

RUPRI Center for Rural Health Policy Analysis

Data Brief

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Changes in Rural Pharmacy Presence 2023

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Purpose

This data brief continues the RUPRI Center's series of reports exploring the availability of retail pharmacy services in rural areas of the U.S. It provides information on rural communities that have kept, lost, or gained a retail pharmacy between 2018 and 2023.

Key Findings

- Between 2018 and 2023 the number of retail pharmacies in the U.S. declined by 3.9 percent. During that same period the number of retail pharmacies located in rural communities declined by 5.9 percent and the number of retail pharmacies located in urban communities declined by 3.4 percent.
- While the number of retail pharmacies in rural communities declined during that period (11,489 in 2018 to 10,808 in 2023), the number of rural communities with retail pharmacies remained relatively constant (44.7% of rural communities had at least one retail pharmacy in 2018 versus 47.6% in 2023).
- During this five-year period, 184 rural communities lost all local retail pharmacy service but 195 other rural communities gained retail pharmacy service.

Data and Methods

Data on pharmacies providing retail services in the 50 states and the District of Columbia in June 2018 and June 2023 were obtained from the National Council for Prescription Drug Programs (NCPDP).¹ The data provides information on location, services, pharmacy classification², and more. Pharmacies in rural communities³ were identified by classifying their location using 2010 Rural-Urban Commuting Area (RUCA)⁴ codes, keeping only those pharmacies located in nonmetropolitan (i.e., RUCA>3) ZIP Code Tabulation Areas (ZCTAs). Pharmacies in metropolitan ZCTAs were not considered in this analysis.

Counties and ZCTAs are frequently used for geographic analyses of health services, but neither of those geographies is particularly well-suited for defining access to pharmacy services. Counties can be very large (there are 504 counties with land areas bigger than that of Rhode Island⁵) and so the presence of a retail pharmacy in the county may hide the fact that pharmacy services are quite distant for many residents. ZCTAs too, can be very large (there are 169 ZCTAs with land areas bigger than that of Rhode Island) but the bigger problem with ZCTAs is that they are frequently too small (there are 2,391 ZCTAs smaller



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than one square mile⁵). In these cases, the loss or gain of a pharmacy may be a very poor indicator of actual resident access to pharmacy services. This analysis examines changes in rural retail pharmacy availability and uses Census-defined “places” as the geographic unit of analysis. Places are geographies defined by the U.S. Census Bureau and include incorporated places and Census Designated Places (CDPs). Incorporated places are legally bounded entities and are commonly thought of as cities, towns, villages, or boroughs. CDPs are areas identified by the U.S. Census Bureau based on a “concentration of population, housing, and commercial structures, identifiable by name, but not within an incorporated place”⁶ (frequently referred to as an unincorporated community). Pharmacy place locations were established using the “city name” provided in the NCPDP data and aligning that with data from the Census Bureau’s 2020 “ZCTA to Place” relationship data⁷ and the U.S. Geological Survey’s Geographic Names Information System (GNIS) data.⁸ Places are not classified as metropolitan or nonmetropolitan, however, this analysis is limited to pharmacies in nonmetropolitan ZCTAs, so we use the term “rural communities.”

Data on place characteristics were obtained from the Census Bureau’s American Community Survey (ACS) 2017-2021 five-year population estimates. Combining this recent census data with pharmacy place data that used rural definitions based on 2010 decennial census data resulted in four rural communities with populations in excess of 50,000. These were removed from the analysis dataset.

Findings

In 2018, there were 63,218 retail pharmacies in the U.S., with 11,489 located in rural communities. By 2023, that number had declined to 60,755 retail pharmacies overall (a reduction of 3.9 percent) with 10,808 of those located in rural communities (a reduction of 5.9 percent). During the same period, the number of pharmacies in urban communities declined by 3.4 percent. These findings are consistent with those reported in the 2022 RUPRI policy brief “Update on Rural Independently Owned Pharmacy Closures in the United States, 2003-2021.”⁹ Interestingly, although the number of pharmacies in rural communities declined during this period, the number of rural communities with retail pharmacies increased by 0.3 percent.

