Title

Young Adult Preventive Healthcare: Changes in Receipt of Care Pre- to Post-Affordable Care Act

Journal

Journal of Adolescent Health, 64(6)

ISSN

1054-139X

Authors

Adams, Sally H
Park, M Jane
Twietmeyer, Lauren
et al.

Publication Date

2019-06-01

DOI

10.1016/j.jadohealth.2018.12.004

Peer reviewed

Journal of Adolescent Health xxx (2018) 1–7

ELSEVIER

JOURNAL OF ADOLESCENT HEALTH

www.jahonline.org

Original article

Young Adult Preventive Healthcare: Changes in Receipt of Care Pre- to Post-Affordable Care Act

Sally H. Adams, Ph.D. [a,*], M. Jane Park, M.P.H. [a], Lauren Twietmeyer, M.P.H. [a], Claire D. Brindis, Dr.P.H [a,b], and Charles E. Irwin Jr., M.D. [a]

[a] *Division of Adolescent and Young Adult Medicine, Department of Pediatrics, UCSF Benioff Children's Hospital, University of California, San Francisco, San Francisco, California*
[b] *Philip R. Lee Institute for Health Policy Studies, University of California, San Francisco, San Francisco, California*

Article history: Received August 23, 2018; Accepted December 4, 2018
Keywords: Preventive care; Preventive visit; Preventive services; Young adults; ACA

A B S T R A C T

Purpose: Young adults have unique health and health care needs. Although morbidity and mortality stem largely from preventable factors, they lack a structured set of preventive care guidelines. The Affordable Care Act (ACA), enacted in 2010, increased young adult insurance coverage, prohibited copayments for preventive visits among privately insured and for many preventive services. The objectives were to evaluate pre- to post-ACA changes in young adults' past-year well visits and, among those using a past-year health care visit, the receipt of preventive services.
Methods: We used pooled Medical Expenditure Panel Survey data, comparing pre-ACA (2007–2009, N = 10,294) to post-ACA (2014–2016, N = 10,567) young adults aged 18–25 years. Bivariable and multivariable stratified logistic regression, adjusting for sociodemographic covariates, were conducted to determine differences in well visits and in preventive services among past-year health care utilizers: blood pressure and cholesterol checks, influenza immunization, and all three received.
Results: Past-year well visits increased from pre-ACA (28%) to post-ACA (32%), $p < .001$. Increases were noted for most demographic subgroups with greatest increases among males, Asian, and highest income subgroups. Larger pre- to post-ACA increases were found for most of the preventive services, $p < .05$, including the receipt of all three services (7% vs. 16%), $p < .001$, among past-year health care utilizers.
Conclusion: Following ACA implementation, young adults experienced modest increases in well visit rates and larger increases in most preventive services received. Overall rates of both remain low. Building on these improvements requires concerted efforts that account for young adults' unique combination of health care issues and challenges in navigating an adult health care system.

IMPLICATIONS AND CONTRIBUTION

Since passage of the ACA, rates of well visits for young adults have increased although sociodemographic disparities remain. In contrast, preventive services increased at a greater pace, and in many cases, minority and underserved young adults have shown greater advances in services receipt than their more privileged peers.

Young adults, often defined as those aged 18–25 years, have unique health and health care needs. The major health issues of young adulthood include behavior-related concerns, including substance use, reproductive health, and injury, and the emergence of chronic conditions, including obesity and mental health disorders [1]. Although these health indicators generally mirror health issues of adolescence, they are generally worse among young adults [2]. Furthermore, young adults must navigate a health care system that differs significantly from that serving adolescents. A landmark 2014 young adult report from the Institute of Medicine (IOM; renamed the National Academy of Medicine) describes challenges for young adults, including

Conflicts of interest: The authors have no conflicts of interest to disclose.
This article has been approved by all authors, is not under review at any other journal, and if accepted, will not be published in any other venue.

* Address correspondence to: Sally H. Adams, Ph.D., University of California, San Francisco, 3333 California Street, Suite 245, San Francisco, CA 94118.
E-mail address: Sally.Adams@ucsf.edu (S.H. Adams).

1054-139X/
https://doi.org/10.1016/j.jadohealth.2018.12.004

insurance access, discontinuities in care, and lack of adult providers trained to serve young adults [3]. Research shows lower rates of health care utilization for young adults than adolescents [2,4,5] and slightly older adults [6].

