Emergency Department Use Among Medicaid Patients with Schizophrenia: The Impact of Medication Adherence

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KEY POINTS FROM THIS BRIEF:

- Medicaid patients with schizophrenia have high rates of emergency department (ED) use, especially for medical, non-behavioral health conditions.
- Lower adherence to antipsychotic medications is associated with increased emergency department use, particularly for medical visits.
- Although frequent ED utilizers with schizophrenia often have multiple chronic conditions, the primary diagnoses associated with their ED visits are rarely related to these chronic conditions.
- Care management efforts to decrease utilization among patients with schizophrenia should consider antipsychotic adherence as a potentially high-impact area of focus.

Background

Medicaid patients with schizophrenia have high rates of costly acute care utilization for both psychiatric and medical conditions.[1–3] These patients suffer from a disproportionate burden of undertreated chronic illnesses, creating extremely complex care needs.[4,5] Adherence to an antipsychotic medication regimen is of particular concern for patients with schizophrenia, given that a large majority of these patients experience gaps in medication use.[6] Non-adherent and partially adherent patients have predictably worse health outcomes.[7] Studies have shown that non-adherence is associated with higher rates of readmission, longer lengths of stay, and higher costs.[8,9] The results are similar for behavioral health admissions and all-cause admissions. Little is known, however, about the relationship between non-adherence to anti-psychotic medication and emergency department (ED) use. This link between poorly controlled mental illness and high health care utilization is becoming increasingly important as state Medicaid agencies seek to control costs through integrated case management strategies.[10]

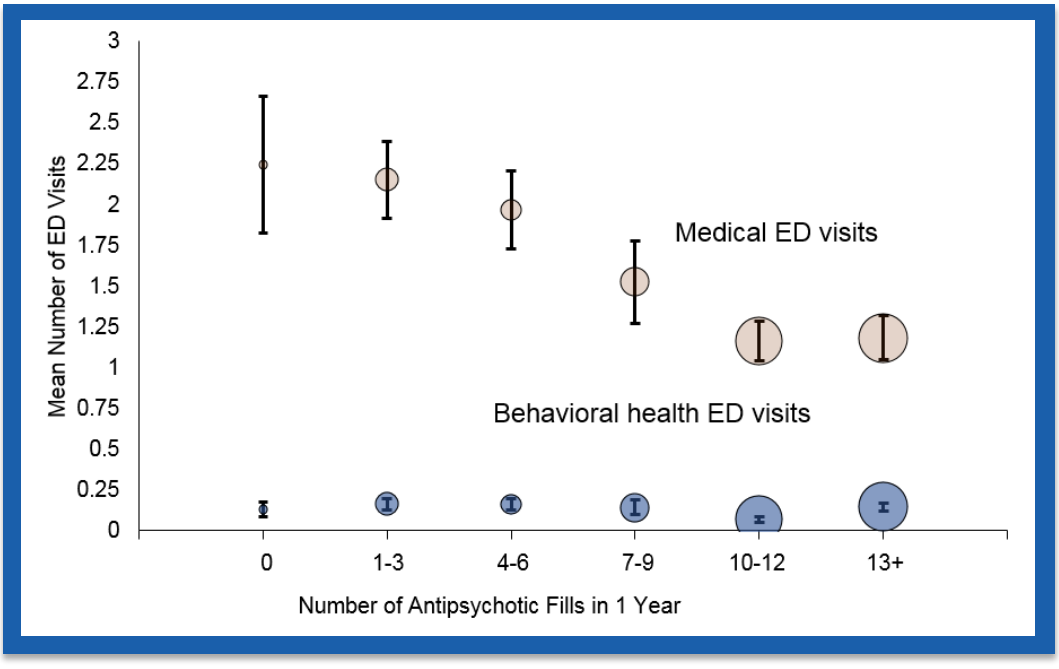
Background (cont.)

