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Changes in Insurance Coverage and Source of Health Care among High-risk Rural Female Offenders Following the Affordable Care Act

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Abstract

Purpose.—This study examines health care coverage and health care among rural, drug-involved female offenders under the Affordable Care Act (ACA) compared with pre-ACA and whether being insured is associated with having a usual source of care.

Methods.—This study involved random selection, screening, and face-to-face interviews with drug-using women in three rural Appalachian jails. Analyses focused on participants who had completed a three-month follow-up interview after release from jail (N=371).

Results.—Analyses indicated that women released after ACA implementation were more likely than those released preimplementation to be insured. A multivariate logistic regression model showed that being insured was significantly related to having a usual health care source during community reentry.

Conclusions.—Results demonstrate the benefits of the ACA, signaling important implications for public health in rural communities and the criminal justice system, including targeting underserved groups during incarceration and providing information about and resources for health care enrollment.

Keywords

Uninsured; rural health; health services; health care reform; substance abuse; reentry

Since the creation of Medicare and Medicaid in 1965, no single piece of health care legislation has succeeded in raising health care coverage rates as significantly as the Patient Protection and Affordable Care Act (ACA), signed into law on March 23, 2010.¹ For individuals purchasing coverage, the most tangible changes were effected through states' optional expansion of Medicaid and the creation of federal or state marketplaces through

which health care coverage plans could be compared and purchased.² In the 31 states that have elected to expand Medicaid coverage as of July 2016, individuals with incomes less than 138% of the federal poverty level are now eligible for public insurance.¹ In all states, low-income individuals who did not qualify for Medicaid were offered subsidies towards purchase of a health care coverage plan through the newly-created marketplaces. Between the ACA's implementation on January 1, 2014 and the most recent available data in 2015, the rate of uninsured people in the United States has decreased by 43%,¹ with particularly sharp decreases among low-income Americans.³⁻⁴

The act's goal of lower uninsured rates and increased health care access has also had positive implications for the diverse and complex health needs of women. Following the ACA, health care coverage rates among women increased.⁵⁻⁶ For women of childbearing age, the ACA corresponded to a decrease in the percentage reporting problems accessing care and reduced the likelihood of being unable to afford needed health care services.⁷ Women who lack health care coverage, on the other hand, are less likely to have routine check-ups, to have a primary physician, or to employ preventive screening services (e.g., mammograms and Pap smears) and are more likely to report cost as a barrier to seeking health care services.⁸ For women in rural communities where there are high levels of poverty and a lower concentration of health care providers,⁹⁻¹⁰ the implications of the ACA may be even more far-reaching, particularly given the high prevalence of health problems in rural women (e.g., cigarette smoking, obesity, and cerebrovascular disease).¹¹

Health care coverage for rural women has become especially vital in recent years due to the increasing rates of substance use and abuse, specifically opioid use and abuse.¹²⁻¹⁹ Substance use and abuse exacerbates the health problems experienced by rural women. Habitual substance users can be at heightened risk for a variety of adverse health consequences and chronic conditions,²⁰⁻²² requiring both short-term and long-term treatment. Research has shown that overall, substance users disproportionately use more health care services compared with non-substance users,²³⁻²⁴ but due to limited resources and insurance, services used are typically high-cost emergency medical care.²⁵ Female substance users specifically, are less likely to seek care when faced with health issues and report more frequent emergency room visits than non-users,²⁶⁻²⁷ which may be due in part to low rates of health care coverage within this population²⁸ as well as perceived stigma from health care providers.²⁹⁻³⁰

Health care is also a significant concern for individuals in the corrections system, with approximately 40% currently experiencing a chronic medical condition.³¹ Studies have shown that female inmates have high rates of substance abuse, HIV and other STDs, and mental health problems,³²⁻³⁴ and often have histories of physical and sexual abuse.^{32,35} In the few existing studies that focus on gender differences among jail inmates, females are considerably more likely than males to experience both substance abuse problems and health issues.³⁶⁻³⁷ Despite the high prevalence of health problems, health care is often inadequate or unavailable to inmates,³⁸⁻³⁹ and the needs of female inmates in particular, often go ignored.⁴⁰ In rural communities where jails often face a number of hardships such as inadequate funding, overcrowding, and staff retention, inmate health care may prove even more difficult to deliver to inmates.⁴¹

The health care needs present during incarceration often follow inmates as they transition back to the community, especially when their health care needs relate to chronic health conditions that require ongoing attention.³⁵ Research has shown that a history of incarceration is associated with disparities in health care access⁴² and utilization.⁴³ With the introduction of the ACA, particularly in states that elected to expand Medicaid, numerous justice-involved offenders who were previously ineligible for Medicaid and unable to afford private insurance now have access to health care coverage.⁴⁴ Some studies estimate that as many as 90% of state prison inmates in states with expanded Medicaid were Medicaid-eligible following the implementation of the ACA in 2014.⁴⁵ Increased health care coverage may lead to improved outcomes for ex-offenders. Among women, having health care coverage following release has been shown to decrease the odds of re-arrest,³² with some literature suggesting that health care is a vital part of reentry for women – even more so than it is for males.⁴⁶

The public health impact of the implementation of the Affordable Care Act has been well-documented,^{5-7,44-45,47-48} including how it relates to women and ethnic minorities.⁴⁹⁻⁵⁰ Research has specifically shown that self-reported rates of health care coverage significantly increased following the ACA enrollment periods;⁴⁸ among women, these increases have resulted in increased usage of preventive and primary care services.⁴⁹⁻⁵⁰ Nonetheless, there is a dearth of studies investigating the precise impact of the ACA on other populations who traditionally are more likely to be uninsured, such as substance users, offenders following incarceration, or residents of rural communities. Additionally, no studies have focused on populations that are disadvantaged through multiple risk factors (e.g., rural substance-using women). Provided evidence that these populations often have significant health problems and thus an increased need for health services, this gap in the literature is noteworthy.