Although the overall number of rural communities with retail pharmacies changed little between 2018 and 2023, there was a significant number of changes within communities. In the five-year period, 184 rural communities lost all of their retail pharmacies (three places lost two pharmacies), and 195 rural communities gained retail pharmacies (three places gained two pharmacies). Approximately two-thirds of the rural communities gaining a retail pharmacy (69.5 percent) or losing a retail pharmacy (63.5 percent) were located in the smallest rural communities (RUCA codes describe these as “small towns” or “rural areas”).

Table 1. Pharmacies in Rural Communities: 2018, 2023

	2018	2023	Change
Total pharmacies	63,218	60,755	-3.9%
Pharmacies in rural communities	11,489	10,808	-5.9%
Pharmacies in urban communities	51,729	49,947	-3.4%
Rural communities with pharmacies	4,153	4,164	+0.3%
with one pharmacy	1,858 44.7%	1,983 47.6%	+6.7%
with two pharmacies	772 18.6%	740 17.8%	-4.1%
with three or more pharmacies	1,523 36.7%	1,441 34.6%	-5.4%

Independent pharmacies comprise approximately 50 percent of retail pharmacies located in nonmetropolitan areas,⁹ so it is not surprising that the majority of the pharmacy losses (79.1%) and gains (79.8%) in rural communities were among those that are independently operated (Table 2). Chain pharmacies make up slightly less than 50 percent of the retail pharmacies located in rural areas⁹, but represented a much lower percentage of the pharmacy gains (17.7%) and losses (18.7%) in rural communities.

Table 2. Retail Pharmacy Types Kept or Lost: Rural Communities 2018-2023

	Lost (n=187)		Gained (n=198)	
Independent	148	79.1%	158	79.8%
Chain	35	18.7%	35	17.7%
Franchise	4	2.1%	5	2.5%

Not all places are reported in Census Bureau products. The 4,348 combined pharmacy places reported in NCPDP data between 2018 and 2023 include 99 place names that were not represented in the ACS data. Table 3 displays the characteristics of the 4,249 rural communities that kept, lost, or gained retail pharmacy service from 2018 to 2023 and had ACS data available. Incorporated places were more likely than CDPs to retain pharmacies. Both incorporated places and CDPs were more likely to lose pharmacy services than to gain services. Places that kept pharmacy service had a much larger population than those that either lost or gained service, but places that gained pharmacy service had a lower average population than places that lost pharmacy service. There was little variation in population demographics between places that kept, lost, or gained pharmacy service. Places that gained pharmacy service had a higher proportion of population with no health insurance. But the degree of variation in these measures was quite small.

Table 3. Characteristics of rural places that kept, lost, or gained pharmacy service, 2018 to 2023*

	Kept (n=3,952)		Lost (n=180)		Gained (n=117)		Total (n=4,249)
Place classification							
Incorporated place	3,652	94.1%	137	3.5%	94	2.4%	3,883
Census Designated Place	300	82.0%	43	11.7%	23	6.3%	366
Median population							
	2,977		1,368		1,103		2,770
Averages							
Percent female	51.4%		51.0%		51.2%		51.4%
Percent age 65 and older	19.5%		20.5%		20.7%		19.6%
Percent < High School graduate	14.9%		13.6%		15.7%		14.9%
Percent under poverty	19.7%		17.8%		17.8%		19.5%
Percent unemployed	3.6%		3.9%		3.7%		3.7%
Percent with no health insurance	10.0%		9.2%		11.8%		10.0%
Percent with disability	17.9%		17.6%		18.6%		17.9%
Ambulatory disability	10.4%		10.1%		10.8%		10.4%
Self-care disability	3.7%		3.6%		3.5%		3.7%
Independent living disability	8.1%		7.7%		8.1%		8.1%

*Census Bureau products do not provide characteristic data for all places. There are fewer places reported in the table than reported in the narrative.

