Community Pharmacist Provision of Non-Dispensing Services in Health Professional Shortage Areas

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Abstract

Individuals living in primary care health professional shortage areas (HPSAs) experience health inequities. Community pharmacists are healthcare professionals with an opportunity to provide care to underserved populations. The objective of this study was to compare non-dispensing services provided by Ohio community pharmacists in HPSAs and non-HPSAs. Methods: An electronic, IRB-approved 19-item survey was sent to all Ohio community pharmacists practicing in full-county HPSAs and a random sample practicing in other counties (n=324). Questions assessed current provision of non-dispensing services as well as interest and barriers regarding such services. Results: Seventy-four usable responses were received (23% response rate). Respondents in non-HPSAs were more likely to recognize their county's HPSA status than those in an HPSA (p=0.008). Pharmacies in non-HPSAs were significantly more likely to offer 11 or more non-dispensing services than those in HPSAs (p=0.002). Nearly 60% of respondents in non-HPSAs reported starting a new non-dispensing service during the COVID-19 pandemic compared to 27% of respondents in full HPSA counties (p=0.009). Most commonly reported barriers to providing non-dispensing services in both county types included lack of reimbursement (83%), workflow (82%), and space (70%). Respondents expressed interest in learning more information about public health and collaborative practice agreements. Conclusion: While the need for non-dispensing services is great in HPSAs, community pharmacies in full-county HPSAs in Ohio were less likely to provide these services or begin novel services. Barriers must be addressed so that community pharmacists can provide more non-dispensing services in HPSAs to increase access to care and promote health equity.

Keywords: Pharmacists; Community Pharmacy Services; Health Services Accessibility; Rural Health Services

Background

The Health Resources and Services Administration defines a health professional shortage area (HPSA) as a "geographic area, population, or facility experiencing a shortage of primary, dental, or mental health care providers."[1] A geographic HPSA is a provider shortage for the entire population in a defined geographic boundary.[1] To be determined a federally designated HPSA, the primary factor of qualification considers the number of health professionals in the area relative to the population. A primary care provider HPSA must have a ratio less than or equal to one provider for 3,500 in the population.[2]

A significant challenge in the United States (U.S.) is access to primary health care.[3] Although HPSAs can be located in any population, rural areas are more likely to experience health care provider shortages.[4] In 2017, 59% of all primary care HPSAs in the U.S. were located in rural communities.[4] Limited access to care has a direct impact on health. Research has shown that a greater per-population density of primary care physicians indicates more positive health outcomes.[5] Health disparities exist between rural and urban populations in the U.S.. Rural communities experience higher rates of chronic disease, lower life expectancy, and poorer health outcomes on a variety of indicators, and social determinants of health contribute to the health disparities experienced in underserved communities.[6]

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Improving access to healthcare is a pivotal step to address this public health issue and strive for equity in these communities.[3] An opportunity to bridge the gap of healthcare access to underserved communities is through community pharmacists.[7,8] Community pharmacists are the most accessible healthcare professionals in the U.S., as about 96% of the total population lives within 10 miles of a community pharmacy (ranging from 68% in rural areas to 99% in large metropolitan areas).[9] The proximity of community pharmacists places them in an optimal position to provide services to patients who lack access to other primary care providers. Furthermore, community pharmacists have the particular advantage of encountering patients more often than most primary care providers, as a patient visiting the pharmacy for prescription refills or immunizations provides an opportunity for multiple checkpoints throughout the year.[7,8]

The traditional role in dispensing prescription medications is often misunderstood as the only care provided by community pharmacists.[10] However, community pharmacists do not have to be limited to dispensing medications; rather they have the education and training to provide patient-centered care services - often referred to as "non-dispensing services" - as part of interprofessional healthcare teams, which include vaccinations, point-of-care testing, medication counseling, medication therapy management, and blood pressure monitoring among others.[7,8] Other tools that can enhance community pharmacists' ability to provide these services are collaborative practice agreements and provider status. A collaborative practice agreement (CPA) is an established relationship between a primary care provider and a pharmacist, allowing pharmacists to provide patient care services such as

DOI: https://doi.org/10.24926/iip.v13i4.4859

initiation and modification of drug therapy.[11] Provider status enables pharmacists to bill for clinical services within their scope of practice.[12] CPA as well as provider status allows community pharmacists to provide non-dispensing services in a financially sustainable way.[13]

Ohio has 11 counties fully designated as HPSAs, 10 of which are rural.[14] While opportunities for community pharmacists to provide non-dispensing services in HPSA exist, it is not known whether this is currently a common practice in Ohio. The primary objective of this study was to characterize non-dispensing services that Ohio community pharmacists currently provide and to compare such services among pharmacists practicing in HPSA and non-HPSA counties. Secondary objectives included determining interest and barriers in providing such services as well as pharmacists' opinions regarding the importance of such services and their perceived impact on public health.