The current study.

The current study examines the impact of the ACA on rural, substance-involved women in rural Appalachian Kentucky who were released into the community after incarceration – women who not only have an increased need for health services but also often lacking health care coverage and access to adequate, affordable health care. This study has two primary objectives: 1) describe health, health service utilization, health care coverage, and source of health care following implementation of the ACA among high-risk rural, substance-involved women released from jail to the community compared with coverage prior to the ACA; and 2) examine whether having health care coverage is associated with having a usual source of non-emergency, outpatient care among these high-risk women. Given the compounded circumstances and barriers faced by this population of rural, previously incarcerated, substance-involved women in obtaining health care coverage and affordable health care, it was expected that there would be an increased rate of insurance coverage post-ACA enrollment periods and that having health care coverage would be associated with having a usual source of non-emergency, outpatient care.

Methods

Sample and procedure.

As part of a larger, IRB-approved, National Institute on Drug Abuse-funded study (R01-DA033866), data were collected from rural women incarcerated in local jails (baseline) and during the transition from jail to the community (three months post-release). Between November 2012 and August 2015, participants were recruited from three rural jails in three different Appalachian counties⁵¹ in Kentucky. The three jails were selected based on the following criteria: 1) location in rural Appalachia, as defined by Beale codes (also referred to as Rural-Urban Continuum Codes) ranging from 5-9,⁵² 2) daily census of female inmates in each facility, and 3) the jail administration's willingness to serve as a study site.⁵³

Monthly recruitment took place at each of the three jails. To ensure a representative sample, targeted recruitment days for each jail were randomly selected during each month of study recruitment and potential participants were randomly selected for screening from the jail roster on selected recruitment days. All female inmates were randomly selected for screening using the Research Randomizer computer-based program (www.randomizer.org) and had an equal chance of being selected if they had a projected release date between two weeks and three months (verified by trained study staff using online jail records). Participants were informed that they were randomly selected from the jail roster.

Randomly selected women were invited to a short screening session at the jail. After participants provided their informed consent and were ensured confidentiality they were asked to complete the short screener form that took about 20 minutes to complete and included the NIDA-modified Alcohol, Smoking and Substance Involvement Screening Test (NM-ASSIST, NIDA, 2009), five questions to ascertain risky sexual behavior, and one item to assess willingness to enroll in the study. Eligible participants were scheduled for a baseline interview. Study eligibility for the larger study was based on the following criteria: 1) NM-ASSIST score of 4+ for any drug, indicating at least moderate risk for substance abuse,⁵⁴ and 2) engagement in at least one sex risk behavior in the past three months. Sex risk behavior (e.g., trading sex for drugs/money) was included as an eligibility criteria because the larger study examines the effectiveness of an intervention to stop the spread of HIV/HCV among women who engage in risky drug use and sexual behaviors. Participation in the study was not restricted to individuals incarcerated for a drug-related offense. Baseline interviews were conducted with 400 women in a private room at the jail.

Follow-up interviews were conducted approximately three months following release from jail and were conducted in a confidential setting either in the community or in jail (if the participant had been rearrested). Of the 400 participants who had completed the baseline interview, follow-up interviews were conducted with 376 (95.2%) of the 395 eligible individuals (five were not released from jail). Participants provided detailed follow-up tracking information at baseline. If participants indicated they were a Facebook user, they were invited to join a confidential Facebook study site and were contacted through the site by study staff for followup. Participants who were not Facebook users or did not respond to messages via Facebook were contacted first using telephone, followed then by mail and home visits.⁵⁵

This study focused on those 376 participants who had completed both the baseline and the three-month follow-up interviews. As part of both the baseline and follow-up interviews, participants were asked about their health, access to health services, and health care coverage. Interviews were conducted by trained female interviewers using laptops outfitted with Computer Assisted Personal Interview (CAPI) software. Participants were paid \$25 for each interview. Of the 376 eligible participants, five were removed from the study because they were missing data on at least one variable of interest, resulting in a final sample of 371 for these analyses.

Measures.

Sociodemographic characteristics.—Basic demographic information was collected as part of the baseline and three-month follow-up and included age, race/ethnicity (1=White, 0=non-White), years of formal education, income during the six months prior to incarceration, relationship status (1=married/living as married; 0=other), and employment in the three months post-release (1=employed at least part time; 0=unemployed).

Release date.—Participants were dichotomized into groups based on their release date following the baseline interview and the implementation of the Affordable Care Act on January 1, 2014. Participants who were released from jail prior to January 2014 were in one group (1=pre-ACA) while women who were released from jail on or after January 1, 2014 were in another group (0=post-ACA).

Health care coverage.—As part of the baseline and follow-up interviews, individuals were asked how many months they were covered by any type of health insurance, including Medicaid, during the previous three months. Responses were classified into two groups: 1) no health care coverage and 2) any health care coverage during the three-month period. Health care coverage during the follow-up period was the variable of interest in the present study, but health care coverage at baseline was included in analyses as a control.

Health problems.—During the follow-up interview, participants were asked to self-report the total number of days they experienced any health or medical problems in the three months post-release (possible range 0 – 90). Participants were also asked whether they were currently being treated for a health problem (1=yes; 0=no).

Health services.—Participants were asked if they had a usual place of care (doctor's office, health center, clinic, or other facility) that they went to during the three-month follow-up period if they were sick or needed advice about their health. Participants who had a usual source of non-emergency, outpatient health care were in one group (coded '1') and those who did not were in another group (coded '0'). Participants were also asked about their use of emergency rooms (1=used ER services; 0=no ER services) and substance use treatment services (1=participated in substance use treatment; 0=no substance use treatment) during the follow-up period. Finally, participants were asked to rate the availability of services in their community on a scale of 1 to 10, with 1 being not at all available and 10 being extremely available.