Figure 1 on page 5 provides a Census-region-based map of U.S. counties indicating where rural places have lost pharmacy service (all) and where they have gained pharmacy service (from zero to one or more).

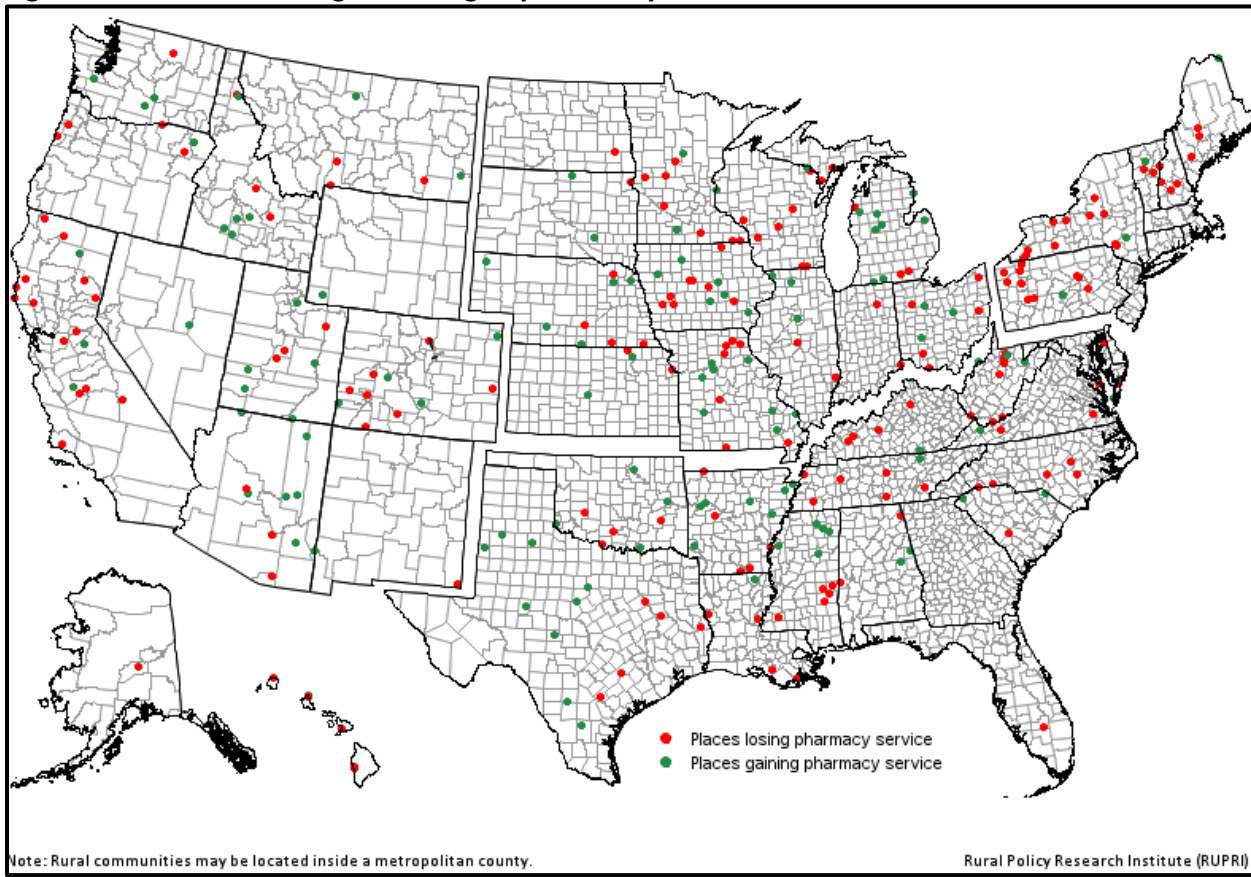
Discussion

The total number of retail pharmacies declined by 3.9 percent between 2018 and 2023, with larger losses occurring in rural communities than in urban communities. These losses continue trends that have been reported by the RUPRI Center for a number of years but are not as dramatic as the losses seen between 2007 and 2009. During that shorter period, the number of independent rural pharmacies declined by over 7 percent.¹⁰