Methods

This study utilized a cross-sectional survey to collect information regarding non-dispensing services from Ohio community pharmacists. First, a list of community pharmacists with active licenses currently registered with the State of Ohio Board of Pharmacy was obtained. To determine the study sample, all pharmacists with a work address listed with the Board practicing in the 11 Ohio counties that have been entirely designated as geographic primary care HPSA by the Health Resources and Services Administration were identified (n=162). A comparison group of pharmacists practicing in other Ohio counties was randomly selected, equal to the number of pharmacists in HPSAs, for a total sample size of 324.

A 19-item survey using Qualtrics XM (Provo, UT) was created. Questions assessed the current provision of non-dispensing services as well as opinions and interests regarding such services, CPA, and provider status. Questions examined whether respondents recognized if they currently practice in an HPSA (dichotomous response option); opinions regarding non-dispensing services in HPSA (dichotomous response option) and their perceived impact on public health (Likert scale response option); any newly-established practices as a result of the COVID-19 pandemic (free text response option); barriers to provision of non-dispensing services (dichotomous response option) and selected demographic characteristics. Five pharmacists with backgrounds in community pharmacy who were not eligible to take the survey pre-tested the survey and provided feedback regarding face validity and technical problems. The survey was deemed exempt by the Ohio Northern University's Institutional Review Board.

The survey was first sent via email on February 3, 2022, and the survey remained open until February 22, 2022. There were a total of seven reminder emails throughout the study period sent on varying days of the week and times of day to try to allow for different opportunities for individual participation. As an incentive, respondents had the opportunity to enter a drawing for one of 15 $25 Amazon gift cards or one $100 card; a link in the end-of-survey message directed respondents to a separate Qualtrics survey where their contact information could be entered to ensure that the answers of respondents were kept anonymous.

Statistical analyses were performed using IBM SPSS Statistics 27 (Armonk, NY). Descriptive statistics were calculated from the data; as no questions in the survey were marked as mandatory, frequencies and percentages were calculated from the total number of respondents who answered each question. Chi-square or Fisher's exact test were performed as appropriate to examine potential associations between HPSA designation and selected variables; respondents from partial-county HPSA as well as those with missing data were excluded from these analyses.

Results

Four emails were undeliverable, resulting in a total sample size of 320. Seventy-seven respondents completed the survey; three respondents worked at pharmacies that did not provide any direct patient care services and were excluded from the analysis resulting in 74 usable responses (23% response rate). Figure 1 displays the counties from which responses were received. Table 1 shows the demographic characteristics of respondents. Thirty-six percent of respondents worked in counties designated as full HPSAs; 62% worked in counties with no HPSA designation. Respondents from HPSAs more often reported that their pharmacy was located in a rural area (p=0.003) and that they have worked at their current workplace for more than 10 years (p=0.007). No other demographic characteristics were statistically significantly different between HPSA and non-HPSA respondents.

Pharmacists who worked in non-HPSA counties were more likely to correctly recognize the HPSA designation of their county than pharmacists practicing within HPSA counties (p=0.008). Ninety-nine percent of respondents "strongly agreed" or "somewhat agreed" that they impact public health every day at their job. Nearly 91% of respondents thought that non-dispensing pharmacy services should be provided to patients at pharmacies located in HPSAs. All respondents, regardless of HPSA designation, indicated that they offered at least one non-dispensing service at their practice site (Table 2). When the total number of non-dispensing services were grouped into categories of 1-5 services, 6-10 services, and 11 or more services, pharmacies in non-HPSA counties were significantly more likely to offer 11 or more services than pharmacies in HPSA counties (p=0.002). In addition, 59% of respondents in non-HPSA counties reported starting a new non-dispensing service in response to the COVID-19 pandemic as compared to 27% of respondents in full-county HPSAs (p=0.009). When asked about which non-dispensing services respondents wanted to learn more information about via continuing pharmacy education, roles in public health were

DOI: https://doi.org/10.24926/iip.v13i4.4859

prioritized, followed by CPA, infectious disease testing, smoking cessation, and depression screening (Table 3).