Analytic plan.

To address study aims, two sets of analyses were conducted. First, bivariate analyses were used to compare participants who were released from jail prior to the ACA implementation on January 1, 2014, with those who were released after ACA implementation. Specifically, health, health service utilization, health care coverage rates, and sources of health care among participants who were released from jail prior to ACA implementation ($n=115$) were compared with those who were released afterwards ($n=256$) using a series of chi-square and t-tests tests. Additional chi-square and t-tests were used to examine differences in sociodemographic characteristics between those released pre-ACA implementation and those released post-ACA.

Next, participants were separated into two groups based on having a usual source of non-emergency, outpatient care during the three months following incarceration; 141 participants had a usual source of care that they went to if they were sick or had a health problem while 230 participants did not have a usual source of care. A series of chi-square tests and t-tests were conducted to explore sociodemographic differences between these two groups. Significant differences were then entered into a multivariate logistic regression model to examine the extent to which having health care coverage was related to having a usual source of non-emergency, outpatient care.

Results

Of the 371 participants who completed a baseline and three-month follow-up interview, the majority were White (98.9%) with an average age of 32.6 ($SD=8.2$) and an average of 11.1 year of education ($SD=2.2$; See Table 1). Around one-third of participants were married (34.5%) and 15.4% reported working either full or part time during the three-month follow-up. Just under two-thirds (66.3%) reported having health care coverage during the follow-up period. At baseline, 25.6% were incarcerated for drug-related charges.

More than two-thirds (69.0%) of participants were released from jail following the ACA implementation. Those women were significantly older ($M=33A$, $SD=8.5$; $t(369) = -2.80$, $p = .005$) and reported a lower income prior to incarceration ($M=\$6,476.52$, $SD=\$13,707.49$; $t(168.5) = 2.39$, $p = .018$). Those participants released after the ACA implementation were also more likely to report having health care coverage for at least one month during the three-month follow-up period. Specifically, 84.0% of women released post-ACA reported having health care coverage compared with only 27.0% of individuals released prior to the ACA ($\chi^2(1, N = 371) = 115.52$, $p < .001$). However, there were no significant health differences between the two groups during the follow-up period.

Thirty-eight percent of participants ($n=141$) had a usual source of non-emergency, outpatient health care during the three-month follow-up period if they were sick or had questions about their health. Around one-fourth (24.5%) were currently being treated for a health problem. As shown in Table 2, despite a lack of health differences between the rural, substance-involved women, participants released from jail following the ACA implementation were significantly more likely to have a usual source of non-emergency, outpatient health care ($\chi^2(1, N = 371) = 4.05$, $p = .044$) yet significantly less likely to have used emergency room

services ($\chi^2(1, N = 371) = 4.03, p = .045$) compared with women released prior to ACA implementation.

Table 3 shows the results of the bivariate analyses comparing women reported having a usual source of non-emergency, outpatient health care to those who did not ($n=230$). Analyses indicated that women who had a usual source of care were significantly older ($M=35.0, SD=8.4; t(369) = -4.50, p = .001$) and were bothered by medical problems a significantly greater amount of time during the follow-up period ($M=273, SD=36.6; t(235.3) = -4.15, p = .001$). Participants who had a usual source of care also reported a significantly lower income during the 6 months prior to incarceration ($M=\$4,682.88, SD=\$4,805.51; t(272.8) = 3.93, p = .001$) compared with those who did not have a usual source of health care. Finally, women who reported a usual source of non-emergency, outpatient care were significantly more likely to report having health care coverage during the three-month follow-up period ($\chi^2(1, N = 371) = 30.75, p = .001$) and more likely to have been released after the ACA was implemented ($\chi^2(1, N = 371) = 4.05, p = .044$).

A multivariate logistic regression model was used to examine health care coverage as a predictor of health service utilization. As shown in Table 4, even when controlling for other potentially influential factors (e.g., age, health problems, and health care coverage prior to baseline) participants covered by health insurance for at least one month during the follow-up period were more than five times likely to have a usual source of non-emergency, outpatient health care compared with those who were uninsured ($p = .001$). Age and income were also related to health care utilization. A one-year increase in age correlated with a 5% increase in the likelihood of having received health care when needed during the follow-up period ($p = .002$) while every \$1,000 increase in income corresponded to a 4% decrease in the likelihood in obtaining health care when needed during the follow-up period ($p = .019$). Finally, health problems were correlated with health service utilization. Specifically, for every day participants experienced a medical problem, the odds of utilizing healthcare increased by 1% ($p = .002$). Multicollinearity was assessed using the tolerance statistic in a linear regression model using the same dependent and independent variables.⁵⁶ The tolerance statistic indicated no presence of multicollinearity among the independent variables.

Discussion

Research has consistently shown that substance users, particularly women, are at high risk for health problems⁵⁷⁻⁶⁰ and that substance users often lack health care coverage, which creates a barrier to accessing health care.²⁸ The Affordable Care Act was intended to reduce health care disparities and a number of studies have suggested it was overall successful in increasing access to health care coverage,^{48,61-62} but less is known about the effects of the ACA on specific vulnerable populations, both in terms of health care coverage and utilization of services. The current study contributes to the existing literature by examining changes in health care coverage among rural substance-using women recently released from jail following the implementation of the ACA and investigating whether being insured was related to health service utilization.

