**USE OF URGENT CARE CENTERS AND EMERGENCY DEPARTMENT VISITS FOR NON-URGENT HEALTH CONDITIONS: AN ANALYSIS OF BENEFICIARIES FROM A MANAGED CARE ORGANIZATION**

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**ABSTRACT**

Research Objective: Urgent Care Centers (UCCs) are part of the U.S. health care delivery system reducing emergency department (ED) overcrowding, providing access, ease, quick service, and lower cost of care than ED. Managed care organizations (MCOs) have begun to partner with UCCs to treat non-urgent health conditions. Despite the rapid growth of the urgent care industry, few studies describe characteristics of beneficiaries from Medicaid/ Medicare MCO who use UCC. Our objective was to identify the characteristics of beneficiaries from a MCO who utilized UCC and compare them with ED users and those who used both for non-urgent health conditions.

Study Design: With a cross sectional design, analyzed administrative claims data of a MCO from January to December 2016 (n=20,107). Outcome variables were number of visits to UCC, ED, or both. The MCO followed New York University algorithm for ED visit classification to identify non-urgent health conditions. We used the Behavioral Model of Health Care Utilization as a conceptual framework to identify the predictors in the model: age, gender, race/ethnicity, distance to UCC from residence (measured using Maptitude Software), type of insurance, primary care physician visits, inpatient admissions, chronic conditions, morbid obesity, and smoking behavior. Three Generalized Linear Models were used to analyze the association between outcomes and predictors.

Population Studied: Study included Medicaid and Medicare beneficiaries from a single MCO who utilized UCC, ED or both for non-urgent health conditions. Beneficiaries resided within 10-mile radius or less of 12 UCC locations.

Principal Findings: Among beneficiaries who had non-urgent health conditions (n=20,107), 22.7% were UCC users, 66.8% were ED users, and 10.5% used both. Average residential distance from UCC was 3-mile radius and about 93% lived within 5-mile radius of UCC locations. Both UCC and ED users were more likely to be females and Medicaid beneficiaries. African Americans [IRR: 0.95; 95%CI: 0.91-0.98] were less likely to use UCC and more likely to use ED [IRR: 1.10; 95% CI: 1.07-1.13). Those with higher number of chronic conditions were more likely to use ED than UCC. Distance was not a predictor of UCC or ED use.

Conclusions: Although majority of the beneficiaries who had non-urgent health conditions resided within 5-mile radius of UCCs, less than one fourth utilized UCC, and 11% used either UCC or ED. African Americans and beneficiaries with higher number of chronic conditions were less likely to use UCC for non-urgent health conditions. UCC users were relatively healthier than ED users. Distance was not a predictor of either UCC, ED, or both use.

Public Health Significance: Our study implies that although UCC were available within 5-mile radius for most beneficiaries and to majority of African American beneficiaries, yet they were not utilizing it for non-urgent health conditions. Access alone may not help in utilization of UCC services. Interventions targeted at disseminating information to the community about UCC locations, services provided, and when they may use it, is equally important to improve utilization and reduce ED crowding and costs from non-urgent health conditions.

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1. **INTRODUCTION**

Non-urgent health conditions are defined as those health conditions for which a delay of several hours will not result in adverse health outcomes1. Urgent Care Centers (UCCs) have become new centers to treat non-urgent health conditions and walk-in clinics with extended office hours, onsite x-rays, and laboratory testing that treat non-urgent health conditions in an ambulatory setting outside of traditional hospital-based or free-standing emergency department(ED)2. According to the Urgent Care Association of America there are approximately 9,000 UCCs in the United States and their numbers are predicted to increase in the future3.UCCs have become a part of the U.S. health care delivery system model that prevents overcrowding in the ED, provides easy access, quick service, and offers lower cost for care compared to the ED. Due to their extended hours of operation, to some it has become an alternative to primary care provider visits, which has been burdened with time constraints, long waits for appointments, and persistent shortage of primary care providers4-6. With no appointments needed to seek care, UCCs address the overflow of patients from primary care as well as emergency department holding a unique position in the health care system8.