About 30% of respondents had an established CPA; there was not a significant difference between HPSA and non-HPSA respondents (p=0.273). Of those not currently practicing with a CPA, more respondents in full-county HPSAs expressed interest in forming one as compared to those in non-HPSA counties, although the difference was not statistically significant (65% vs. 41%. p=0.104). Overall, 66% of respondents indicated interest in provider status; interest was not significantly associated with whether or not the pharmacist practiced in a full-county HPSA (p=0.806).

Respondents were also asked to identify barriers to providing non-dispensing services at their pharmacy (Table 4). In general, the barriers were similarly reported. There were no statistically significant differences seen in barriers reported among pharmacists in HPSA and non-HPSA counties.

Discussion

Community pharmacists can provide effective clinical services as part of interprofessional healthcare teams.[7,8] With healthcare workforce shortages across the country, community pharmacists could help to fill this gap.[15] Specifically in Ohio, the Rural Health Improvement Plan identified "developing strategies to improve access to care" as the most important need in their local areas.[16] Similarly, access to care and local access to care providers were included as priority health factors in the 2020-2022 Ohio State Health Improvement Plan.[17] Community pharmacists can be utilized to help provide access to needed health services or provide referrals for patients' clinical health or social health needs via clinical-community linkages.[18] However, this study found that community pharmacies in non-HPSA counties were significantly more likely to offer at least 11 non-dispensing services and more often started novel services in response to the COVID-19 pandemic than pharmacists in full-county HPSAs. These findings demonstrate geographic inequities where individuals living in HPSAs in Ohio may experience disparities in receiving non-dispensing services from community pharmacists.

Of the 11 full-county HPSAs in Ohio, all but one are rural.[14] Residents living in rural areas tend to experience social determinants of health including poverty, lower education levels, and higher levels of unemployment, resulting in poorer health.[6] Community pharmacists can provide services to rural residents that may otherwise be inaccessible due to location, financial restraints, and lack of primary care providers. Some services especially relevant to rural residents are medication synchronization, medication management therapy, and tobacco cessation. Medication synchronization may be particularly important in HPSAs where rurality may influence the accessibility of transportation to their local pharmacy.[19] As rural residents tend to have lower health literacy,[20] medication management therapy may be of benefit for patients to better understand their medications and the importance of adherence. Only two respondents in HPSA counties indicated that smoking cessation was offered at their pharmacy, compared to 16 non-HPSA pharmacies providing this service. This is a preventive service that can mitigate health issues from smoking. In rural areas there are higher rates of smoking among the population,[21] and community pharmacists in these areas could more often provide resources to patients who are attempting to quit tobacco use. These are just a few examples of important areas that community pharmacists are able to impact for rural residents of HPSAs.

This study found that community pharmacists practicing in non-HPSAs were more likely to recognize they were not in an HPSA, while community pharmacists practicing in an HPSA did not recognize they practiced in an HPSA. This was an interesting finding, because in order to help their community, it is important to recognize the health needs present in the community. If pharmacists do not recognize that their practice is located in an HPSA, they may not realize the difficulty community members face in accessing primary care physicians or understand the need for non-dispensing services that could be used to help their population. Pharmacists should be aware of the community they are serving and its needs from a broadened perspective that includes aspects of health beyond dispensing medication. Such information may be found in state or local community health needs assessments and community health improvement plans.[22]

There are several barriers that can impede the provision of additional non-dispensing services. The most frequently indicated barriers in providing non-dispensing services among these respondents were reimbursement, workflow, and space, which confirmed previously published findings.[23] About 96% of respondents practicing in an HPSA indicated lack of reimbursement as a barrier to providing non-dispensing services. Pharmacy owners may be less inclined to provide services in their pharmacy that are not reimbursed because a lack of profit may not be feasible for the business.[23] Results also showed that nearly the same percentage of pharmacists in HPSAs and non-HPSAs indicated workflow as a barrier. Workflow is a barrier that can inhibit the ability to offer non-dispensing services, and a way to address this would be by hiring more employees. However, it is unlikely that a new hire would be possible without reimbursement.[23] Barriers such as workflow and reimbursement are related to each other and influence the ability to provide non-dispensing services at a community pharmacy. It is imperative governmental programs and other third-party payors begin to recognize pharmacists as providers and reimburse for their services so that more community members can receive access to such services at their local community pharmacies.[7,13]

Limitations of this study include the relatively small number of community pharmacists in Ohio with active licenses who have work addresses listed by the Board of Pharmacy located in a

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full-county HPSA which resulted in a smaller sample size. The low response rate is also a potential limitation. Results may not be generalizable to all Ohio community pharmacists as it is possible that those responding to the survey may have differed systematically from those who did not respond to the survey. Furthermore, results may not be generalizable to community pharmacists in other states as pharmacists' scope of practice varies by state which may influence the non-dispensing services offered.