The first objective of this study was to describe health, health service utilization, health care coverage, and source of health care among rural, substance-involved women transitioning from jail to the community before and after implementation of the ACA. Results showed a significant increase (+57.1 percentage points) in the proportion of rural substance-using women with health care coverage following the ACA's implementation, suggesting the ACA had a noteworthy impact on increasing access to health care coverage among this vulnerable, underserved sample, as hypothesized. Research has indicated that, compared with men, insured women are more likely to use health care services, including primary, preventive, and specialty health care services.⁶³ Further, having health care coverage and access to health care is important for women because they often consider themselves responsible for making health care decisions for their families, and those women lacking insurance often forgo care so they are able to pay for their family's health care.⁶⁴ Provided the barriers to accessing health care in low-income, rural areas⁶⁵⁻⁶⁶ and among formerly incarcerated offenders,⁴²⁻⁴³ having health care coverage results in one fewer hurdle to accessing much-needed health services for this population of rural, substance-involved women. While the ACA seems to have had a significant effect on health care coverage among this population in general, future research should examine the ways in which women obtained health care coverage and the motivation for seeking coverage as a way of further increasing access to health care coverage.

In addition to increased insurance rates among participants, results also indicated the ACA was associated with both 1) significant increases in the number of participants reporting they have a usual source of non-emergency, outpatient care and 2) a significant decrease in the use of emergency room services – despite no significant differences in the health status of participants. These findings are noteworthy, particularly when coupled with study results showing that having health care coverage was also significantly associated with having a usual source of health care (at both the bivariate level and in a logistic regression model when controlling for release date, physical health, and sociodemographic characteristics such as age). Existing literature has concluded that individuals who have a regular source of care are more likely to use preventive health care services.⁴⁴⁻⁴⁵ As previously noted, substance users often rely on high-cost emergency medical services due to limited resources and health care coverage,²⁵ but studies have also suggested that increased access to affordable preventive and primary health care allows for the both prevention and early identification of major health problems associated with substance use and abuse, resulting in a decreased reliance on emergency and inpatient medical care.^{24,27} Considering the high costs associated with emergency medical services, including emergency department use for non-urgent care,⁶⁷ reducing the burden on emergency medicine among substance users could potentially lead to an overall decrease in medical expenses.⁶⁸

Further, findings indicating a correlation between having care coverage with having a usual source of health care suggest that perhaps having health care coverage outweighs the reluctance of some substance users to seek health services due to earlier negative experiences in health care settings.⁶⁹ These negative experiences are often the result of the stigma often associated with substance users among health care providers.³⁶ Among women substance users specifically, failure to use health services has been related to fears associated

with providers learning about their substance use and abuse and/or violent relationships associated with the substance-using lifestyle.⁷⁰

Study results also support existing literature highlighting the relationships among age, health problems, and health care. Past research has specifically shown that age is associated with poorer health conditions⁷¹ and decreased functionality,⁷² which in turn is associated with an increase in the use of health care services.⁷³⁻⁷⁵ In view of the fact that existing research has well established that lower-income individuals experience increased barriers to health care, the negative relationship between income prior to incarceration and having a usual source of non-emergency, outpatient health care is possibly the result of income being measured prior to incarceration.⁷⁶⁻⁷⁷ Future research should continue to investigate this relationship with more time-sensitive measures of income.

Despite study results providing both additional support for existing literature and evidence of the benefits of the ACA among previously incarcerated, rural substance-using women, there are limitations that should be considered when interpreting study findings. Specifically, 50 participants (13.5%) were reincarcerated at the time of follow-up while the remaining participants were released and interviewed in the community, potentially creating biases due to the different interview settings. Study findings were also based on self-report data of sensitive information (e.g., health problems) and thus subject to recall bias and accurate self-disclosure, despite participants being consented and assured confidentiality. While existing studies indicate self-report data from criminal offenders and substance users are reliable and valid,⁷⁸⁻⁸⁰ future research should possibly consider secondary data sources such as medical records to avoid the limitations posed by self-report data and biases resulting from interview setting, and to allow for more specificity on health problems.

Future studies should also consider utilizing a longer follow-up interval, such as 6 or 12 months. While 3 months may be an adequate amount of time to enroll in health care coverage, it may not be a sufficient amount of time to establish a regular source of care provided the numerous other hurdles that formerly-incarcerated offenders must navigate during reentry. A longer follow-up interval may provide a better opportunity for capturing differences between groups. Despite this limitation, 3 months has been established by the literature as a high-risk period for offenders re-entering the community and is often used in studies exploring post-release outcomes among formerly incarcerated offenders, particularly substance users.⁸¹⁻⁸³

Further limitations are presented by study recruitment. Participants were recruited from jails in only three Appalachian counties in Kentucky and were largely homogeneous, limiting the generalizability of study results to other underserved populations.

The inclusion of sex risk behavior as one of the eligibility criteria also limits the generalizability of study results to other drug-using, offender populations.

In addition, Kentucky was largely heralded as one of the most successful examples of ACA implementation⁴⁷ with uninsured rates dropping from 40.2% in 2013 to 8.6% in 2015.⁸⁴ Because the implementation of the ACA in Kentucky was overwhelmingly successful, study results may be inflated compared with other states, particularly those that opted not to

expand Medicaid or private health care coverage. Future research should continue to investigate the impact of the ACA in other states that opted not to expand and on other populations that have traditionally been underinsured, including other impoverished, rural, or substance-using populations.

Finally, because the study was implemented prior to ACA legislation, study instrumentation and measures lacked specificity related to the ACA - including access to health care coverage and enrollment. For example, there were no questions specifically asking participants whether they were insured through the state or federal health exchange or if their health care coverage was employer-based. Distinguishing between the two should be considered in future studies investigating the effectiveness of the ACA. In addition, although research staff recently attempted to determine if jail staff, social workers, or volunteers were available to assist participants in enrolling in coverage while still incarcerated, jail staff at each of the facilities were unaware if this was standard practice during the research study's timeframe. Regardless, these results suggest that jails may be an important venue for educating women on the benefits of the ACA. Future research should examine communities that have expanded health care coverage through the ACA by providing information and resources for enrollment in jails and other criminal justice and real-world settings where high-risk, vulnerable, and underserved individuals were targeted.