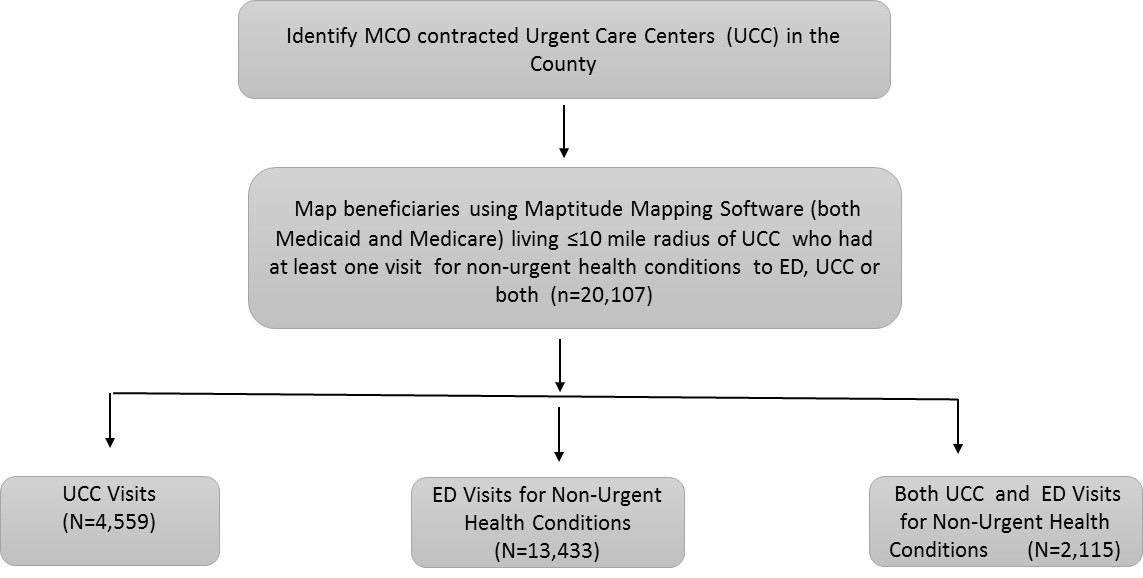
Previous literature suggests that about 13.7% -27.1 % of all visits to ED could be treated at UCC or other alternate sites with approximately $4.4 billion savings annually8. Furthermore, UCC visits decreased ED visits for non-urgent health conditions by 48%without adverse effects of increased patient hospitalization7. UCC utilizers are characterized as females having fewer chronic conditions10 who chose UCC largely based on convenience and more timely care than for economic reason11. Managed care organizations (MCOs) have begun to partner with UCCs to treat non-urgent health conditions8-10.Despite the rapid growth of the urgent care industry, there has been only a few studies describing characteristics of individuals under the Medicare/Medicaid health plan of a MCO who utilize UCCs.

The objective of this study was to identify the characteristics of individuals and compare UCC utilizers with ED and those using both for non-urgent health conditions. These groups will be described as UCC group, ED group, and the both group. We analyzed beneficiaries of a MCO serving both Medicaid and Medicare population in Southwestern Pennsylvania (PA).

## 2.0 METHODS

## 2.1 POPULATION

The study has a cross-sectional design and was conducted in Southwestern PA with a single UCC having multiple locations for the calendar year 2016. The centers accepted patients from 8.00 am – 8.00 pm, seven days a week. Data was obtained for all Medicaid and Medicare MCO beneficiaries ranging from newborns to 99 years old using MCO’s administrative claims database. Beneficiaries residing within 10mile radius of each of the 12 UCC were included in the sample. Mapping of the study sample and their approximate residential distance from UCCs was done by using the 2015 Maptitude Mapping Software (Caliper Corporation). Identification of beneficiaries with non-urgent health conditions was based on the *International Classification of Diseases, Tenth Revision* (ICD-10) codes. If the diagnosis code for ED visit was not on the list, then the member had a visit for non-urgent health condition. List of non-urgent health conditions is attached (Appendix 1). All beneficiaries who had a visit to UCC, ED or both were part of the analysis. Once the list of beneficiaries was identified we obtained data on sociodemographic, health conditions, and health care utilization from the administrative claims database. Our sample included individuals who had at least one visit to UCC, ED, or both for non-urgent health conditions (n= 20,107).