However, notwithstanding these limitations, these data add to the narrative regarding the healthcare-related needs facing residents of HPSAs. This study showed that in addition to having a shortage of primary care physicians, community pharmacists practicing in HPSAs provide significantly fewer non-dispensing services to their community than those in non-HPSAs. This research can be a springboard for future work to gather more information comparing community pharmacist practices in HPSAs and non-HPSAs in other states, including HPSAs located in urban areas, and factors impacting any observed differences. Future research may also seek to identify ways to overcome barriers so that residents of HPSAs can receive needed services and to quantify the impact on health outcomes from pharmacist-provided services to residents of HPSAs.

Conclusion

Community pharmacists are accessible healthcare professionals who can be utilized to close gaps in care for residents of HPSAs, and non-dispensing services are an important way to provide needed care. While the need for non-dispensing services is great in HPSAs, where healthcare is less accessible and poor health outcomes occur, community pharmacists practicing in full-county HPSAs in Ohio were less likely to provide these services or begin novel services during the COVID-19 pandemic. Furthermore, they were less likely to correctly recognize the HPSA designation status of their worksite's county. Community pharmacists have an opportunity to provide services in HPSAs that provide better access to care and promote health equity in underserved populations. Future endeavors should address barriers to providing such services and finding strategies to overcome them.

The opinions expressed in this paper are those of the authors.

Acknowledgements: We are grateful to the Ohio Northern University Public Health Program within the Center for Interdisciplinary Studies which provided the funding for the survey incentives. We also appreciate the time donated by the community pharmacists who pre-tested the survey.

Funding/Support: Survey incentives were funded through internal resource allocation from the Ohio Northern University Public Health Program within the Center for Interdisciplinary Studies

Conflicts of Interest: None

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Figure 1. Distribution and HPSA status of survey respondents

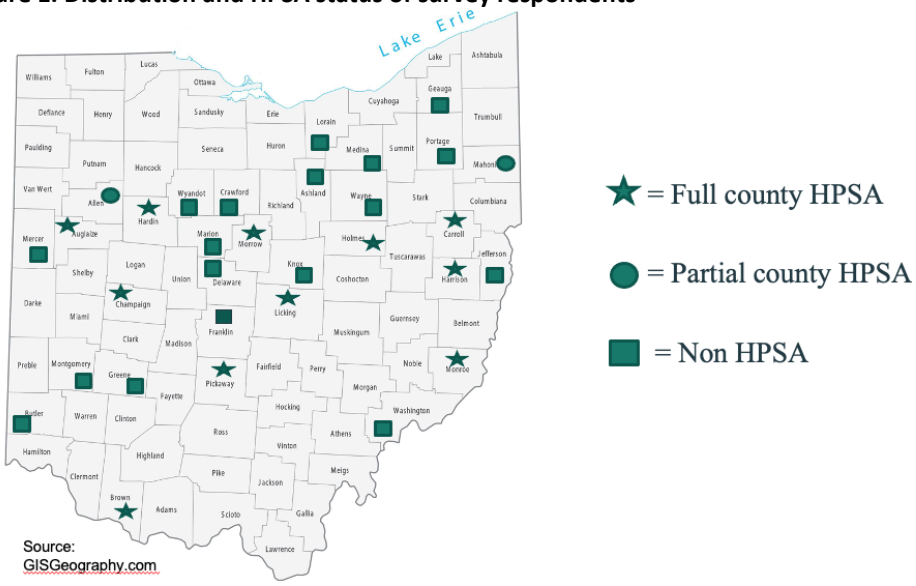

Table 1. Demographic characteristics of survey respondents (n = 74)