In spite of these limitations, findings from the present study fill an important gap in the literature – suggesting that among these high-risk populations in impoverished rural communities where health care services are traditionally limited, the ACA has resulted in one fewer barrier to accessing often necessary health care. With increased access to health care services, these findings may have important implications for providers, including provider-based trainings focusing on the reduction of stigma toward substance users and formerly incarcerated offenders and the importance of screening and assessing patients for substance use in primary health care settings. Based on the rates of drug use and abuse and health issues in rural Appalachia, there is a critical need to continue to explore these issues among vulnerable and understudied populations such as rural women. Future studies should specifically explore how the ACA has affected access to different types of care, including substance use treatment, and the distribution of health care services in rural communities and among other vulnerable populations, particularly as these issues relate to health care utilization.

In conclusion, although preliminary, the current study provides additional evidence of the benefits of the ACA, supporting other studies that have shown the implementation of the ACA was followed by a significant increase in health care coverage and decreased reliance on high-cost emergency medical services, particularly in states like Kentucky that have elected to expand Medicaid coverage.⁶¹⁻⁶² These results generate important implications for public health in rural communities, emphasizing the need to provide information about and resources for enrolling in health care to underserved groups, and the importance of utilizing criminal justice venues to access these vulnerable populations. Further, considering an ever-changing political climate, study findings point to the critical need to support initiatives such as the ACA that provide increased access to health care for underserved, vulnerable populations.

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References

1. Obama B United States health care reform: progress to date and next steps Special communication. J Amer Med Assoc. Epub 2016 7 11. doi: 10.1001/jama.2016.9797.
2. Brandon WP, Carnes K. Federal health insurance reform and “exchanges”: recent history. J Health Care Poor U. 2014;25(1):xxxii–lvii.
3. Sommers BD, Gunja MZ, Finegold K, et al. Changes in self-reported insurance coverage, access to care, and health under the Affordable Care Act. J Amer Med Assoc. 2015;314(4):366–74.
4. Smith JC, Medalia C, U.S. Census Bureau. Health insurance coverage in the United States: 2014, current population reports. Washington DC: U.S. Government Printing Office, 2015.
5. Sommers BD, Buchmueller T, Decker SL, et al. The Affordable Care Act has led to significant gains in health insurance and access to care for young adults. Health Aff. 2013; 32(1): 165–174.
6. Uberoi N, Finegold K, Gee E. Health insurance coverage and the Affordable Care Act, 2010–2016. Washington DC: Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation 2016 <https://aspe.hhs.gov/sites/default/files/pdf/187551/ACA2010-2016.pdf> Accessed July 6, 2017.
7. Shartzter A, Garro N, Pellegrini C, Long SK. Changes in insurance coverage, access to care, and health care affordability for women of childbearing age. Washington, DC:Urban Institute, 2016.
8. Ahluwalia IB, Bolen J, Garvin B. Health insurance coverage and use of selected preventive services by working-age women, BRFSS, 2006. J Womens Health. 2007;16(7):935–40.
9. Tjaden K Health disparities between rural and urban women in Minnesota. Minn Med. 2015;98(10):40–3.
10. Hart LG, Salsberg E, Phillips DM, et al. Rural health care providers in the United States. J Rural Health. 2002;18(5):211–32. [PubMed: 12061515]
11. American College of Obstetricians and Gynecologists. Health disparities in rural women (Committee Opinion #586). Obstet Gynecol 2014;123:384–8. Retrieved August 14, 2013 from www.aDa.org/Dubs/info/reDorts/rural-women.Ddf. [PubMed: 24451676]
12. Centers for Disease Control and Prevention. CDC grand rounds: Prescription drug overdoses—a U.S. epidemic. MMWR Morb Mortal Wk/y Rep. 2012; 61:10–13
13. Gfroerer JC, Larson SL, & Colliver JD. Drug use patterns and trends in rural communities. J Rural Health. 2007;23:S10–5.
14. Keyes KM, Cerda M, Brady JE, et al. Understanding the rural-urban differences in nonmedical prescription opioid use and abuse in the United States. Am J Public Health. 2014; 104(2):e52–e59. [PubMed: 24328642]
15. Lambert D, Gale JA, Hartley D. Substance abuse by youth and young adults in rural America. J Rural Health. 2008;24(3):221–8. [PubMed: 18643798]
16. Staton-Tindall M, Webster JM, Oser CB, et al. Drug use, hepatitis C, and service availability: Perspectives of incarcerated rural women. Soc Work Public Health. 2015;30(4):385–396. [PubMed: 25950907]
17. Thomas YF, Compton WM. Rural populations are not protected from drug use and abuse. J Rural Health. 2007;23:S1–3.
18. Villapiano NLG, Winkelman TNA, Kozhimannil KB, et al. Rural and urban differences in neonatal abstinence syndrome and maternal opioid use, 2004 to 2013. JAMA Pediatr. 2016; doi:10.1001/jamapediatrics.2016.3750.
19. Webster JM, Dickson MF, Saman DM, et al. Substance use, criminal activity, and mental health among violent and nonviolent rural probationers. Journal of Addictions & Offender Counseling. 2010;30(2):99–111. [PubMed: 21874101]

