder newly engage or re-engage in healthcare services during pregnancy, obstetric providers play a critical role in linking pregnant women to treatment programs that provide opioid pharmacotherapy, behavioral health counseling and social services support.[5,12] Future research efforts should focus on characterizing effective strategies to expand medication-assisted treatment access and availability for pregnant women such as identifying healthcare delivery models and clinical care pathways that increase medication-assisted treatment use and that can be implemented into a variety of obstetric settings.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Funding disclosure:

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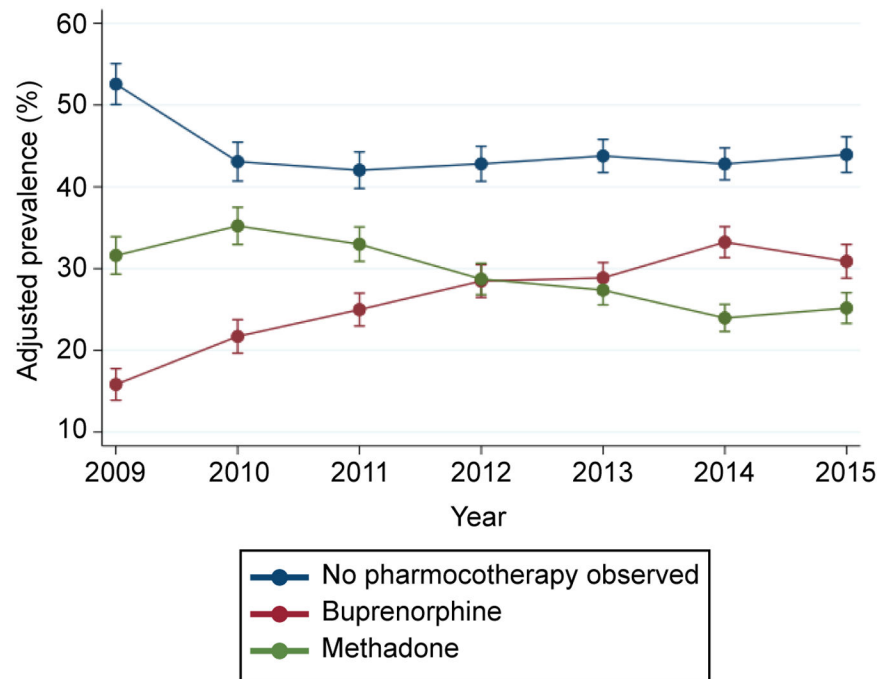
Figure 1.
Opioid pharmacotherapy utilization among Medicaid-enrolled pregnant women with opioid use disorder, 2009–2015. *Error bars* represent 