

Military Health Care Utilization by Teens and Young Adults

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KEY WORDS

adolescent health, health service utilization, young adults, preventive health care visits, Affordable Care Act

ABBREVIATIONS

ACA—Affordable Care Act

ENT—ear, nose, and throat

ICD-9—*International Classification of Diseases, Ninth Revision*

MHS—Military Health System

NAMCS—National Ambulatory Medical Care Survey

OB/GYN—obstetrics and gynecology

Dr Blankson conceptualized and designed the study, acquired the data, carried out initial analyses, drafted the initial manuscript, and critically reviewed and revised the manuscript; Dr Roberts refined the study design, acquired the data, carried out initial and follow-up analyses, drafted the initial manuscript, and critically reviewed and revised the manuscript; and both authors approved the final manuscript as submitted.

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WHAT'S KNOWN ON THIS SUBJECT: Adolescents and young adults consume a significant amount of health care resources in our current medical system. With the Patient Protection and Affordable Care Act, a much larger number of previously uninsured young adults (aged ≥ 19) will be covered.



WHAT THIS STUDY ADDS: The Military Health System provides valuable information about the health utilization patterns of adolescents and young adults (aged 12–22) with universal insurance and excellent access to care. This information may help us understand the impact of new health care legislation.

abstract

FREE

OBJECTIVES: Adolescents and young adults are frequently uninsured (9.0% and 26.4%). Under the Affordable Care Act, the impact of insuring this population on health care utilization is unclear. We examined insurance records from >3.5 million non-pregnancy-related primary care visits in the Military Health System to describe health care utilization patterns among 467 099 non-active duty patients, aged 12 to 22, with access to free health care.

METHODS: We described association of age and gender with primary care utilization rates, clinic type, and primary and secondary diagnoses.

RESULTS: Adolescents and young adults were seen for 2.63 primary care visits per year. Use of Pediatric Clinics declined with age (51.6% to 1.8%) and increased for Family Medicine (45.5% to 91.1%). The top 3 diagnostic groups in our study were health maintenance (18.3%), health evaluation (17.3%), and respiratory/ear, nose, and throat (15.1%). Age-by-gender interactions had a significant association with health care utilization rates and diagnoses at primary care appointments. For example, the percent of all appointments accounted for by musculoskeletal injuries increased significantly ($P < .001$) with age for males (10.6%, 12–14 years; 12.8%, 15–18 years; 15.2%, 19–22 years) and decreased for females (10.3%, 9.2%, 7.5%).

CONCLUSIONS: Unlike previous studies of adolescents and young adults, we show that this population, especially female young adults, does use health care when it is available and largely free. Extrapolating from our Military Health System data, we expect implementation of the Affordable Care Act will result in an increased demand for health care, particularly in the areas of reproductive health care, respiratory/ear, nose, and throat issues, and routine health maintenance. *Pediatrics* 2014;133:627–634

Ten- to 24-year-olds comprise 20.3% of the population.¹ Fifteen to 24-year-olds account for 10.5% of all outpatient visits² and 16% of all emergency department visits.³ Before implementation of the Patient Protection and Affordable Care Act (ACA) in 2010, patients in this age range had high levels of being uninsured, particularly young adults (31.4%).⁴ This lack of insurance coverage occurred during a critical period for many young adults, especially patients with special health care needs, as they transitioned out of their home of origin and from pediatric to adult-oriented health care systems. This disruption in medical care, caused by lack of insurance and poor transition between medical systems, results in fragmented medical care and missed opportunities for preventive care services.^{5–7}

The ACA addresses some of these issues. Extending eligibility to remain on parent's insurance coverage up to age 26, in 2010, increased insurance rates in this population.⁸ Implementation of subsidies to assist with purchase of health insurance for people above 133% of the federal poverty level, and expansion of Medicaid eligibility from 100% of federal poverty level to 133% in 2014 should improve insurance rates as well.⁹ However, on the basis of the Supreme Court "ACA Decision" in 2012, several states have elected not to expand Medicaid, so these very low income young adults will continue to struggle with obtaining insurance.⁹ People with insurance consume more health care; raising insurance rates will increase demand for services by this previously uninsured population.¹⁰ The ACA also mandates a group of preventive and contraception services be provided by insurance companies with no cost sharing, a mandate that will lead to an increase in demand for these services as well.⁹ Understanding the health care needs of this adoles-

cent and young adult population is vital to health care financing, workforce planning, and provider training.

