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Medicare Beneficiary Access to Prescription Drugs in Rural Areas

Onyinye Oyeka, MPH; Fred Ullrich, BA; Keith J. Mueller, PhD

Background and Purpose

Pharmacies and pharmacists play a vital role in providing health care services in their communities. In addition to dispensing prescription drugs, pharmacies manage and coordinate the care of residents, providing services such as immunizations/vaccinations, chronic disease screening and management, health education, and medication monitoring and reviews.¹⁻³ Therefore, pharmacy closures threaten access to health care services and may negatively impact health outcomes. These impacts can be particularly acute in rural communities, where the availability of other health care providers may already be limited. Previous work done by the RUPRI Center on trends in pharmacy closures in rural areas showed that the number of independently owned rural pharmacies declined by 16.1 percent between 2003 and 2018.³ This work raised important questions about beneficiary access to pharmaceutical services, including how beneficiaries acquire medications when the local pharmacy closes. A prior RUPRI Center case study¹ found that access to prescription medications had not surfaced as a major problem in communities where the pharmacy closed because alternatives to direct access to a local pharmacist were available. Although access to pharmaceutical services can be maintained through alternative means such as mail-order, delivery, and telepharmacy, these services may not replace the benefits of in-person consultative pharmacy services, which are particularly essential in rural areas.^{1,4} It is therefore important to understand how residents of rural communities with no local pharmacies access pharmaceutical services and any barriers that may impede their access. The purpose of this policy brief is to identify the types of pharmacies used by beneficiaries in rural areas with limited or no access to pharmacies. The comparison group in this analysis is rural counties with a retail pharmacy presence (three groups based on number and type of pharmacy), consistent with the desire to understand the consequences of losing local pharmacy access in rural places.

Key Findings

- More Part D beneficiaries residing in rural counties with no retail pharmacy (19.5 percent) used a mail-order pharmacy compared to beneficiaries in rural counties with a pharmacy presence (15.8 – 17.1 percent across three groups).
- Part D beneficiaries in rural counties with no retail pharmacy used a higher number of pharmacies overall (1.84 pharmacies) compared to Part D beneficiaries in rural counties with a pharmacy presence (1.68-1.74 pharmacies).
- Beneficiaries residing in rural counties with no retail pharmacy traveled an average of 28.5 miles to use a community pharmacy compared to an average range of 6.5 - 13.1 miles for beneficiaries residing in rural counties with some type of pharmacy presence.



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RURAL POLICY RESEARCH INSTITUTE

RUPRI Center for Rural Health Policy Analysis
University of Iowa College of Public Health
Department of Health Management and Policy
145 Riverside Dr., Iowa City, IA 52242-2007
(319) 384-3830
<http://www.public-health.uiowa.edu/rupri>
E-mail: cph-rupri-inquiries@uiowa.edu

Methods

We used the National Council for Prescription Drug Programs⁵ (NCPDP) data from July 2016 to December 2017 to identify all retail pharmacies (see Appendix A). The NCPDP database contains pharmacy service provider information, including geographic location and ownership type. County location of each pharmacy was noted, and only those with Urban Influence Codes⁶ (UIC) indicating “noncore” (i.e., neither metropolitan nor micropolitan) status were retained. The focus of this project was on areas of the U.S. where health care resources were already likely to be constrained either by virtue of their smaller population and/or the proclivity of their population to commute to more populous areas. This approach created comparison groups of counties that were all rural without a city of at least 10,000 persons, enabling us to detect differences in Medicare beneficiary access to prescription medication based on presence of pharmacies in these lower-population-density counties. We defined a county as having a pharmacy presence if a retail pharmacy was operating in the county for all 18 months of the study period. Conversely, we defined a county as not having a pharmacy presence if there was no retail pharmacy available during the entire study period. Based on this data, we created four retail pharmacy county cohorts: (1) counties with no retail pharmacy, (2) counties with an independent pharmacy only, (3) counties with one chain or franchise pharmacy only, and (4) other noncore counties with more than one pharmacy.

