

Qualitative Assessment of Barriers to Rural Health Care in Pennsylvania

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Abstract

Introduction: Rural populations routinely rank poorly on common health indicators including urologic cancer-specific mortality. While it is understood that rural residents face barriers to healthcare, the exact nature of these barriers has not been well described. In order to define these barriers, we performed a qualitative study to directly identify primary care physician perspective on healthcare access in rural areas.

Methods: From January to August 2019, we conducted semi-structured interviews with 20 primary care physicians practicing in rural areas within western Pennsylvania. We purposively sampled primary care physicians in rural counties in Pennsylvania. We then recruited additional participants using a snowball recruitment strategy, in which the initial interviewees recommend other potential participants in their field. Data was then transcribed, coded, and analyzed via thematic analysis.

Results: Participants identify the following as major healthcare barriers rural residents face: access to specialists, lack of transportation to medical centers, and financial burden. Financial barriers impact patients' willingness to obtain screenings measures and attend specialist appointments secondary to co-pays. Primary care physicians report patients experience numerous hardships after being referred to a specialist, as they often have to travel long distances, lack means of transportation, are unwilling to skip work, have low healthcare literacy, and tend to be suspicious of medical treatment.

Conclusion: Rural residents face numerous barriers to obtaining healthcare. Policy to rectify this disparity should focus on improving local access to care, transportation to tertiary care centers, and financial assistance for preventative screening measures.

Introduction

There is a large and growing disparity of care between rural and urban populations. Rural residents consistently rank poorly on numerous health indicators, experiencing higher incidence of comorbid conditions and increased cancer-specific mortality.¹ Several health determinants perpetuate this inequality between the two populations, including behavioral, socioeconomic, environmental, and clinical factors.²

There are sparse data that specifically delineates the particular barriers rural patients and providers face in obtaining and providing healthcare, respectively. Data from surveys of primary care providers have attempted to characterize the challenges patients and providers face. Patients encounter barriers, such as financial hardships (including lack of health insurance), access to specialty care and referrals, behavioral health coverage, travel/transportation, reimbursement for telehealth, and staff retention.³ Physicians believe affordability of care and general availability of care are among the highest barriers for patients.⁴ While these barriers provide a good starting point, a formal qualitative analysis assessing barriers to care in rural areas is lacking. Such analysis is necessary because it provides policymakers with specific domains to direct efforts to improve access to care for rural patients.

For these reasons, we conducted a qualitative study to understand the perceptions of primary care physicians in western Pennsylvania about access to care for patients living in rural areas to identify potential barriers to care.

Materials And Methods

Study Design

We performed interviews to define key barriers to rural healthcare. Our primary goal was to define actionable items that future policy-makers may use to improve care for rural populations. From January 2019 to July 2019, we conducted semi-structured interviews with primary care physicians practicing in rural counties in the state of Pennsylvania. The study was reviewed by our institutional review board and deemed exempt from review. All methods were carried out in accordance with relevant guidelines and regulations.

Interview Guide

Prior to performing the interviews, we developed a formal interview guide. This began with discussions among a multidisciplinary research team that included primary care providers, qualitative research experts, medical oncologists, and urologists to define key topics relevant to rural healthcare barriers. From these discussions, 5 pilot interviews were conducted to refine the domains the final interview guide would address. Using these initial interviews, a formal interview guide was developed with specific questions framed from common elements elicited during these initial discussions. The domains included 1) overall barriers to rural healthcare; 2) financial barriers; 3) availability of providers, both primary and specialists; 4) infrastructure to facilitate care coordination; 5) travel distance and transportation; and 6) health care literacy (Appendix 1).

Interviewees

Participants were initially selected for interviews using a purposeful sampling technique.⁵ Potential interviewees were identified by contacting practices in rural counties with designations of Rural Health Centers or Federally Qualified Health Centers.⁶ We identified additional interviewees by asking the previous interviewee to recommend another individual to participate, a technique known as "snowball sampling".⁷ Only one physician was interviewed from a given practice. Interviews were conducted until thematic saturation was achieved, which we defined as three consecutive interviews in which no new information was generated.⁸ We anticipated reaching saturation between 15–20 interviews, based on prior studies.⁹

Interviews

All interviews were conducted by a single physician. Participants were contacted by telephone and a description of the project was provided. Participation was completely voluntary and verbal informed consent was obtained according to a predetermined script. Interviews were audio recorded phone interviews that lasted approximately 30 minutes. Interviews were semi-structured in that they followed an interview guide, but additional questions were asked as the interviewer deemed necessary.