Community Care of North Carolina (CCNC) has already been successful at reducing unnecessary utilization for patients with schizophrenia through careful coordination with community-based infrastructure, and is continually working to improve care for these patients. In this data brief, we examine the relationship between antipsychotic medication adherence among CCNC-enrolled Medicaid patients with schizophrenia and rates of ED visits during 2015. We find that less adherence corresponded to increased visits to the emergency department. Patients with lower adherence were more likely to be ED "superutilizers" – patients with frequent ED use. Understanding this relationship reinforces the importance of care management for patients with schizophrenia in order to promote medication adherence. In so doing, we may be able to avert ED visits and lower overall costs.

Relationship between ED visits and Antipsychotic Adherence

Figure 1 demonstrates the inverse relationship between medication adherence and ED visits, as stratified by behavioral health-related and medical (non-behavioral health-related) visits. With increased numbers of anti-psychotic medication fills in a year, the mean number of ED visits decreases. This relationship is much stronger for medical visits than for behavioral health visits.

Figure 1. Average Annual Rates of Emergency Department Visits for CCNC Patients with Schizophrenia, by Medication Adherence Category, 2015



*Note: Error bars represent confidence intervals. The size of bubbles corresponds to sample size in each adherence category.

Interestingly, the overwhelming majority of ED utilization among patients with schizophrenia was for medical, rather than psychiatric conditions – there were over 11 times as many medical ED visits as behavioral health visits. The level of adherence demonstrated had a much stronger association with rates of medical ED visits than behavioral health ED visits, even after controlling for medical comorbidity. These findings suggest that decreased anti-psychotic medication adherence among patients with schizophrenia negatively affects not only psychiatric healthcare utilization, but also medical utilization.

Anti-psychotic Adherence and Super-utilization

Figure 2 shows the relationship between antipsychotic adherence and ED super-utilizers. We defined super-utilizers as patients with three or more ED visits in a year. These patients are an especially important focus for care management efforts because they represent a disproportionate share of health care spending. We find that patients with lower antipsychotic adherence are more likely to be super-utilizers.

> Patients with schizophrenia who are poorly adherent are more likely to be super-utilizers of the ED