The 2014 IOM young adult report recommended the development of preventive services guidelines [3]. Ozer et al. [7] identified a set of evidence-based and consensus young adult preventive services recommendations including recommendations from the U.S. Preventive Services Task Force (USPSTF), Center for Disease Control and Prevention (CDC), American College of Obstetricians and Gynecologists, and *Bright Futures Guidelines for Health Supervision of Infants, Children, and Adolescents*, which offers recommendations through age 21 years. The evidence-based recommendations from USPSTF address several key areas of young adult health including screening related to alcohol and tobacco use, sexually transmitted infections, and depression [8]. A new study, using nationally representative data, found greater preventive services receipt among young adults and adolescents who attended a past-year well visit compared with those who attended a nonpreventive visit [5]. These findings were significant across a range of services, providing evidence that the well visit is an effective strategy for increasing receipt of preventive services. Despite this evidence supporting the delivery of preventive services within a preventive care visit, preventive visit and services rates remain low for both adolescents and young adults [2,4,5].

The Affordable Care Act (ACA), enacted in 2010, included a provision mandating that most private plans provide dependent coverage to age 26 years, building on similar laws in 37 states that expanded dependent coverage prior the ACA's passage [9]. Several ACA provisions aimed to increase receipt of preventive services for all ages. For adults (including young adults) who are covered by most private insurers and by Medicaid in states that opted to expand their Medicaid program, the law prohibits copayments for several categories of preventive services. These services include Grade A and B services recommended by the USPSTF, vaccinations recommended by the CDC, and services included in the Women's Preventive Services Guidelines issued by the Health Resources and Services Administration [9]. Early evaluation (2011, 2012) of young adults' preventive care post-ACA shows mixed results. Two studies showed increased rates of past-year well visits [10,11] and two did not [12,13]. Evaluation of post-ACA-specific preventive services received among young adults also yielded mixed results. Studies showed increases in HPV vaccination [14] and blood pressure and cholesterol screening [10], as well as no increase in flu shots [10,12]. There is scant information about demographic variation in young adult preventive care. One study found that well visit rates were higher for females, black young adults, publicly insured and higher income groups [11]. A recent analysis of adolescent post-ACA changes (years 2012–2014) in preventive care received found modest to moderate increases in receipt of the well visit and of several preventive services, with the greatest gains for underserved youth [15]. However, there has been no recent assessment of changes for the young adult population.

In this context, the present study aims to provide an updated evaluation of the ACA's effect on preventive care among young adults. The present analysis used Medical Expenditure Panel Survey (MEPS) data from years 2007–2009 (pre-ACA) and 2014–2016 (post-ACA) to identify pre- to post-ACA changes in (1) past-year preventive visits and (2) a limited set of preventive services among those who attended any past-year health care visit. Demographic subgroup differences were examined in both objectives.

Methods

Study design and sampling

MEPS is a set of household surveys of health, insurance coverage, and health care utilization and expenditures for the United States civilian noninstitutionalized population. Sponsored by the Agency for Healthcare Research and Quality, MEPS is conducted annually and uses an overlapping panel design in which respondents participate for 2 years, and a new panel of respondents is enrolled each year. Our analysis used three MEPS data sets: Full-Year Consolidated Data; Office-Based Medical Provider Visits; and Outpatient Visit files. We pooled 3 years of data (2007–2009) to represent the pre-ACA period and 3 years (2014–2016) to represent the post-ACA period. The MEPS yearly response rates ranged from a high of 60% in 2007 to a low of 46% in 2016. This study protocol was approved by the Committee on Human Research at University of California, San Francisco, under the exempt status.

Participants

This analysis of young adult health care used the 18- to 25-year-old MEPS subsample. The pre-ACA pooled data set (2007–2009) consisted of 10,294 young adults, and the post-ACA (2014–2016) consisted of 10,567, for a full sample size N = 20,861, ensuring an adequate sample for multivariable analyses. One household member is designated the respondent for the entire family unit: typically, a parent or caregiver with the greatest knowledge of the family's health care utilization. The 18- to 25-year-old age group was selected to capture changes related to the dependent coverage provision for young adults on their parent's insurance.

Objective 1: Did young adult well visits increase from pre-ACA (2007–2009) to post-ACA (2014–2016)?