Data Analysis

All interviews were transcribed verbatim with identifiers removed. Samples of the transcriptions were reviewed by the interviewer to ensure consistency with the recalled conversation. Using the transcriptions, two qualitative specialists coded all interviews and developed a codebook from the content of the interviews. This was done using an iterative process to identify and tag quotes that represented a unique concept. Cohen's kappa statistics were used to assess intercoder reliability in application of codes, with an average kappa score of 0.68,¹⁰ indicating substantial agreement. The coders met to adjudicate all coding discrepancies, resulting in a final master version of the coding. Coding was reviewed in order to produce a combined content and thematic analysis.¹¹ The primary coder produced a report reflecting the themes she found in the interviews, and this report was discussed with the rest of the team as a form of investigator triangulation.

Results

Participant characteristics

We conducted 20 interviews of primary care physicians practicing in rural counties in the state of Pennsylvania, which included 18 men and 2 women. While all physicians had community-based practices, 55% (n=11) had an affiliation with an academic institution.

General themes

Three general themes emerged from the qualitative analysis of interviews including 1) providers attitudes towards/beliefs about rural areas and the people who live there; 2) barriers to care in rural areas as described by physicians; and 3) strategies to improve rural healthcare. The overall themes and sub-themes are summarized below and relevant quotations are presented in Table 1.

Providers describe people who live in rural areas as impoverished, lacking in healthcare literacy and access to healthcare, and suspicious of medical care; rural areas were described as places where many physicians did not want to live:

Throughout the interviews, providers indirectly and directly described rural communities and the people who live in them. The descriptions were often to provide context for the landscape in which they practiced. The characteristics of rural communities and patients included the following:

1) Impoverished

Providers described rural patients as impoverished with little access to resources. Some described them as "country people" as many were farmers and trade workers. No provider described their patients as middle class or affluent.

2) Lack healthcare literacy

Poor healthcare literacy and lack of education were among the most frequent attributes mentioned regarding rural patients. Providers described patients lacking literacy, making it difficult for them to fill out medical paperwork, write down instructions from the doctor, or read their prescription bottles. This required providers, who already had a busy clinic, to spend more time with patients to ensure proper medical compliance.

3) Suspicious of medical care

Participants described many of their patients as being suspicious of healthcare for a variety of reasons, including being forced into healthcare interaction via the Affordable Care Act (ACA). Some believe poor healthcare literacy, resulting in a lack of understanding of treatment methods, made patients more wary of medical care. The lack of healthcare literacy in conjunction with tendency to avoid doctors made it difficult for providers to convey the importance of preventative medicine.

4) Insured status does not equate to access to care

The majority of providers stated that their communities have Medicare or Medicaid patients, and only a few cited the ACA as having a significant impact on the community's insurance profile. Despite the healthcare coverage, providers felt that patients still lacked access to care due to a dearth of providers. Additionally, some felt that local specialty providers tended to reject the medical assistance programs, making it harder for patients to seek advanced care. In addition, the prevalence of high-deductible plans made care less affordable.

5) Rural communities have difficulty attracting providers

Participants mentioned attracting new or younger providers to rural practices was difficult, resulting in the persistent dispersal of care. Few providers specified reasons for working in a rural community, and often cited family as the reason for practicing in their particular community.

Physicians describe rural patients as facing financial, geographic, and transportation barriers to healthcare:

Providers described a number of barriers to healthcare as experienced by their patients.

1) Poverty

Many barriers described by providers revolved around poverty. Financial barriers made it difficult for their patients to afford medications and seek follow-up treatments. Providers cited that patients often found co-pays or deductibles unaffordable, leading patients to forgo care altogether.

2) Geographic dispersal and lack of transportation reduce access to healthcare

All participants described patients in rural areas as having to travel long distances to get to providers, both primary care physicians and specialists. Patients often had to travel at least two hours to get to a specialist, but some providers noted that patients were traveling two hours to see them as well. The barrier of distance is exacerbated by effects of poverty, such as not owning cars or being unable to pay for gas, resulting in many to rely on friends or family for rides. Furthermore, as a result of the long travel distance, patients would have to forfeit a day of income to travel to their appointment, which many times was not trivial.