Characteristic	n (%)
Gender	
Female/transgender female	43 (61%)
Male/transgender male	21 (30%)
Prefer not to say	6 (9%)
Missing	4
HPSA designation	
Full HPSA county	26 (36%)
Non-HPSA county	45 (62%)
Partial HPSA county	2 (3%)
Missing	1
Location	
Rural area (low population density; for example, villages)	26 (35%)
Suburban area (residential community within commuting distance to urban area)	36 (49%)
Urban area (high population density; for example, cities	12 (16%)
Pharmacy type	
Independent community pharmacy (1 outlet)	8 (11%)
Small chain community pharmacy (2-11 outlets)	9 (12%)
Large chain community pharmacy (12+ outlets)	50 (68%)
Other (e.g., charitable pharmacy, outpatient hospital pharmacy)	7 (10%)
Years practicing as a registered pharmacist	
0-10 years	12 (16%)
11-19 years	20 (27%)
20-29 years	23 (31%)
30-39 years	14 (19%)
40 or more years	5 (7%)
Years practicing as a pharmacist at current site	
0-10 years	38 (51%)
11-19 years	18 (24%)
20-29 years	15 (20%)
30-39 years	2 (3%)
40 or more years	1 (1%)

percentages may not total 100 due to rounding

DOI: https://doi.org/10.24926/iip.v13i4.4859

Table 2. Provision of non-dispensing services in community pharmacies located in HPSA (n=26) and non-HPSA (n=45) counties in Ohio

Service	Is currently provided at my pharmacy n(%)	Is not currently provided at my pharmacy, with no future plans to offer this service n(%)	Is not currently provided at my pharmacy, but I am interested in providing this service n(%)
*COVID-19 testing**			
Full HPSA county	3 (12%)	18 (69%)	5 (19%)
Non-HPSA county	20 (47%)	22 (51%)	1 (3%)
*Influenza testing**			
Full HPSA county	0 (0%)	18 (69%)	8 (31%)
Non-HPSA county	6 (14%)	32 (73%)	6 (14%)
COVID-19 vaccine(s)			
Full HPSA county	23 (88%)	2 (8%)	1 (4%)
Non-HPSA county	41 (93%)	2 (5%)	1 (3%)
Shingles vaccine(s)			
Full HPSA county	24 (92%)	2 (8%)	0 (0%)
Non-HPSA county	39 (89%)	3 (8%)	2 (5%)
Pneumococcal vaccine(s)			
Full HPSA county	24 (92%)	2 (8%)	0 (0%)
Non-HPSA county	39 (89%)	3 (7%)	2 (5%)
Adolescent vaccine(s)			
13 years and older			
Full HPSA county	23 (88%)	2 (8%)	1 (4%)
Non-HPSA county	39 (88%)	5 (12%)	0 (0%)
Pediatric vaccine(s)			
12 years and younger			
Full HPSA county	13 (50%)	9 (35%)	3 (12%)
Non-HPSA county	31 (70%)	11 (25%)	2 (5%)
Medication therapy management			
Full HPSA county	17 (65%)	5 (19%)	4 (15%)
Non-HPSA county	37 (84%)	2 (5%)	5 (11%)
Medication synchronization			
Full HPSA county	18 (69%)	3 (12%)	5 (19%)
Non-HPSA county	38 (86%)	4 (9%)	2 (5%)
*Smoking cessation**			
Full HPSA county	2 (8%)	17 (65%)	7 (27%)
Non-HPSA county	16 (37%)	15 (35%)	12 (28%)

DOI: https://doi.org/10.24926/iip.v13i4.4859

Service	Is currently provided at my pharmacy n(%)	Is not currently provided at my pharmacy, with no future plans to offer this service n(%)	Is not currently provided at my pharmacy, but I am interested in providing this service n(%)
Blood pressure monitoring			
Full HPSA county	12 (46%)	6 (23%)	8 (31%)
Non-HPSA county	27 (61%)	12 (27%)	5 (11%)
Provision of naloxone			
Full HPSA county	20 (77%)	5 (19%)	1 (4%)
Non-HPSA county	38 (86%)	2 (5%)	4 (9%)
Expedited partner therapy			
Full HPSA county	2 (8%)	17 (65%)	7 (27%)
Non-HPSA county	8 (18%)	26 (59%)	10 (23%)
*Drug take-back**			
Full HPSA county	3 (12%)	14 (54%)	9 (35%)
Non-HPSA county	17 (39%)	18 (41%)	9 (20%)
*Administering long-acting injectable medications**			
Full HPSA county	0 (0%)	15 (58%)	11 (42%)
Non-HPSA county	4 (9%)	32 (73%)	8 (18%)
Point-of-care testing			
Full HPSA county	5 (21%)	14 (58%)	5 (21%)
Non-HPSA county	12 (32%)	19 (51%)	6 (16%)
Depression screening			
Full HPSA county	0 (0%)	18 (69%)	8 (31%)
Non-HPSA county	1 (2%)	28 (68%)	12 (29%)

percentages may not total 100 due to rounding

**p<0.05 based X^2 or Fisher's exact tests as appropriate*

DOI: https://doi.org/10.24926/iip.v13i4.4859

Table 3. Interest in learning about non-dispensing services as part of continuing pharmacy education among community pharmacists in HPSA (n=26) and non-HPSA (n=45) counties in Ohio