The outcome variable was the following: receipt of a well visit versus not, coded from medical office-based and outpatient health care visits reported by respondents. MEPS participants maintain records including calendars to track their health care visits. Information obtained included visit dates, provider type and name, and main reason for visit. Health care visits were coded as a well care visit if the main reasons for the visits were a general checkup or receipt of immunizations or shots [16]. The well care visit coding was (1) having at least one of those visits versus (2) neither type of visits. Separate evaluations of variation in well visits for the years pre-ACA years 2007–2009 and the post-ACA years 2014–2016 indicated no significant differences.

The independent variables were the survey years recoded into either pre-ACA (years 2007–2009) or the post-ACA (2014–2016) periods. Well visit rates were presented for gender, race/ethnicity, income level, and health insurance status subgroups. MEPS data included gender, race/ethnicity, and income group variables. Race/ethnicity was coded as non-Hispanic white (referred to as white), non-Hispanic black (referred to as black), non-Hispanic Asian (referred to as Asian), Hispanic, and non-Hispanic Other. The non-Hispanic Other subgroup was included in the primary outcomes but not in the stratified

subgroup analyses. Income levels included the following for four Federal Poverty Level (FPL) categories: 1 ≤ 100% FPL; 2 = 100% to <200% FPL; 3 = 200% to <400% FPL; and 4 = ≥400% FPL. Insurance status was recoded from monthly insurance to a past-year variable: (1) full-year private coverage was 12 months of private insurance coverage; (2) full-year public coverage was 12 months of public coverage; (3) partial-year coverage was at least 1 month but less than 12 months of coverage of any type; and (4) full-year uninsured was lack of any insurance for the full 12 months. Those with 12 months of insurance either with both private and public insurance or some combination were retained in the analyses but were excluded from specific comparisons to other groups because of their small numbers.

Covariate variables included age, sex, geographic region, race/ethnicity (excepting the stratified race/ethnicity outcomes), income group (excepting the stratified income group analyses), and insurance status (excepting the stratified insurance group analyses).

Objective 2: Did preventive services rates for young adults increase from pre- to post-ACA among those with any past-year health care visit?

This analysis used the subsample of MEPS young adults who had attended any past-year health care visit; MEPS 2007–2009 (N = 5,304) and MEPS 2014–2016 (N = 5,524), for a total of 10,828 young adults. Outcome variables were young adults' reports of receipt of preventive services in the past year. Preventive service variables were selected based on the following criteria: available in the six analytic years; able to be provided within or concurrently with a medical visit; available for adults aged older than 17 years; able to evaluate past-year receipt; and recommended for young adults or related to young adult health risk/morbidity. We included the following: blood pressure assessed and cholesterol checked, as these services are related to obesity, which occurs among more than one third of young adults [17]; received influenza shot because this is recommended by the CDC. We included assessment of receipt of all three services, coded as all services received versus not received. The independent variable was pre-ACA versus post-ACA status, which is described in Objective 1. Rates for preventive services and all three received were presented for gender, race/ethnicity, income level, and health insurance status subgroups. Covariate variables are the same as those described in Objective 1 Covariates.

Statistical analysis

All analyses included using statistical weights providing estimates that reflect national population totals. These weights are equal to the inverse of the sampling probability for each case, adjusted for nonresponse. For Objectives 1 and 2, we conducted the following: pre-ACA to post-ACA analyses of stratified past-year young adult well visits (full sample) and preventive services (past-year health care utilizers) estimates; and bivariable and multivariable logistic regression analyses for these outcomes, including stratified analyses of sex, race/ethnicity, income, and insurance status, to determine pre-ACA to post-ACA differences. The multivariable analyses were conducted to adjust for covariates. Analyses were conducted using SAS and SUDAAN statistical software that takes into account the MEPS complex survey design.

Results

In the chi-square analysis of young adult demographic differences from pre- to post-ACA, only race/ethnicity and insurance status varied significantly. Significant percentage point increases were identified within the Asian (2% increase, $p < .01$), Hispanic (3%, $p = .001$), and Other (1%, $p < .01$) subgroups. A decrease was noted in the white subgroup (7%, $p < .001$). Among insurance status subgroups, both full-year private and full-year public rates increased (11 and 5 percentage points, respectively, both $p < .001$). Both partial- and full-year uninsured rates decreased (5 and 12 percentage points, respectively, both $p < .001$; Table 1).