Medicare Part D claims data on events (i.e., pharmacy transactions to obtain a single prescription medication) from 2017 for beneficiaries residing in each of the county cohorts was obtained through a ResDAC request.⁷ The request included data on all beneficiaries with at least one Part D claim from counties with no pharmacy or an independent pharmacy only. Also included were randomly selected beneficiaries with at least one Part D claim from counties with at least one chain/franchise pharmacy or some other retail pharmacy combination. The obtained sample contained data on 999,999 beneficiaries. Claims data from forty-eight beneficiaries did not provide pharmacy identification, and they were excluded from the study. The final sample provided event data on a total of 999,951 beneficiaries.

Results/Findings

Table 1 provides descriptive county characteristics for the pharmacy county cohorts in the sample. Our analysis showed that counties with no retail pharmacy were the smallest in terms of total population, population age 65 and older, number of Medicare beneficiaries, and Medicare Part D enrollees. We also observed an increase in the counts by county characteristics, going from counties with no retail pharmacy to those with a larger mix of pharmacy providers.

Table 1. Rural Noncore County Characteristics,⁸ by County Pharmacy Cohort

	No Retail Pharmacy	Independent Pharmacy Only	Chain/ Franchise Pharmacy Only	Other Noncore
Count	96	395	105	718
Median total population	1,732	6,230	10,936	17,469
Median population age 65+ years ^a	397	1,211	1,921	3,264
Median Medicare Beneficiaries ^b	458	1,410	2,162	3,948
Median Part D Enrollees ^c	251	853	1,381	2,228

a. American Community Survey 2013-2017 five-year population estimates.

b. CMS Medicare enrollment public use file.

c. CMS Part D penetration data.

Table 2 presents a summary of beneficiary characteristics across the four county cohorts. Across all county cohorts, females comprised the majority of beneficiaries, ranging from 55.7

percent in counties with no retail pharmacy to 57.4 percent in counties with only a chain/franchise pharmacy. We also found that beneficiaries residing in counties with no retail pharmacy tended to be older and more likely to qualify for Medicare through the Old Age and Survivors Insurance entitlement. A small portion of each cohort, approximately 4.1 percent, died during the sample year, but the average number of months of data reported for beneficiaries across all four cohorts was nearly identical.

Table 2. Beneficiary Characteristics, by County Pharmacy Cohort

	No Retail Pharmacy	Independent Pharmacy Only	Chain/ Franchise Pharmacy Only	Other Noncore
Total sample beneficiaries	32,481	143,058	69,287	755,125
Female	55.7%	56.6%	57.4%	56.8%
Beneficiary age ^a (mean years)	72.6	72.0	71.7	70.9
Old Age and Survivors Insurance (OASI) ^b	87.5%	84.2%	84.4%	81.2%
Died during sample year	4.0%	4.3%	4.1%	4.1%
Mean months of available claims data ^c	11.78	11.78	11.78	11.79

a. Beneficiary age at the end of 2017.

b. Other reasons for qualification include Disability Insurance Benefits (DIB), and/or End-State Renal Disease (ESRD).

c. A small number of the beneficiaries in each cohort died during the sample year, hence not every beneficiary contributed the full 12-month complement of data.

Table 3 presents the distributions of Part D claims by county pharmacy cohort. There was a total of 40,593,323 individual drug claim events in the study. An “event” is the activity of obtaining a single prescription medication, and an “encounter” is an interaction with a pharmacy entity that may (or may not) include multiple events. We found that beneficiaries residing in counties with no retail pharmacy had, on average, a smaller number of claim events and pharmacy encounters compared to beneficiaries residing in counties with some type of pharmacy presence.

Table 3. Claim Event^a Counts, by County Pharmacy Cohort

	No Retail Pharmacy	Independent Pharmacy Only	Chain/ Franchise Pharmacy Only	Other Noncore
Beneficiaries with identifiable events	32,481	143,058	69,287	755,125
Total events	1,110,628	5,786,022	2,496,190	31,200,483
Average number of events per beneficiary	34.20	40.45	36.03	41.32
Average number of pharmacy encounters ^b	20.16	22.36	22.23	23.62

a. A claim “event” represents filling a single prescription.

b. “Encounters” were counted as one or more events per pharmacy per day.