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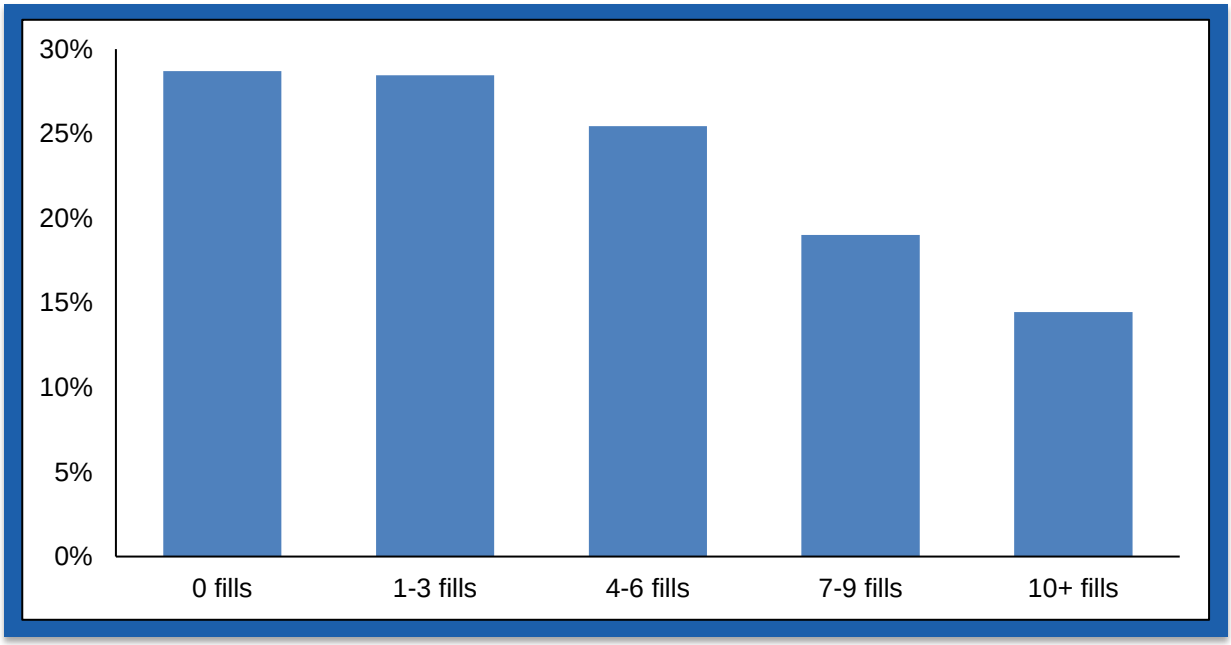
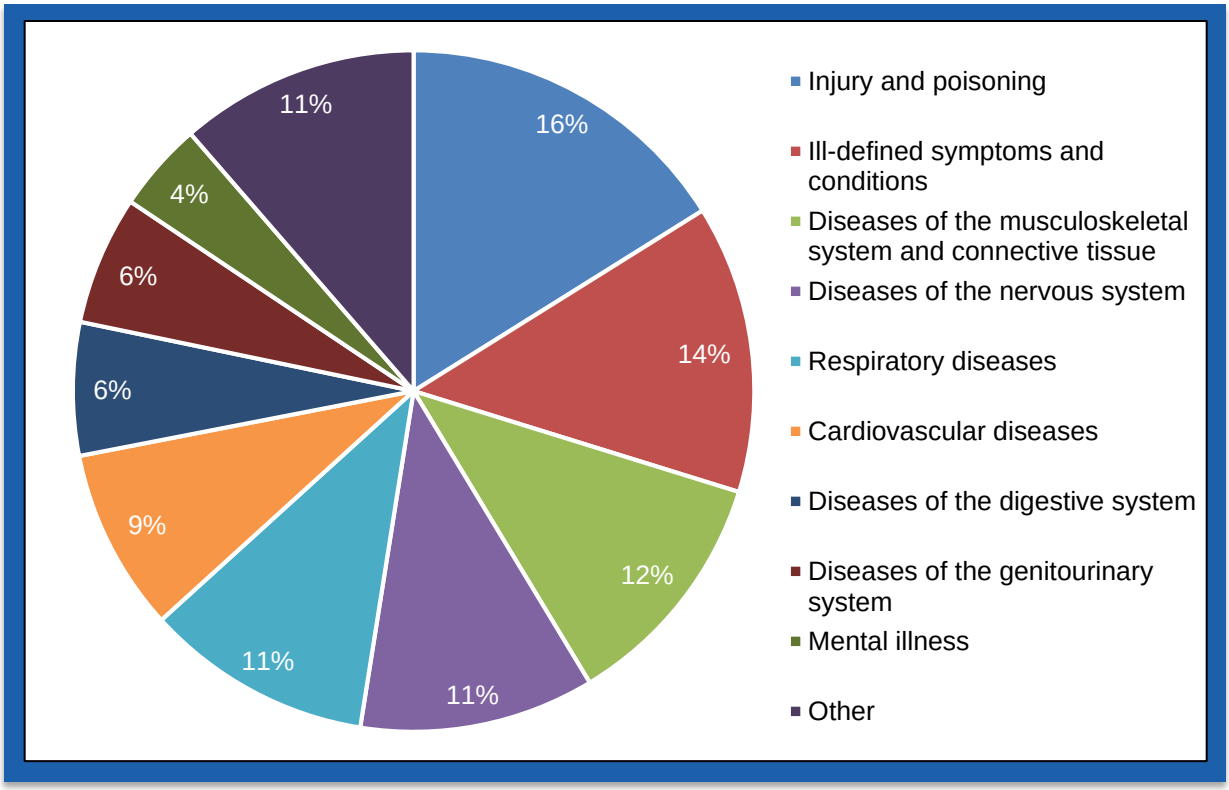
Figure 2. Percent of Patients with 3 or More ED Visits in 2015, by Adherence to Antipsychotic Medication