Objective 1: pre- to post-ACA differences in past-year well visit rates

Well visit rates increased significantly from pre-ACA (28%) to post-ACA (32%), $p < .001$ (Table 2). There were significant subgroup increases pre-ACA to post-ACA rates among males (17% vs. 23%), respectively, $p < .001$. Pre- to post-ACA rates increased within most racial/ethnic subgroups: white young adults (32% vs. 37%), $p < .01$, which remained significant $p < .05$ in the adjusted analysis; Asian young adults (23% vs. 36%), $p < .01$ in both unadjusted and adjusted analyses (when both unadjusted and adjusted analyses retain same significance level, will be referred to as "both"); and Hispanic young adults (17% vs. 23%), unadjusted $p < .001$ and adjusted $p < .05$. Rates within FPL subgroups increased significantly for all groups except the lowest income group in the unadjusted analyses; however only increases for the ≥400% subgroup (33% vs. 40%) remained significant in the adjusted analyses, $p < .01$. Well visit rates increased significantly for the full-year privately insured group only (35% vs. 38%), both $p < .05$.

Objective 2: pre- to post-ACA differences in past-year preventive service rates among those with any past-year health care visit

Past-year receipt of all three preventive services—blood pressure and cholesterol checks and flu shot—(7% vs. 16%) increased significantly from pre- to post-ACA, both $p < .001$ (Table 3). Within subgroups, all individual groups showed significant increases in both unadjusted and adjusted analyses. Within sex, females showed the greatest increase (8% vs. 18%), both $p < .001$. Within racial/ethnic groups, the greatest increases were found for black (8% vs. 18%) and Hispanic (9% vs. 19%) subgroups, all $p < .001$. Within the income group, the second lowest group (100%–200% FPL) showed the greatest increase (5% vs. 16%), both $p < .001$. Within the insurance group, those with full-year public insurance showed the greatest increase (10% vs. 23%), $p < .001$. Absolute post-ACA rates for having receipt of all three measures were higher in minority, lower income, and full-year publicly insured subgroups than for their peers with greater resources.

Past-year receipt of a blood pressure check (83% vs. 86%) increased from pre- to post-ACA, both $p < .001$ (Appendix Table 1). The greatest significant increases within the subgroups were seen for males (76% vs. 81%), white young adults (84% vs. 88%), the second lowest income group (100 to <200% FPL; 79% vs. 84%), the highest income group (≥400% FPL; 83% vs. 88%), and the full-year privately insured group (84% vs. 88%), all $p < .01$.

Table 1
Rates and differences in demographic factors among young adults (aged 18–25 years): Medical Expenditure Panel Survey pre-ACA (2007–2009) and post-ACA (2014–2016)

Variable	Pre-ACA years 2007–2009 weighted % (unweighted N)	Post-ACA years 2014–2016 weighted % (unweighted N)	Chi square *p* value
Sample N	10,294	10,567	
Sex			.38
Male	51.8 (5,082)	50.7 (5,254)	.31
Female	48.2 (5,212)	49.3 (5,313)	.31
Race/ethnicity			.0005
White	60.0 (3,923)	53.4 (3,090)	<.001
Black	14.2 (2,124)	14.4 (2,329)	.77
Asian	4.5 (616)	6.1 (707)	.008
Hispanic	18.6 (3,330)	21.8 (4,013)	.001
Other	2.9 (301)	4.3 (428)	.004
Income group			.67
<100% FPL	17.8 (2,558)	17.3 (2,650)	.56
100 to <200% FPL	19.7 (2,536)	19.9 (2,699)	.84
200 to <400% FPL	32.1 (3,059)	31.2 (3,153)	.37
≥400% FPL	30.4 (2,141)	31.6 (2,065)	.31
Insurance status			<.001
Full-year private insurance	42.8 (3,534)	53.6 (4,170)	<.001
Full-year public insurance	9.5 (1,347)	14.0 (2,219)	<.001
Partial-year uninsured	21.4 (2,311)	16.6 (2,032)	<.001
Full-year uninsured	25.0 (2,935)	13.0 (1,836)	<.001
Full-year private and public insurance	.52 (53)	1.4 (123)	<.001
Full-year insured with either private or public insurance	.79 (77)	1.5 (141)	.001
Region			.92
Northeast	17.9 (1,561)	17.6 (1,668)	.95
Midwest	21.6 (1,972)	20.7 (1,909)	.51
South	36.7 (3,838)	37.2 (3,854)	.76
West	23.8 (2,923)	24.6 (3,136)	.75

ACA = Affordable Care Act; FPL = Federal Poverty Level.