Table 4 displays total pharmacies and pharmacy types used by beneficiaries in each pharmacy county cohort. For this analysis, we restricted the data to beneficiaries that stayed in the same county over *all 12 months* (n = 967,584, 96.8%) because beneficiary relocation may lead to a change in pharmacy providers (therefore increasing the number of pharmacies used). The analysis showed that beneficiaries residing in counties with no retail pharmacy were more likely to have used higher numbers of pharmacies overall, mail-order pharmacies, and community pharmacies than were beneficiaries residing in counties with some type of pharmacy presence. We also found that beneficiaries residing in counties with no retail pharmacy traveled two to four times as far to use a community pharmacy than did beneficiaries residing in counties with some type of pharmacy presence.

Table 4. Pharmacies Utilized, by County Pharmacy Cohort

	No Retail Pharmacy	Independent Pharmacy Only	Chain/ Franchise Pharmacy	Other Noncore
Beneficiaries w/ identifiable events	31,457	138,270	66,945	730,912
Beneficiaries using community pharmacy	93.8%	93.0%	93.2%	94.1%
Beneficiaries using institutional pharmacy	5.4%	7.7%	6.5%	6.2%
Beneficiaries using mail-order pharmacy	19.5%	15.8%	17.1%	16.2%
Beneficiaries using other pharmacy type	1.4%	1.4%	1.3%	1.6%
Beneficiaries using unspecified pharmacy type	0.3%	0.1%	0.1%	0.2%
Average # of pharmacies used	1.84	1.74	1.68	1.71
Average # of community pharmacy events	1.48	1.41	1.35	1.38
Average # of institutional pharmacy ^a events	0.06	0.09	0.07	0.07
Average # of mail-order pharmacy events	0.28	0.23	0.24	0.24
Average # of other pharmacy ^b events	0.02	0.01	0.01	0.02
Average # of pharm. type not specified events	0.00	0.00	0.00	0.00
Median distance to community pharm. (miles)	28.5	13.1	7.9	6.5

a. Includes institutional pharmacies and long-term care pharmacies.

b. Includes compounding, MCO, specialty care, and other pharmacies, and home infusion therapy providers.

Discussion

This policy brief identifies the different types of pharmacies used by Medicare Part D beneficiaries in rural areas with limited or no local access to retail pharmacies. We found that ninety-six rural counties had no access to a local retail pharmacy. These counties tended to be less populated and have an older population compared to rural counties with a pharmacy presence.

Rural areas are experiencing a decline in the number of pharmacies available to provide pharmaceutical services. Our analysis shows that rural beneficiaries with no local access to a retail pharmacy travel two to four times farther to access a community pharmacy than beneficiaries with local pharmacy services. Mail-order pharmacies, which deliver medications directly to the beneficiary, have been cited as an alternate solution for beneficiaries with limited or no retail pharmacy access; however, only 19 percent of rural beneficiaries in these communities use a mail-order pharmacy. This finding suggests persistent access barriers for these beneficiaries, which may limit their ability to fill their prescriptions and adhere to prescribed medications.⁹ These access barriers have important consequences for health disparities and may lead to higher health care expenditures. Furthermore, beneficiaries in counties with no retail pharmacy had fewer claim events and fewer pharmacy encounters than beneficiaries residing in counties with a pharmacy presence. While these disparities may be the product of lower prescription requirements of beneficiaries in these counties, they may also be a result of more difficult access to services. Regardless, the available data does not allow us to make this distinction.

Rural residents have reported a preference for easier access to face-to-face pharmacy consultation and other clinical pharmacy services.¹ This finding has implications related to patient education, access to public health services provided by pharmacies, and medication adherence. These services are particularly important in rural areas, given the higher prevalence of multiple chronic conditions and their associated risk factors in rural areas.¹⁰