Several studies have used nationally representative samples of provider visit data from the National Ambulatory Medical Care Survey (NAMCS) and National Hospital Medical Care Survey and population estimates from the US Census to examine the association of provider type and patient demographic factors with health care utilization by adolescents^{7,10–12} and young adults.^{7,10} Two studies provide more accurate estimates of health care utilization among adolescents by examining all outpatient billing records for all enrolled adolescents in an insurance program.^{13,14} Dempsey and Freed examined data from the Michigan Medicaid program to describe the impact of age and gender on the proportion of adolescents, aged 11 to 18 years, with ≥ 1 problem-focused visits and/or health maintenance examinations per year.¹³ Nordin et al examined insurance records from a private insurance program with publically and privately funded enrollees to determine the association of age, gender, and insurance funding source (public vs private) with the mean number of preventive and nonpreventive primary care visits per year per adolescent enrollee (ages 11–18).¹⁴

Three studies also examined the relationship between the age and gender of an adolescent and the primary diagnoses assigned during primary care visits, using the NAMCS and National Hospital Medical Care Survey databases.^{15–17} However, patients rarely present for only 1 issue during a primary care visit. An examination of 2 years of visits from a single adolescent medicine clinic identified a high level of demand for mental health and reproductive health services that were not captured in analysis of the primary reason for the encounter.¹⁸

No previous studies have examined health care utilization by adolescents and young adults in the Military Health System (MHS). The MHS is a useful model for studying the potential effects of the ACA on adolescent health care utilization because it provides the opportunity to analyze adolescents and young adults in a system with universal insurance, excellent access to care, and no out-of-pocket fees for almost all provider services and medications.

In this study, we examined health care utilization by non-active duty patients, aged 12 to 22 years, enrolled in the MHS. We described primary care utilization rates for enrolled adolescents and young adults, described the distribution of provider types that these patients see for primary care, and examined the primary and secondary diagnoses for these encounters. We also investigated the association of patient age and gender with these measures of health care utilization.

METHODS

Subject Population

This study is a secondary analysis of insurance records from the MHS Management Analysis and Reporting Tool (M2 database). The M2 database contains a record of all outpatient care in the MHS, including date of visit, clinic specialty, patient age, patient gender, and up to 4 diagnosis codes (*International Classification of Diseases, Ninth Revision* [ICD-9]) for each encounter.¹⁹ Each diagnosis is listed separately, so it is not possible to link primary and secondary diagnoses from a single visit. The M2 database was accessed via direct request to Knowesis, Inc, Air Force Medical Operations Agency. Demographic data, for the MHS-eligible population, was obtained from the Data Request System of the Defense Manpower Data Center.

For this study, we examined records from 3 685 718 primary care clinic visits to internal medicine, family medicine, general pediatrics, and adolescent medicine clinics. All visits were made from 2007 to 2009 by dependent adolescents and young adults, aged 12 to 22 years, in the MHS. Active duty service members were excluded from analysis. We excluded visits for prenatal care from our analysis (ICD-9 codes 630-679 and V22-24). OB/GYN providers are not considered primary care providers in the MHS, so they were not included in our evaluation of primary care utilization.

Variables

We included the following demographic variables in our analysis: age group (12–14, 15–18, and 19–22), gender, sponsor status (parent on active duty [including active reserve] or retired), and clinic specialty (pediatrics, adolescent medicine, family medicine, internal medicine). We also evaluated the primary and secondary diagnoses (ICD-9 codes) assigned for each encounter. We created 12 distinct diagnostic groups to capture the reasons patients came to care. For example, the V20.2 code was grouped with the V70.0, V70.3, V70.5, V70.6, V70.8, and V70.9 codes (in keeping with Health Plan Employer Data and Information Set classification of preventive care visits) for our analysis.²⁰ The 12 diagnostic groups we used for this study, with examples in parentheses, are as follows:

1. Infectious disease/health hazards (bacterial/viral diseases, vaccination, exposure or history of infection);
2. Symptoms/signs/ill-defined conditions (cough, rash, headache);
3. Hematology/oncology/cardiovascular/miscellaneous (endocrine, genetics, immunology);

4. Mental health (including attention-deficit/hyperactivity disorder and mood disorders);
5. Neurology;
6. Respiratory/ear, nose and throat (ENT) (common colds, asthma);
7. Gastrointestinal/genitourinary (including kidney disease, sexually transmitted infections, menstrual disorders);
8. Reproductive health;
9. Dermatology;
10. Musculoskeletal/injury/poisoning;
11. Health maintenance (well visits, screening examinations including V20.2 and V70.x codes); and
12. Health evaluation (follow-ups, counseling, and administrative).

All nonprimary diagnoses were grouped together for analysis of secondary issues evaluated at the time of the encounter.

Statistical Analysis

We performed descriptive analyses of the age groups, gender, and sponsor status of the enrolled population. We calculated the number of visits per enrollee per year and used the Royston p-trend test to examine the association of age and gender with primary care utilization. We used χ^2 analysis to examine the association of age with the type of primary care clinic used. Finally, we used analysis of covariance analysis to examine the impact of age, gender, and age-by-gender interactions on the primary and secondary reasons for primary care utilization.

We repeated our analysis of clinic types used by adolescents and young adults for primary care with the NAMCS 2008 database to examine the effect of excluding obstetrics and gynecology (OB/GYN) clinics from our data set. We also performed an analysis of covariance analysis, adjusting for age, to compare the frequency of primary diagnoses

assigned at OB/GYN visits to primary diagnoses assigned at visits to other primary care providers. Pregnancy-related diagnoses were excluded from these analyses.

Statistical analyses were performed with SPSS 19.0 for Windows and Microsoft Excel. This study was approved by the Brooke Army Medical Center Institutional Review Board.

RESULTS

Demographics

Between 2007 and 2009, an average of 467 099 (range 458 756–477 149) non-active duty adolescents and young adults, aged 12 to 22, were enrolled in the MHS. The average age was 17.1 years, and 44.4% were male (Fig 1). Dependents of active duty service members comprised 63.7% of the sample (data not shown in figure).

Frequency of Primary Care Visits for Adolescents and Young Adults

Adolescents and young adults were seen for 2.63 visits per enrollee per year. Young male adolescents (12–14 years old) were seen at similar rates to female adolescents (2.43 vs 2.43). Health care utilization decreased with age for males and increased with age for females ($P < .005$; Fig 2). The overall frequency of visits increased with age (2.43, 2.50, and 2.99).

Primary Clinic Types Used by Adolescents and Young Adults

In the MHS (Fig 3A), family medicine provided 70% of the primary care visits to adolescents and young adults, with internal medicine and adolescent medicine clinics performing a small percentage. The proportion of all visits performed increased with age for family medicine clinics (48.8% of 12- to 14-year-olds, 66.3% of 15- to 18-year-olds, and 89.6% of 19- to 22-year-olds) and decreased with age for general

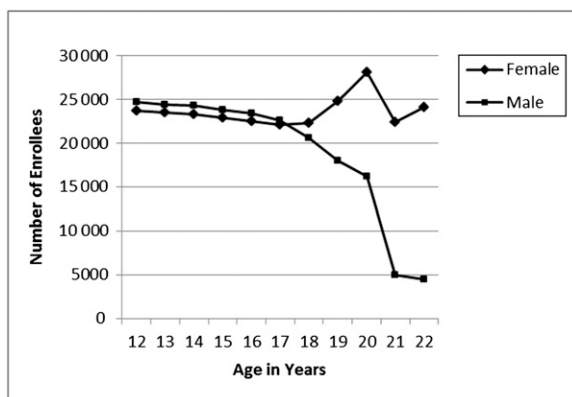


FIGURE 1
Dependents enrolled in the MHS by age and gender.

pediatrics clinics (47.1%, 26.6%, and 3.0%).

In our analysis of NAMCS data (Fig 3B), we found a similar decline in visits to pediatrics (66.9%, 45.0%, and 8.8%) and an increase in visits to family medicine (28.4%, 42.9%, and 49.7%) with increasing age. However, a large portion of non-pregnancy-related primary care visits for young adults were provided by internal medicine (16.6%) and OB/GYN (25.0%). OB/GYN provided 16.1% of all non-pregnancy-related primary care visits for female adolescents and young adults.