****

**Figure 1: Beneficiary inclusion criteria and classification into urgent care center visits, ED visits or both for non-urgent health conditions**

## 2.2 OUTCOME VARIABLES

The outcome variables included (1) number of UCC visits. The variable was measured as a count variable and included MCO beneficiaries who had at least one UCC visit; (2) number of non-urgent ED visits. The variable was measured as a count variable and included MCO beneficiaries who had at least one non-urgent ED visit; (3) Individuals who made a visit to both UCC and ED for non-urgent health conditions and included MCO beneficiaries who had at least two visits.

## 2.3 PREDICTORS

We used the Andersen’s Behavioral Model of health care utilization to identify the variables associated with utilization of UCC, ED, or both12. The model is used widely in examining utilization of health care services. According to the model, an individual’s health care utilization is a function of their predisposing, enabling, and need-related factors. Predisposing includes; age, gender, and race/ethnicity (Whites, African American, and others). Enabling factors includes; residential distance from UCC, type of healthcare insurance (Medicare/Medicaid), number of primary care physician (PCP) visits, and inpatient admissions during the past one year. Need-related factors are health conditions that require individuals to utilize health care and includes; number of chronic conditions (none, 1-2, 3-6, ≥ 7), morbid obesity (BMI <40 and BMI ≥40), and smoking behavior (yes/no).

Previous studies have shown that health care utilization for non-urgent health conditions varies by age and gender. Typically, younger women, African Americans and Hispanics under Medicaid are more likely to utilize the ED for non-urgent health conditions13. In addition, individuals with shorter travel distances to ED are more likely to have an increased number of visits to the ED for non-urgent health conditions14. Also, beneficiaries who have regular visits to their PCPs, those with better behavioral health, non-obese individuals and non-smokers may be less likely to utilize the ED for non-urgent health conditions.

## 

## 2.4 DATA ANALYSIS

We examined descriptive characteristics of individuals who had only UCC visits, ED visits and those who accessed care at both for non-urgent health conditions. Bivariate analyses were conducted using Kruskal Wallis test to examine any differences between the three groups and predictor variables. Furthermore, as the dependent variables were not normally distributed and over dispersed, we conducted three negative binomial regression models to examine the association between outcome and predictor variables. Results were interpreted as incident rate ratios (IRRs) with 95% confidence intervals (CIs). All statistical analysis was performed using SAS (version 9.4; SAS Institute Inc., Cary, North Carolina, USA).

# 3.0 RESULTS

Among all individuals (n=20,107) who visited UCC, ED or both for non-urgent health conditions, 22.7% were UCC users, 66.8% were ED users, and 10.5% used both. Table 1 shows descriptive characteristics for the UCC (n=4,559), ED (n=13,433), and both (n=2,115) groups. Overall, among all those who had used services for non-urgent health conditions, the average age was 28. About 44% belonged to the ≤ 21 years age group, followed by 34% in the 22-44years old group. About 64% were females, and 44% African Americans. Approximately 50% of beneficiaries resided within 3.00-5.00 mile from the UCC. Average residential distance from UCC was 3.00 miles, 87% were Medicaid beneficiaries, and 21% did not have a PCP visit during the past one year, only 14% had an inpatient admission, 15% had 3-6 chronic health conditions. Morbid obesity (BMI≥40) was present in 15% of the study population and 7% were current cigarette smokers.