Causes for ED Visits

Figure 3 displays the total ED visit encounters for our study population during 2015, categorized by major disease group. The leading cause of ED visits was the category of injuries and poisonings (16%), which included a wide array of sprains, strains, superficial injuries, and medication overdoses. This was followed by ill-defined symptoms and conditions (14%), which predominantly included conditions such as non-specific abdominal pain, nausea and vomiting, and syncope. Musculoskeletal and connective tissue disorders constituted the third leading cause (12%), which included back pain, intervertebral disc disorders, and other joint disorders. Interestingly, mental illness diagnoses only constituted 4% of visits. The primary diagnosis for each ED visit was categorized according to the clinical classification developed by the Agency for Healthcare Research and Quality.

Figure 3. Leading Causes of Emergency Department Visits Among CCNC Patients with Schizophrenia During 2015



The primary diagnosis for each ED visit was categorized according to the clinical classification developed Agency for Healthcare Research and Quality

Why Do Patients with Schizophrenia Have Higher Rates of Medical Visits?

Two of the most interesting findings from this analysis is that Medicaid patients with schizophrenia have much higher rates of medical than behavioral health ED visits, and that medical visits are much more associated with level of antipsychotic adherence. This phenomenon may reflect two underlying trends. First, non-adherent or partially adherent patients may present to the emergency department with symptoms related to poorly controlled schizophrenia; their visits, however, are codified as a medical primary diagnosis. While not specifically supported by the literature, this scenario has been anecdotally observed. It is very plausible, given the high prevalence of somatization among patients with schizophrenia[11] and the high potential for misclassification of symptoms in a fast-paced emergency setting.

Patients with schizophrenia have complex needs, and so poor adherence to antipsychotic treatment is not necessarily reflected as a psychiatric issue when they present to the ED.

The leading disease groups we identified—including injury/poisonings, ill-defined symptoms and conditions, and diseases of the musculoskeletal and nervous systems—all have the potential for significant psychiatric overlap (see **Figure 3**).

Second, non-adherence or partial adherence is likely associated poorer self-care and medical follow-up, leading to increased ED and hospital utilization. It is well-known that patients with schizophrenia and other Serious Persistent Mental Illness (SPMI) are more likely to suffer from one or more chronic medical conditions than the general public, and are much less likely to receive adequate care for these conditions.[4]

However, it is important to note that many of the leading diagnoses associated with ED visits—such as injuries, poisonings, and non-specific symptoms—are not necessarily related to chronic disease exacerbations, but may have significant psychiatric overlap.

These findings contribute to our understanding of the complex interplay between physical and mental health, and suggest that better management of schizophrenia could play an important role in reducing unnecessary ED utilization for non-psychiatric complaints. This study identifies a potentially high-yield gap in care for these patients.

Data Sources and Methodology

This study used Medicaid claims and pharmacy data for patients with schizophrenia enrolled in CCNC between January 2015 and January 2016. We included patients between the ages of 18 and 65 who carry a diagnosis of schizophrenia or schizoaffective disorder (ICD9-CM codes 295.0-295.9 documented on at least 2 claims prior to the study period), and who have been enrolled in CCNC continuously throughout the 12-month study period. To eliminate those patients who may carry a diagnosis of schizophrenia erroneously or who have never been prescribed antipsychotic therapy, we excluded all patients who do not have at least one antipsychotic fill in the 6 months prior to the study period. We also excluded any patients receiving long-acting injectable antipsychotics, as these medications are typically prescribed to patients with a history of poor adherence and thus confound the relationship between adherence to oral antipsychotics and utilization.

We used the number of antipsychotic medication fills during our study period, as obtained from pharmacy claims data, to estimate medication adherence among study subjects. One antipsychotic is the standard of care for outpatient long-term management of patients with schizophrenia and most CCNC patients receive standard 30-day prescriptions for antipsychotics; we therefore defined

"adherence" as patients having 10-12 antipsychotic fills in a year. We divided the number of antipsychotic fills arbitrarily into discrete categories of zero, 1-3, 4-6, 7-9, 10-12, and 13 or more fills, with 10-12 fills being the referent category.