Primary Diagnoses

In the MHS, 3 diagnostic groups accounted for more than half of primary diagnoses for the primary care visits we evaluated: health maintenance

(18.3%), health evaluation (17.3%), and respiratory/ENT (15.1%); see Table 1. More than half of these health evaluation and maintenance visits were for routine physicals, >30% were for administrative purposes (unspecified, repeat prescriptions), and almost 10% were for counseling.

There was a significant interaction ($P < .005$) between age and gender on the frequency of visits recorded for all of our primary diagnostic groups. There were significant ($P < .05$) gender differences in the frequency of visits for all primary diagnostic groups except health evaluation, respiratory/ENT, and infectious disease/health hazards.

The percentage of total visits accounted for by a diagnostic group declined with age for respiratory/ENT (18.7%, 15.9%,

and 11.4%, $P < .005$) and increased with age for signs/symptoms (6.7%, 7.6%, and 8.9%, $P < .05$) and neurology (1.1%, 1.3%, and 1.5%, $P < .001$).

In our analysis of female patients in the NAMCS dataset (data not shown), we found that 3 diagnostic groups accounted for >70% of primary care visits to OB/GYN: health maintenance (41.4%), reproductive health (19.5%), and gastrointestinal/genitourinary (11.4%). Adjusting for the effects of patient age, OB/GYN providers were significantly less likely than other primary care providers to use the following diagnostic groups: respiratory/ENT (0% vs 23.7%, $P < .001$), dermatology (0% vs 7.3%), and signs/symptoms (2.7% vs 8.5%, $P < .05$). They were more likely to use reproductive health (19.5% vs 1.4%, $P < .005$) and health maintenance (41.4% vs 20.7%, $P < .01$).

Secondary Diagnoses

At least 1 secondary diagnosis was recorded in 33.7% of primary care encounters in our MHS data set (Table 2). The top 3 secondary diagnostic groups were respiratory/ENT (14.7%), infectious diseases/health hazards (13.8%), and musculoskeletal/injury/poisoning (9.9%). There was a significant ($P < .001$) association between the frequency of a secondary diagnosis and our age-by-gender interaction term for all of our secondary diagnostic groups. Gender was significantly ($P < .05$) associated with the frequency of all secondary diagnostic groups, except infectious diseases/health hazards, symptoms/signs, and dermatology. There was a negative association between age and the frequency of a secondary diagnostic group for respiratory/ENT (21.0%, 15.5%, 9.3%, $P < .001$), hematology/oncology (8.1%, 7.5%, 7.7%, $P < .05$), and dermatology (9.1%, 8.8%, and

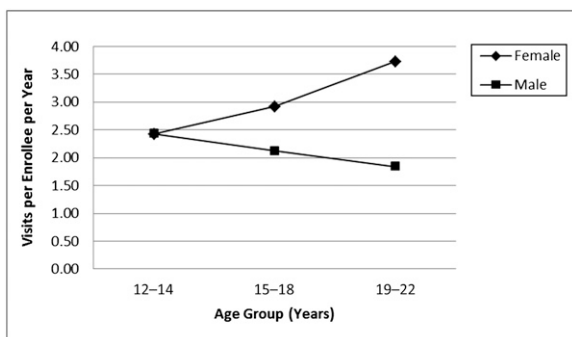
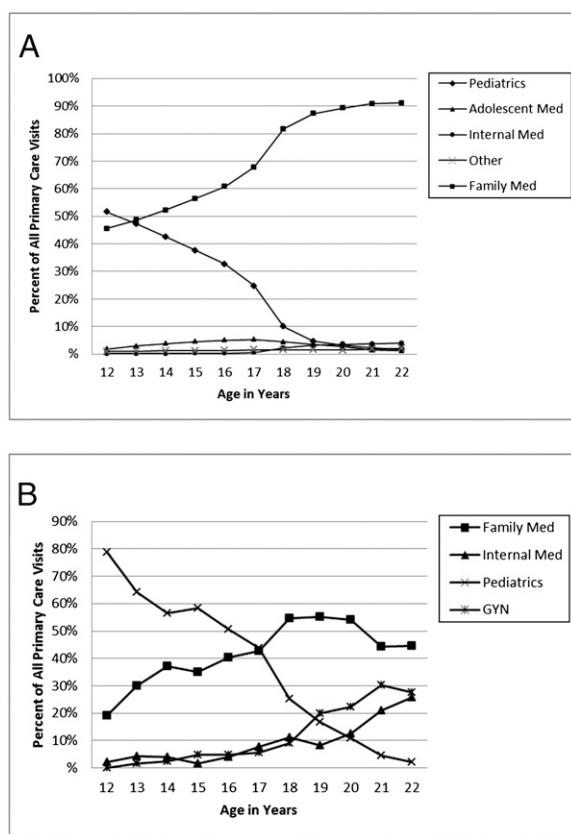