Across the three groups, majority users belonged to the ≤ 21 years among both UCC (47%) and ED (44%) groups for non-urgent health conditions. The group 22-44 years old comprised majority of UCC + ED visits (46%). Majority of UCC visits were made by Whites (65%), ED visits for non-urgent conditions were made by African Americans (60%), while in both groups, majority were Whites (54%). Among UCC, 47% resided <3 and within 3-5 miles of UCC. Among those who utilized the ED for non-urgent conditions, 50% resided within 3-5 miles of the UCC. All three groups had majority of Medicaid beneficiaries. The average number of PCP visits was highest among those who visited the ED for non-urgent health conditions. Among those who utilized the UCC, 24% did not make any PCP visits compared to the ED (21%). About 16% among those who had ED visits for non-urgent health conditions had an inpatient admission compared to 6% in the UCC visits group. About 60% of beneficiaries in the UCC group did not report any chronic health conditions. Morbid obesity was 16% among the ED and UCC + ED group compared to 13% in the UCC group (Table 1).

## Table 1. Descriptive Characteristics of Beneficiaries who utilized the Urgent Care Centers, Emergency Departments and Both Services for Non-Urgent Health Conditions

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variables and Measurement | Overall  (n=20,107) | UCC VISITS  (n= 4,559) | ED LANE VISITS  (n= 13,433) | UCC + ED LANE VISITS  (n= 2,115) | p-value\* |
| ***Predisposing Factors*** |  |  |  |  |  |
| Age Mean (±SD) | 27.6(19.8) | 27.1(18.4) | 27.8(20.6) | 27.5(17.1) | 0.12 |
| Age Group |  |  |  |  |  |
| ≤21 | 44.3 | 47.2 | 44.3 | 38.0 | 0.00 |
| 22-44 | 33.7 | 33.4 | 31.9 | 45.8 |  |
| 45-64 | 17.9 | 16.2 | 19.0 | 14.1 |  |
| ≥65-74 | 4.1 | 3.2 | 4.7 | 2.1 |  |
| Gender |  |  |  |  |  |
| Male | 36.0 | 37.5 | 36.7 | 28.3 | 0.00 |
| Female | 64.0 | 62.5 | 63.3 | 71.7 |  |
| Race/Ethnicity |  |  |  |  |  |
| African American | 43.9 | 30.1 | 60.2 | 41.4 | 0.00 |
| White | 51.4 | 64.9 | 35.1 | 54.3 |  |
| Others | 4.7 | 5.0 | 4.6 | 4.3 |  |
| ***Enabling Factors*** |  |  |  |  |  |
| Distance to UCC (in miles)  Mean (±SD) | 3.2(1.4) | 3.1(1.5) | 3.2(1.4) | 3.1(1.5) | 0.00 |
| <3.00 | 43.5 | 46.6 | 42.0 | 43.5 | 0.00 |
| 3.00-5.00 | 49.6 | 46.6 | 50.2 | 50.3 |  |
| >5.00 | 6.9 | 6.8 | 7.1 | 6.1 |  |
| Type of insurance |  |  |  |  |  |
| PA Medicaid | 87.2 | 88.5 | 86.3 | 89.6 | 0.00 |
| PA Medicare | 12.8 | 11.5 | 13.7 | 10.4 |  |
| Number of PCP visits  Mean (±SD) | 3.9(6.4) | 2.7(3.8) | 4.2(7.1) | 4.1(5.9) | 0.00 |
| PCP Visits |  |  |  |  |  |
| No | 21.3 | 23.9 | 20.8 | 19.4 | 0.00 |
| Yes | 78.7 | 76.1 | 79.2 | 80.6 |  |

\*Results from Kruskal Wallis Test

Significant at p<0.05

Table 2 shows results from the negative binomial regression model. UCC users were more likely to be females (IRR: 1.08, 95% CI: 1.05-1.12), on Medicaid (IRR: 1.09, 95% CI: 1.02-1.16), and have 1-2 health conditions (IRR: 1.08; 95%CI: 1.04-1.13) compared to their respective reference groups. UCC users were less likely to be African Americans (IRR: 0.95; 95%CI: 0.91-0.98), and less likely to have inpatient admissions (IRR: 0.92; 95% CI: 0.87-0.97).