3) Network competition negatively impacts local care

A few providers discussed the negative impacts of having two or more large health networks in the area. In some instances, patients were unable to go to the nearest provider if the provider was part of the competing network for their insurance. As a result of the competition, some patients were forced to travel further for the more affordable in-network care. Additionally, one provider described larger networks pushing services that were once afforded locally out of the community to tertiary care centers.

Providers describe encountering an array of barriers to providing care in rural areas:

Participants also cited specific difficulties they faced in providing healthcare to rural populations.

1) Poor support for the psychosocial needs of the patient

Some providers mentioned that their patients require mental health and social services to address their overall physical health, aspects of care which their practices were not equipped to handle. Due to the overall patient volume providers were required to see, they often did not have sufficient time to address the patient's medical needs as well as psychosocial needs.

2) Lack of providers in rural areas stressed the exiting workforce, leading to burnout

Given that rural areas are not enticing areas for physicians to live, the geographical dispersal means providers are few and far between. The dearth of providers results in higher patient volumes and subsequent burnout. Several providers described specific instances of high patient volumes leading to burnout.

3) Rural practices can be financially precarious

Some providers described a delicate balance between having enough providers to prevent burnout and having too many providers to be financially feasible. Few providers also cited small office practices cannot compete with larger network-based providers.

4) Competition between healthcare systems adds financial and logistical burden for providers

Some providers mentioned healthcare system competition changes the services available locally and, as a result, the access to specific care. Financially, the competition drives up primary care rates, which is not a stable environment for smaller systems. While some primary providers are able to perform specialist procedures, there is a larger system incentive for specialists to do such procedures as hospitals are better reimbursed. On the other hand, some participants mentioned that primary care is being pushed to do care that a patient would typically see a specialist for in order to avoid the cost of a specialist.

5) Challenges related to caring for Amish patients

A few providers specifically mentioned that their community services the Amish, although this is a regional consideration and not generalizable to all rural areas of the country. They noted, however, that the Amish do not seem to experience the same barriers as other rural patients because there is an infrastructure in place to serve this population deemed as "underserved". This infrastructure includes additional government funding, dedicated nurse navigation that can assist with scheduling appointments, provision of transportation, and mechanisms to bypass emergency room visits with more direct access to primary providers.

Providers describe possible strategies to improve rural healthcare:

Providers also discussed strategies to improve rural health. Of those discussed, telehealth was the most prominent, followed by mobile clinics, social services, case management, and payment plans.

1) Telehealth is promising but cannot replace local healthcare infrastructure

Nine of the twenty providers stated telehealth was used to some degree in their clinic or community. While it was generally described positively particularly for specialty care, providers did state several shortcomings including the inability to examine patients and lack of internet requiring patients to travel to a local clinic where telehealth equipment was available.

2) Individual practices provided responses to challenges

Several providers discussed ways their own practices have tried to address barriers to care. These included in-clinic assistance from social workers, referral specialists who facilitated sub-specialty appointments, sliding fees for tests and visits to ease financial burden, and provision of mobile primary care clinic to deliver care in closer proximity to the patient. Specific solutions may need to be tailored to the community's needs.

Discussion

Access to and quality of health care remains one of the biggest challenges facing rural communities in the United States. Rural residents continue to rank poorly on numerous health indicators compared to their urban counterparts, suggesting the current health system is failing this population. We attempted to better understand the barriers rural providers and patients face using a qualitative approach. Most participants felt that patient-specific barriers included poor access to specialty care, lack of transportation, and financial constraints. Many participants also highlighted the barriers they encounter, which include lack of resources to provider-specific services, financial uncertainty of rural practices, and managing factors that are culturally unique to a rural population.