FIGURE 2
Primary care utilization in the MHS by age and gender.

**FIGURE 3**

A, Source of primary care for teens and young adults in the MHS (excluding prenatal care). B, Source of primary care for teens and young adults in NAMCS (excluding prenatal care).

4.5%, $P < .01$). There was a positive association between age and the frequency of signs/symptoms (8.4%, 9.0%, 9.8%, $P < .01$), health mainte-

nance (3.0%, 7.2%, 15.1%, $P < .001$), mental health (5.6%, 5.4%, 8.2%, $P < .05$), and neurology (1.1%, 1.2%, 1.4%, $P < .01$).

DISCUSSION

This is the first study to examine health care utilization of adolescents and young adults in the MHS. This study allows examination of health care utilization by adolescents in a system with universal insurance, excellent access to care, and minimal out-of-pocket fees. This system serves as a model for predicting health care utilization by adolescents and young adults who are able to obtain insurance under the ACA.

The ACA has increased the number of insured young adults, and there will be an increase in health care utilization by this population. The primary care utilization rate of 2.63 primary care visits per enrollee per year found in our study of adolescents with insurance is higher than the rates (1.61, 1.73, and 1.79) found in previous studies, particularly among young adult women.^{10,11,14} Unlike the study by Fortuna, we saw an increase in health care utilization by patients aged >18 rather than a decline (2.99 vs 1.69 visits per year).¹⁰ This probably reflects a lack of insurance coverage in the general population rather than a difference in demand for health care because the utilization rate for young adults with insurance in Fortuna's study (2.16 visits

TABLE 1 Primary Diagnostic Group in Primary Care Visits Among Teens and Young Adults, by Age and Gender (Excluding Prenatal Care)

Diagnostic Group	% of All Appointments for Females by Age Group			Females Total	% of All Appointments for Males by Age Group			Males Total	All Visits
	12–14 years	15–18 years	19–22 years		12–14 years	15–18 years	19–22 years		
Health maintenance (a)	19.2	16.8	18.1	17.9	20.0	18.6	18.4	19.1	18.3
Health evaluation	15.4	16.8	19.7	17.8	16.4	16.3	17.0	16.5	17.3
Respiratory/ENT (y)	19.2	15.4	10.8	14.2	18.2	16.7	14.3	16.9	15.1
Musculoskeletal/injury/poison (c)	10.3	9.2	7.6	8.7	10.6	12.8	15.2	12.4	10.0
Symptoms/signs/ill-defined conditions (d, w)	7.2	8.3	9.3	8.5	6.2	6.7	7.1	6.6	7.8
GI/GU (d)	4.1	7.8	10.2	8.1	2.4	2.8	3.8	2.8	6.2
Dermatology (a)	6.8	6.4	4.3	5.5	5.5	8.4	7.0	7.0	6.1
Mental health (b)	4.3	3.7	4.5	4.2	9.9	6.2	4.5	7.3	5.3
Infectious disease/health hazards	7.2	6.0	3.9	5.3	5.0	5.0	5.8	5.1	5.2
Hematology/oncology/ miscellaneous (b)	3.6	3.8	4.2	3.9	3.5	4.3	5.6	4.2	4.0
Reproductive health/GYN (c)	1.6	4.5	6.0	4.6	1.3	1.0	0.2	1.0	3.2
Neurology (d, z)	1.1	1.4	1.5	1.4	1.0	1.1	1.3	1.1	1.3

Gender by age interaction was significant ($P < .001$) for all diagnostic groups except neurology ($P = .001$). GI/GU, gastrointestinal/genitourinary.