20. Galea S, Vlahov D. Social determinants and the health of drug users: Socioeconomic status, homelessness, and incarceration. *Public Health Rep.* 2002;117(S1):S135–S145. [PubMed: 12435837]
21. Hall W, Degenhardt L. Adverse health effects of non-medical cannabis use. *Lancet.* 2009;374:1383–1391. [PubMed: 19837255]
22. Volkow ND, Baler RD, Compton WM, et al. Adverse health effects of marijuana use. *N Engl J Med.* 2014;370(23):2219–2227. [PubMed: 24897085]
23. French MT, McGeary KA, Chitwood DD, et al. Chronic illicit drug use, health services utilization and the cost of medical care. *Soc Sci Med.* 2000;50:1703–1713. [PubMed: 10798326]
24. Laine C, Hauck WW, Gourevitch MN, et al. Regular outpatient medical and drug abuse care and subsequent hospitalization of persons who use illicit drugs. *JAMA.* 2001;285(18):2355–2362. [PubMed: 11343483]
25. Fairbairn N, Milloy M-J, Zhang R, et al. Emergency department utilization among a cohort of HIV-positive injecting drug users in a Canadian setting. *J Emerg Med.* 2012;43(2):236–243. [PubMed: 21719229]
26. French MT, Fang H, Balsa AI. Longitudinal analysis of changes in illicit drug use and health services utilization. *Health Serv Res.* 2011;46(3):877–99. [PubMed: 21143479]
27. Sterk CE, Theall KP, Elifson KW. Health care utilization among drug-using and non-drug-using women. *J Urban Health.* 2002;79(4):586–99. [PubMed: 12468678]
28. Wu L, Ringwalt C. Use of substance abuse services by young uninsured American adults. *Psychiatr Serv.* 2005;56(8):946–53. [PubMed: 16088011]
29. Dechman MK. Peer helpers' struggles to care for "others" who inject drugs. *Int J Drug Policy.* 2015;26:492–500. [PubMed: 25630481]
30. Van Boekel LC, Brouwers EPM, Van Weeghel J, et al. Stigma among health professionals towards patients with substance use disorders and its consequences for healthcare delivery. *Drug Alcohol Depen.* 2013;131:23–5.
31. Maruschak LM, Berzofsky M, Unangst J. Medical problems of state and federal prisoners and jail inmates, 2011–12. Washington, D.C: Bureau of Justice Statistics; 2015.
32. Freudenberg N, Daniels J, Crum M, et al. Coming home from jail: the social and health consequences of community reentry for women, male adolescents, and their families and communities. *Am J Public Health.* 2005;95 (10): 1725–1736. [PubMed: 16186451]
33. Green BL, Miranda J, Daroowalla A, et al. Trauma exposure, mental health functioning, and program needs of women in jail. *Crime Delinq.* 2005;51(5): 133–151.
34. Nijhawan AE, Salloway R, Nunn AS, et al. Preventive healthcare for underserved women: Results from a prison survey. *J Womens Health.* 2010; 19(1): 17–22.
35. Richie B. Challenges incarcerated women face as they return to their communities: Findings from life history interviews. *Crime Delinq.* 2001;47(3):368–389.
36. Freudenberg N. Jails, prisons, and the health of urban populations: A review of the impact of the correctional system on community health. *J Urban Health.* 2001;78(2): 214–235. [PubMed: 11419576]
37. Binswanger IA, Merrill JO, Krueger PM, et al. Gender differences in chronic medical, psychiatric, and substance-dependence disorders among jail inmates. *Am J Public Health.* 2010;100(3):476–482. [PubMed: 19696388]
38. Wilper AP, Woolhandler S, Boyd JW, et al. The health and health care of US prisoners: Results of a nationwide survey. *Am J Public Health.* 2009;99(4):666–672. [PubMed: 19150898]
39. Wright K. Women prisoners and diabetes in the US: Incorporating human rights paradigms to advocate for health provision reform in correctional settings. *Int J Health Wellness Soc.* 2011;1(3): 71–82.
40. Robertson-James C, Nijnez A. Incarceration and women's health: The utility of effective health education programming—a commentary. *Am J Health Educ.* 2012;43(1):2–4.
41. Ruddell R, Mays LG. Rural jails: Problematic inmates, overcrowded cells, and cash-strapped counties. *International Journal of Rural Criminology.* 2011;1(1): 105–131.