Rural communities have difficulty recruiting physicians, and therefore suffer from a lack of primary and specialty providers. While 20% of Americans reside in rural areas, only 9% of physicians practice in these areas, implying that the overall workforce is small.¹² The existing workforce will also diminish as nearly 30% of rural primary providers are entering retirement age.¹³ This provider supply will continue to decline as the number of medical students from rural communities, who are the most likely to practice in rural areas, has fallen to less than 0.5% over the last 15 years.¹⁴ Not only does a lack of providers make it difficult for patients to receive care, but it also imparts additional burden on the existing providers as a consequence of high patient volume, which may lead to burn out. Geographic dispersal further compounds this problem, with healthcare infrastructure being more spread out in rural areas.¹⁵ For instance, metropolitan areas have 11.5 oncologists while rural areas have 0.5 oncologists per 1000 square miles.¹⁵

Physician recruitment to rural communities remains challenging, and some have circumvented this by providing rural outreach clinics for specialty care. In Iowa, medical oncologists travel to 77 visiting community clinics in rural areas.¹⁶ The establishment of these visiting clinics increased the rate of chemotherapy administered in rural communities from 10 to 24%.¹⁶ Similarly, urologists from urban centers in Iowa also staffed visiting community clinics, which increased the percent of patients who were within 30 minutes of a urologist from 57–87%. Among the 55 urologists, 198 rural clinic days were provided to these rural communities.¹⁷

Another barrier that providers have observed rural residents face is lack of transportation and the need to travel long distances to get to their providers. This barrier is further exacerbated by financial constraints, as patients may be unable to afford transportation costs or forgo a day of work to make their appointments. Public transportation is not a viable solution because it is either unavailable or limited in scope. Transportation becomes a particularly critical issue for those requiring specialty care. For example, surgical cancer care is not ubiquitous. One in five rural Americans were found to live more than sixty miles from a medical oncologist and one in ten had to travel over two hours to reach a cancer surgeon.¹⁸ The travel burden is not just an inconvenience, but it also poses significant financial hardship and can negatively impact their health outcomes (e.g. delayed diagnosis, delayed treatment, and inability to complete treatment).^{15,19,20}

While outreach programs can help mitigate transportation needs for patients by bringing providers closer to them, there are instances in which patients need tertiary centers for advanced levels of care. The lack of transportation infrastructure can lead rural residents to rely on ambulances and emergency rooms for non-emergency care. In non-emergency situations, patients often cite the lack of affordable transportation as a major barrier to care access.²¹ In order to fill the gap, payers and policymakers should consider efforts to utilize existing community transit resources for medical transportation or reimburse patients who use ride-sharing services in areas that lack public transit or taxi services. Another option would be to formalize volunteer services for medical transit. For instance, Oregon offers a tax credit for volunteer rural emergency medical services (EMS) providers, who provide medical and transportation services.²² Missouri has proposed a model in which providers partner and assume the costs of transportation, and in doing so, they recoup the lost revenue from missed appointments.²³ Over a 17 month period, the Ozark Medical Center received \$7.68 in reimbursement for every \$1 invested in transportation.^{23,24}

Financial burden impacts both patients and providers. Several providers cited that their lack of financial resources impacted their practice infrastructure and ability to provide services to their patients. Currently, rural hospitals are financially precarious, resulting in an increased rate of closures.²⁵ Closures may be due to hospital inefficiencies as well as the declining market they serve. For instance, rural hospitals tend to cater to a smaller patient population, perform fewer high reimbursement services, and obtain fewer reimbursements from private payers. This makes it difficult for them to recover their operational costs.²⁵ In order to help prevent further rural hospital closures, the Centers for Medicare & Medicaid Services (CMS) and Pennsylvania announced the Pennsylvania Rural Health Model.²⁶ Under this model, participating rural hospitals will receive all-payer global budgets, a fixed amount of money that is set in advance based on historic revenue and funded by all participating payers, to cover the inpatient and outpatient services they provide.

Rural hospitals will use this predictable funding to redesign the care they deliver to improve quality and meet the health needs of their local communities. The goal is not to simply expand services, but rather focus on providing needed services that are community specific.