Past-year receipt of a cholesterol check (29% vs. 42%) increased from pre- to post-ACA, both $p < .001$ (Appendix Table 2). The greatest increases within subgroups were among females (30% vs. 44%), black young adults (40% vs. 54%), those in the 100 to <200% FPL group (26% vs. 41%), and those with full-year public insurance (33% vs. 50%), all $p < .01$.

Past-year receipt of a flu shot (21% vs. 34%) increased from pre- to post-ACA, both $p < .001$ (Appendix Table 3). The greatest increases within subgroups were females (23% vs. 36%), Asian young adults (24% vs. 44%), those in the 100 to <200% FPL group (18% vs. 32%), and those with full-year public insurance (26% vs. 39%), all $p < .001$.

Discussion

Significant improvements in the health care delivered to young adults since implementation of the ACA were shown: modest increases in past-year well visits and greater increases in the provision of most of the preventive services measured and all three received. Still of concern, fewer than one in three young adults had past-year well visits in 2014–2016.

Well visit rates increased across most of the racial/ethnic subgroups, with 5% increases for white and Hispanic subgroups, and a greater increase for the Asian subgroup (13%). The finding that, among income subgroups, well visits increased significantly only for the highest income group is consistent with other studies showing that families with higher incomes use preventive health care more frequently than those in lower income groups [18]. Similarly, the study found that well visit rates within insurance subgroups only increased for the full-year privately insured group, which may be related to the ACA provision of no copayments for well visits within private insurance plans. Despite gains for many subgroups post-ACA, disparities persist overall for minority and underserved young adult groups in post-ACA well visit rates.

Although insurance coverage is an important component of accessing well visits, our finding that fewer than 40% those with full-year private coverage attended a well visit indicates it is not sufficient. Continued effort needs to address additional utilization barriers. Research on adolescents shows that lower well visit rates are associated with parental perceptions that seeking medical care is unnecessary if one does not have health problems and that the family cannot afford to seek medical care [19]. We are unaware of any parallel studies describing barriers to young adults accessing well visits. Focus group research, conducted by Young Invincibles, a nonprofit organization providing insurance and preventive care resources for young adults, shows that parents play a role in supporting their young adults to enroll in insurance and attend a well visit [20]. Increasing utilization may depend on promotional and educational efforts to young adults and their families regarding the benefits of young adult preventive care. The 4% increase in well visits for young adults is lower than the 7% increase among adolescents noted in a similar ACA analysis [15]. The disparate rates may be related to the challenges young adults face in using the health care system described in the 2014 IOM report. Low rates of young adult well visits decrease their likelihood of receiving recommended screening, guidance, and referrals that could occur in well visits.

Our finding that 32% of young adults had well visits in the post-ACA period of 2014–2016 yields lower post-ACA rates than those reported in earlier research, which report post-ACA well visit rates in the 50%–55% range [10,11,13]. Increases in rates may be occurring over time post-ACA. These higher rates are likely

Table 2
Rates and differences in the receipt of a past-year well visit among young adults (aged 18–25 years): Medical Expenditure Survey pre-ACA (2007–2009) and post-ACA (2014–2016)