Our primary outcome variable was the number of ED visits reported in the study year—divided into behavioral health-related, medical (non-behavioral health-related), and total ED visits. We categorized visits as behavioral health-related if the encounter claim originated from a behavioral health managed care organization (MCO). We defined patients as high ED utilizers if they had 3 or more ED visits during the study period. We calculated the percent of patients who were high utilizers for each category of antipsychotic adherence.

Lastly, we extracted primary diagnosis codes from all ED visit encounters for our study sample during 2015 and categorized them according to the Multilevel Clinical

Classification Software (CCS) developed by the Agency for Healthcare Research and Quality.[12] The CCS divides diagnoses into 18 general disease groups and multiple subgroups. All analyses were performed using Stata® v.14.

Conclusions

This study provides strong evidence for the importance of anti-psychotic medication adherence in patients with schizophrenia. From a population health standpoint, it also elucidates a potentially valuable tool for reducing unnecessary emergency department utilization among Medicaid patients with schizophrenia. As CMS strives to control costs and improve care, increasing emphasis is being placed on care management and integrated behavioral health care. This study lends support to the concept that better behavioral health care could result in more cost-efficient medical care. More research is needed understand the causes for non-adherence among Medicaid patients with schizophrenia, as well as the best methods for improving adherence.

Suggested Citation

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References:

1. Billings J, Mijanovich T. Improving the management of care for high-cost medicaid patients. *Health Aff*. 2007;26(6):1643-1655. doi:10.1377/hlthaff.26.6.1643.

2. Billings J, Raven MC. Dispelling an urban legend: Frequent emergency department users have substantial burden of disease. *Health Aff*. 2013;32(12):2099-2108. doi:10.1377/hlthaff.2012.1276.

3. Shim RS, Druss BG, Zhang S, et al. Emergency department utilization among Medicaid beneficiaries with schizophrenia and diabetes: The consequences of increasing medical complexity. *Schizophr Res*. 2014;152(2-3):490-497. doi:10.1016/j.schres.2013.12.002.

4. Institute of Medicine (US) Committee on Crossing the Quality Chasm: Adaptation to Mental Health and Addictive Disorders. *Improving the Quality of Health Care for Mental and Substance-Use Conditions*. Vol

12. Washington, DC: National Academy of Sciences; 2006. http://site.ebrary.com/id/10120239.

5. National Alliance on Mental Illness. *Mental Illness Facts and Numbers*. Vol 1. 2013.

6. Mojtabai R, Lavelle J, Gibson PJ, et al. Gaps in use of antipsychotics after discharge by first-admission patients with schizophrenia, 1989 to 1996. *Psychiatr Serv*. 2002;53(3):337-339. doi:10.1176/appi.ps.53.3.337.

7. Weiden PJ, Olfson M. Cost of Relapse in Schizophrenia. *Schizophr Bull*. 1995;21(3):419-429. doi:10.1093/schbul/21.3.419.

8. Weiden PJ, Kozma C, Grogg A, Locklear J. Partial compliance and risk of rehospitalization among California Medicaid patients with schizophrenia. *Psychiatr Serv*. 2004;55(8):886-891. doi:10.1176/appi.ps.55.8.886.

9. Jiang Y, Ni W. Estimating the Impact of Adherence to and Persistence with Atypical Antipsychotic Therapy on Health Care Costs and Risk of Hospitalization. *Pharmacotherapy*. 2015;35(9):813-822. doi:10.1002/phar.1634.

10. Nardone M, Snyder S, Paradise J. *Integrating Physical and Behavioral Health Care: Promising Medicaid Models*. Vol February. 2014.

11. Ritsner M. A Naturalistic Follow-Up Study. *J Clin Psychiatry*. 2003;64(11).

12. Healthcare Cost and Utilization Project. Clinical Classifications Software (CCS) for ICD-9-CM. 2015. http://www.hcup-us.ahrq.gov/toolssoftware/ccs/ccs.jsp.