Just as providers and hospitals experience financial hardship, patients often face difficulty managing co-pays and paying for prescription medication. One provider in particular noted that many patients dropped out of opioid addiction programs because they were unable to afford the required urine drug screens. It was surprising to note that these financial hardships were encountered despite the majority of the providers' patients being insured. Rural workers tend to be self-employed, and therefore often seek out their own insurance rather than obtaining employer insurance.²⁷ Under the current administration, the Affordable Care Act's cost-sharing reduction for plans was cut, leading to fewer market plans and increased premiums for some of the remaining plans.²⁸ There is concern that this may lead to more out-of-pocket costs, higher deductibles, and increased premiums for some consumers. In fact, after the subsidy payment cuts were implemented, rural residents barely above the 400% federal poverty level were paying the highest premiums per month of all consumers, which amounted to several hundred dollars more than what they were paying previously.²⁸ In light of this, many states, such as Minnesota and California, are offering their own subsidization of insurance plans to aid this patient population.²⁸

Our findings should be interpreted in the context of several limitations. First, the opinions are based on interviews with 20 primary providers in rural areas in the state of Pennsylvania, which may limit its generalizability. However, we limited our scope to Pennsylvania knowing that it has one of the largest rural populations in the country and purposefully selected physicians with varying practice structure and experience. Additionally, barriers will differ across states due to varying health-related policies, and therefore we chose to limit ours to one state to ensure a consistent policy context. Second, the majority of participants we interviewed were male, however, in designing the study, we did not attempt to select participants based on gender. Third, qualitative studies are subjective by design. However, we performed interviews until thematic saturation was reached and used rigorous qualitative methodology using two experienced coders with assessment of inter-coder reliability. Fourth, these interviews occurred prior to the COVID-19 pandemic, which impacted many of these communities. However, if anything, COVID-19 will exacerbate the concerns raised in these interviews, making these perceptions relevant in the post-COVID-19 environment.

Conclusions

As the rural-urban health care gap continues to grow, it is crucial to develop methods for rectifying this disparity. In order to do this effectively, it is necessary to identify key barriers that are actionable. This study has attempted to identify such barriers and, in doing so, has provided data physicians and policymakers can use to implement strategies to bridge the rural-urban gap in healthcare.

Declarations

Ethics approval and consent to participate:

Reviewed by University of Pittsburgh IRB with application number PRO 18100192.

Participants all provide informed consent for audio recording.

All methods were carried out in accordance with relevant guidelines and regulations.

Consent for publication:

All authors provide consent for publication

Availability of data and materials:

There are no formal data sets as this is a qualitative study.

Competing interests:

None to disclose.

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Authors' contributions:

Avinash Maganty: conception, design, Data collection, Data analysis, manuscript preparation

Megan Hamm: Data Analysis, Manuscript review

Rachel Wasilko: Data Analysis, Manuscript review

Lindsay Sabik: conception, design, manuscript preparation/review

Benjamin Davies: conception, design, manuscript preparation/review

Bruce Jacobs: conception, design, data analysis, manuscript preparation/review

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Table

Table 1

Themes and sub-themes with accompanying representative quotations.