95% CIs. Prevalences are adjusted. Refer to the methods section for the list of all variables included in the multivariable model and Appendix 1 for crude and adjusted prevalences.
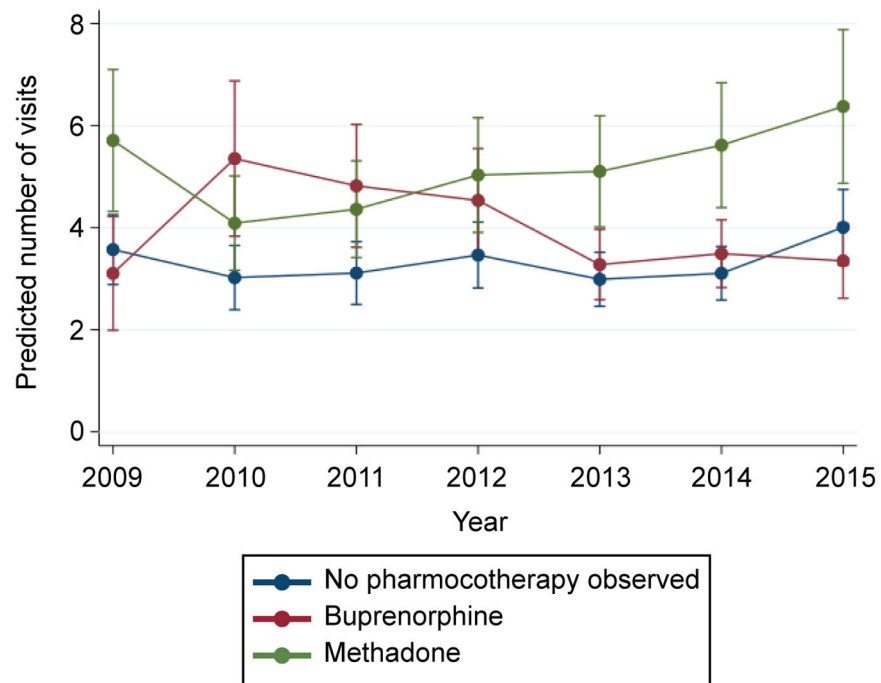
Figure 2.
Behavioral health counseling utilization by opioid pharmacotherapy type among Medicaid-enrolled pregnant women with opioid use disorder, 2009–2015. *Error bars* represent 95% CIs. Predicted number of visit counts are adjusted. Refer to the methods section for the list of all variables included in the multivariable model and Appendix 2 for crude and adjusted counts.
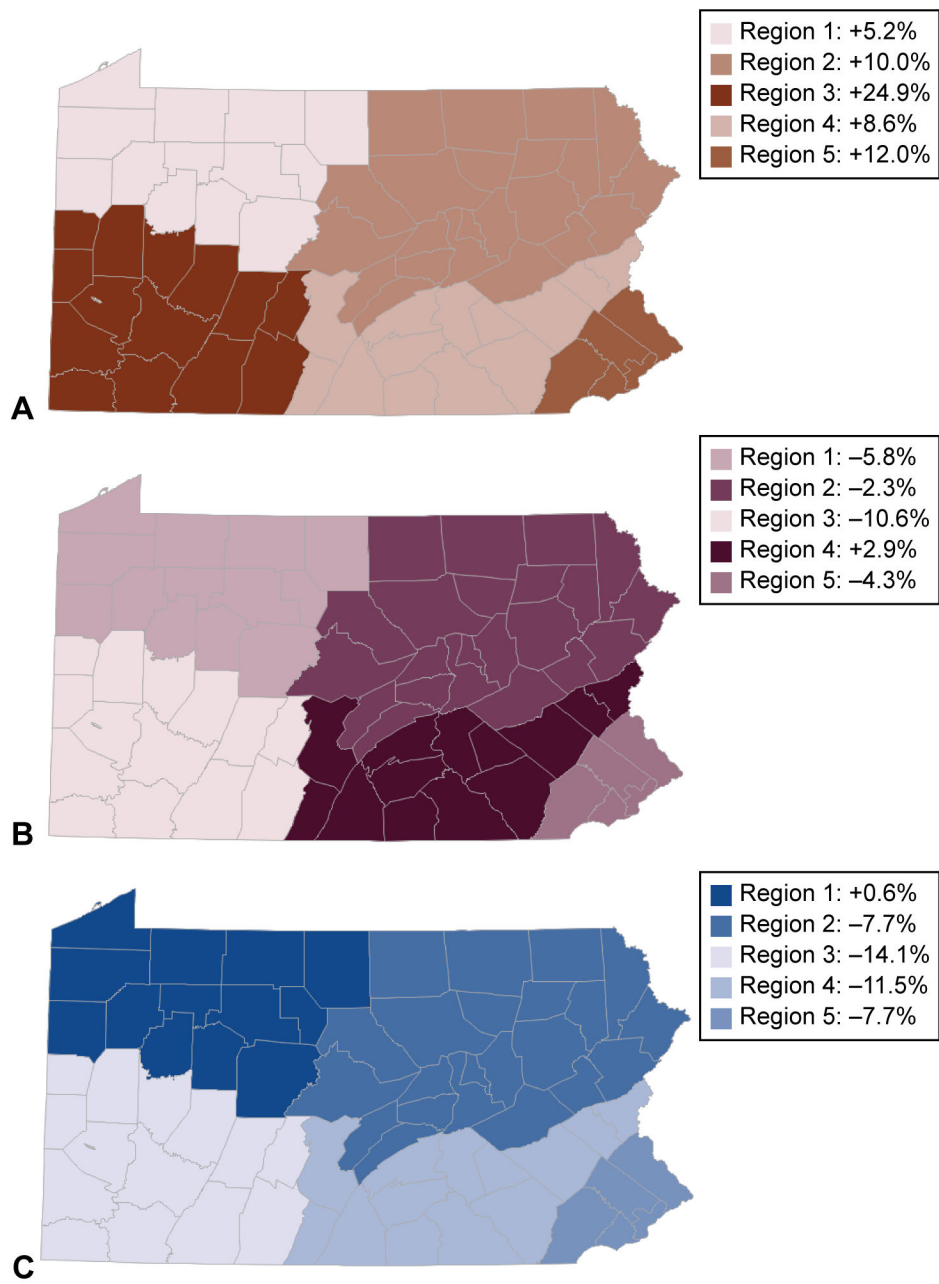
Figure 3.
Change in opioid pharmacotherapy utilization during pregnancy by Medicaid geographic region in Pennsylvania, 2009–2015. Percent change in buprenorphine utilization (**A**), percent change in methadone utilization (**B**), and percent change in no pharmacotherapy observed (**C**).