Gender: a = $P < .05$; b = $P < .01$; c = $P < .005$; d = $P < .001$.

Age: w = $P < .05$; x = $P < .01$; y = $P < .005$; z = $P < .001$.

TABLE 2 Secondary Diagnostic Groups in Primary Care Visits Among Teens and Young Adults, by Age and Gender (Excluding Prenatal Care)

Diagnostic Group	% of All Secondary Diagnoses for Females by Age Group			Females Total	% of All Secondary Diagnoses for Males by Age Group			Males Total	All Secondary Diagnoses
	12–14 years	15–18 years	19–22 years		12–14 years	15–18 years	19–22 years		
Respiratory/ENT (d, z)	19.8	13.8	8.8	12.7	22.2	17.9	11.4	18.4	14.7
Infectious disease/health hazards	20.0	14.1	7.9	12.4	16.8	15.2	18.5	16.5	13.8
Musculoskeletal/injury/poison (d)	10.6	9.2	7.0	8.5	11.8	13.4	12.6	12.6	9.9
Health evaluation (a)	9.6	10.3	9.1	9.6	10.0	10.3	10.2	10.1	9.8
Symptoms/signs/ill-defined conditions (w)	8.4	8.9	9.9	9.3	8.3	9.2	9.3	8.9	9.1
Health maintenance (c, z)	3.2	8.7	16.1	11.0	2.8	4.9	10.8	5.2	9.0
Hematology/oncology/miscellaneous (d, w)	7.9	6.9	7.5	7.4	8.2	8.3	8.6	8.3	7.7
Dermatology (x)	10.0	7.8	4.2	6.6	8.3	10.4	5.5	8.6	7.3
Mental health (c, w)	3.8	4.7	8.1	6.1	7.5	6.4	8.7	7.3	6.5
GI/GU (d)	4.5	7.8	9.6	8.0	2.4	2.6	3.0	2.6	6.1
Reproductive health/GYN (c)	1.0	6.4	10.2	7.1	0.5	0.4	0.1	0.4	4.8
Neurology (a, x)	1.1	1.3	1.5	1.3	1.1	1.2	1.2	1.2	1.3

Gender by age interaction was significant $P < .001$ for all diagnostic groups. GI/GU, gastrointestinal/genitourinary.

Gender: a = $P < .05$; b = $P < .01$; c = $P < .005$; d = $P < .001$.

Age: w = $P < .05$; x = $P < .01$; z = $P < .001$.

per year) was closer to the rate in our study.¹⁰

Our analysis revealed a developmental progression of adolescents and young adults displaying increased independence and seeking care in adult-oriented clinics. Like Freed, we found the majority of primary care for adolescents, aged 12 to 17, in the MHS was provided by pediatrics and family medicine clinics, and the proportion of primary care provided by family medicine increased with patient age.¹³ In our MHS data, this transition of care to family medicine clinics was even more pronounced among young adults, with almost all primary care being provided in family medicine clinics. In our analysis of NAMCS data, we found a similar transition away from pediatrics to family medicine clinics among adolescents. However, like Callahan and Cooper, we found that internal medicine and OB/GYN also became important sources for primary care for young adults.⁷ The proportion of primary care for young adult women being provided by OB/GYN (34.7%) was similar to the rates found in previous studies (25.6%, 36%, 40.3%).^{7,10,15} OB/GYN providers in our NAMCS data also had different

diagnosing patterns compared with other primary care providers.