The overall number of rural communities with retail pharmacies changed little between 2018 and 2023, but there was a substantial number of community-level changes. In the five-year period, 184 rural communities lost retail pharmacy service but 195 other rural communities gained retail pharmacy service. Most of these changes happened in independent pharmacies (there was little change in communities with franchise or chain pharmacies), and community changes were more likely to take place in CDPs than in incorporated places.

There was little variation in the characteristics of the populations in places that kept, lost or gained pharmacy service. That lack of variation, along with the relative parity in the number of communities gaining pharmacy service and those losing pharmacy service indicate the need for additional research. Future research should explore factors that may be associated with losing or gaining pharmacies, including changes in commuting patterns for work and retail shopping, and proximity to health care providers and other places with retail pharmacy.

Figure 1. Rural Places Losing or Gaining Any Pharmacy Service: 2018-2023



References

¹ National Council for Prescription Drug Programs. <https://www.ncpdp.org/>

² “Independent” pharmacies are those where one-three pharmacies are under common ownership. “Chain” pharmacies are part of a group of four or more pharmacies under common ownership. “Franchise” pharmacies are independently owned but with a franchise agreement wherein the franchisor provides services (e.g., training, marketing, etc.) in exchange for a fee from the franchisee. “Other” pharmacies include government pharmacies (e.g., IHS or military pharmacies), and alternate dispensing sites (e.g., physician office, emergency department, rural health facilities, etc.). National Council for Prescription Drug Programs. DataQ™ Pharmacy Database File Standard, Implementation Guide Version 3.1, p 49.

³ The focus of the RUPRI Center’s work is on rural populations. But the most common geography taxonomies (e.g., Urban Influence Codes, Rural Urban Commuting Area Codes, and others) are based on Office of Management and Budget definitions of metropolitan and nonmetropolitan. Since we are employing RUCA codes in an atypical fashion (i.e., as applied to the “place” within the ZCTA) the term “rural community” is used throughout this document.

⁴ USDA Economic Research Service. Rural-Urban Commuting Area Codes, Documentation. <https://www.ers.usda.gov/data-products/rural-urban-commuting-area-codes/documentation/>. Accessed 8/21/2023.

⁵ RUPRI Center analysis of 2020 U.S. Census Bureau Gazetteer Files. <https://www.census.gov/geographies/reference-files/time-series/geo/gazetteer-files.html>.

⁶ U.S. Census Bureau. Understanding “Place” in Census Bureau Data Products. <https://www.census.gov/content/dam/Census/data/developers/understandingplace.pdf>. Accessed 8/21/2023.

⁷ U.S. Census Bureau. 2020 ZIP Code Tabulation Area (ZCTA) Relationship File Record Layouts. <https://www.census.gov/programs-surveys/geography/technical-documentation/records-layout/2020-zcta-record-layout.html>. Accessed 8/21/2023.

⁸ U.S. Geologic Survey, U.S. Board on Geographic Names. Download GNIS Data. <https://www.usgs.gov/us-board-on-geographic-names/download-gnis-data>. Accessed 8/21/2023.

⁹ RUPRI Center for Rural Health Policy Analysis. Update on Rural Independently Owned Pharmacy Closures in the United States, 2003-2021. <https://ruprihealth.org/publications/policybriefs/2022/Independent%20Pharmacy%20Closures.pdf>. Accessed 8/21/2023.

¹⁰ RUPRI Center for Rural Health Policy Analysis. Update: Independently Owned Pharmacy Closures in Rural America, 2003-2018. <https://ruprihealth.org/publications/policybriefs/2018/2018%20Pharmacy%20Closures.pdf> . Accessed 8/21/2023.

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