Pharmacy closures disproportionately occur among independent pharmacies.^{3,9} Following the implementation of Medicare Part D, many independent pharmacies closed.¹¹ Low reimbursement rates by pharmacy benefit managers (PBMs) have been cited as an underlying cause of independent pharmacy closures because reimbursements often do not cover the costs of drugs plus overhead.¹² Unlike large retail and chain pharmacies, independent pharmacies are not able to achieve economies of scale that may help drive down cost and allow them to operate at lower prices.¹³ In addition, assessment of the direct and indirect remuneration fees, which are often implemented post-sale, effectively reduce the revenue of pharmacies and disproportionately affect small independent pharmacies.^{12,13} Furthermore, increased market power as a result of vertical and horizontal integration among PBMs, chain pharmacies, and insurance companies may further exacerbate the financial viability of independent pharmacies. These factors may place independent pharmacies at higher risk for closure, particularly if PBMs engage in strategies that steer customers away from independent pharmacies, require customers to use mail-order pharmacies, or prohibit sale of expensive drugs at independent pharmacies.^{14,15} Taken together, these findings suggest that rural residents are facing persistent barriers to pharmacy access, with those living in areas with no retail pharmacy experiencing greater challenges. Pharmacies are often the last source of clinical care remaining in a rural community; therefore, these challenges are likely to worsen with continued pharmacy closures.¹⁶ Use of other pharmacy types, such as mail-order pharmacies, may help alleviate some of the challenges;¹⁷ however, such access does not replace the host of other pharmacy services that rural residents need and find useful.¹⁶

Our analysis has several limitations. Because the data in the county cohorts focus on beneficiaries with at least one Medicare Part D claim, we observed only filled prescriptions, which is not a measure of medication adherence. Pharmacy county cohort characteristics are based on pharmacy location and not patients' place of residence. The definition for pharmacy presence is also conservative, which may underestimate beneficiaries' pharmacy accessibility challenges. Because of data limitations, we were unable to measure use of other pharmacy services, including the role of a pharmacist in medical home. This analysis is descriptive in nature and is not intended to infer causality. Finally, although our study period was 18 months, analysis using longer time periods may help highlight pharmacy utilization trends.

Future policy recommendations should consider the use of telepharmacy to increase medication access in communities with poor access to medications. Fewer than half of all U.S. states have rules or legislation authorizing telepharmacy practice.¹⁸ Similarly, policy efforts to improve access to pharmacy services may require the design of an economic model to support and sustain local pharmacies through better reimbursement that covers their costs. For example, some states are beginning to offer higher Medicaid reimbursement for at-risk pharmacies.¹⁹ Further, policies that provide transportation services would help to eliminate transportation barriers that prevent beneficiaries from obtaining medication.²⁰

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Appendix A: Pharmacy Classifications

NCPDP data provides two different pharmacy classification fields: Dispenser Class, and Provider Type. "Provider Type" was used to identify community/retail pharmacies. Other pharmacy provider types that were excluded:

- Long Term Care Pharmacy
- Mail-Order Pharmacy
- Home Infusion Therapy Provider
- Non-Pharmacy Dispensing Site
- Indian Hlth Svc/Tribal/Urban Indian Health Pharm.
- Department of Veterans Affairs (VA) Pharmacy
- Institutional Pharmacy
- Managed Care Organization Pharmacy
- DME
- Clinic Pharmacy
- Specialty Pharmacy
- Nuclear Pharmacy
- Military/U.S. Coast Guard Pharmacy
- Compounding Pharmacy
- Oxygen Equipment
- Nursing Facility Supplies
- Customized Equipment
- Dialysis Equipment
- Parenteral and Enteral Nutrition

Appendix Table A1. "Dispenser Class" used to classify the community/retail pharmacies

Value	Definition
Independent Pharmacy	<i>One – three (1-3) pharmacies under common ownership.</i>
Chain Pharmacy	<i>A pharmacy that is part of a group of four (4) or more pharmacies under common ownership. Pharmacies may or may not share the same Federal Tax ID number.</i>
Franchise Pharmacy	<i>An independently owned pharmacy that has signed a franchise agreement with a franchisor wherein the franchisee receives services such as training, marketing, and other support from the franchisor in exchange for a franchise fee to the franchisor. A franchisee often includes the franchisor's name as part of the store name.</i>
Government Pharmacy	<i>A pharmacy under the jurisdiction of federal, state, county or city government or the Indian Health Service. This includes military pharmacies within or outside the United States.</i>
Alternate Dispensing Site (e.g. physician office, emergency department, urgent care centers, rural health facilities, etc)	<i>A pharmacy or dispensing site that does not fit into the four classes above. This includes mail service Pharmacies, institutional and hospital pharmacies, most clinic pharmacies, and non-pharmacy dispensing sites.</i>