	Received well visit 2007–2009 (%[b])	Received well visit 2014–2016 (%)	Change from 2007–2009 to 2014–2016 OR** (95% CI) (Model 1)[a]	Change from 2007–2009 to 2014–2016 aOR (95% CI) (Model 2)[a]
Sample N	10,294	10,567		
Total sample (%)	27.7	32.1	1.23 (1.13–1.34)***	1.18 (1.08–1.29)***
Sex				
Male	17.1	22.7	1.43 (1.24–1.65)***	1.36 (1.17–1.57)***
Female	39.2	41.7	1.11 (.99–1.24)	1.07 (.96–1.19)
Race/ethnicity				
White	31.9	36.6	1.23 (1.09–1.39)**	1.14 (1.01–1.30)*
Black	24.7	28.0	1.19 (.99–1.43)	1.14 (.95–1.36)
Asian	23.0	35.5	1.84 (1.27–2.66)**	1.81 (1.24–2.64)**
Hispanic	17.3	22.6	1.39 (1.17–1.66)***	1.23 (1.03–1.47)*
Income group				
<100% FPL	25.2	27.0	1.09 (.92–1.31)	.99 (.82–1.20)
100 to <200% FPL	23.3	27.4	1.24 (1.04–1.48)*	1.18 (.98–1.42)
200 to <400%	27.2	30.4	1.17 (1.00–1.36)*	1.16 (1.00–1.36)
≥400% FPL	32.7	39.5	1.34 (1.14–1.58)***	1.29 (1.09–1.52)**
Insurance status				
Full-year private insured	34.8	37.7	1.13 (1.00–1.28)*	1.17 (1.03–1.32)*
Full-year public insured	37.6	34.3	.87 (.71–1.07)	.94 (.76–1.15)
Partial-year uninsured	25.8	24.3	.92 (.77–1.10)	1.00 (.83–1.21)
Full-year uninsured	13.2	13.2	1.00 (.77–1.28)	1.04 (.79–1.36)

ACA = Affordable Care Act; aOR = adjusted odds ratio; CI = confidence interval; FPL = Federal Poverty Level; OR =odds ratio.
*$p < .05$; **$p < .01$; ***$p < .001$.
[a] Model 1 data are given as OR (95% CI) and include years; Model 2, aOR (95% CI) and includes years, controlling for age, sex (except sex analyses), race/ethnicity (except race/ethnicity analyses), income (except income analyses), insurance status (except insurance analyses), and region.
[b] Referent group.

due to the different survey methodology used: instead of using the rate constructed from records of specific health care visits used here, these studies used single-item measures asking respondents about how long it had been since the respondent had a routine checkup, with coding for "within the past year." Evaluation of variations in young adult well visit rates across several national surveys, conducted using data from 2011, found that rates from the MEPS single-item and the BRFSS single-item

Table 3
Young adult rates and differences from pre-ACA (2007–2009) to post-ACA (2014–2016) in receiving all three preventive services among those who attended any health care visit in the past year (ages 18–25 years): Medical Expenditure Panel Survey

	Received all three services 2007–2009 (%[b])	Received all three services 2014–2016 (%)	Change from 2007–2009 to 2014–2016 OR (95% CI) (Model 1)[a]	Change from 2007–2009 to 2014–2016 aORs (95% CI) (Model 2)[a]
Sample N	5,304	5,524		
Total sample (%)	7.2	16.1	2.5 (2.1–3.0)***	2.4 (2.0–2.9)***
Sex				
Male	5.9	13.3	2.4 (1.8–3.3)***	2.4 (1.7–3.3)***
Female	8.1	18.1	2.5 (2.0–3.1)***	2.5 (1.9–3.1)***
Race/ethnicity				
White	6.6	14.5	2.4 (1.9–3.2)***	2.4 (1.8–3.2)***
Black	7.8	18.1	2.6 (1.8–3.8)***	2.7 (1.8–3.9)***
Asian	9.8	20.2	2.3 (1.2–4.7)*	2.8 (1.4–5.7)**
Hispanic	8.8	19.2	2.5 (1.8–3.4)***	2.5 (1.8–3.5)***
Income group				
<100% FPL	8.4	17.2	2.3 (1.6–3.2)***	2.3 (1.6–3.4)***
100 to <200% FPL	4.7	15.9	3.8 (2.6–5.6)***	3.7 (2.5–5.4)***
200 to <400%	7.3	16.4	2.5 (1.9–3.4)***	2.5 (1.8–3.4)***
≥400% FPL	7.9	15.5	2.1 (1.5–3.1)***	2.1 (1.5–3.1)***
Insurance status				
Full-year private insured	8.1	14.6	1.9 (1.5–2.5)***	1.9 (1.5–2.5)***
Full-year public insured	10.3	22.8	2.6 (1.7–3.9)***	2.6 (1.7–3.9)***
Partial-year uninsured	5.6	14.8	2.9 (2.0–4.3)***	2.8 (1.9–4.2)***
Full-year uninsured	4.1	9.6	2.5 (1.3–4.8)**	2.3 (1.1–4.7)*

ACA = Affordable Care Act; aOR = adjusted odds ratio; CI = confidence interval; FPL = Federal Poverty Level; OR =odds ratio.
*$p < .05$; **$p < .01$; ***$p < .001$.
[a] Model 1 data are given as OR (95% CI) and include years; Model 2, aOR (95% CI) and includes years, controlling for age, sex (except sex analyses), race/ethnicity (except race/ethnicity analyses), income (except income analyses), insurance status (except insurance analyses), and region.
[b] Referent group.

measures were 23% and 31% points higher, respectively, than the more conservative MEPS measure, constructed from records of health care visits [4].