Themes	Sub-themes	Quotes
Provider attitudes towards/beliefs about rural areas and the people who live there	Impoverished	<p>"...for most of my patients who are from you know rural areas or you know lower socio-economic classes, we don't have any resources available you know. It's not like I can buy them a bus ticket you know what I mean [laugh]. We don't have really any like social programs in place you know we can reach out to you know to help people."</p> <p>"A lot of these folks are very like you know they have lived in these areas all their life, their grandparents are from the same area, their great grandparents are from the same area, they really never have left the mountain... So they're very indigent, they're very local and um all they know is what they have around them."</p>
	Lack healthcare literacy	<p>"Though I haven't actually seen the studies that prove that but and the simple reason is um you know like the county I work in, there was one year while we were there that over 50 percent of the people that went into high school did not graduate. And you know for whatever reason they dropped out and um it just it's true for many rural areas in this country that people don't even get the basic education they need, let alone healthcare literacy education."</p> <p>"We have a generally a very like healthcare illiterate practice um I guess that sounds negative. But um just the natural of the patients that we have they either aren't familiar with a lot of healthcare things or they just read something on Google or saw it on the news and then they come in and they kind of have questions about it...so we end up spending a lot our time just having conversations with our patients kind of explaining their medical problems to them and here's why you know that medication's not really appropriate for you et cetera."</p> <p>"Ya know, I [sighs] I think just awareness you know, that they should have these testing done, like preventative screens and things like that. I think that that's one of the biggest things because we're still transitioning from the type of care that people just go to the doctor when they're sick versus preventive, coming in once a year. Um, I think that that's, and that goes along with the health care literacy end of it. You know, they're just used to, I only see the doctor when I need something. Versus no, my doctor mandates that I came in once a year."</p>
	Suspicious of medical care	<p>"But it also is um more just in our community in general and specifically those kind of rural outlying areas that we service that maybe are a little further from uh physicians so they didn't grow up going to the doctors much and kind of suspicious of healthcare."</p> <p>"It's an educational issue. There's also a lot of folk remedy. There's a lot of uh [sigh] old wives tales, you know. One of the things we hear an awful lot about is uh nocturnal leg cramps and putting a bar of Ivory soap under your mattress that kind of thing. You know I think for us it's always you know you cure a fever by putting onions in the kids' socks, we get a lot of that here."</p> <p>"I think there's a little bit more skepticism of the medical community and educated people among some of the rural, more rural population they tend to um be a little more untrusting, I guess of, of, of medicine. I do find that there are some people like are, are they're much more prone to or more inclined to like go to see chiropractors and seek alternatives, you know, providers—"</p>
Insured status does not ease access to care	<p>"I have like more Medicare and private like commercial insurance. I don't have a lot of Medicaid but my, as someone else that works there has more Medicaid. And I used to work somewhere even farther away from where I am now and there was a lot of, there was more Medicaid which is, which is not uncommon in the rural areas but there's less commercial."</p> <p>"We have a lot of people who are insured. Mostly, Medicaid and medical assist—Medicare. And then, there's, you know, a portion of the population that has commercial insurance. There is a small part of the population that has no insurance at all. And sort of there's a swath of folks, young folks for sure, that just don't have healthcare cause they can't afford it and they don't have a job that can pay for it. So, they are, they're not getting any access at this time at all."</p> <p>"To some degree yes, I think for the most part the kind of patients that were coming to our clinic were people who were already qualifying for MA or Medicare in the past. So it hasn't been a huge uh like astronomical impact but um it-it has helped somewhat those have lower income jobs that are now able to get kind of supplemental assistance. That's the group that I've seen the biggest help in our clinic."</p> <p>"...much of the things that we deal with you know from a systems stand point it certainly drives reimbursement um where a lot of private practitioners um don't accept some of those uh programs because the reimbursement is um proportionally quite poor um but fortunately with a larger system um they're able to absorb some of those costs um and um make it up on the back end through usually the insularly testing."</p> <p>"So for the primary care it's not too big an issue. For the specialty care, there are some specialists like dermatology, endocrinology, um, I think even rheumatology where they don't want to take medical assistance. So for them, we can't refer even to regional specialists, we actually have to send them you know, a couple hours out of the area to the tertiary or quaternary area centers. So that certainly is an issue as far as, um, again, indirectly that's money because it's, you know, it's the cost of traveling and all that good stuff."</p> <p>"Yeah you know we do have a-a poor community um I think that the financial barriers have to do more so with high deductible plans. You know we don't have high uninsured rate because you know [state] is an expanded Medicaid state and-and the impact of the ACA but you know the high deductibles are a hard challenge."</p>	
	Difficulty attracting new providers	
Barriers experienced by patients	Poverty	<p>"...probably the biggest barrier is the economic conditions of some of the patients, you know some people have trouble even affording even the cheapest medications. So I'd say that's probably the biggest barrier."</p> <p>"...[They] have to wait until they get paid for what [they] need when that you know social security or whatever comes in on the first of the month and they can fill their prescriptions even though you know when you're really push them they're only paying a couple bucks per prescription. Even that's a significant financial hardship."</p>

"I do a lot of addiction work and so, sometimes they'll drop out because they can't afford to get their urine drug screening done, things like that. So, the fallout of treatment and everything."

"...we had a program called [Name of Program] and we were federally funded...so the whole visit was, we, were charged like ten bucks. And even that, patients would set up a payment plan."

Geographic dispersal and lack of transportation

"So a lot of times uh you know for instance today we saw a gentleman who had um diabetic neuropathy his feet looked awful, I got him in with our podiatrist today but he had a ride with his brother but his brother said nope I can't take you over there we have to get back to the neighboring town by this afternoon and so he's not going over to see the podiatrist. And then that-that's something we deal with multiple times a day every day."