## Table 2. Results from Generalized Linear Model Examining the Characteristics of Individuals who Utilized Urgent Care Centers (UCC), Emergency Department (ED) and Both Services for Non-Urgent Health Conditions

|  |  |  |  |
| --- | --- | --- | --- |
| Variables (Reference Category) | UCC VISITS  (n=4,559)  IRR (95% CI) | ED LANE VISITS  (n=13,344)  IRR (95%CI) | UCC and ED LANE VISITS  (n=2,115)  IRR (95% CI) |
| ***Predisposing Factors*** |  |  |  |
| Age Group (≤21) |  |  |  |
| 22-44 | 1.04(0.98-1.08) | 1.13(1.09-1.16) \* | 1.10(1.04-1.16) \* |
| 45-64 | 0.94(0.87-1.00) | 0.90(0.87-0.94) \* | 0.91(0.83-1.00) \* |
| ≥65 | 0.94(0.81-1.09) | 0.67(0.62-0.73) \* | 0.69(0.56-0.85) \* |
| Gender (Male) |  |  |  |
| Female | 1.08(1.05-1.12) \* | 1.07(1.04-1.10) \* | 1.05(1.00-1.11) |
| Race/Ethnicity (White) |  |  |  |
| African American | 0.95(0.91-0.98) \* | 1.10(1.07-1.13) \* | 1.02(0.98-1.08) |
| Others | 0.98(0.90-1.6) | 1.03(0.96-1.09) | 0.96(0.84-1.09) |
| ***Enabling Factors*** |  |  |  |
| Distance to UCC (in miles)  (>5 miles) |  |  |  |
| <3 miles | 0.99(0.91-1.08) | 1.01(0.97-1.06) | 0.99(0.87-1.11) |
| 3.00-5.00 | 0.94(0.87-1.02) | 1.03(0.98-1.07) | 0.99(0.88-1.11) |
| Type of insurance (Medicare) |  |  |  |
| Medicaid | 1.09(1.02-1.16) \* | 1.08(1.02-1.15) \* | 1.07(0.95-1.21) |
| Number of PCP visits | 1.00(0.99-1.01) | 1.00(1.00-1.01) | 1.01(1.00-1.01) |
| Number of Inpatient admissions | 0.92(0.87-0.97) \* | 1.03(1.00-1.05) | 0.98(0.94-1.02) |
| ***Need-Related Factors*** |  |  |  |
| **Table 2 Continued** |  |  |  |
| Chronic Health Conditions (no health conditions) |  |  |  |
| 1-2 | 1.08(1.04-1.13) \* | 1.18(1.15-1.21) \* | 1.10(1.05-1.16) \* |
| 3-6 | 1.07(1.00-1.14) | 1.45(1.38-1.52) \* | 1.32(1.21-1.44) \* |
| ≥7 | 1.07(0.95-1.21) | 1.69(1.54-1.84) \* | 1.41(1.21-1.64) \* |

Beneficiaries who utilized the ED for non-urgent health conditions were more likely to be 21-44 years old (IRR: 1.13; 95%CI: 1.09-1.16), females (IRR: 1.07; 95%CI: 1.04-1.10); African Americans (IRR: 1.10, 95%CI1.07-1.13), on Medicaid (IRR: 1.08; 95%CI: 1.02-1.15), with 1-2 number of chronic health conditions (IRR:1.18; 95% CI:1.15-1.21), 3-6 number of chronic health conditions (IRR:1.45;95% CI:1.38-1.52),or ≥7 number of chronic conditions (IRR:1.69; 95% CI:1.54-1.84). While 45-64 years old (IRR: 0.90; 95% CI: 0.87-0.94)and ≥65 years old (IRR: 0.67; 95% CI: 0.62-0.73)were less likely to use ED for non-urgent health conditions (Table 2).

Beneficiaries who used both UCC and ED for non-urgent health conditions were more likely to be 22-44 years old (IRR: 1.10; 95% CI: 1.04-1.16), and had 1-2 number of chronic health conditions (IRR:1.10; 95% CI:1.05-1.16), 3-6 number of chronic health conditions (IRR:1.32;95% CI:1.21-1.44),or ≥7 number of chronic conditions (IRR:1.41; 95% CI:1.21-1.64) (Table 2).

