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Original article

Common and Costly Hospitalizations Among Insured Young Adults Since the Affordable Care Act

Alexander Bain^a, Charlene A. Wong, M.D., M.S.H.P.^{b,c,d,*}, Gail Slap, M.D., M.S.^b, Daniel Polsky, Ph.D.^c, Raina M. Merchant, M.D., M.S.H.P.^{d,e}, Yaa Akosa Antwi, Ph.D.^f, David Rubin, M.D., M.S.C.E.^g, and Carol A. Ford, M.D.^b

^a Perelman School of Medicine, University of Pennsylvania, Philadelphia, Pennsylvania

^b Division of Adolescent Medicine, Department of Pediatrics, The Children's Hospital of Philadelphia, University of Pennsylvania, Philadelphia, Pennsylvania

^c Leonard Davis Institute of Health Economics, University of Pennsylvania, Philadelphia, Pennsylvania

^d Robert Wood Johnson Foundation Clinical Scholars Program, University of Pennsylvania, Philadelphia, Pennsylvania

^e Department of Emergency Medicine, Perelman School of Medicine, University of Pennsylvania, Philadelphia, Pennsylvania

^f Department of Economics, Indiana University-Purdue University Indianapolis, Indianapolis, Indiana

^g PolicyLab, Division of General Pediatrics, Department of Pediatrics, The Children's Hospital of Philadelphia, Philadelphia, Pennsylvania

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A B S T R A C T

Purpose: To describe the most prevalent and costly inpatient hospitalizations in a national cohort of privately insured young adults since the Affordable Care Act.

Methods: Cross-sectional study of a national administrative data set of privately insured young adult (18–30 years) beneficiaries hospitalized from January 2012 to June 2013. The most prevalent diagnosis categories for young adult hospitalizations are presented as percentages of all young adult hospitalizations by gender and age group (18–21, 22–25, and 26–30 years). Mean and median out-of-pocket costs by diagnosis category and gender are calculated based on deductible, copay and coinsurance payments.

Results: We analyzed 158,777 hospitalizations among 4.7 million young adult beneficiaries; young adults accounted for 18.3% of privately insured hospitalizations across all ages. Top diagnoses for young adult female hospitalizations were pregnancy related (71.9%) and mental illness (8.9%). Top diagnoses for young adult male hospitalizations were mental illness (39.3%) and injuries and poisoning (14.0%). Mean and median total out-of-pocket costs for any young adult hospitalization were \$1,034 and \$700, respectively (mean deductible payment = \$411). The most expensive out-of-pocket hospitalizations were for dermatologic diseases (e.g., skin infections) with means of \$1,306 for females and \$1,287 for males.

Conclusions: This study establishes a baseline for the ongoing assessment of the most common and costly hospitalizations among privately insured young adults in the United States under the Affordable Care Act. The substantial burden of potentially avoidable hospitalizations (e.g., mental health, injury, and poisonings) supports resource allocation to improve outpatient services, mental health access, and public health prevention strategies for young adults.

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IMPLICATIONS AND CONTRIBUTION

The substantial burden of potentially avoidable young adult hospitalizations (e.g., mental health, injury, and poisonings) support resource allocation to improve outpatient services, mental health access and public health prevention strategies for young adults. Insured young adults paid more than \$1,000 out-of-pocket on average for hospitalization, which may pose a financial hardship.

* Address correspondence to: Charlene A. Wong, M.D., M.S.H.P., Division of Adolescent Medicine, Department of Pediatrics, The Children's Hospital of Philadelphia, University of Pennsylvania, 1303 Blockley Hall, 423 Guardian Drive, Philadelphia, PA 19104.

E-mail address: charwong@upenn.edu (C.A. Wong).

Young adulthood marks a unique life stage and critical transitional period with independence gains in multiple life domains, including their health care needs and use [1,2]. Young adults have historically been uninsured at high rates, raising concerns for

potential unmet health care needs [3–8]. Young adults, for example, used primary care less frequently and emergency care more frequently than adolescents [9]. Their health care utilization occurs in the context of higher rates of modifiable health problems, including injury, violence, obesity, mental health disease, suicide, substance use, and sexually transmitted disease [3,10,11]. The distinct health needs of the young adult population have become an area of increased focus as what happens in young adulthood can have long-lasting implications for their overall wellbeing [2].