"You know um, to get a colonoscopy, you have to have somebody take you there. You can't drive yourself, you can't go on the bus, they won't do it. So, for some-for someone who doesn't have a car, they have to find a friend or a family member who can take time off of work. Cause we only do those things during the regular hours of the work week, to take them to the hospital and take the couple hours out of their day. It's plenty of people just can't do that."

"The local transportation system does, they do have it, but it's, you know, it's inadequate. And um, uh, public transportation outside of the town of [name of town] doesn't exist. So, people that live in rural areas, can't get here by bus. Or any other sort of other transportation other than private vehicle. Um, so there's no sort of way of getting them here if they can't make it. So we have a lot of cancellations and no shows because of that."

"Absolutely, yeah I think that's-that's truly one of the biggest issues. I-I even have people like I want to go 30 minutes to get a chest x-ray, "I'm not driving 30 minutes for an x-ray just give me some antibiotics." I'm like ok fine [laughs]. Yeah, so I think that's-that's really probably the biggest issue for rural folks."

"So, you know, we're, we are, our system manages a 12 county area of [state], it's a huge swath of central part of [state]. And um, you know, people in the, in the far regions um, they would have to travel upwards of two-two and a half hours to see a specialist. So, um, that is very cost inhibitive. They can't do it during their work day, they have to take the whole day off to do that. And then they have to have a vehicle that can get them here. And then, you know, if there's no snow storm or whatever, the things that fall into those categories that can really be disruptive. So it's, it is very much a challenge to get um, people to, to specialty care."

"...if you live in the rural areas, you kind of resign to the fact that you're going to have to drive a distance to get to most things."

"...in [geographical region 1] um is there were no opportunities for people to get joint replacements um and it's something that kind of people don't expect but when you get a joint replacement it's only going to be successful as you do your physical therapy at a place that knows how to manage that and you know for a lot of areas in the country you have to drive an hour and half to two hours to an orthopedist and then you know you have to drive for you physical therapy so people opt to not get their joints replaced. And that creates a lot of disability in those communities..."

Network competition negatively impacts access to care

"One of the biggest huddles right now is that um a lot of insurance companies are you know it's very [laugh] eve-even if there is a specialist near me um they might not take their insurance so we're like in [Hospital System 1] country um and [Hospital System 1] and Aetna for example don't get along. And so if you have Aetna insurance you-you can't go to the [Hospital System 1] facility you know 30 miles away you've gotta go the whole way to [Hospital System 2] or something like that. So um that's that's what's really like adds to our burden is that um first you have to find is this in network or out of network and you know sometimes our patients don't even have insurance so then we're calling around like you know what's going be the cheapest and um that takes a crazy amount of time."

"I mean there's this process of closing the smaller hospitals and regionalizing everything...and you're looking at possibly a couple of hours for people to get to their regional medical centers to get care. And that's just not really reasonable."

Provider barriers to delivering health care

Lack of psychosocial support

"...I'm scheduled to see somebody for 15 minute visit and they come in with catastrophic sorts of psycho-social uh behavioral economic uh social all these different kinds of issues that don't have too much to do with their medical care. I mean that's part of it but that's not the reason that they're really coming to see me. So in other words the systems not geared to actually deal with-with the problems that are out there."

Lack of providers

"...we always talk about the lack of specialists in rural areas but really um we lack primary care providers...most doctors who practice in rural areas have huge patient panels and they don't have a lot of backup and um it's wonderful and challenging but it can really burn a person out."

"At that time we had 4 urologists in the [town 2] area. Gradually they either retired or moved away. So um we had one lady um urologist...but she quit at the end of August. I think just because she was overwhelmed because she was doing the work of like four providers..."

Rural practices are financially precarious

"...what we found is if you over or understaff by half provider um in a community it might be the difference between you being able to keep your doors open or not. Or getting overwhelmed and burnt out."

"...I'll give you an example of what's happening in our market is that [Hospital System 1] and [HOSPITAL SYSTEM 2] are driving up primary care rates where the larger [HOSPITAL SYSTEM 2] is offering like 260,000 or more for family practice physician and uh it's-it's not a sustainable environment and um so it's the access to um providers that-that really again is the biggest challenge of um and you know as a small system you have you're-you have to be competitive with that but then how do you how do you uh pay the freight there."