Topic area	Yes n(%)	No, I am already knowledgeable n(%)	No, I am not interested n(%)
Infectious disease testing			
Full HPSA county	12 (46%)	2 (8%)	12 (46%)
Non-HPSA county	21 (50%)	3 (7%)	18 (43%)
Adult vaccines			
Full HPSA county	7 (27%)	15 (58%)	4 (15%)
Non-HPSA county	17 (40%)	19 (45%)	6 (14%)
Adolescent vaccines			
Full HPSA county	6 (23%)	13 (50%)	7 (27%)
Non-HPSA county	16 (38%)	16 (38%)	0 (24%)
Pediatric vaccines			
Full HPSA county	7 (27%)	5 (19%)	14 (54%)
Non-HPSA county	12 (29%)	12 (29%)	18 (43%)
Medication therapy management			
Full HPSA county	10 (38%)	12 (46%)	4 (15%)
Non-HPSA county	18 (43%)	16 (38%)	8 (19%)
Medication synchronization			
Full HPSA county	6 (23%)	13 (50%)	7 (27%)
Non-HPSA county	12 (29%)	20 (48%)	10 (24%)
Smoking cessation			
Full HPSA county	11 (42%)	5 (19%)	10 (38%)
Non-HPSA county	19 (45%)	11 (26%)	12 (28%)
Blood pressure monitoring			
Full HPSA county	12 (46%)	11 (42%)	3 (12%)
Non-HPSA county	15 (36%)	21 (50%)	6 (14%)
Provision of naloxone			
Full HPSA county	6 (23%)	12 (46%)	8 (31%)
Non-HPSA county	13 (31%)	21 (50%)	8 (19%)
Expedited partner therapy			
Full HPSA county	7 (27%)	3 (12%)	16 (62%)
Non-HPSA county	19 (46%)	8 (31%)	14 (54%)
*Drug take-back**			
Full HPSA county	8 (31%)	4 (15%)	14 (54%)
Non-HPSA county	15 (36%)	17 (40%)	10 (24%)

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Topic area	Yes n(%)	No, I am already knowledgeable n(%)	No, I am not interested n(%)
Administering long-acting injectable medications			
Full HPSA county	11 (42%)	1 (4%)	14 (54%)
Non-HPSA county	16 (38%)	8 (19%)	18 (43%)
Point-of-care testing			
Full HPSA county	13 (50%)	3 (12%)	10 (38%)
Non-HPSA county	14 (34%)	12 (29%)	15 (37%)
Depression screening			
Full HPSA county	11 (42%)	1 (4%)	14 (54%)
Non-HPSA county	18 (44%)	7 (17%)	16 (39%)
Collaborative practice agreements			
Full HPSA county	15 (58%)	5 (19%)	7 (27%)
Non-HPSA county	26 (62%)	6 (14%)	10 (24%)
Roles for pharmacists in public health			
Full HPSA county	17 (65%)	3 (12%)	6 (23%)
Non-HPSA county	27 (66%)	7 (17%)	7 (17%)

percentages may not total 100 due to rounding

**p<0.05 based X^2 or Fisher's exact tests as appropriate*

Table 4. Barriers to providing non-dispensing services reported by community pharmacists in HPSA (n=26) and non-HPSA (n=45) counties in Ohio

Barrier	Full HPSA county n (%)	Non-HPSA county n (%)
Reimbursement	25 (96%)	34 (76%)
Workflow	21 (81%)	37 (82%)
Space	19 (73%)	31 (69%)
Access to electronic medical records	15 (58%)	30 (67%)
Required resources (ex: CLIA waiver, supplies, etc)	10 (38%)	16 (36%)
Patient participation	9 (35%)	20 (44%)
Marketing new pharmacy services	8 (31%)	19 (42%)
My knowledge and skills	6 (23%)	7 (16%)

DOI: https://doi.org/10.24926/iip.v13i4.4859