In light of this ACA-facilitated influx of millions of adolescents and young adults into the health care system, additional training will be needed to improve the skill set for primary care providers in the care of older adolescents and young adults, particularly in the area of ensuring a smooth transition of patients with special health care needs from pediatric to adult providers.^{5,21–24} Adolescent medicine specialists focus on the health care needs of this population, including facilitating the transition from parent-centered care to patient-centered care, and will be a valuable resource in training these primary care providers. Future ACA policy may also dictate the training of more adolescent medicine specialists but, more broadly, other providers (pediatricians, family medicine doctors, nurse practitioners, internists, and OB/GYN specialists) who will do the bulk of health care for this burgeoning population.^{25,26}

Our study demonstrates that adolescents in the MHS have similar health care utilization patterns to the general

population of the United States. The top 4 diagnostic groups in our study, health maintenance (18.3%) and health evaluation (17.3%), respiratory/ENT (15.1%), and musculoskeletal/injury/poisoning (10.0%), were similar to the diagnostic patterns found in previous studies of civilian adolescent health care utilization.^{11,12}

We did not find the high level of mental health and reproductive health secondary diagnoses among adolescent-age military dependents seen for primary care that were found in a previous study by Imai and Schydlower.¹⁸ However, >30% of primary care visits in our data set were associated with a secondary diagnosis, and the areas of mental health and reproductive health/gynecological concerns accounted for a large percentage of these diagnoses. For example, 28.9% of all secondary diagnoses for young adult females were in these areas. Additional studies using our unique database may lead to a more comprehensive understanding of the additional health care needs of the adolescent or young adult patient that are not captured by studies looking at only the primary diagnosis.

The strengths of our study include the large sample size, large number of visits, and the excellent insurance coverage in our system. However, there are several limitations to our study. Our sample population of military dependents has important differences from the general population beyond having excellent medical insurance, such as higher socioeconomic status, frequent moves, and family disruptions from parental deployment.²⁷ It is unclear how these other factors influence health care utilization. Also, the MHS has a different provider composition than the civilian health care system and uses providers differently, particularly OB/GYN, limiting our generalizability.²⁸ Future directions could include extending our analysis to 23- to 26-year-old young adults, a highlighted subset greatly affected by the ACA. With the extension of parental health care ben-

efits through age 26, it would be interesting to analyze the utilization patterns of this subset of the population. Looking at this age group's utilization in the MHS would inform on how this previously underinsured population might take advantage of the changes in the health care system. We would also be interested in examining whether there are different diagnostic patterns between primary care specialties (pediatrics vs family medicine vs adolescent medicine), similar to the differences we observed between OB/GYN and primary care providers.

CONCLUSIONS

The MHS provides a model to evaluate the future of adolescent and young adult health care in light of the ACA. Previous studies have demonstrated that young adults were infrequent

users of health care. We show that this population does in fact use health care when it is available and provided with minimal out-of-pocket costs. If health care is available and affordable, young adults will use it. In fact, young adult women use health care more than adolescent-age women in the MHS. Extrapolating from our MHS data, the needs of the young adult population fall under the categories of reproductive health care, gastrointestinal/genitourinary issues, and routine health maintenance. The ACA will increase the number of young adults in the health insurance pool. There will be a need to increase the number of medical providers skilled in caring for this transitioning population. Workforce planning will need to take into account the needs of this young adult population as ACA implementation continues to unfold.

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WAS SAM WRONG?: *In the movie Casablanca, Sam sings “a kiss is still a kiss.” However, I see all kinds of kissing: quickly, after someone is being dropped off for work outside my office; gently, downtown while a couple is holding hands; and passionately on the big screen or in real life. Despite being an integral part of human behavior, we do not really know why we kiss. Kissing is thought to be important in sexual relationships, assessment of the suitability of a mate, and maintenance of relationships. To assess the relative contribution of each, researchers conducted an international on-line survey. Approximately 900 adult men and women from Europe and North America participated. Participants were asked about their attitude toward kissing at different stages of relationships, whether they were in a long term relationship, and their potential as a mate. As reported in The New York Times (Well: October 28, 2013), respondents reported that while kissing may increase arousal, that was not its primary purpose. Generally, women rated kissing as more important than men. Men and women who rated themselves as highly attractive and those who tended to have more short term relationships rated kissing as being very important – particularly at the onset of a relationship. For these people, kissing serves as mechanism to determine the suitability of the mate as a partner. A bad kiss may signal the end of the relationship. Kissing also appears to be a form of relationship upkeep. For those already in long term relationships, frequency of kissing, not sexual intercourse, best correlated with happiness. So, while Sam was correct that a kiss is still a kiss, it appears that kissing is more complicated than that. It can serve many different functions depending on the type of person you are and relationship you are in.*

Noted by WVR, MD

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