Table 1.

Characteristics of pregnancies with opioid use disorder in Pennsylvania Medicaid, overall and stratified by opioid pharmacotherapy, 2009–2015[*]

Characteristic	Overall n=12,587	No pharmacotherapy n=5,553	Methadone n=3,618	Buprenorphine n=3,416	p-value
Demographics					
Age [years; mean ±SD]	27.7 ± 4.7	27.3 ± 4.8	28.0 ± 4.5	27.8 ± 4.6	<0.01
15–19	331 (2.6)	218 (3.9)	59 (1.6)	54 (1.6)	
20–34	11357 (90.2)	4970 (89.5)	3281 (90.7)	3106 (90.9)	<0.01
35	899 (7.1)	365 (6.6)	278 (7.7)	256 (7.5)	
Race and ethnicity					
Non-Hispanic white	11047 (87.8)	4511 (81.2)	3277 (90.6)	3259 (95.4)	
Non-Hispanic black	961 (7.6)	703 (12.7)	174 (4.8)	84 (2.5)	
Hispanic	393 (3.1)	253 (4.6)	105 (2.9)	35 (1.0)	<0.01
Other	186 (1.5)	86 (1.6)	62 (1.7)	38 (1.1)	
County of residence					
Urban	10229 (81.3)	4492 (80.9)	3201 (88.5)	2536 (74.2)	<0.01
Rural	2358 (18.7)	1061 (19.1)	417 (11.5)	880 (25.8)	
Medical co-morbidities					
Psychiatric disorder[‡]	5370 (42.7)	2288 (41.2)	1617 (44.7)	1465 (42.9)	<0.01
Hepatitis C virus (HCV)	3879 (30.8)	1324 (23.8)	1539 (42.5)	1016 (29.7)	<0.01
Asthma	1812 (14.4)	810 (14.6)	528 (14.6)	474 (13.9)	0.60
Chronic hypertension	450 (3.6)	209 (3.8)	125 (3.5)	116 (3.4)	0.59
Thyroid disorder	390 (3.1)	166 (3)	107 (3.0)	117 (3.4)	0.43
Diabetes mellitus	188 (1.5)	89 (1.6)	62 (1.7)	37 (1.1)	0.06
HIV	78 (0.6)	32 (0.6)	31 (0.9)	15 (0.4)	0.07
Pregnancy-associated co-morbidities					
Hypertensive disorder	1335 (10.6)	661 (11.9)	370 (10.2)	304 (8.9)	<0.01
Gestational diabetes	917 (7.3)	447 (8.1)	234 (6.5)	236 (6.9)	0.01
Substance use in pregnancy					
Alcohol	856 (6.8)	467 (8.4)	198 (5.5)	191 (5.6)	<0.01
Tobacco	9009 (71.6)	3747 (67.5)	2767 (76.5)	2495 (73.0)	<0.01
Polysubstance use[§]	10338 (82.1)	4132 (74.4)	3377 (93.3)	2829 (82.8)	<0.01
Medication-assisted treatment (MAT) utilization					
Behavioral health counseling (1 visit)	4930 (39.2)	2007 (36.31)	1466 (40.5)	1457 (42.7)	<0.01
Counseling classification					
Drug and alcohol	2946 (59.8)	1241 (61.8)	817 (55.7)	888 (60.9)	
Psychiatric disorder	391 (7.9)	108 (5.4)	124 (8.5)	159 (10.9)	<0.01
Both	649 (13.2)	243 (12.1)	204 (13.9)	202 (13.9)	

Characteristic	Overall n=12,587	No pharmacotherapy n=5,553	Methadone n=3,618	Buprenorphine n=3,416	p-value
Other	944 (19.1)	415 (20.7)	321 (21.9)	208 (14.3)	
Opioid pharmacotherapy					
None	5553 (44.1)	5553 (100)			
Methadone	3618 (28.8)		3618 (100)		
Buprenorphine	3416 (27.1)			3416 (100)	

*
n (%) unless otherwise specified;

difference comparing 2009 to 2015;

‡defined as a diagnosis of major depressive disorder, bipolar disorder, or schizophrenia;

§defined as a diagnosis of cocaine, marijuana, amphetamine, hallucinogen and/or sedatives use during pregnancy