42. Kulkarni SP, Baldwin S, Lightstone AS, et al. Is incarceration a contributor to health disparities? Access to care of formerly incarcerated adults. *J Community Health*. 2010;35:9234–9239.
43. Hawkins AS, O'Keefe AM, James X Health care access and utilization among exoffenders in Baltimore: Implications for policy. *J Health Care Poor Underserved*. 2010;35:268–274.
44. Howard J, Solan M, Neptune J, et al. The importance of Medicaid coverage for criminal justice involved individuals reentering their communities. Washington DC/ Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation. 2016 <https://aspe.hhs.gov/system/files/pdf/201476/MedicaidJustice.pdf>. Accessed July 6, 2017.
45. U.S. Government Accountability Office. Medicaid: Information on Inmate Eligibility and Federal Costs for Allowable Services (GAO-14-752R). 2014 <http://www.aao.gov/products/GAO-14-752R>. Accessed June 25, 2017.
46. Cobbina JE. Reintegration success and failure: Factors impacting reintegration among incarcerated and formerly incarcerated women. *J Offender Rehabil*. 2010;49:210–232.
47. Brill S How Kentucky got it right. *Time*. 2014 8 18;184(6):20–5.
48. Garfield R, Licata R, Young K. The uninsured at the starting line: findings from the 2013 Kaiser Survey of Low-Income Americans and the ACA. Menlo Park, CA: Kaiser Family Foundation, 2 2014.
49. Jones RK, Sonfield A. Health insurance coverage among women of reproductive age before and after implementation of the Affordable Care Act. *Contraception*. 2016;93:386–91. [PubMed: 26802569]
50. Salganicoff A, Sobel L. Women, private health insurance, and the Affordable Care Act. *Women Health Iss*. 2016;26(1):2–5.
51. Appalachian Regional Commission ARC. County Economic Status in Appalachia, FY 2016 [www.arc.gov/assets/maDs/related/County-Economic-Status FY2016 Map.pdf](http://www.arc.gov/assets/maDs/related/County-Economic-Status-FY2016-Map.pdf). Accessed July 1, 2016.
52. United States Department of Agriculture. Rural-urban continuum codes. <http://www.ers.usda.gov/Data/RuralUrbanContinuumCodes/>. Accessed October 20, 2013.
53. Staton M, Ciciurkaite G, Havens J, et al. Correlates of injection drug use among rural Appalachian Women. *J Rural Health*. 2017. In press, doi: 10.1111/jrh.12256.
54. NIDA National Institute on Drug Abuse. NIDA Modified-ASSIST. <http://www.drugabuse.gov/nidamed/screenina/>. Accessed October 20, 2013.
55. Dickson MF, Staton-Tindall M, Smith KE, et al. A Facebook follow-up strategy for rural drug-using women. *J Rural Health*. 2016;33(3):250–256. [PubMed: 27467119]
56. Menard S Applied logistic regression analysis, second edition Sage university paper series on quantitative applications in the social sciences, 07–106. Thousand Oaks, CA: Sage, 2001.
57. Degenhardt L, Hall W. Extent of illicit drug use and dependence, and their contribution to the global burden of disease. *Lancet*. 2012;379(9810): 55–70. [PubMed: 22225671]
58. Ahern J, Stuber J, Galea S. Stigma, discrimination and the health of illicit drug users. *Drug Alcohol Depend*. 2007;88(2-3): 188–196. [PubMed: 17118578]
59. Freudenberg N, Daniels J, Crum M, et al. Coming home from jail: The social and health consequences of community reentry for women, male adolescents, and their families and communities. *Am J Public Health*. 2005;95(10): 1725–1736. [PubMed: 16186451]
60. Wolfe D, Carrieri MP, Shepard D. Treatment and care for injecting drug users with HIV infection: a review of barriers and ways forward. *Lancet*. 2010;376(9738):355–366. [PubMed: 20650513]
61. Han X, Nguyen BT, Drape J, et al. Health-related outcomes among the poor: Medicaid expansion vs. non-expansion states. *PLoS One*. 2015;10(12):e0144429. doi: 10.1371/journal.pone.0144429. [PubMed: 26720311]
62. Wen H, Druss BG, Cummings JR. Effect of Medicaid expansions on health insurance coverage and access to care among low-income adults with behavioral health conditions. *Health Serv Res*. 2015;50(6): 1787–1809. [PubMed: 26551430]
63. Kaiser Family Foundation. Women's health insurance coverage: 2016 fact sheet. <http://files.kff.org/attachment/fact-sheet-womens-health-insurance-coverage> Accessed September 13, 2016.

64. Matoff-Stepp S, Applebaum B, Pooler J, et al. Women as health care decision-makers: implications for health care coverage in the United States. *J Health Care Poor U*. 2014;25(4): 1507–13.
65. McBride TD. Uninsured spells of the poor: prevalence and duration. *Health Care Financ R*. 1997;19(1):145–60.
66. Kushel MB, Gupta R, Gee L, et al. Housing instability and food insecurity as barriers to health care among low-income Americans. *J Gen Intern Med*. 2006;21(1):71–77. [PubMed: 16423128]
67. Blewett LA, Johnson PJ, Lee B, et al. When a usual source of care and usual provider matter: Adult prevention and screening services. *J Gen Intern Med*. 2008;23(9):1354–1360. [PubMed: 18506542]
68. Chitwood DD, Sanchez J, Comerford M, et al. Primary preventive health care among injection drug users, other sustained drug users, and non-users. *Subst Use Misuse*. 2001;36(6&7):807–824. [PubMed: 11697612]
69. Neale J, Tompkins C, Sheard L. Barriers to accessing generic health and social care services: a qualitative study of injecting drug users. *Health Soc Care Community*. 2008; 16(2):147–154. [PubMed: 18290980]
70. Staton M, Leukefeld C, Logan TK. Health service utilization and victimization among incarcerated female substance users. *Subst Use Misuse*. 2001;36(6&7):701–716. [PubMed: 11697606]
71. Michelson H, Bolund C, Nilsson B, et al. Health-related quality of life measured by the EORTC QLQ-C30—reference values from a large sample of Swedish population. *Acta Oncol*. 2000;39(4): 477–484. [PubMed: 11041109]
72. Wensing M, Vingerhoets E, Grol R. Functional status, health problems, age and comorbidity in primary care patients. *Qual Life Res*. 2001;10(2):141–148. [PubMed: 11642684]
73. Arcury TA, Preisser JS, Gesler WM, et al. Access to transportation and health care utilization in a rural region. *J Rural Health*. 2005;21:31–38. [PubMed: 15667007]
74. Field K, Briggs D. Socio-economic and locational determinants of accessibility and utilization of primary health-care. *Health Soc Care Community*. 2001;9(5):294–308. [PubMed: 11560745]
75. Glynn LG, Valderas JM, Healy P, et al. The prevalence of multimorbidity in primary care and its effect on health care utilization and cost. *Fam Pract*. 2011;28(5):516–523. [PubMed: 21436204]
76. Callahan ST, Cooper WO. Uninsurance and health care access among young adults in the United States. *Pediatrics*. 2005;116(1):88–95. [PubMed: 15995037]
77. Ross JS, Bradley EH, Busch SH. Use of health care services by lower-income and higher-income uninsured adults. *JAMA*. 2006;295(17):2027–2036. [PubMed: 16670411]
78. Johnson M, Fisher D, Montoya I, et al. Reliability and validity of not-in-treatment drug users' follow-up self-reports. *AIDS Behav*. 2000;4(4):373–380
79. Solbergdottir E, Bjornsson G, Gudmundsson L, et al. Validity of self-reports and drug use among young people seeking treatment for substance abuse or dependence. *J Addict Dis*. 2004;23(1):29–38. [PubMed: 15077838]
80. Thornberry TP, Krohn MD. The self-report method for measuring delinquency and crime In: Dufee D, ed. *Measurement and analysis of crime and justice: Criminal justice 2000* Washington, DC: U.S. Department of Justice; 2000:33–84.
81. James C, Stams GJJM, Asscher JJ, et al. Aftercare programs for reducing recidivism among juveniles and young adult offenders: A meta-analytic review. 2013;33:263–274.
82. Kinlock TW, Gordon MS, Schwartz RP, et al. A study of methadone maintenance for male prisoners: 3-month post release outcomes. *Crim Justice Behav*. 2008;35(1):34–47. [PubMed: 18612373]
83. Scott CK, Dennis ML. The first 90 days following release from jail: Findings from the Recovery Management Checkups for Women Offenders (RMCWO) experiment. *Drug Alcohol Depend*. 2012;125(1-2):110–118. [PubMed: 22542465]
84. Sommers BD, Blendon RJ, Orav J, et al. Changes in utilization and health among low-income adults after Medicaid expansion or expanded private insurance. *JAMA Intern Med*. 2016. doi: 10.1001/jamainternmed.2016.4419.