This study found sizable increases in the receipt of most of the individual preventive services as well as for receipt of all three services. All three services received rate more than doubled, increasing to 16%; cholesterol checks increased by roughly half to 42%; and flu shots increased by half to 29%. Present increases blood pressure and cholesterol checks among past-year health care utilizers, extend findings from a previous MEPS analysis comparing pre- to post-ACA differences among all young adults [10]. Our findings or increased receipt of flu shots does not extend the earlier findings in which flu shots for the full sample did not increase.

Our finding of increases in flu shots may be due in part to changes that took place in 2009, at which time the CDC initiated the recommendation for annual flu shots.

In analyses of both the well visit and the preventive services, rates did not change when covariates including health insurance were controlled, thus indicating that increases were related to factors other than insurance status. We think that the ACA's focus on preventive health may be influencing families, providers, and systems to place more emphasis on preventive care. Parents and young adults may have increased awareness of the importance and affordability of young adult well visits. Health care systems and providers may be improving systems and reminders to include preventive services in their outreach, guidance, and other care to patients. Although the preventive services we assessed could also be accessed outside the traditional health care system, provider advice during health care visits could influence patients' behavior outside the health care system.

Limitations

Several limitations warrant mention. Because MEPS data regarding family members' health care utilization is obtained from one person per household (the most knowledgeable person about the family's utilization), it is likely that respondents for young adults are parents, if the young adult lives at home. Thus, the present findings may be underestimated due to lack of parental knowledge of utilization. Two health care visit types comprise the well visit measure: general checkups and immunizations or shots. It is possible that well visits may be somewhat overestimated if a significant percentage of immunizations or shots were shots other than immunizations; however, we believe this is unlikely for this age group. We have included the "immunization or shots" visit because the MEPS coding of well visits for the pediatric population includes it, and there are immunizations that are important for young adults to receive. Of the preventive services assessed in MEPS, those that we examined for young adults (blood pressure, cholesterol, and influenza vaccine) are recommended by the USPSTF, CDC, or Bright Futures. MEPS does not include monitoring for major young adult morbidities—injuries, substance misuse, or reproductive or mental health. A survey of young adult respondents focused on health care utilization for major health issues for young adults would contribute greatly to monitoring efforts for this age group. In addition, the preventive visits assessed in MEPS for young adults are not linked to any particular health care visit, and they may have occurred in settings outside of health care environment. We have no conclusive evidence that the changes found from the pre- to post-ACA periods are due solely to implementation of the ACA.

Our findings indicate that progress has been made in rates of well visits for young adults while sociodemographic disparities remain. In contrast, preventive services increased at a greater pace, and in many cases, minority and underserved young adults have shown greater advances in services receipt than their more privileged counterparts. Compared with adolescents, young adults have similar health issues with worse outcomes. Yet, they are served by an adult health care system, which does not address the developmental needs specific to their age group, as opposed to older adults. Greater prioritization and efforts are needed to address young adults' unique combination of health issues and health care system challenges on all levels. Research efforts should increase focus on raising family and community awareness of the value and availability of preventive visits and services. Policy efforts to improve young adult health and health care should include the development of a structured set of young adult health care guidelines, increased inclusion of young adult health indicators in Healthy People 2030, increased Maternal and Child Health Bureau focus on young adults in their programmatic efforts, and improved monitoring of young adult preventive health care utilization that reflects health care priorities for this age group. The progress seen in young adult health care post-ACA is a step in the right direction, and broadened emphasis on appropriate services is needed for continued advancement in the delivery and quality of care provided them.

Acknowledgments

This research was supported in part by grants from the Health Bureau, Health Resources and Services Administration, USDHHS. The study sponsor has had no role in study design; collection, analysis, and interpretation of data; writing the report; and the decision to submit the report for publication.

Supplementary data

Supplementary data related to this article can be found at https://doi.org/10.1016/j.jadohealth.2018.12.004.