# 4.0 Discussion

In a sample of beneficiaries from an MCO who visited UCC, ED or both for non-urgent health conditions, we examined and compared the beneficiary characteristics. Our analysis has four key findings. Firstly, African Americans were less likely to use UCC and were using ED for non-urgent health conditions. Secondly, UCC users were relatively healthier than ED users when considering the number of chronic health conditions. Thirdly, although age was not a predictor of UCC use, younger individuals (22-44 years old) were ED users or use both ED and UCC for non-urgent health conditions. Finally, distance was not a statistically significant predictor of either UCC, ED, or both use.

We found that African American were less likely to use UCC. Similarly, in a study conducted at an UCC associated with Denver Health Medical Center, population served were only 16% African American compared to 50% Hispanic and 30% White11. Furthermore, in our data, when distance from residence to UCC was examined for African Americans, 40% resided within <3 miles and 55.3 % resided within 3-5mile radius of UCC. Thus, majority of African Americans were residing within 5-mile radius of the UCC. Previous studies indicate that African Americans were likely to choose ED as their usual source of care independent of health insurance15, 16. ED use may lead to poor patient-primary care provider relationship, unwarranted testing and treatment, and excessive healthcare spending1. Some of the suggested reasons to choose the ED are long wait times for PCP appointments, lack of access to PCPs on evenings and weekends17 and convenience that includes travel time and location1. Although UCCs may provide convenience similar to the ED, it is not clear why African Americans in our sample do not use UCC services for non-urgent health conditions. Lack of awareness or trust in UCC services and poor quality of services may be some of the reasons. Future studies should focus on understanding why African Americans prefer the ED to UCC for non-urgent health conditions when UCC are located closer to their residence.

In addition, age was not a predictor of UCC utilization. Moreover, ED users and those who used both services for non-urgent health conditions were younger (<45 years old) and sicker than the UCC population. Our findings on age were similar to previous studies on UCC use and ED use for non-urgent health conditions 1, 6, 19. Older adults (≥ 45 years) in our sample were less likely to go to the ED for non-urgent health conditions or use both services because they may have multiple health conditions, are frail and thus, there visits may be urgent19-21. However, we observed that in our sample, ED visits and both services had more number of chronic health conditions. One of the reasons may be that our analysis is based on data from 2016 which includes the Affordable Care Act Medicaid expansion population that enrolled the uninsured, young and unhealthy population18.

We also found that distance was not a predictor of UCC use. Our analysis included beneficiaries residing within 10-mile radius of the UCC location and average distance from the UCC was 3 miles. A reason for distance not being significant may be because of the lack of variability in our dataset. About 93% resided within 5-mile radius of the UCC. In addition, along with UCC there might be hospitals with ED or free standing EDs in the area which provided additional options for the beneficiaries to access for non-urgent health conditions.

**4.1 LIMITATIONS**

Our results should be considered in the light of certain limitations. The beneficiaries we studied were from an urban PA county; hence, not generalizable to other settings.25,26 Future studies should focus on wider geographic areas to examine the characteristics of individuals’ use of UCC and ED for non-urgent health conditions. We did not have information on the time when beneficiaries visited UCC or ED for care. UCC in our analysis were open from 8.00 am -8.00pm and not 24 hours a day, may be the care needs were after 8.00 pm.22-24 The analysis was conducted on a cross sectional data, the usage may vary by year. Further, we did not have information on whether a beneficiary was triaged from the ED to UCC.27 There may be substantial differences between the two groups and thus could have influenced our results. We did not have information on availability of hospitals with ED or free-standing ED nearby to the UCC location

## 5.0 CONCLUSION

Our study implies that although UCC were available within 5mile radius for majority of African American beneficiaries, yet they may not use it for non-urgent health conditions. Access alone may not help in the utilization of UCC services, interventions targeted at informing the community about their location, services provided, and when they may utilize the healthcare resources available at these centers is likewise important to disseminate.

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