TABLE 1.

Descriptive Information (N = 371)

Variables	N (%)
Sociodemographics	
Age (M, SD)	32.6 (8.2)
% White	367 (98.9%)
% married or living as married during 3 month follow-up period	128 (34.5%)
Years of education (M, SD)	11.1 (2.2)
% employed at least part time during 3 month follow-up period	58 (15.6%)
Income in 6 months prior to incarceration (M, SD)	\$7,945.57 (\$15,726.35)
% released after ACA went into effect (January 1, 2014)	256 (69.0%)
Health & Health Services	
% insured at least one month during the 3 month follow-up period	246 (66.3%)
# of days bothered by health problems during 3 month follow-up period (M, SD)	18.1 (32.0)
% had place they went to if sick or needed health advice during the 3 month follow-up period	144 (38.8%)
% currently being treated for a health problem	91 (24.5%)
% went to ER for health problems during the 3 month follow-up period	68 (18.3%)
% went to substance use treatment program during the 3 month follow-up period	73 (19.7%)
Availability of services (1=not at all available, 10=extremely available; M, SD)	7.3 (2.6)

TABLE 2.

Health, Health Insurance, and Health Services by Release Date (N = 371)

	Released Pre-ACA (n = 115)	Released Post-ACA (n = 256)
Sociodemographics		
Age (M) **	30.9	33.4
% White	98.3%	99.2%
% married or living as married during 3-month follow-up period	40.0%	32.0%
Years of education (M)	11.3	11.0
% employed at least part-time during 3-month follow-up period	17.4%	14.8%
Income in 6 months prior to incarceration (M) *	\$11,215.81	\$6,476.52
Health & Health Services		
# of days bothered by health problems during 3 month follow-up period (M)	17.8	18.3
% insured for at least one month during 3 month follow-up period ***	27.0%	84.0%
% have usual source of non-emergency, outpatient health care *	30.4%	41.4%
% currently being treated for a health problems	21.7%	25.8%
% went to ER for health problems during the 3 month follow-up period *	24.3%	15.6%
% went to substance use treatment program during the 3 month follow-up period	20.9%	19.1%
Availability of services (M; 1=not at all available, 10=extremely available)	7.0	7.5

* $p < .05$;** $p < .01$;*** $p < .001$

Note: Participants who were released from jail prior to January 2014 were considered pre-ACA while women who were released from jail on or after January 1, 2014 were post-ACA.

TABLE 3.

Usual Source of Non-Emergency, Outpatient Health Care Compared to No Source of Care, 3 month Follow-Up (N = 371)

	Usual Source of Care (n = 141)	No Source of Care (n = 230)
Sociodemographics		
Age (M) ***	35.0	31.2
% White	99.3%	98.7%
% married or living as married during 3-month follow-up period	36.9%	33.0%
Years of education (M)	10.9	11.2
% employed at least part-time during 3-month follow-up period	12.8%	17.4%
Income in 6 months prior to incarceration (M) ***	\$4,682.88	\$9,945.74
% released after ACA went into effect (January 1, 2014) *	75.2%	65.2%
Health & Health Coverage		
# of days bothered by health problems during 3 month follow-up period (M) ***	27.3	12.5
% insured for at least one month during 3 month follow-up period ***	83.7%	55.7%

*
p .05;

**
p .01

p .001

Logistic Regression Predicting Having a Usual Source of Non-Emergency, Outpatient Care at 3 month Follow-Up (N = 371)

TABLE 4.

	B	S.E.	Odds Ratio	95% CI
Age ^{**}	.05	.02	1.05	1.02 – 1.08
Income in 6 months prior to incarceration [*]	-.04	.02	.96	.92 – .99
# of days bothered by health problems during 3 month follow-up period ^{**}	.01	.004	1.01	1.00 – 1.02
Insured for at least one month during 3 month follow-up period ^{***}	1.71	.36	5.52	2.72 – 11.19
Released after ACA	-.63	.34	.53	.27 – 1.04
Insured for at least one month during the 3 months prior to baseline	-.19	.28	.83	.48 – 1.42

* *p* .05;** *p* .01;*** *p* .001