Competition between health systems

"...I'll give you an example of what's happening in our market is that [Hospital System 1] and [HOSPITAL SYSTEM 2] are driving up primary care rates where the larger [HOSPITAL SYSTEM 2] is offering like 260,000 or more for family practice physician and uh it's-it's not a sustainable environment and um so it's the access to um providers that-that really again is the biggest challenge of um and you know as a small system you have you're-you have to be competitive with that but then how do you how do you uh pay the freight there."

"I see that a lot and uh also that is being driven especially from bigger corporate hospitals because they get better reimbursed when a specialist does the procedures than when a family care doctor does the procedure, insurance reimbursement rates are different, so yes for your field, specific-specifically I can think about circumcisions. Like parents request circumcisions for newborns done by urology when I could do the same exact circumcission in my office [Laughter] you know so I think the scope is narrowing in primary care because it's being driven by how the cost

		<p>of the reimbursement is going to look like for the organization and that's going to be driving up health care costs overall in general, so—</p> <p>"And one of the big things, just so you know as a specialist, is that they're trying to [jerk? 0:08:15.3] a lot of these people back to the primary care and avoid the cost of specialists. So, they want primary care to manage everything. So, even, so from a urological standpoint, if the patient has a history of prostate cancer or BPH or you know, uh, something like that, they say, "Well, you know, your primary care can manage this." It used to be they would go to the urologist once a year, so that they could kind of, you know, you guys can do your end of things. Um, and now they want us to do that, o-on top of everything else that we're doing. Because it saves on the care, it saves on the cost, you know."</p>
	Caring for Amish patients	<p>"...I care a lot of the Amish and so like half my practice is Amish which I do home visits out to their-their area. We go out about 50 miles. Um and the Amish in some of the areas, the regions around here really struggle because there's no primary care there. But they're willing to travel into the-into our town..."</p> <p>"...we take care of a, an underserved population of Amish patients here. And that has a whole infrastructure, it has it's own cost center, it has its own nurse navigation, and that's run through my department. And they, they get, they get really great care, get great access. They can bypass the processes of going to the ED and all that kind of stuff because we built it in. And so, if we could develop those types of networking things for any patient, every patient should have that, that ability."</p>
Strategies to improve rural healthcare	Telehealth	<p>"I think, I think certainly that's going to be one of the big answers. It's already starting to become one of our big answers, yeah."</p> <p>"I do think telehealth is likely to be a part of the future solution of this. Um, we are working on that clear and incorporating that into our system in various ways... So, I think um direct um, physician to patient um, video communication will be an important part of the future "</p> <p>"It's crucial for the patient to build that trust with the psychiatrist because really psychiatry's one of those fields, it's really a field of art and trust um there's, there is science to it but mostly there's one the patient trusts and how the medications you know change based on your genetics and your patterns and your prior your comorbidities and what have you so the patient does not build that rapport. Telemedicine is not very good about building that rapport with the patient especially when it comes to fields like psychiatry and counseling."</p> <p>"Yes we've considered it but I would always much rather have um I mean of course if it's, if it's no urologist or telehealth urologist I suppose I would rather have a telehealth urologist however urology is one of those specialties where I think telehealth might be sometimes a little bit difficult, you know. Um, you can't really measure postvoid residuals by telemedicine or easily without somebody present there to actually so the measurements and for example."</p>
	Community specific strategies	<p>"We offer a sliding fee so if that patients have um financial concerns they may have a relatively small of amount if anything for their office visit...our organization actually has um written agreements with hospital systems so that um the hospital systems in our communities um need-are required honor the sliding fee discount program the same as our discount fee program."</p> <p>"So definitely um you know even when people have insurance, sometimes they have a very high deductible plan and like inhalers for example for asthma or COPD are ridiculously expensive and so in my office we have actually have a sample closet and you know we have many, many patients who depend on the medications that drug reps bring us."</p> <p>Um and our community health center recently uh invested in a mobile clinic they're taking to certain school and uh different places like uh like the pre-k step program they bring their-their uh vehicle out there and do some visits trying to address those needs um for primary care um but it's still a barrier to a certain degree."</p>

Supplementary Files

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