One of the aims of the 2010 Patient Protection and Affordable Care Act (ACA) was to increase the proportion of insured young adults. The mechanisms to increase young adult coverage include extended-dependent coverage in 2010 that allows young people to stay on their parents' insurance until age 26 years [12,13]. As millions of young adults gained insurance coverage, their health care utilization also increased, including in primary care and inpatient hospital settings [12,14]. Hospitalizations for 19–25 year olds, for example, increased by 3.5% in 2011 after extended-dependent coverage compared with 2007–2010 [14]. Additional opportunities for increased young adult insurance coverage under the ACA include the private health insurance marketplaces and state-based Medicaid expansions in late 2013–2014 [15].

Inpatient hospitalizations are rare but costly medical events. Although < 10% of people in the United States are hospitalized in a given year, inpatient hospital care accounts for approximately one third of U.S. health care expenditures [14,16]. Patients now bear more of the financial burden because of increased cost sharing in insurance plan design (e.g., higher deductibles, coinsurances, and copays) [17,18]. How young adults are represented among the utilization of inpatient services and what the associated out-of-pocket costs are have not been well characterized. These data are important to identifying the unique needs and opportunities inherent to delivering care to this population. We describe the most common and costly diagnoses among hospitalized, privately insured young adults (age 18–30 years) in 2012–2013 after the expansion of dependent coverage and before implementation of the health insurance marketplaces.

Methods

We performed a cross-sectional analysis of young adult (age 18–30 years) inpatient hospitalizations from January 2012 to June 2013 using an administrative data set of privately insured beneficiaries.

Data source

Data were from the Clinformatics™ Data Mart Database (OptumInsight, Eden Prairie, MN), a claims database for privately insured members of a single large national insurer. These data contain integrated enrollment and medical claims data from members. We included in our analysis all claims for designated inpatient care delivered January 1, 2012, to June 30, 2013, of beneficiaries who were aged 18–30 years at the time of hospitalization. Claims missing data on sex or primary diagnosis were excluded. Of note, <1% of included hospitalizations were made at an inpatient psychiatric facility.

Inpatient claims are provided as aggregate encounters. All acute-care hospitalization detail records are bundled and reported in a single unduplicated row. Included in the record are

the first and last dates of hospitalization, age at the time of hospitalization, primary and up to five other International Classification of Diseases, Ninth Revision diagnosis codes, and the amounts of deductible, copay, and coinsurance paid by the beneficiary. Other descriptors included gender, region, race, and income for the claim's primary beneficiary.

Outcomes

The main outcomes were primary diagnosis and out-of-pocket cost for the hospitalization. A proprietary algorithm was used to generate the primary diagnosis that was provided in the data set for each hospitalization. The algorithm incorporates the aggregate cost of claims associated with a given diagnosis, the time at which a diagnosis code was used, and the ranking of the diagnosis code for a given claim. The primary hospitalization diagnosis was categorized using the Agency for Healthcare Research and Quality's clinical classification software codes, which includes 285 mutually exclusive diagnosis categories in 17 disease system categories [19]. Out-of-pocket costs included the amounts paid for the deductible, copay, and coinsurance for each hospitalization.

Statistical analysis

Inpatient hospitalization was the unit of analysis. Descriptive statistics characterize the study sample by age, region, race, primary beneficiary household income, and length of hospitalization. The hospitalization frequency for each disease system category is presented as a percent of all young adult hospitalizations. All analyses were stratified by gender. More detailed diagnoses are listed for each disease system category and are presented as a percent of all hospitalizations in that disease system category. The most common disease system categories for young adult hospitalizations are stratified and ranked by age group (18–21, 22–25, and 26–30 years) since young adults are still maturing developmentally and experiencing different social contexts with potentially different health challenges as they age.

Descriptive statistics characterize the out-of-pocket costs associated with each disease system category. These costs by diagnosis are presented as the total out-of-pocket cost (i.e., the sum of the deductible, copay, and coinsurance); the mean deductible amount and proportion of the total mean out-of-pocket cost the deductible represents; and the sum of the copay and coinsurance. For total out-of-pocket costs, the 25th percentile costs for all categories were \$0 and therefore not presented. Similarly, the median deductible for all categories was \$0. All analyses were conducted using Stata, version 13.1 (StataCorp, College Station, TX). The study was deemed exempt by the Institutional Review Board of the University of Pennsylvania.

Results

Our study sample consisted of 4.7 million young adult beneficiaries with 158,777 hospitalizations. Young adults accounted for 18.3% of hospitalizations across all ages in this private insurance claims data. Mean and median lengths of stay for young adult hospitalization were 3.8 and 2 days, respectively. Most hospitalized young adults were female (77.6%), white (68.3%), and college educated (70.5%; Table 1).

Among the 123,266 hospitalizations for young adult females, the top disease system categories were pregnancy related (71.9%), mental illness (8.9%), gastrointestinal diseases (4.4%), and injury

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