Funding Source

This study was supported by the Health Resources and Services Administration (HRSA) of the U.S. Department of Health and Human Services (HHS) (under #U45MC27709, Adolescent and Young Adult Health Capacity Building Program), with supplemental support from HRSA grant #UA6MC27378. This information or content and conclusions are those of the authors and should not be construed as the official position or policy of, nor should any endorsements be inferred by HRSA, HHS or the U.S. Government. The sponsors had no role in the preparation or submission of this article.

References

[1] Park MJ, Paul Mulye T, Adams SH, et al. The health status of young adults in the United States. J Adolesc Health 2006;39:305–17.

[2] Park MJ, Scott JT, Adams SH, et al. Adolescent and young adult health in the United States in the past decade: Little improvement and young adults remain worse off than adolescents. J Adolesc Health 2014;55:3–16.

[3] Institute of Medicine and National Research Council. Investing in the health and well-being of young adults. Washington, D.C.: National Academies Press; 2015.
[4] Adams SH, Park MJ, Irwin CE Jr. Adolescent and young adult preventive care: Comparing national survey rates. Am J Prev Med 2015;49:238–47.
[5] Adams SH, Park MJ, Twietmeyer L, et al. Increasing delivery of preventive services to adolescents and young adults: Does the preventive visit help? J Adolesc Health 2018;63:166–71.
[6] Adams SH, Knopf DK, Park MJ. Prevalence and treatment of mental health and substance use problems in the early emerging adult years in the United States: Findings from the 2010 national survey on drug use and health. Emerg Adulthood 2014;2:163–72.
[7] Ozer EM, Urquhart JT, Brindis CD, et al. Young adult preventive health care guidelines: There but can't be found. Arch Pediatr Adolesc Med 2012;166:240–7.
[8] U.S. Preventive Services Task force. Published recommendations. Available at: http://www.uspreventiveservicestaskforce.org/BrowseRec/Index?age=Pediatric,Adolescent. Accessed May 1, 2018.
[9] English A, Park MJ. The Supreme Court ACA decision: What happens now for adolescents and young adults?. Available at: http://nahic.ucsf.edu/download/the-supreme-court-aca-decision-what-happens-now-for-adolescents-and-young-adults/. Accessed January 25, 2019.
[10] Lau JS, Adams SH, Park MJ, et al. Improvement in preventive care of young adults after the affordable care act: The affordable care act is helping. JAMA Pediatr 2014;168:1101–6.
[11] Wong CA, Ford CA, French B, et al. Changes in young adult primary care under the affordable care act. Am J Public Health 2015;105 Suppl 5:S680–5.
[12] Kotagal M, Carle AC, Kessler LG, et al. Limited impact on health and access to care for 19- to 25-year-olds following the patient protection and Affordable Care Act. JAMA Pediatr 2014;168:1023–9.
[13] Wallace J, Sommers BD. Effect of dependent coverage expansion of the Affordable Care Act on health and access to care for young adults. JAMA Pediatr 2015;169:495–7.
[14] Lipton BJ, Decker SL. ACA provisions associated with increase in percentage of young adult women initiating and completing the HPV vaccine. Health Aff (Millwood) 2015;34:757–64.
[15] Adams SH, Park MJ, Twietmeyer L, et al. Association between adolescent preventive care and the role of the Affordable Care Act. JAMA Pediatr 2018;172:43–8.
[16] Caldwell J, Berdahl T. Trends in well-child visits: United States, 2002-2009. Statistical brief #419. Available at: http://meps.ahrq.gov/data_files/publications/st419/stat419.pdf. Accessed January 25, 2019.
[17] Hales CM, Carroll MD, Fryar CD, et al. Prevalence of obesity among adults and youth: United States, 2015-2016. NCHS data brief. 2017:1–8.
[18] Abdus S, Selden TM. Preventive services for adults: How have differences across subgroups changed over the past decade? Med Care 2013;51:999–1007.
[19] Aalsma MC, Gilbert AL, Xiao S, et al. Parent and adolescent views on barriers to adolescent preventive health care utilization. J Pediatr 2016;169:140–5.
[20] Lin A. The Affordable Care Act: Healthy young America: 2014: The young adult perspective. Oral presentation at: Institute of Medicine, improving the health, safety, and well-being of young adult: A workshop on state policies and programs and social media and information technology. Washington, DC. 2014.